

UNIVERSITÀ DELLA CALABRIA



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TITOLO TESI

**A CRITICAL DISCOURSE ANALYSIS OF VANDANA SHIVA'S
ENVIRONMENTAL AND NORMATIVE DISCOURSE: SOCIAL
REPRESENTATIONS AND IDENTITY OF 'SEEDS'.**

Settore Scientifico –disciplinare: L-LIN/12 Lingua e Traduzione – Lingua Inglese

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*To my daughters,
Maria Teresa and Federica*

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Abstract

Despite globalization claims to benefit all communities around the globe, it ‘provides opportunities only for a global elite’ (Kramsch/Boner 2010). This kind of analysis aims at unveiling the correlations in discourse between language and the environment. Critical discourse analysis can disclose the ways in which language plays a key role in environmental issues both at the local and global levels. One crucial aspect which can be taken into account by critical discourse analysis is that of social representations embedded in hegemonic representational systems and which can be countered by alternative environmental discourses. In the field of discourse analysis, social representations can be considered ‘as constituting, reproducing, challenging and restructuring systems of knowledge and belief’ (Fairclough 1992: 168).

This research project focuses on how environmental discourse is shaped to counter the global industrialized modern world in defence of the environment. In particular, the analysis revolved around normative and environmental discourse. Two documents which were written with the intent to regulate seeds and a collection of Shiva’s texts were used as the materials to carry out critical discourse analysis which ultimately focuses on exploiting new discursive representations for a more sustainable environment. Emphasis is specifically placed on how the social reality of ‘seed’ can be reconstructed from a natural environmental perspective. The mixed method research design adopts an interdisciplinary approach which draws on Corpus Linguistics, Critical Discourse Analysis and the Social Representations Theory (Moscovici 2000) to uncover the

socio-cognitive communicative mechanisms that contribute to the reconstruction of Shiva's environmental worldviews within contemporary globalized social reality. In particular, findings show how Shiva constructs and portrays the identity and social representations of 'seeds' which is not influenced by the hegemonic dominant discourse and which fosters an alternative practice of environmental discourse. The language of ecology and the discursive constructions featuring Shiva's counter-discourse are chosen to shape representations or re-representations which allow the audience to picture an alternative social reality of the surrounding environment. Overall, the analysis suggests how Shiva's discourse is driven by the purpose of preserving the Earth's natural ecosystem against current hegemonic forces of the contemporary globalized world.

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Chapter One

Introduction

1.1 Motivational background to the study

This study stems from both academic and personal interests around the relationship between language and the environment and the extent to which language can affect social reality. Advances from the scientific and technological fields are rapidly changing the world we live in. As a result, the boundaries of social objects are being modified by science and technology. Environmental studies on a social and linguistic level can unveil aspects of social change. By implementing a corpus-based research and by utilizing a social and linguistic research approach on environmental issues, this study intends to investigate the conceptualization of the item ‘seed’ in terms of social representations and identity. Moreover, the principal objective of this study is to unveil how the current globalized world is countered through Vandana Shiva’s discursive practices. In particular, discourse is investigated with the aim of gaining insights into how the nature-human relationship affects and is affected by language. Indeed, ‘language use as social practice’ (Fairclough and Wodak 1997) through discourse can affect shifts in the meaning of social objects in social reality. In particular, ‘language use as social practice’ (Fairclough and Wodak 1997) is analysed in order to uncover how patterns of language within normative and environmental discourses affect the signification of social objects in social reality and how they contribute to changing it.

In light of this, the conceptualization of the term ‘seed’ seems to carry a precise semantic definition which does not apparently affect changes in meaning within social reality. According to Kantian’s view, a concept is a universal representation (Cicovacki 1997). However, the universal representation of a concept could change over time and space. Within a social, economic and environmental changing world, conceptualizations of social objects might change and need to be re-represented. As Wagner (2012) states, the system of meanings which “comprises representations of objects, events and facts resulting from rapid scientific and technological advances as well as from economic, political and societal changes that are typical of contemporary societies” are “much more dynamic and less resistant to change” (p.23). Thus, representations are not immutable and, as Howarth (2002) highlights, “representations have to be seen as alive and dynamic - existing only in the relational encounter, in the in-between space we create in dialogue and negotiation with others” (p.6). In fact, a “social representation is defined as the elaborating of the social object by the community for the purpose of behaving and communicating” (Moscovici 1963: 251).

Drawing on the social representations theory (Moscovici, 2000), the study adopted a critical discourse analysis approach and a corpus-based approach to investigate the relationships between language and environment.

1.2 Vandana Shiva and her discursive practices

This study analyses how environmental discourse is shaped to counter global policies of environmental protection. It specifically considers the case of the Indian environmental activist Vandana Shiva and her environmental

discursive practices, which mediate “respect for the earth’s ecosystems and ecological process” (Shiva 2012: 124). Discourse is referred to as ‘practice’ because it “implies ways of being and doing as well as ways of signifying” (Locke 2004: 7). Furthermore, the term ‘discursive practices’ draws on Fairclough who employs the term in ‘foucauldian’ terms to indicate a practice of representing, signifying, constituting and constructing the world in meaning (Fairclough 1992). This research study investigates a selection of Vandana Shiva’s environmental discursive practices bearing in mind that “the underlying premise is that discursive practice both reflects, and actively contributes to, social and cultural change” (Jørgensen and Phillips 2002:78).

Vandana Shiva began her work in environmental activism in the forests of the Himalaya within the movement in her region called ‘Chipko’. ‘Chipko’ means to hug, and women declared that they would hug trees and protect the forests from loggers. The intention of the non-violent movement was to resist the destruction of forests which provided water, fodder and fuel to villagers. Unfortunately, Vandana Shiva has also seen forests quickly disappear (Shiva 2013, *Lectio Magistralis*).

From Chipko, Vandana Shiva learned about biodiversity and the environment and made it her life’s mission to protect both. Hence, after her degree and a Phd doctorate in Physics, she also became a physicist at the University of Western Ontario in Canada, where she shifted her interest to interdisciplinary research in science, technology and environmental policy. She then went back to her hometown and founded an independent institute in 1982 entitled ‘The Research Foundation for Science, Technology and Ecology’ in Dehra Dun,

which engaged a network of researchers specialising in sustainable agriculture and development. Later in 1991, she founded 'Navdanya', meaning 'nine seeds', an environmental activism organization to protect biological and cultural diversity.

As will be highlighted in the following research study, Shiva's environmental activism is demonstrated through her practices and actions which counter global development policies. She has written extensively on environmental issues and has received many awards for linking her research to environmental action.

1.3 Research focus

Environmental and normative issues are increasingly being questioned and discussed by scholars in the current modern world (Harré, Brockmeier and Miihlhausler 1999; Shuy 2001; Dryzek 2005; Alexander 2009; Berglez, Höijer and Olausson 2009; Gunnarsson 2009). However, environmental and normative discourse have not been fully explored and there is still a large area of research which is in the process of investigating the relationship between the social, environmental, normative and linguistic approaches and theories. Approaches and theories from different disciplines can provide theoretical and practical insights into the advancement of the meaning-making processes which determine the way we conceptualize the world and the social objects around us.

This research study intends to critically explore environmental and normative discourse in order to reveal the identity and social representations of *seeds* within the current modern globalized world.

In particular, the study intends to provide answers to the following questions:

1. How do Vandana Shiva's discursive practices construct and frame the concept and identity of the item 'seed' in defense of ecology and the natural environment?
2. How do social representations attributed to the item 'seed' operate in environmental discourse?
3. How do social representations attributed to the item 'seed' operate in normative discourse?
4. Which social representations are constructed by the European Commission's legislation compared to Shiva's natural law?

The critical exploration of environmental and normative discourse can prove to be beneficial to the wider community of scholars by providing insights into the ongoing linguistic processes which generate social changes within the current modern world.

1.4 Overview of the thesis

The research study features chapters which focus on environmental and normative discourse. In particular, this study critically explores Vandana Shiva's environmental discourse practices, the proposed "EU Law (2013/0137)", and the natural law developed in defence of seeds "The Law of the Seed". The critical

exploration attempts to answer the research questions of the study mentioned above.

This first introductory chapter is followed by chapter two, 'Literature Review', which discusses the theoretical background of the theories and approaches implemented within this research study. The literature review shows how the approaches and theories applied within the study offer, through a multidisciplinary approach, the basis to the current analysis for the construction of normative and environmental discourse in defence of nature in the modern globalised world. Thus, after discussing the theoretical background of discourse, discourse analysis and critical discourse analysis, the chapter goes on to discuss Vandana Shiva's environmental discursive practices, and then provides the theoretical background and a historical overview of the social representations theory. Afterwards, the issues of category, identity and the social representation of the item 'seed' are discussed and is subsequently followed by a section dedicated to corpus linguistics in order to provide the theoretical framework to this study.

Chapter three, 'Data and Methodology', introduces the data utilized within the study and the methodology employed to carry out the research study. In order to answer the research questions, the study adopted both quantitative and qualitative approaches to analyse the data. The corpus, which amounts to a total of 153,519 running words, was divided into two sub-corpora. The corpus was investigated first quantitatively and subsequently a qualitative analysis was performed on the data. In order to carry out the quantitative analysis, the study adopted LANCSBOX Corpus Toolbox (Brezina et al.: 2015) as its concordance

tool. The corpus-based study was combined with both critical discourse analysis and the social representations theory for an interpretation of the results.

The results and discussions of the research study are presented in chapter four and chapter five.

Chapter four, 'Environmental Discourse: results and discussion', analyses the data from the first sub-corpora, that is, the *VS Corpus*. A quantitative analysis was performed on the *VS Corpus* and the outputs retrieved from the corpus-based approach were then qualitatively analysed in order to provide a critical interpretation of Shiva's environmental worldviews within a contemporary globalized social reality and to unveil how patterns of environmental language build ecological identities. This chapter provides an analytical discussion of the findings retrieved from the quantitative and qualitative analysis.

Chapter five, 'Legal versus Environmental Social Representations: results and discussion', analyses the data from the second sub-corpora, that is, the "The Law of the Seed" and "EU Law (2013/0137)". Both quantitative and qualitative analyses were performed on the second sub-corpora. The study intended to emphasise the crucial role played by social representations in legislative vs. environmental discourse. Also, the investigation attempted to identify and compare differences between two discourses dealing with the use of seeds in modern society from different socio-legal perspectives. This chapter provides a discussion on the findings which were previously quantitatively and qualitatively analysed.

Finally, the last chapter summarises the research carried out and provides some final considerations.

Chapter Two

Literature Review

2.1 Introduction to the theoretical background

This Chapter intends to provide an overview of the theoretical background of discourse studies and theories implemented within this research study, which focus on the construction of normative and environmental discourse in defence of nature in the modern globalised world.

The first section focuses on discourse and on the approaches related to discourse studies. Specifically, the emphasis is on discourse, discourse analysis, critical discourse analysis and environmental discourse. The aim is to provide the theoretical background of discourse studies in order to establish the basis for the current study which adopts a multidisciplinary approach.

The second section introduces the Social Representations Theory (SRT) as one of the theoretical and practical tools implemented in analysing the environmental discourse investigated within this research project. The research project also employed software tools in order to create the corpus and to discuss the findings using the data retrieved. Therefore, both quantitative and qualitative analysis interweave to analyse Vandana Shiva's discourse practices in the attempt to provide insights into the outcomes of the research questions.

This thesis seeks to contribute to the literature by exploring Vandana Shiva's discourse practices and the social construction of normative and environmental discourse.

The sections below will provide details on the theoretical background of this study.

2.2 Discourse

Discourse is a concept which “is frequently left undefined, as if its usage were simply common knowledge” (Mills 2004: 1). Although discourse apparently appears to be a simple term to describe, it is a complex concept to define with a single universal notion. Discourse can be considered as a multifaceted concept which modulates its definition according to the disciplinary field in which the term is being used. In linguistics, discourse is traditionally referred to as “extended samples of either spoken or written language” (Fairclough 1992: 3). Discourse refers to the linguistic level in which a unit of language is formed by a combination of sentences.

With the emergence of new branches in linguistics and of new discourse studies in other disciplines, discourse has enlarged its conceptual understanding from a structural to a functional perspective developing the view of discourse as “a form of language use” (Rahimi and Riasati 2011: 107) in which an essential role is played by the context. This research study views discourse within its functional perspective, where discourse is referred to as spoken or written language use in the social context (Fairclough 1992: 62).

The social context implies the introduction of issues related to the social world such as society, politics, culture and the environment. In order to set the framework of discourse, this study develops the notion of discourse in align to Fairclough’s use of the term discourse. Fairclough (1992), by drawing on Michel

Foucault, defines discourse as “a practice not just of representing the world, but of signifying the world, constituting and constructing the world in meaning” (p.64). By ‘constructing the world in meaning’ Fairclough (1992) intends to outline that “discourse is in an active relation to reality, that language signifies reality in the sense of constructing meanings for it, rather than that discourse is in a passive relation to reality, with language merely referring to objects which are taken to be given in reality” (p.41-2). Thus, language use is intended ‘as a form of social practice’ (Fairclough 1992: 63) and discourse through language use is not only representing social objects but also constructing the social reality of social objects. The role of discourse becomes understood as ‘constituting, reproducing, challenging and restructuring systems of knowledge and belief.’ (Fairclough 1992: 169). Knowledge is a constitutive feature in discourse. In fact, discourse, according to Jäger (2001), functions as the flow of knowledge. Wodak and Meyer (2001) claim that “by functioning as the ‘flow of “Knowledge” – and /or the whole of stored societal knowledge – throughout all time’ discourse creates the conditions for the formation of subjects and the structuring and shaping of societies” (p.35). Therefore, discourse is conceptualized as being capable of ‘constructing social reality’ (Fairclough 1992) and in particular, it can be understood as a process of collectively constructing social reality (Fairclough 1992).

This study will illustrate how Vandana Shiva employs discourse to construct social reality within the environment and in particular on *seeds*. Discourse, is thus employed for environmental issues. The following paragraph

will develop the notion of discourse by taking into account the environmental context.

2.2.1 Defining discourse

As stated above, this analysis views the term ‘discourse’ in its functional and sociolinguistic definition as ‘language in use’ and, within this research project as language use in the social-political-cultural context. In particular, the research is carried out through a combination of theories and approaches which view discourse developed within an environmental and ecological perspective. Therefore, by focusing in particular on Vandana Shiva’s environmental discourse practices, the notion of discourse within this study is conceptualized according to the definition adopted by Hajer (1995), who defines discourse as “a specific ensemble of ideas, concepts, and categorizations that are produced, reproduced, and transformed in a particular set of social practices and through which meaning is given to physical and social realities” (p.44).

2.3 Discourse analysis and critical discourse analysis

Discourse analysis is concerned with the description and the analysis of spoken and written interaction (McCarthy 1991: 12). It is involved with “the description of language above the sentence” and it places “interest in the contexts and cultural influences which affect language in use” (McCarthy 1991: 7).

The first approach to the analysis of discourse stems from Zellig Harris who published a paper in 1952 entitled ‘Discourse Analysis’ (McCarthy 1991:5). The first approaches to discourse analysis focused on the internal structures of

texts (Fitch 2005) and on the saussurian structural understandings between the ‘signifier’ and the ‘signified’. From a formal and structural analysis of texts, the analysis of discourse started to acquire a more systematic and functional analysis. The emergence of Systematic-Functional linguistics (Halliday 1978) led discourse analysts to include the “social and personal roles and relationships, constructing and reproducing ideology, historically and culturally situated” (Preminger and Brogan 1993: 699). The implication of the social context within discourse analysis brought DA to develop widely and in different directions. In fact, discourse analysis has developed into a variety of approaches and there are today various distinctive disciplines such as: the Ethnography of Speaking, Genre Analysis, Pragmatics, Ethnomethodology and Conversation Analysis, Structural/Text Linguistics, Interactional Sociolinguistics and Critical Discourse Analysis.

The analysis of discourse within this study draws on critical discourse analysis (CDA). Critical discourse analysis is conceived as an interdisciplinary research approach to discourse studies of linguistics and other disciplines. Among the disciplinary founders of critical discourse analysis, relevant contributions have been provided by Norman Fairclough, Gunter Kress, Teun van Dijk, Theo van Leeuwen and Ruth Wodak. CDA traces its influence from the Frankfurt School and the works of influential critical linguistics such as Jürgen Habermas and Max Horkheimer (Weiss and Wodak: 2003).

Furthermore, CDA views ‘language as social practice’ (Fairclough and Wodak 1997), as Fairclough and Wodak (1997) state:

CDA sees discourse – language use in speech and writing – as a form of ‘social practice’. Describing discourse as social practice implies a

dialectical relationship between a particular discursive event and the situation(s), institution(s) and social structure(s), which frame it: The discursive event is shaped by them, but it also shapes them. That is, discourse is socially constitutive as well as socially conditioned – it constitutes situations, objects of knowledge, and the social identities of and relationships between people and groups of people. It is constitutive both in the sense that it helps to sustain and reproduce the social status quo, and in the sense that it contributes to transforming it. Since discourse is so socially consequential, it gives rise to important issues of power. Discursive practices may have major ideological effects – that is, they can help produce and reproduce unequal power relations between (for instance) social classes, women and men, and ethnic/cultural majorities and minorities through the ways in which they represent things and position people. (p. 258)

The notion of CDA identifies both written and spoken language as social practice (Fairclough and Wodak 1997). The description of discourse as a ‘social practice’ which is ‘socially constitutive as well as socially conditioned’ (Fairclough and Wodak 1997: 228) determines a mutability of language use according to the social context of a specific historical period. Indeed, as a social practice, the use of language can contribute to stabilize and change the social structure (Fairclough and Wodak 1997: 7). Thus, CDA is not interested in investigating a linguistic unit per se but in studying social phenomena which are necessarily complex and thus require a multidisciplinary and multi-methodical approach (Wodak and Meyer 2001).

By sharing the same viewpoints with the critical discourse practitioners, this research project adopts a multidisciplinary and multi-methodical approach which converges to gain a major understanding on how language functions “in constituting and transmitting knowledge, in organizing social institutions or in exercising power” (Fairclough and Wodak 1997: 7).

2.3.1 Vandana Shiva's discourse

The study on Dr. Shiva's discourse intends to gain major critical awareness on her discursive constructions which gear towards the constitution and the transmission of environmental knowledge. Literature has not yet given a thorough understanding of how knowledge through language use is constructed for contributing to social change. Therefore, the intention is to give further insights into the construction of knowledge in relation to the environment through the analysis of a selection of Dr. Shiva's discursive practices.

The mixed method research design adopts an interdisciplinary approach which includes Environmental Discourse and Critical Discourse Analysis also draws on the Social Representations Theory (Moscovici 2000). The implementation of social theories facilitate the investigation on "how practices, events and texts arise out of and are ideologically shaped by relations of power and struggles over power and to explore how the opacity of these relationships between discourse and society is itself a factor securing power and hegemony" (Fairclough 1995: 132-3). This critical exploration will show how the discourse around seeds challenges power and counters the hegemonic worldview.

The research study also implements Corpus Linguistics. The objective is to provide a critical interpretation of Shiva's environmental worldviews within contemporary globalized social reality and to unveil how patterns of language build ecological identities. Thus, Critical Discourse Analysis, Environmental Discourse, Social Representations Theory and Corpus Linguistics merge together to give a new interpretation of discourse practices within the contemporary modern world.

The following section will first provide details on environmental discourse and then will give further insights on the Social Representations Theory.

2.4 Environmental discourse

The environment is “something understood and experienced through certain social practices” (Macnaghten and Urry 1998: 76). In order to understand how communication affects the nature-human relationship, it is essential to briefly introduce environmental discourse (see Dryzek 1997, and Harré et al., 1999). Berman (2001) argues that, “Many environmental theorists have noted that our language is representative of the predominant anthropocentric world view in Western society - a fundamentally human centered view which sees animals, plants and natural systems as objects for human use” (p.260). One of the central ideas of the modern world is to control and exploit the environment for purposes that benefit humankind. Dryzek argues that the discourse which converged towards the ‘growth in the quantity of goods and services, and to the material well-being, which that growth brings’ (Dryzek 1997:12) belonged to what he defined as the discourse of industrialism. The advent of Industrialization within society which initiated with the first Industrial revolution was the dominant discourse in the past two hundred years (Dryzek 1997, 2013). According to Dryzek (1997, 2013), towards the end of the twentieth century environmental discourse emerges when “the environment is brought into the heart of society and its cultural, moral, and economic system, rather than being seen as a source of difficulties standing outside of the system” (1997: 13). Within this worldview of

the globalized era, environment protection has been subordinated to economy (Colombo & Porcu, 2014).

Currently, environmental discourse is countering globalization through discourse practices which intend to establish alternative worldviews. Harré, Brockmeier, and Miihlhausler (1999) argue that the objective of environmental discourse “is to change the way people think and talk about the environment” (p.49). This statement encloses two main features of environmental discourse: 1) it deals with discourse on the environment and 2) it intends to change the way people conceptualise and view the world around them. From this perspective, Vandana Shiva’s discursive practices can be defined as environmental discourses. Stibbe (2010) states that “Vandana Shiva is a physicist, environmental activist, and one of the leading voices in resisting the socially and ecological destructive aspects of globalization”. (p.11).

In order to understand the role of environmental discursive practices within the social world, emphasis has been placed within this research study on the construction of identity and social representations ‘as constituting, reproducing, challenging and restructuring systems of knowledge and belief’ (Fairclough 1992, p.168).

The paragraphs below will discuss identity and the social representations theory in detail.

2.5 Social Representations, Social Representations Theory and Identity

The Social Representations Theory offers a new approach in investigating the construction of societal issues covering a specific current or historical period

(Berglez, Olausson & Höijer 2009; Höijer 2010; 2013, Olausson 2010). These sections intend to introduce the concept and theory of social representations (Moscovici 1961, 1984, 1988, 1998, 2000, 2001). The overall objective is to provide details on the theory and to justify the application of this theory to investigate environmental and legislative discourse. In particular, for the purposes of this study, the social representations theory can give insights into how Vandana Shiva approaches shared knowledge to activate social change within the current historical period.

Social representations emerge, are transformed and elaborated in societal discourse (Moscovici, 2000). They are a form of knowledge that serves communication and participation in discursive communities. Thus, social representations represent shared knowledge within the contemporary or historical social setting. Shared knowledge refers to what is usually acquired in society as common sense.

The Social Representations Theory (SRT) intends to explain how individuals and communities construct the common sense knowledge about their social world. In fact, as Jodelet (1988) states, “The concept of social representation designates a specific form of knowledge, common sense knowledge” (p.474). SRT reflects the consensual or shared knowledge of social objects and the dynamic processes which constantly transform and change the social world (Serrano 2013). In other words, the SRT intends to explain how individuals share and construct knowledge about their social worlds. Thus, the name of objects and the shared values and norms within a community derive from historical and linguistic processes which have taken place through time. As a

linguistic process, discourse plays a core role in shaping the meanings system. Systems of meanings are shaped and shared within communities. Moreover, communities are formed by groups of individuals who share an identity characterized by the same code of communication and common social, cultural and religious values which is governed by a written or unwritten legal system.

Identity is an issue pertaining to SRT. Identity in SRT is conceptualized as a social process which is constantly developed and transformed by relationships between society and the individual. Thus, identity defines and sets the boundaries for a group of individuals who share the same common sense knowledge. (Abric, 1994; Jodelet 1989, Serrano 2013, Farr 1991). SRT uncovers the construction or re-construction of identities by re-defining and re-setting the boundaries of identity.

This study introduces a new understanding of identity in continuation with the conceptualization offered by Kronberger and Wagner (2007) who argue that “the idea of transgressing the boundaries of different plants does not arouse identity concerns in the same way as it does with animals or humans.” (p. 186). Kronberger and Wagner (2007) have introduced the issue of identity as also being applicable to living social objects, such as animals and living organisms. Thus, SRT is suitable for tackling the issue of identity which is viewed as a social process and which includes animals and living organisms within the processes of identity construction. In particular, this study focuses on the construction of the identity of plant reproductive material, that is, *seeds*.

2.5.1 Historical Overview of the Concept and Theory of Social Representations

The Social Representations Theory was first introduced by Serge Moscovici (1961) who defined Social Representations as systems of values, ideas and practices. The expression *Social Representations* has developed from Durkheim's concept of 'collective representations'. The term 'collective' refers to traditional structures and "common ways of conceiving, thinking about and evaluating social reality" (Höijer 2011:4).

According to Moscovici (2000) the concept of "collective representations" by Durkheim encloses a static trait to representations and they do not represent modern society with its increasing mutability determined by "the heterogeneity and fluctuation of the unifying systems – official sciences, religions, ideologies – and to the changes which these must undergo in order to penetrate everyday life and become part of common reality" (Moscovici, 2000: 32). 'Collective' does not enclose the mutable feature of representations. Therefore, Moscovici proposes the new concept of *social representations*. As Moscovici argues,

...if, in the classical sense, collective representations are an explanatory device, and refer to a general class of ideas and beliefs (science, myth, religion, etc.), for us they are a phenomena which need to be described and to be explained. They are specific phenomena which are related to a particular mode of understanding and of communicating- a mode which created both reality and common sense. It is in order to stress such a distinction that I use the term 'social' instead of 'collective'. (Moscovici 2000: 23)

The term 'social' in fact encloses the traits of temporality and variability to the new concept. Moreover, by replacing the term 'collective' with 'social' to define representations, Moscovici intends to emphasize how representations arise

through social interaction and communication between individuals and groups. In fact, “social” marks that the contents of representations are “related to a particular mode of understanding and of communicating – a mode which creates both reality and common sense” (Moscovici 2000:33). The characteristic feature of Social Representations is that it conceives the inner and dynamic structures of representations. In other words, the inner structure is no longer assumed as detaining static features of representations. As Moscovici (2000) states, the intention is “to consider as a phenomenon what was previously seen as a concept” (p.30). Therefore, more than a *concept* as with “collective representations”, social representations are considered as a *phenomenon* and “they reflect, in different ways, historical, cultural and economic contexts, circumstances and practices (Hoijer 2011).

The social representation theory can unveil the mutability of social objects and the processes of knowledge construction within discourses. Within this perspective, social representations of *seed* in a legislative discourse on plant reproductive material and Vandana Shiva’s environmental discourse are investigated to uncover the processes of knowledge and identity construction.

2.5.2 What are Social Representations?

Social representations are cognitions related to common sense or to what could be conceived or elevated to the status of common sense. According to Serrano (2013), “social representations are social products derived from interaction and their nature is relational. It is impossible to find an isolated social representation; it always develops, circulates and is transformed in relation to

other social representations” (p.65). The agents of social representations are the social subjects who “construct and transform meaning rooted in pre-existing knowledge and everyday experience” (Serrano 2013: 63).

Moscovici, the founder of SRT, does not offer a single clear-cut definition for social representations. He discusses social representations in different perspectives. His first definition views social representations with a twofold function:

A social representation is a system of values, ideas and practices with a twofold function: first, to establish an order which will enable individuals to orientate themselves in their material and social world and to master it; and secondly to enable communication to take place among members of a community by providing them with a code for social exchange and a code for naming and classifying unambiguously the various aspects of their world and their individual group history. (Moscovici 1973: xiii)

The two functions proposed by Moscovici interweave among each other due to three variables: individuals, the social world and a code for communication. The ‘construction of social reality’ implies these three variables. The third variable ‘code’ is the means by which the communication occurs. Obviously, one cannot exclude the other.

Another definition proposed by Moscovici (1998) states that:

Social representations [...] concern the contents of everyday thinking and the stock of ideas that give coherence to our religious beliefs, political ideas and the connections we create as spontaneously as we breathe. They make it possible for us to classify persons and objects, to compare and explain behaviours and to objectify them as part of our social setting. While representations are often to be located in the

minds of men and women, they can just as often be found “in the world”, and as such examined separately. (p.214)

Social Representations are thus, useful in order to describe, classify, explain and interpret reality (Serrano 2013, Álvarez Bermúdez 2004). These representations which are ‘located in the minds’ and ‘found in the world’ can only come into being within this dual relationship between individuals or groups and the world. Indeed, social representations implies ‘social practice’ and they are dynamically constructed and transformed through ‘language use’ enacting “as a ‘network’ of ideas, metaphors and images, more or less loosely tied together”. (Moscovici 2000: 153).

Although no single universal definition can apparently enclose the concept of social representations, this analysis shares the conceptualization developed by Rätty and Leila (1992) who argue that *social representations* are conceptualized as “a set of concepts, statements and explanations originating in daily life in the course of inter-individual communication....Social representations are a sort of environment consisting of concepts and images which, like environments in general, both influence and is influenced by people” (p. 3). These concepts and images which become conceived as social representations can be distinguished in two main categories: the consensual universe and the reified universe (Moscovici 2000). The section below provides further details on these categories of social representations.

2.5.3 Social Representations: the consensual and reified universe

Representations are determined by what individual(s) or group(s) perceive as reality. Moscovici distinguishes modern societies into two categories: consensual and reified universes. As Moscovici (2000) argues:

In the consensual universe, society is a visible, continuous creation, permeated with meaning and purpose, possessing a human voice, in accord with human existence and both acting and reacting like a human being. In other words, man is here the measure of all things. In the reified universe, society is transformed into a system of solid, basic, unvarying entities, which are indifferent to individuality and lack identity. This society ignores itself and its creations, which it sees only in isolated objects, such as persons, ideas, environments and activities. The various sciences which are concerned with such objects can, as it were, impose their authority on the thought and experience of each individual and decide, in each particular case, what is true and what is not. All things, whatever the circumstances, are here the measure of man. (p.33-34)

The consensual universe refers to shared social constructions which have been produced and transformed in society. Within the quotation above, society is personified by Moscovici. In fact, he views society as a human being and thus, possesses a human voice. The 'human voice' is conceived as the force which constitutes society with its laws and regulations. In other words, it is discourse which shapes social reality. Thus, SRT shares with CDA the notion of discourse as a 'social practice' (Fairclough and Wodak 1997) which is 'socially constitutive as well as socially conditioned' (Fairclough and Wodak 1997: 228)

The reified universe refers to 'unvarying entities' which are imposed representations due to a lack of production and transformation through social practices. When processes of social construction are not activated, 'isolated

objects' are dominated by authorities who "impose their authority on the thought and experience of each individual" (Moscovici 2000: 34).

The issue of *seeds* has long been enclosed within the reified universe of the globalized world. Currently, Vandana Shiva is countering the worldview developed around 'globalization' through her discursive practices. As Alexander (2003) states, "Shiva manifests a critical capacity to see through language employed in the service of industrial and commercial agriculture. She uncovers the ideologies and values which specific terminological or lexical choices encode" (p.8). The worldview Shiva is fostering, is developed from an 'ecological' perspective and *seeds* is one of her main issues.

2.5.4 Types of Social Representations

Along the continuum line of time, representations are social cognitions collectively constructed or reconstructed by individual(s) or group(s) within a historically delimited social context. Social representations have been distinguished into three broad categories: *hegemonic representations*, *emancipated representations* and *polemic representations* (Moscovici 1988). *Hegemonic representations* are socially shared by most of the members of a group. They are generally accepted within the social context and 'prevail in all symbolic or affective practices' (Moscovici 1988: 221).

Emancipated representations refer to the dynamic shifts generated not exclusively by the economic, political and societal changes but also by rapid scientific and technological advances (Wagner 2012). These representations are constructed by individuals or groups who have constructed new knowledge or

new way(s) of understanding social reality and by being socially shared by a group, they detain “a certain degree of autonomy with respect to the interacting segments of society” (Moscovici 1988: 221).

Polemic representations, are related to controversies among groups who do not share the same social constructions. These controversies generate social conflicts, struggles between groups, and controversies in a society. As Moscovici argues, “they are generated in the course of social conflict and society as a whole does not share them” (1988: 221).

Relations between group members determine the qualification of representations as social (Moscovici 1988: 221). Thus, social relations are understood through representations and ‘social change’ can take place when social representations are emancipated or polemic. In other words, social change can be determined by changes in representation which lay in cultural values and norms.

2.5.5 Socio-cognitive communicative mechanisms

According to the Social Representations Theory, there are two basic socio-cognitive communicative mechanisms that generate social representations: *anchoring* and *objectifying*. Höijer (2011) outlines the different mechanisms. The first mechanism, *anchoring*, makes the unknown known by bringing it into the pre-existing framework of earlier social representations so that we may associate, interpret and construct the new representation. Anchoring mechanisms have different variables: *naming*, *emotional anchoring*, *thematic anchoring*, *metaphoric anchoring* and *anchoring in antinomies*. The second mechanism, *objectifying*, makes the unknown known by transforming an abstract concept, idea or value into

a concrete or figurative representation. Variables of the objectifying mechanisms are: *emotional objectification* and *personification*.

2.5.5.1 Anchoring

Variables of the first socio-cognitive mechanism of anchoring modify and give a new social representation to pre-existing knowledge. By *naming* the unknown is classified and assumes a social identity. As Moscovici argues, by naming something, “we locate it in the identity matrix of our culture” (Moscovici 2000:46). *Emotional anchoring* refers to a communicative process by which a new cognitive representation of a concept or object is associated to emotions. *Thematic anchoring* catches the cognitive and semantic reference of concepts, ideas or values. Themes related to social representations are created and preserved by society (Moscovici: 2000) and can be altered whenever the intention is to alter patterns of thinking in order to place a new social representation among individuals and groups. Metaphoric anchoring and anchoring in antinomies refer to “underlying categories of meaning, antinomies such as life/death or culture/nature etc., or by the use of metaphors” (Hoijer 2011: 9).

2.5.5.2 Objectifying

Variables of the second socio-cognitive mechanism of *objectifying* are “to discover the iconic quality of an imprecise idea or being, to reproduce a concept in an image” (Moscovici 1984: 38). The icon or figurative representation draws on emotions in *emotional objectification*. *Personification* is referred to the representation of a concept, idea or value through a person.

Social Representations Theory and critical discourse analysis were performed on the selected texts under analysis, to disclose the construction of the identity of *seeds* within the current historical setting. Moreover, a comparative critical discourse analysis was conducted to highlight the types of socio-communicative mechanisms employed, to unveil the representational meanings constructed and to seek the types of contrasts which emerged.

2.6 Social Representations of *seeds*

Representations are conceptualized as social entities and detain a certain autonomy, when they entail shared concepts of a common object (Moscovici, 1998). In other words, social representations refer to socially shared constructions (Marková, 2012). These representations are referred to as *hegemonic representations* as they are mutually shared and “prevail in all symbolic or affective practices” (Moscovici 1988: 221). In the present case, social representations of *seeds* have long remained unaltered. The social signification (Barthes, 1957; Greimas 1990; Lotman 1990; Eco 2000) of *seeds* had not entailed evident processes of social change through human sense-making processes until the advent of globalization. Thus, from a socio-historical perspective, the representation of *seeds* belonged to the ‘reified universe’ (Moscovici 2000) and was predominantly hegemonic according to the classification proposed by the social representations theory. Rapid scientific and technological advances, and economic, political and societal changes (Wagner 2012) are generating dynamic shifts in social representations, which are now becoming *emancipated representations* due to “a certain degree of autonomy with respect to the

interacting segments of society” (Moscovici 1988: 221). These representations are constructed by individuals or groups who are exposed to new information, but are not incompatible with hegemonic representations. Emancipated representations, however, evolve due to controversies and struggles between groups which are determined by “antagonistic relations” and “intended to be mutually exclusive” (Moscovici 1988: 221). The resulting social changes determine the rise of the so-called *polemic representations*, which become relevant for those engaged in social conflict. From this perspective, the conflict between hegemonic representations of *seed* generated by the phenomenon of globalization and polemic representations shaped by ecological movements, is central to this study.

2.7 Category and Identity

The concept of category is closely related to the social representations theory. According to Augoustinos (2001), ‘category is a representation’ (p. 205). Thus, categories which have historically been conceived as immutable and fixed (Markova 2012) become mutable and are subject to social construction. Indeed, in a world which is undergoing substantial transformations, our categories are in constant change. As Stubbs (1996) states, “we can glimpse the recurrent wordings which circulate in the social world, and glimpse how linguistic categories become social categories” (p.194). This study conceptualises a category as a set of social objects or entities which shares common knowledge features and values. Although categories are under constant change, individual(s) and group(s) can continue to perceive certain categories as immutable and fixed.

For example, *seed* as a social object is not apparently perceived as a mutable category. However, the technological and genetic modifications on *seeds* are modifying the social object but the established shared knowledge has not undergone substantial changes. The ‘identity of seeds’ is unquestioned and perceived as an unvaried object despite the current changes which are occurring within the modern world. As Kronberger and Wagner (2007) state, “the emergence of new social objects necessitates a restructuring of existing identities” (p. 178).

The issue of identity is essential to social representation (Duveen 2001; Howarth 2011; Mana, Orr & Mana 2003). Currently, there are disputes on whether identity is prior to a social representation or vice-versa (Brewer 2001; Duveen 2001; Breakwell 2001; Zavalloni 2001 and Kronberger and Wagner 2007) This research study shares Kronberger and Wagner’s (2007) view which assumes “a mutual interdependence of the two concepts” (p.178).

2.8 Connecting Social Representations Theory, Critical Discourse Analysis and Corpus Linguistics

The social representation theory can uncover processes of knowledge construction within discourses. Knowledge pertains both critical discourse analysis and social representations theory and it is defined by Van Dijk (2008) as a shared consensus of beliefs among social groups.

As an interface between social and discourse structures (cf. van Dijk 1998), critical discourse analysis was found to be a suitable approach as it assumes that “social actors involved in discourse do not only use their individual

experiences and strategies, they rely mainly upon collective frames of perceptions, called social representations” (Meyer 2001: 21).

The focus of this study is both the identity and social representations of *seeds*. In order to carry out the analysis both quantitative and qualitative approaches were employed. As highlighted previously, approaches of the qualitative analysis have been discussed. The quantitative approach was carried out by implementing Corpus Linguistics within the study. The next section, will provide insights on the quantitative approach adopted in retrieving the data employed within the analysis.

2.9 Corpus Linguistics

Since the 1960s, corpus linguistics has been covering a prominent area in linguistics (McEnery and Gabrielatos 2006). The general definition proposed by McEnery and Gabrielatos (2006), states that “corpus linguistics is empirical, in that it examines, and draws conclusions from, attested language use, rather than intuitions” (p.34). The term corpus (the plural form is ‘corpora’) refers to a selection of texts which are intended to be representative of a given language or language variety (Tognini-Bonelli 2001). The corpora is thus, constructed from large amounts of naturally occurring language collected as spoken and or written texts. A corpus (or corpora) is stored electronically to facilitate analysis using specific computer software tools. In so doing, a corpus or corpora can be feasibly and reliably searched “to study a specific set of research questions” (McEnery and Hardie 2012: 1). Computer software packages are designed to perform linguistic analysis. This research study adopted *LANCSBOX corpus toolbox* (Brezina et al.:

2015). *LANCSBOX* gave the possibility to search the corpus in question for the occurrence of frequency of terms, concordance lines and collocations.

The qualitative analysis of this research study was preceded by a quantitative analysis adopting a corpus-based approach to the corpus developed using *LANCSBOX*. The qualitative approach provided the tools for uncovering the ‘units of meaning’ (Sinclair 1996) which were critically explored through the qualitative analysis which aimed at unveiling the ‘language use as social practice’ (Fairclough and Wodak 1997) of the ‘units of meaning’ (Sinclair 1996) retrieved, in order to construct the identity and the social representations of seeds.

Chapter Three

Data and Methodology

3.1 Research aims

The general aim of this study was to analyse the ideological discursive practices and Social Representations within the construction of normative and environmental issues, each in turn in defense of nature in the modern globalized world. In particular, the study investigated the social construction of the identity of the item ‘seed’. Moreover, this explicitly includes normative social representations based on the regulation of plant reproductive material proposed by the European Union and the social representations of the ecological manifesto “The Law of the Seed” claimed by Vandana Shiva and other practitioners whose actions support the preservation of the natural environment. These social representations were investigated in the attempt to first identify and then compare the legislative differences between two discourses, each dealing specifically with the use of the item ‘seed’ in different social-legal perspectives in our modern-day society.

The following are the research questions which this study intended to investigate and answer:

1. How do Vandana Shiva’s discursive practices construct and frame the concept and identity of the item ‘seed’ in defense of ecology and the natural environment?

2. How do social representations attributed to the item ‘seed’ operate in environmental discourse?
3. How do social representations attributed to the item ‘seed’ operate in normative discourse?
4. Which are the social representational meanings constructed by the European Commission’s legislation compared to Shiva’s natural law?

Next, the sections which follow will give specific details on the data and the methodology adopted in this study.

3.2 The data and the Corpus

In order to answer the research questions stated previously, variety materials were utilized to set up a corpus for this study. Specifically, the components of the corpus included two sub-corpora sections, which are listed in the following:

1. A selection of diverse texts by/with Vandana Shiva which demonstrate her discursive practices from the years 1997 to 2017.
2. Two contrasting documents which deal with the argument of seed regulation and have the following titles and date of publication:
 - a) The Law of the Seed (2017)
 - b) The EU Plant Reproductive Material Law (2013/0137)

Thus, the research study was based on the corpus which evolved from the two sub-corpora mentioned above.

In particular, the first sub-corpora mentioned was a collection of Vandana Shiva's discursive practices in the form of interviews. In these interview texts, Vandana Shiva assumes the role of interviewee and they take place in various social and academic contexts. Also, the first sub-corpora included a selection of formal speeches given by Vandana Shiva as a speaker in different public and academic environments. The interview and speech texts were chosen from a wide time span of twenty years, precisely from the year 1997 to the year 2017. The genre and time range of the texts were selected for this research study in order to achieve *representativeness* of the data in the corpus" (McEnery and Hardie 2012: 9). In total, this first sub-corpora consisted of exactly thirty-eight texts which were mainly retrieved online. However, the only text not retrieved online¹ was from a formal speech by Vandana Shiva at the University of Calabria in 2013. Her speech was entitled 'Lectio magistralis' and was given in honor of her obtaining a degree 'Honoris Causa' in Nutritional Sciences from the Southern Italian university. The first sub-corpora previously described will be here onwards mentioned as 'VS Corpus' and consisted of a total of 130,368 running words within the main corpus.

The second sub-corpora was composed of two cells which included the texts from 'The Law of the Seed' (2013) proposed by Vandana Shiva and the texts from 'The EU Plant Reproductive Material Law (2013/0137) proposed by the European Commission. The first group of texts, 'The Law of the Seed', was retrieved from Vandana Shiva's website www.navdanya.org and included 24 separate articles, which in total consisted of 9,530 running words in the complete

¹ See Bibliography for the complete list of texts which form the corpus.

corpus. The second group of texts, ‘The EU Plant Reproductive Material Law’ (2013/0137) 2, was a law proposal developed by the European Commission in 2013. Moreover, it was a law proposal with the intention of enforcing the restriction of selling and using any seeds which had not been formally registered and approved by the European Union. This law proposal was made up of 149 articles and it was considered a mandatory law for all European member states. Explicitly, this second cell of texts included the EU law from the ‘Explanatory Memorandum’ to article 149 and consisted of 36,221 running words in the complete corpus. Also, it is worth mentioning that the tokens before the ‘Explanatory Memorandum’ and after article 149 were not included in the main corpus material due to the need to eliminate irrelevant text.

The two sub-corpora included a variety of text typologies which were obtained with the intention to achieve the objective the research study intended to pursue. Specific details on the texts chosen for the main corpus will be given below (Table 1). The two sub-corpora which constituted the complete corpora for the study amounted to a total of 153,519 running words. This complete corpus will be here onwards referred to as ‘C Corpus’.

The following Table (1) illustrates the number of tokens and the number of texts for each sub-corpora and the C Corpus as a whole.

² The validity of The EU Plant Reproductive Material Law (2013/0137) ended on 07/03/2015 and the Law was withdrawn

<i>The Corpora</i>		<i>Number of tokens</i>	<i>Number of files</i>
<i>1st sub-corpora</i>	<i>VS Corpus</i>	130,368	38
<i>2nd sub-corpora</i>	<i>The Law of the Seed</i>	9,530	1
	<i>EU Law (2013/0137)</i>	36,221	1
	<i>C Corpus</i>	153,519	40

Table (1): *Corpus data of the research study*

The corpus previously mentioned was investigated both quantitatively and qualitatively while drawing upon the social representations theory by Moscovici (2000). In particular, the study adopted a corpus-based approach and a critical analysis approach in which the interface between social and discourse structures (cf. van Dijk 1998) lies in the social representations of seeds. The quantitative data gathered for the corpus-based approach was qualitatively analysed with the intention of revealing how language patterns build ecological identities. Thus, the final aim of the research was to identify and compare the differences between the two typologies of discourse based on the social representations theory.

3.3 The methodology: a combination of social representations theory and critical discourse with the contribution of corpus linguistics

The method introduced in the study was grounded in the social representations theory (e.g. Moscovici 1961, 2000) with specific reference to two minimal conditions for plant reproductive material. That is, plant reproductive

material can be defined ambiguously and its different aspects can be salient for legislation and ecology.

A corpus-based approach was implemented in order to analyse the item 'seed' quantitatively within the VS Corpus, where the collocates around the item 'seed' were identified. This quantitative analysis of 'seed' collocations was utilized to reveal the construction of identity and meaning related to seeds.

A critical discourse approach, based on the association between social representations and practices, was adopted in order to seek potential social practices in the expertise actions related to seeds and the diverse ways of executing such actions (cf. Flament and Rouquette 2003). As an interface between social and discourse structures (cf. van Dijk 1998), a critical discourse analysis was found to be a suitable approach because it assumes that social actors involved in discourse do not only use their individual experiences and strategies, but they also rely mainly on collective frames of perceptions, known as social representations (Meyer 2001: 21).

3.3.1 The quantitative approach: collocational analysis and frequency lists via LANCSSBOX

As Tognini-Bonelli (2001) states, "... corpora [are becoming] more and more the normal tools of linguistic enquiry." (p. 185) and thus a quantitative approach was performed on the C Corpus through the application of a linguistic toolbox. Corpus linguistics as a methodology for studying language can be useful to gather insights on language use and discern patterns in language quite feasibly. In fact, McEnery and Hardie (2012) highlight that

corpora are invariably exploited using tools which allow users to search through them rapidly and reliably. Some of these tools, namely concordancers, allow users to look at words in context. Most such tools also allow the production of frequency data of some description, for example a word frequency list, which lists all words appearing in a corpus and specifies for each word how many times it occurs in that corpus. Concordances and frequency data exemplify respectively the two forms of analysis, namely qualitative and quantitative, that are equally important to corpus linguistics. (p.2)

These linguistic tools, usually offered by linguistic toolboxes, prove to be analysts who intend to search through texts (McEnery and Hardie 2012) and therefore, this research study adopted LANCSSBOX Corpus Toolbox (Brezina et al.: 2015) as its concordance tool. LANCSSBOX was employed to explore the C Corpus and its sub-corpora through the application of the various tools available on this toolbox.

The first section of the next chapter will investigate and identify the use of the item *seed* within the ‘VS Corpus’ with the aim of identifying categories of seed in Dr. Shiva’s discursive practices and constructs. The study drew upon the categorization outlined by Kronberger and Wagner (2007).

A corpus-based study was combined with a critical discourse analysis for an interpretation of the results. In particular, a collocational analysis through the lenses of both Critical Discourse Analysis and the Social Representations Theory was performed on the VS Corpus to show how Vandana Shiva frames the identity of seed in defence of ecology and the natural environment. As noted by Stubbs, keywords are considered to be “nodes around which ideological battles are fought” (2001: 118). Therefore, collocational analysis can be useful for uncovering ideological discursive practices and constructs in texts, as J.R. Firth states, “you shall know a word by the company it keeps” (1957: 11). Thus, the

meaning of a word or expressions is revealed when words are combined together and the meaning of a word and the identity value carried by a word in isolation has restricted boundaries. In fact, it is salient to Sinclair that “the word is not the best starting point for a description of meaning because meaning arises from words in particular combinations” (2004: 148). Thus, by applying the LANCSSBOX corpus toolbox (Brezina et al. : 2005) for the analysis of the VS Corpus, seed was initially studied with the application of the software’s tool ‘Words’ in order to identify the occurrence of the term in question, as illustrated in the following Table (2):

<i>Type</i>	<i>Search Term</i>	<i>Absolute Frequency</i>	<i>Dispersion: Range</i>	<i>Dispersion: Range-percent</i>
lemma	SEED	677	34	89,473684
word	SEED	409	30	78,947368

Table (2): *VS Corpus: occurrence of the search term ‘seed’.*

Table (2) demonstrates the occurrence of ‘seed’ within the VS Corpus utilizing the tool Words from LANCSSBOX. The retrieval of the search term ‘seed’ only as a word would not have been representative of the use of the term within the VS Corpus and so for a complete understanding in terms of frequency,

'seed' was retrieved both as a lemma (which calculated all the occurrences of seed within the corpus) and as a word.

As shown above, the first occurrence term in Table (2) is Absolute Frequency which refers to the number of occurrences within the VS Corpus. The Dispersion: Range refers to the number of texts in which the search term occurs. And finally, the Dispersion: Range-percent refers to the total percentage of occurrences within the texts that constitute the VS Corpus.

From the findings, there were 677 occurrences of the item 'seed' as a lemma, including lemmatized frequency which groups together words from the same lemma. 'Seed' appeared essentially in the grammatical category of 'nouns', both in its singular and plural form. A few occurrences referred to compound nouns such as 'seedbank' and 'linseed'. Also, in some instances, the item 'seed' appeared to belong to the grammatical category of 'verbs'. Furthermore, there were 409 occurrences of 'seed' as a word in its root form, including the root 'seed' in the grammatical category of 'nouns' in its singular form and a few instances in the grammatical form of 'verbs'.

As a lemma, the dispersion range for the item 'seed' was 34 and the dispersion range-percent was 89,473684, approximately 89.5% of the VS corpora. The search term 'seed' as a word lead to a dispersion range of 30 with a dispersion range-percent of 78,947368, approximately 79% of the VS corpora.

As stated previously, the VS corpus enclosed a total of 38 texts. The search analysis focused on 'seed' as a lemma due to its higher dispersion range compared to 'seed' as a word. However, it is worth mentioning that 'seed' as a word covered a wide range of occurrences within the VS corpus. Furthermore, in

order to gain a deeper understanding of the occurrence of ‘seed’ in the VS corpus, the programme’s tool ‘Keyword’ was utilized to calculate the frequency of tokens in relation to the other tokens in the corpus texts. The search term ‘seed’ occurred within the top 30 most frequent words, which are illustrated in the following table below:

<i>N.</i>	<i>Lemma</i>	<i>Absolute frequency</i>	<i>Dispersion Range</i>
1.	THE	8260	38
2.	BE	6294	38
3.	OF	4361	38
4.	AND	4266,	38,
5.	TO	3393	38,
6.	A	2545	38
7.	IN	2429	38
8.	HAVE	2031	38
9.	THAT	2016	38
10.	IT	1531	38
11.	WE	1442	38
12.	I	1125,	38
13.	YOU	1101	36
14.	FOR	1054	38
15.	THEY	994	38
16.	ON	830	37
17.	NOT	753	37
18.	@CARD@	748	37
19.	THIS	736	38
20.	AS	663	38
21.	WITH	654	38
22.	SEED	645	33
23.	DO"	634	38
24.	OUR	619	38
25.	BECAUSE	589	38
26.	FOOD	578	36
27.	FROM	561	38

28.	WHICH	552	38
29.	PEOPLE	550	37
30.	BUT	540	37

Table (3): *VS Corpus: the thirty most frequent words*³

From the frequency word list, it is confirmed that ‘seed’ occurred with a significantly high frequency because the term occurred in the twenty-second position among the top thirty most frequent words of the VS corpus.

Although analysis of the frequency lists is not the objective within this specific study, frequency highlights the centrality of the search term within the corpus and it is therefore worthy of consideration. Thus, a further reclassification of the frequency list was conducted by considering only ‘nouns’ within the corpus. The results demonstrated that the search term ‘seed’ as a noun is the most frequent term within the VS corpus. The thirty most frequent ‘nouns’ in the VS corpus are listed in the table below:

<i>N.</i>	<i>Lemma (NOUN)</i>	<i>Absolute frequency</i>	<i>Dispersion Range</i>
1.	SEED	645	33
2.	FOOD	578	36
3.	PEOPLE	550	37
4.	FARMER	417	31
5.	WORLD	381	38
6.	WATER	348	30
7.	INDIA	341	36
8.	SYSTEM	308	36
9.	AGRICULTURE	270	32
10.	LIFE	266	35

³ The first thirty have been given to provide a clear picture of the most frequent words occurring in the VS corpus. The Lancsbox tool retrieves in the eighteenth position “@card@”. This symbol refers to the occurrence of numbers within the VS Corpus.

11	RIGHT	249	33
12	YEAR	226	33
13	WOMAN	224	30
14	WAY	215	32
15	NATURE	202	33
16	TIME	196	32
17	LAND	169	31
18	MOVEMENT	165	31
19	THING	159	33
20	BIODIVERSITY	159	30
21	PLANT	147	33
22	COMMUNITY	148	30
23	WORK	139	33
24	COUNTRY	131	31
25	PART	130	32
26	SOCIETY	102	30
27	TODAY	95	31
28	PLACE	91	31
29	KIND	82	30
30	FACT	76	33

Table (4): *VS Corpus: the thirty most frequent nouns*

Frequency lists cannot per se reveal patterns in terms of discourse. However, the search term ‘seed’ within the frequency wordlist assumes that ‘seed’ is a core issue within Vandana Shiva’s discursive practices.

This investigation intends to conceptualize ‘seed’, identify categories of meaning and discuss how Shiva linguistically, culturally and socially reconceptualises and re-presents ‘seed’ in terms of identity and social representations.

LANCSBOX was the software tool used to facilitate the manipulation and analysis of the corpus data. Thus, the focus of this analysis was on the outputs gathered employing the various tools offered by LANCSBOX. The Key Word In

Context (KWIC) concordance tool was employed for gathering concordance lines around the node seed. The ‘keyword’ or ‘node’ under investigation was seed as a lemma. The number of words to the left and to the right of the node that are displayed as part of the output are referred to as collocate spans (Hunston 2002). This analysis considered a 7:7 span that is seven words to the right and seven words to the left. The outputs were qualitatively analysed for the identification of positive and negative values around the term seed.

In order to reveal the patterns which will be discussed in terms of discourse, a statistical approach was also implemented to identify the lexical attraction of the collocates. The classification of the collocates through the application of GraphColl served as a suitable tool for the identification of collocates of the node seed for the qualitative analysis.

3.3.2 The qualitative approach: the social representations theory and critical discourse analysis

As mentioned above, the data was investigated by adopting both quantitative and qualitative approaches. The qualitative investigation implemented a critical discourse analysis through the perspective of the social representations theory. Indeed critical discourse analysis entails a variety of approaches to research and different social theories (Wodak 2011). Critical theory involves a research perspective “which has basically a critical attitude towards society” (Langer 1998: 3). Therefore, it is a complex and multidisciplinary domain of study (Van Dijk 1993) and can thus, imply the application of other theories and approaches. In order to answer the research

questions of the present study, the critical study was implemented through the application of the social representations theory. In particular, two analytical categories of the social representations theory were taken into account, namely, anchoring and objectifying. The social representations theory identifies these two basic socio-cognitive communicative mechanisms as processes which formulate social representations (Moscovici 1984, 2001). The anchoring mechanisms, makes the unfamiliar meaningful by bringing it into the pre-existing framework of former social representations. As Walker, Broderick and Correia (2007) argue “The unfamiliar is anchored by being classified and compared with what is already familiar and accessible.” (p.159) Anchoring mechanisms enclose different variables: naming, emotional anchoring, thematic anchoring, metaphoric anchoring and anchoring in antinomies (Höijer 2011). The objectifying mechanisms, refer to the way in which a new idea is transformed through communication into an intelligible, concrete or figurative representation (Rateau, Molinelli, Guimelli and Abric 2011). In other words, objectification is achieved through the reproduction of abstract ideas or objects into figurative and iconic elements. Variables pertaining the objectifying mechanisms are: emotional objectification and personification (Höijer 2011).

To conclude, both quantitative and qualitative approaches were performed on the *C Corpus* through diverse analytical measures in the sub-corpora to uncover the conceptualization and the identity of the term ‘seed’ within the modern globalised social context and to identify the social representations attributed to seeds and the types of mechanisms employed. In a subsequent phase, a comparative analysis was conducted to highlight the representational meanings

constructed and to unveil the divergent social representations which emerged in the documents which intend to regulate *seeds*.

Chapter Four

Environmental Discourse: results and discussion

4.1 Introductory remarks

This chapter intends to discuss the analysis performed on the first sub-corpora of the research study, namely the *VS Corpus*. The findings of the investigation aim to provide answers to the research questions on environmental discourse. The research questions that the chapter intends to answer are:

1. How do Vandana Shiva's discursive practices construct and frame the concept and identity of the item 'seed' in defence of ecology and the natural environment?
2. How do social representations attributed to the item 'seed' operate in environmental discourse?

The main objective is to construct the identity of seeds and the Social Representations which occur in the discourse concerning the collocates retrieved within the study. Indeed, corpus analysis offers the opportunity to identify collocates and to investigate the discourse which occurs around the collocate (Brezina 2015). In order to carry out the research, the chapter is divided into five sections. The first section provides an analytical discussion on the procedure regarding the quantitative and qualitative methods adopted within the *VS Corpus*. By adopting a corpus-based approach, the discussion first explains the

quantitative method implemented within the research study. Subsequently, the section provides details on the criteria employed for the retrieval of collocates.

The analysis focuses on the collocates around the node *seed* as a lemma. The first results from the analysis lead to a categorization of nouns and adjectives as *living kinds* and as *artifacts*. Thus, the following two sections discuss the findings from these categorizations. A section on *seeds* as *living kinds* and another section on *seeds* as *artifact* discuss the findings of the first two research questions. The construction of the identity of seeds revolves around this categorization. Moreover, a critical discourse analysis, which implements the social representations theory is performed on the collocates and on the discourse around the collocates in the *VS Corpus* in order to provide a thorough comprehension of the results. The chapter concludes with a section dedicated to some final considerations.

4.2 From quantitative to qualitative analysis: procedure and analysis

The study of keyword lists discussed in the previous chapter revealed *seed* as the first most frequent noun occurring within the *VS Corpus*. Linguistic theory has often underestimated the importance of high frequency words (Sinclair 1999). Moreover, the meaning of a word (or keyword) is not directly and exclusively concerned with the word per se. Sinclair (2004) argues that, “the word is not the best starting point for a description of meaning, because meaning arises from words in particular combinations” (p.148). Thus, the meaning underlying a keyword can be revealed when investigated in context. The high frequency of the term *seed* within the *VS Corpus* provides evidence that this node represents a

central issue in Vandana Shiva's discursive practices and therefore worth of investigation.

The quantitative analysis was first performed on the *VS Corpus* to depict patterns of language around the search term *seed* and to highlight items of meaning which reflect stance, ideology, culture and identity within Vandana Shiva's environmental discursive practices and to understand how patterns of language build ecological identities. As Bernardini (2004) points out, "Corpora offer an ideal instrument to observe and acquire socially established form/meaning pairings." (p.17). The techniques offered by corpus linguistics were employed in retrieving collocates and concordances around the 'node' word to unveil, through the application of qualitative analysis, the construction of the concept and of the identity of *seed* in an ecological and environmental perspective. As mentioned above (chapter 3), the investigation was conducted by employing the LANCSBOX software tool (Brezina et al.: 2015). The concordance lines around the search term *seed* were elicited from the KWIC tool offered through LANCSBOX⁴.

Thus, the examination of the search term *seed* occurred vertically and horizontally through the concordance lines retrieved by applying KWIC. As Tognini-Bonelli (2001) states, "corpus, examined at first in KWIC format with node word aligned in the centre, is read vertically, scanning for repeated patterns present in the cotext of the node" (p.3). Indeed, Sinclair (2004) claims that "the essence of the corpus as against the text is that you do not observe it directly; instead you use tools of indirect observation, like query languages, concordancers,

⁴ See appendix one for the concordance lines of the search term *seed*.

collocators, parsers, and aligners...” (p.189). Corpus-based research proves to be useful for depicting patterns of language in comparison to a non-computerized and horizontal search through texts. However, although KWIC facilitates the identification of patterns of language (Sinclair 2004) for a detailed and systematic concordance investigation, additional tools from LANCBOX were employed in order to generate lists of collocates. Collocations according to Sinclair (1991) are “the occurrence of two or more words within a short space of each other in a text” (p.170). To study particular linguistic constructions, corpus linguists can perform statistical analysis to retrieve and investigate outputs gathered from statistical measures (Meyer 2004). Statistical analysis of language data has been discussed by various linguists (Woods, Fletcher, and Hughes 1986, Kretzschmar and Schneider 1996; Oakes1998; Meyer 2004; Baker 2006; McEnery and Hardie 2012; Brezina 2015). This investigation relied on corpus analysis to draw on both concordances and collocations through the application of statistical measures for a thorough picture of the outcomes under analysis.

To facilitate interpretation, the concordance lines were first elicited from the KWIC tool in Lancsbox software to identify collocational lines around the node *seed* and then collocates were retrieved by using the additional GraphColl tool within Lancsbox. GraphColl is a new tool developed by corpus linguists at the University of Lancaster. As Brezina et al (2015) explain,

Most corpus tools offer users only a handful of pre-defined collocation measures, which implement only some of the desirable criteria; this considerably limits the study of different properties of collocations. Moreover, there are very few tools available for investigation of collocational networks i.e. collocations in context. (p.141)

GraphColl offers a range of statistical measures of calculations. In particular, GraphColl offers thirteen association measures such as T-score, DICE, Delta P and Mutual Information score. The association measure selected for this study is the Mutual Information score (MI-score). This association measure was first introduced by Shannon (1948). The MI-score selects linguistic features “based on the idea of relevance” (Vergara and Estévez 2014:178). In particular, the Mutual information statistic measure aims at “finding the relevant features and discarding redundant and irrelevant features” (Vergara and Estévez 2014:178). Therefore, the MI score does not calculate associations according to the frequency of the collocates but according to the collocational strength. The MI score indicates the relevancy and the strength of the collocation. This study selected the MI-score to calculate the collocates because it is often employed as a measure of collocational ‘strength’ (c.f. Hunston, 2002; Brezina 2015). Strong collocates indicate and provide significant information about the node term.

4.2.1 Criteria used in Lancsbox for the retrieval of collocations

In Corpus Linguistic studies, Brezina et al. (2015) outline three traditional criteria for identifying collocations: *distance*, *frequency* and *exclusivity*. The *distance* refers to the span around the node word. “This span is called the ‘collocational window’.” (Brezina et al. 2015:140) The collocational strength is measured by the *distance* of the collocate from the node. The *frequency* refers to the frequency of occurrence of two words which appear as collocates. The third

criteria refers to the *exclusivity* of the word association. Brezina et al. (2015)

explains exclusivity using the following example:

The noun *love* occurs frequently with the preposition *in* and therefore *in love* is an important ‘chunk’ in the English language. However, *in* can also appear in front of many other nouns, such as *case*, *fact*, or *school*. Consequently, the relationship between *love* and *in* is not exclusive. On the other hand, *love* is much more strongly and exclusively connected with the noun *affair*; when the word *affair* appears in the text, there is a large probability that the preceding word is *love*. (p.140)

The example explains why certain collocates are valued as *exclusive* compared to other word associations. In addition to setting the size of the collocation window, the MI score develops collocates by considering the *exclusivity* of the associations within the concordance lines. For an appropriate setting, an MI score of 3 as a threshold value⁵ was employed to define two words as strong collocates (Hunston 2002). In other words, the MI score of 3 considers the maximum *distance* of the collocate from the node. The minimum *frequency* to define two words as collocates was set at 5. The collocational search employed a 3:3 span to retrieve the outputs in the quantitative analysis, that is, three words to the right and three words to the left. The GraphColl tool identifies collocations and displays them in a table. The following table illustrates the collocates of *seed* ordered according to their collocational strength: “Each pair of words is assigned an MI score which indicates the strength of the collocation – the higher the statistic score, the stronger the relationship between the two words” (Brezina

⁵ The threshold is the minimum frequency and statistics cut-off values for an item such as a word or lemma to be considered a collocate (Brezina 2015).

2015). The table below displays the collocates for *seed* ordered according to the MI score.

Number	Position	COLLOCATE	STATISTIC MEASURE (MI)	FREQ (COLL)	FREQ (CORPUS)
1.	L	EXCHANGING	7.903636835249347	5	5
2.	L	STERILE	7.844740339626033	6	7
3.	L	HYBRID	7.466229004225321	12	14
4.	L	SAVING	7.354936092515487	47	55
5.	R	BANKS	7.219136408791254	21	27
6.	L	SAVE	7.198377917922355	23	30
7.	L	SAVED	6.719210393065185	11	20
8.	L	SWARAJ	6.66416897447645	9	17
9.	L	COSTLY	6.429703775869288	9	20
10.	R	SUPPLY	6.228069955374968	9	23
11.	L	NATIVE	6.228069955374968	9	23
12.	M	EXCHANGE	6.079206473755294	6	17
13.	R	SOVEREIGNTY	6.04565406585318	10	29
14.	R	HOPE	5.996744680435545	5	15
15.	R	MONOPOLIES	5.99674416069857	12	36
16.	R	SATYAGRAHA	5.996744056752507	10	30
17.	R	PATENTED	5.865499875990534	7	23
18.	L	GMO	5.7743520809021955	10	35
19.	L	MIRACLE	5.655707106093667	5	19
20.	L	PATENTING	5.581707181154441	6	24
21.	R	SECTOR	5.511317853265303	5	21
22.	L	OWN	5.441225636119323	22	97
23.	L	COMMUNITY	5.389061615962463	14	64
24.	R	FREEDOM	5.341655774654867	29	137
25.	R	CHEMICALS	5.240669853002747	15	76
26.	L	PATENTS	5.073912198275565	16	91
27.	L	COTTON	4.996744234948334	14	84
28.	R	GROWING	4.96699708247665	8	49
29.	L	GENETICALLY	4.96699708247665	8	49
30.	L	OIL	4.960218492567295	13	80
31.	L	BUY	4.957215979122551	6	37
32.	L	USING	4.8654998759880606	7	46
33.	L	SET	4.859240589700261	5	33
34.	R	COMPANY	4.844741275148131	6	40
35.	R	COMMONS	4.804099212690032	7	48
36.	R	COMPANIES	4.75163169534564	9	64
37.	M	FIVE	4.740404637090866	6	43
38.	R	LAW	4.612080498456026	12	94
39.	R	SEED	4.606189515629625	52	409
40.	L	SALT	4.5460831193090465	5	41
41.	L	LET	4.411781763927986	5	45
42.	M	GIVE	4.411781763927986	10	90

43.	L	THROUGH	4.35014273449767	28	263
44.	L	PRICE	4.318672385523921	5	48
45.	R	PLANT	4.275898471324775	9	89
46.	L	OLD	4.203195318026557	5	52
47.	L	NAVDANYA	4.203195318026557	5	52
48.	L	CONTROL	4.1893894019841165	10	105
49.	L	CREATING	4.179608400462316	7	74
50.	L	FARMERS	4.166669327510378	33	352
51.	L	PLANTS	4.1443014850413125	6	65
52.	R	VARIETIES	4.122275335724508	5	55
53.	L	FARMER	4.103659404594433	7	78
54.	R	BIODIVERSITY	3.9692635909835423	13	159
55.	L	SEEDS	3.9627969859078793	21	258
56.	R	LAWS	3.9314528338282027	9	113
57.	L	AWAY	3.9263550555487723	5	63
58.	L	THESE	3.8972086603917204	21	270
59.	L	THEIR	3.8895110996969375	27	349
60.	L	OUR	3.860171255357047	47	620
61.	L	CALL	3.8592408731959003	5	66
62.	R	MONSANTO	3.8513138137323346	11	146
63.	R	ORGANIC	3.8327685329736645	9	121
64.	L	USE	3.821969860757453	11	149
65.	L	CALLED	3.783750590229898	11	153
66.	L	STARTED	3.7516318415262804	9	128
67.	L	PATENT	3.716636394374853	7	102
68.	L	MEANS	3.661141354458494	7	106
69.	L	YOUR	3.6431073529622178	12	184
70.	M	DIVERSITY	3.596813613986243	6	95
71.	L	NEW	3.5886595802457837	13	207
72.	L	UP	3.5747873792749796	13	209
73.	R	IT'S	3.5519593922716726	6	98
74.	L	ITS	3.458324407803678	7	122
75.	M	FREE	3.4387489331277483	6	106
76.	L	OVER	3.4297037758659403	9	160
77.	R	CORPORATE	3.427901564771315	5	89
78.	R	YEAR	3.4117817639279857	5	90
79.	L	FROM	3.4040461640643485	31	561
80.	R	CAN'T	3.3644760625531758	5	93
81.	L	ON	3.33205462957014	44	837
82.	R	AS	3.22701069428617	37	757
83.	M	LIKE	3.2241548418728927	10	205
84.	L	PUT	3.217134446095058	5	103
85.	R	INDUSTRY	3.217134446095058	5	103
86.	R	SHOULD	3.175714527285971	5	106
87.	L	CREATE	3.175714527285971	5	106
88.	L	GO	3.1332463470701795	6	131
89.	R	ALSO	3.1129372955718857	7	155
90.	R	EVERY	3.100580119077082	9	201
91.	M	MOVEMENT	3.0792064737595615	6	136
92.	R	GOING	3.0792064737595615	6	136
93.	L	TAKE	3.06863728025438	6	137

94.	L	LIVING	3.0209918038549257	5	118
95.	R	THAT'S	3.0169222110088114	6	142

Table (5): Collocates of the search term 'seed' retrieved with the application of the 'MI score', a statistical measure offered by the GraphColl tool from LANCSBOX software tools.

With reference to the previous table, there are ninety-five collocates around the node term *seed*. The second column 'Position' indicates the textual position of the collocate from the node: R (right) refers to collocates which appear predominantly on the right of the node term, L (left) refers to collocates which appear predominantly on the left of the node term, and M (middle) indicates the collocates which appear with equal frequency both on the left and right of the node term. The third column 'Collocate' shows the collocates which occur around the node term. These collocates are displayed according to the strength of the collocation. The fourth column shows the MI value of the collocate: the higher the number, the stronger the collocate. The fifth column 'Freq (coll)' displays the frequency of the collocation (combination of node + collocate). The last column 'Freq (corpus)' displays the frequency of the term anywhere in the corpus (Brezina, 2015).

4.3 Collocates of the search term 'seed': the analysis and results

The first three prominent collocates in table (5) are '*exchanging*', '*sterile*' and '*hybrid*'. As stated above, the strong connectedness of these associations is not due to frequency but to the collocational strength measured through the application of the Mutual Information statistical measure. These terms are stronger than the other collocates because of the strong statistical link of the terms co-occurring (an MI score of 0 would mean that the two words which were

retrieved as collocates, co-occurred by chance). Therefore, although the collocates do not represent the most frequent associations, the three collocates are displayed in the first positions.

There are 5 occurrences of the term *exchanging* around the node *seed* within the *VS Corpus*. The association of ‘sterile’ with the node ‘seed’ appears occurs 6 times throughout the corpus. The third position produces as an output the association of *hybrid seed* with 12 occurrences within the corpus. The collocates with minor collocational strength are the last three words of table (5): ‘take’, ‘living’ and ‘that’s’. Lanksbox retrieves words with the apostrophe as a single word. The MI-score displays these three collocates as both less exclusive and less relevant for the node. The first analytical approach to the 95 collocates retrieved from the *VS corpus* provided evidence that some collocates such as, *take* or *that’s* do not appear to add significant value to the node. For example, *that* is a *function word*. *Function words* provide little meaning on their own. They are used to “show how the content words in a phrase, clause or sentence relate to each other, or how pieces of information fit into the overall ongoing communication” (Gee 2005:119-120). As Gee (2005, 2nd ed) argues, “content words are usually more informationally salient than function words” (p.121). Function words instead “are usually informationally less salient than content words” (p.121). Therefore, in order to exclude items which do not appear to be salient for the specific study, *function words* were excluded from table (6) and major prominence was given to *content words*.

The following table displays the collocations with the exclusion of function words.

Number	Position	COLLOCATE	STATISTIC MEASURE (MI)	FREQ (COLL)	FREQ (CORPUS)
1.	L	EXCHANGING	7.903636835249347	5	5
2.	L	STERILE	7.844740339626033	6	7
3.	L	HYBRID	7.466229004225321	12	14
4.	L	SAVING	7.354936092515487	47	55
5.	R	BANKS	7.219136408791254	21	27
6.	L	SAVE	7.198377917922355	23	30
7.	L	SAVED	6.719210393065185	11	20
8.	L	SWARAJ	6.66416897447645	9	17
9.	L	COSTLY	6.429703775869288	9	20
10.	R	SUPPLY	6.228069955374968	9	23
11.	L	NATIVE	6.228069955374968	9	23
12.	M	EXCHANGE	6.079206473755294	6	17
13.	R	SOVEREIGNTY	6.04565406585318	10	29
14.	R	HOPE	5.996744680435545	5	15
15.	R	MONOPLIES	5.99674416069857	12	36
16.	R	SATYAGRAHA	5.996744056752507	10	30
17.	R	PATENTED	5.865499875990534	7	23
18.	L	GMO	5.7743520809021955	10	35
19.	L	MIRACLE	5.655707106093667	5	19
20.	L	PATENTING	5.581707181154441	6	24
21.	R	SECTOR	5.511317853265303	5	21
22.	L	OWN	5.441225636119323	22	97
23.	L	COMMUNITY	5.389061615962463	14	64
24.	R	FREEDOM	5.341655774654867	29	137
25.	R	CHEMICALS	5.240669853002747	15	76
26.	L	PATENTS	5.073912198275565	16	91
27.	L	COTTON	4.996744234948334	14	84
28.	R	GROWING	4.96699708247665	8	49
29.	L	GENETICALLY	4.96699708247665	8	49
30.	L	OIL	4.960218492567295	13	80
31.	L	BUY	4.957215979122551	6	37
32.	L	USING	4.8654998759880606	7	46
33.	L	SET	4.859240589700261	5	33
34.	R	COMPANY	4.844741275148131	6	40
35.	R	COMMONS	4.804099212690032	7	48
36.	R	COMPANIES	4.75163169534564	9	64
37.	R	LAW	4.612080498456026	12	94
38.	R	SEED	4.606189515629625	52	409
39.	L	SALT	4.5460831193090465	5	41
40.	L	LET	4.411781763927986	5	45
41.	M	GIVE	4.411781763927986	10	90
42.	L	PRICE	4.318672385523921	5	48
43.	R	PLANT	4.275898471324775	9	89
44.	L	OLD	4.203195318026557	5	52
45.	L	NAVDANYA	4.203195318026557	5	52
46.	L	CONTROL	4.1893894019841165	10	105

47.	L	CREATING	4.179608400462316	7	74
48.	L	FARMERS	4.166669327510378	33	352
49.	L	PLANTS	4.1443014850413125	6	65
50.	R	VARIETIES	4.122275335724508	5	55
51.	L	FARMER	4.103659404594433	7	78
52.	R	BIODIVERSITY	3.9692635909835423	13	159
53.	L	SEEDS	3.9627969859078793	21	258
54.	R	LAWS	3.9314528338282027	9	113
55.	L	AWAY	3.9263550555487723	5	63
56.	L	THEIR	3.8895110996969375	27	349
57.	L	OUR	3.860171255357047	47	620
58.	L	CALL	3.8592408731959003	5	66
59.	R	MONSANTO	3.8513138137323346	11	146
60.	R	ORGANIC	3.8327685329736645	9	121
61.	L	USE	3.821969860757453	11	149
62.	L	CALLED	3.783750590229898	11	153
63.	L	STARTED	3.7516318415262804	9	128
64.	L	PATENT	3.716636394374853	7	102
65.	L	MEANS	3.661141354458494	7	106
66.	L	YOUR	3.6431073529622178	12	184
67.	M	DIVERSITY	3.596813613986243	6	95
68.	L	NEW	3.5886595802457837	13	207
69.	L	UP	3.5747873792749796	13	209
70.	L	ITS	3.458324407803678	7	122
71.	M	FREE	3.4387489331277483	6	106
72.	R	CORPORATE	3.427901564771315	5	89
73.	R	YEAR	3.4117817639279857	5	90
74.	R	CAN'T	3.3644760625531758	5	93
75.	L	PUT	3.217134446095058	5	103
76.	R	INDUSTRY	3.217134446095058	5	103
77.	R	SHOULD	3.175714527285971	5	106
78.	L	CREATE	3.175714527285971	5	106
79.	L	GO	3.1332463470701795	6	131
80.	R	ALSO	3.1129372955718857	7	155
81.	M	MOVEMENT	3.0792064737595615	6	136
82.	R	GOING	3.0792064737595615	6	136
83.	L	TAKE	3.06863728025438	6	137
84.	L	LIVING	3.0209918038549257	5	118

Table (6): Collocates of the search term 'seed' excluding function words.

Table (6) illustrates 84 collocates and these collocates are *content words*. The co-occurrence of the different linguist categories of *content words* may obscure significant interpretations within the study. Biondi (2010) argues that “in a corpus perspective, keywords are studied through their typical co-occurrence with other lexico-semantic units” (p.3). In order to provide a clearer systematic

analysis of collocates, the latter were classified into the linguistic categories (or morphological categories) belonging to *content words*: nouns, verbs, adjectives and adverbs. This study focuses its analysis on nouns and adjectives.

4.3.1. The representational categorization of ‘living kinds’ and ‘artifact’

The linguistic categories of nouns and adjectives will be critically discussed and a critical interpretation of the linguistic patterns generated will be given by drawing on the representational categorization outlined by Kronberger and Wagner (2007). Kronberger and Wagner (2007) outline two main representational categories: *Living kinds* and *Artifact*.

“*Living kinds* are categories referring to objects that usually are thought of as existing independently of human behaviour” (Kronberger and Wagner 2007: 179). “*Artifact* categories, in contrast, refer to objects that cannot be thought of as existing independently of humans” (Kronberger and Wagner 2007: 180). These categories were employed by Kronberger and Wagner (2007) to discuss “identity threats by analysing resistance to biotechnological applications involving living beings such as animals and humans” (p.178). Unfortunately, as Kronberger and Wagner (2007) state, “the idea of transgressing the boundaries of different plants does not arouse identity concerns in the same way as it does with animals or humans.” (p. 186). The issue of the identity of seeds under investigation is concerned with the ‘transgression of boundaries’ often due to ‘biotechnological applications’. Therefore, the categorization outlined by Kronberger and Wagner (2007) appears to be suitable for a representational categorization of the collocates of ‘seed’. They can be distinguished between collocates of ‘seed’ which imply a

‘signification’ feature that ‘exist independently of humans’ (*living kinds*) or collocates of ‘seed’ which imply a ‘signification’ feature that ‘cannot be thought of as existing independently of humans’ (*artifact*). The categorization renders a first interpretation of the retrieved collocates distinguished in two ‘polarity values’ (cp. Schachter, 1985:10). Thus, the identity of ‘seed’ is constructed through processes of alterity. As Philogene (2007:36) argues, “the maintenance of the Social Other requires a categorization that unalterably sets apart the object to be excluded”. The collocates which belong to the category of *living kinds* enclose a positive value of the node term *seed* as being part of and ‘in harmony’ with the natural environment. On the other hand, the collocates listed as *artifact* enclose a negative value of the node term *seed* as not being part of the natural environment and as being the product of the economic-globalized world. This categorization can be denominated as an *identity categorization* in which the identity of ‘seed’ is constructed through processes of alterity. The analysis will proceed by differentiating collocates within these two polarity values and the outcomes will be discussed and critically evaluated from an ecological and environmental perspective.

The following paragraphs will first organize nouns and adjectives retrieved as collocates of the search term *seed*. Subsequently, these collocates will be classified according to the *living kinds* and *artifact* categorization.

4.3.2 The categorization and analysis of nouns and adjectives

The nouns and adjectives which occur as collocates of the search term ‘seed’ are displayed in table (7) below:

Number	Position	COLLOCATE	STATISTIC MEASURE (MI)	FREQ (COLL)	FREQ (CORPUS)
1.	L	STERILE	7.844740339626033	6	7
2.	L	HYBRID	7.466229004225321	12	13
3.	R	BANKS	7.219136408791254	21	27
4.	L	SWARAJ	6.66416897447645	9	17
5.	L	COSTLY	6.429703775869288	9	20
6.	L	NATIVE	6.228069955374968	9	23
7.	R	SUPPLY	6.228069955374968	9	23
8.	R	SOVEREIGNTY	6.04565406585318	10	29
9.	R	MONOPOLIES	5.99674416069857	12	36
10.	R	SATYAGRAHA	5.996744056752507	10	30
11.	L	GMO	5.7743520809021955	10	35
12.	L	MIRACLE	5.655707106093667	5	19
13.	R	SECTOR	5.511317853265303	5	21
14.	L	OWN	5.441225636119323	22	97
15.	L	COMMUNITY	5.389061615962463	14	64
16.	R	FREEDOM	5.341655774654867	29	137
17.	R	CHEMICALS	5.240669853002747	15	76
18.	L	PATENTS	5.073912198275565	16	91
19.	L	COTTON	4.996744234948334	14	84
20.	L	OIL	4.960218492567295	13	80
21.	R	COMPANY	4.844741275148131	6	40
22.	R	COMMONS	4.804099212690032	7	48
23.	R	COMPANIES	4.75163169534564	9	64
24.	R	LAW	4.612080498456026	12	94
25.	R	SEED	4.606189515629625	52	409
26.	L	SALT	4.5460831193090465	5	41
27.	L	PRICE	4.318672385523921	5	48
28.	L	OLD	4.203195318026557	5	52
29.	L	NAVDANYA	4.203195318026557	5	52
30.	L	FARMERS	4.166669327510378	33	352
31.	L	PLANTS	4.1443014850413125	6	65
32.	R	VARIETIES	4.122275335724508	5	55
33.	L	FARMER	4.103659404594433	7	78
34.	R	BIODIVERSITY	3.9692635909835423	13	159
35.	L	SEEDS	3.9627969859078793	21	258
36.	R	LAWS	3.9314528338282027	9	113
37.	R	MONSANTO	3.8513138137323346	11	146
38.	M	DIVERSITY	3.596813613986243	6	95
39.	L	NEW	3.5886595802457837	13	207
40.	M	FREE	3.4387489331277483	6	106
41.	R	CORPORATE	3.427901564771315	5	89
42.	R	YEAR	3.4117817639279857	5	90
43.	R	INDUSTRY	3.217134446095058	5	103
44.	M	MOVEMENT	3.0792064737595615	6	136

Table (7): Nouns and adjectives retrieved as collocates of the search term 'seed'.

Table (7) indicates forty-four nouns and adjectives as collocates of the node *seed*. These collocates were investigated within their concordance lines. Subsequently, drawing on the categorization of *living kinds* and *artifact* discussed by Kronberger and Wagner (2007), collocates were analysed and subdivided into two sub-lists: one referring to the category of *living kinds* and the other to the category of *artifact* types.

4.3.2.1 The categorization and analysis of nouns and adjectives: living kinds

As mentioned above, the categorization which distinguished *living kinds* and *artifact* by Kronberger and Wagner (2007), was applied to the collocates of *seed* which occurred as nouns and adjectives. Thus, two tables have been developed with the aim of categorizing the collocates in separate lists. This section discusses the findings of ‘seed’ as *living kinds*.

The list developed below indicates the collocates which refer to *living kinds*.

Number	Position	LIVING KINDS	STATISTIC MEASURE (MI)	FREQ (COLL)	FREQ (CORPUS)
1.	R	BANKS	7.219136408791254	21	27
2.	L	SWARAJ	6.66416897447645	9	17
3.	L	NATIVE	6.228069955374968	9	23
4.	R	SUPPLY	6.228069955374968	9	23
5.	R	SOVEREIGNTY	6.04565406585318	10	29
6.	R	SATYAGRAHA	5.996744056752507	10	30
7.	L	OWN	5.441225636119323	22	97
8.	L	COMMUNITY	5.389061615962463	14	64
9.	R	FREEDOM	5.341655774654867	29	137
10.	L	OIL	4.960218492567295	13	80
11.	R	COMMONS	4.804099212690032	7	48
12.	R	SEED	4.606189515629625	52	409
13.	L	SALT	4.5460831193090465	5	41
14.	L	NAVDANYA	4.203195318026557	5	52
15.	L	OLD	4.203195318026557	5	52
16.	L	FARMERS	4.166669327510378	33	352
17.	L	PLANTS	4.1443014850413125	6	65

18.	R	VARIETIES	4.122275335724508	5	55
19.	L	FARMER	4.103659404594433	7	78
20.	R	BIODIVERSITY	3.9692635909835423	13	159
21.	L	SEEDS	3.9627969859078793	21	258
22.	M	DIVERSITY	3.596813613986243	6	95
23.	M	FREE	3.4387489331277483	6	106
24.	M	MOVEMENT	3.0792064737595615	6	136

Table (8): *Categorization of noun collocates of the search term 'seed' as 'Living kinds'.*

The twenty-four collocates in table (8) have been categorized as 'living kinds'. They enclose positive values of the node term *seed*. These collocates build ecological patterns in defence of nature and in particular in defence of *seed* as a *living kind*, which by being a product of nature, does not necessitate human intervention. The noun with the highest MI score is *banks* (MI=7.219136408791254). The collocate *banks* mainly occurs on the right of the node *seed*. On the semantic level, the association *seed banks* refer to seeds which are gathered and stored to preserve genetic diversity and to render seeds available for reutilization in agriculture.

The three strong collocates *swaraj* (MI=6.66416897447645), *sovereignty* (MI=6.04565406585318) and *satyagraha* (MI=5.996744056752507), indicate identity features strongly pertaining to the node *seed*. These identity features are ideological, cultural and environmental. The collocates *swaraj* and *satyagraha* enhance Shiva's cultural values and the terms derive from the Indian language and culture. The first extract (1) of the concordance in 'Index line 222; text 21⁶' of the *VS Corpus*, explains the term *swaraj* as follows:

⁶ The concordance lines were retrieved from the software tools offered by LANCSBOX. The collocates retrieved from GraphColl were calculated with a 3:3 span and collocates were retrieved through the application of a statistical measure, specifically the MI score. Collocates were thus, analysed within their concordance lines. The line number refers to the index line of the

- 1) The idea of nonviolent farming comes from Gandhi. We call it *bija swaraj*— *bija* is *seed*, *swaraj* is serenity and self-governance. (Index line 222; text 21).

The collocate refers to the capacity of *seed* to self-govern itself. *Seed swaraj* is thus, an autonomous entity which does not need to be ruled by humans and legislations.

The collocate *Santayagraha* occurs on the right of the node term *seed*. The meaning of the association is better understood within the concordance lines. Longer stretches of the concordance lines around the association from KWIC are given below:

- 2) Well, in fact, when we first started out, we called it the *seed satyagraha*. As you know, Gandhi had started the independence movement with the salt satyagraha. Satyagraha means "struggle for truth." The salt satyagraha was a direct action of non-cooperation. When the British tried to create salt monopolies, he went to the beach in Dindi, picked up the salt and said, "Nature has given us this for free, it was meant to sustain us, we will not allow it to become a monopoly to finance the Imperial Army." (Index line 180; text 20)
- 3) And I do hope that the Supreme Court will act for the larger public good. And if it fails to do so, because we, too, get affected, let us call globally for a *seed satyagraha*. A satyagraha is the fight for truth. When the British tried to monopolize salt, Gandhi walked to the beach and said, "Nature gives it for free; we will continue to make our salt." (Index line 17; text 10)

concordance within *VS Corpus* uploaded on Lancsbox. Concordance lines served for the identification of collocates around the node term *seed*. As mentioned in chapter three, the concordance index line number refers to a 7:7 span. See Appendix 2 for the complete list of the collocates retrieved from the *VS Corpus*.

- 4) To ensure that unjust laws do not destroy our last freedoms, we must remember Gandhi's call: 'As long as the superstition exists that unjust laws must be obeyed, so long will slavery exist.' And, there is only one way to defend freedom in the face of unjust laws— satyagraha— the Fight for Truth. We are being called on to practise *seed satyagraha* and food satyagraha to defend our everyday seed freedom and seed sovereignty, and food freedom and food democracy. (Index line 521; text 36)

The concordance lines show how *seed satyagraha* refers to a non-violent fight or struggle for truth in defence of the identity of seed. The conceptualization of seed implies ideological, local, cultural and environmental values. The two collocates *swaraj* and *satyagraha* interweave among each other and they enclose the values of freedom, inclusion, self-governance and truth. Thus, *swaraj* shall be achieved through *satyagraha*. Shiva's discourse counters and resists global policies which represent a threat to local policies and lead to the destruction of the environment and to the loss of local and cultural values. She also advocates alternative development by fostering local practices and enhancing indigenous knowledge and culture as the means for sustainable development. The localization of power is in opposition and resists corporate globalization and so power is given to nature, farmers and communities. The concordance lines below show how power to nature is conceived through *seed sovereignty*:

- 5) Swaraj- to govern yourself. And we fight on three fronts-- water, food, and seed. JalSwaraj- JalSwaraj is water independence- water freedom and water sovereignty. Anna Swaraj is food freedom, food sovereignty. And Bija Swaraj is seed freedom and *seed sovereignty*. (Index line 313; text 24)

- 6) To ensure that unjust laws do not destroy our last freedoms, we must remember Gandhi's call: 'As long as the superstition exists that unjust laws must be obeyed, so long will slavery exist.' And, there is only one way to defend freedom in the face of unjust laws– satyagraha– the Fight for Truth. We are being called on to practise seed satyagraha and food satyagraha to defend our everyday seed freedom and *seed sovereignty*, and food freedom and food democracy. (Index line 523; text 36)

- 7) Farmers' seed sovereignty is at the heart of solutions to the epidemic of farmer suicides. Only when farmers have access to their own seeds will they be free of debt. And only through *seed sovereignty* can farmers' incomes be increased. Organic cotton farmers earn more by avoiding costly seeds and chemicals. Organic cotton is the future. (Index line 132; text 16)

There is a positive framing of 'seed' as 'sovereignty' which highlights the prominence given to the natural environment. In particular, *seed sovereignty* is socially represented as the solution to avoid farmers' debts and suicides, and as the means to increase farmers' income and to pursue and preserve freedom, independence and democracy. The positive value of *seed sovereignty* unveils an elective identity of an environmental realm to be worshipped and defended from 'unjust laws'. By giving power to *seed* and acknowledging its sovereignty, the 'social object' is personified and assumes the role of a ruler to be respected and worshipped. The legitimisation of the identity of *seed* frames its environmental value and counters the current processes of change involving the hegemonic globalized world.

Against the globalised world, the concordance lines around the collocates unveil that historical narratives and events are also employed to contribute to the construction of meaning in order to validate discourse which counters hegemonic

representations. In fact, within the *VS corpus* and within the concordance lines cited so far, Gandhi and historical narratives around the actions carried out by Gandhi are often mentioned by Vandana Shiva. History can be a source for validating meaning and for justifying actions against hegemonic representations. Myths or ideologies can be legitimised through representations of historical experiences (Sidanius and Pratto 1999, cited in Liu and László 2007). Liu and László (2007) argue that,

Historical narratives are stories that communicate symbolic and practical meaning over and above the “bare facts” of history. The validity of narrative hinges on its credibility, authenticity, relevance, and coherence, which in turn are dependent on the proper use of narrative features—time, plot, characters, perspective, narrative intentions, and evaluation. The paradox of narrative is that it is a universally human mechanism of communication and cognition, but at the same time, the form of knowledge created by this mechanism is validated and maintained in time and space as a part of a particular society’s beliefs. (p.87)

Socially shared representations of history are employed for persuading people to change attitudes and actions towards global issues (James Liu and Denis Hilton 2005) and they contribute to the construction of new ideas and worldviews.

The collocates *native* (MI=6.228069955374968) and *own* (MI=5.441225636119323) are strong collocates of ‘seed’ which occur essentially on the left of the node term. Extracts of the collocates are shown below:

- 8) Biodiverse organic farms produce more food and higher incomes than industrial monocultures. Mitigating climate change, conserving biodiversity and increasing food security can thus go hand in hand. Three decades of Navdanya have shown that using *native seeds* and practicing agro-ecology, small farmers of India can produce enough, healthy, nutritious

food for two Indias, and by not spending their precious money on buying poisons, and poison producing GMO seeds, they have the potential of enhancing their incomes tenfold, and stopping farmers suicides. A poison free, debt free, suicide free, hunger and malnutrition free India and world is what I work for. (Index line 134; text 16)

9) They haven't just speeded up the process they have crossed a threshold. Through the *native seeds* we can become free of agri-chemicals, farmers can become free of debt, become free of the kind of burden that high inputs are creating. But we can also create freedom for consumers because frankly there's nothing as delicious as the old varieties that have been evolved over time. (Index line 283; text 22)

10) We refer to 'seed freedom' as the freedom of farmers to save and exchange farmers' varieties freely among themselves. Seed and biodiversity are the ultimate commons, and commons are governed by local communities through local self-rule and self-governance, not by markets through privatisation, nor through centralised authority and its bureaucratic apparatus. We refer to 'seed freedom' as the freedom of eaters to have access to food grown from seeds bred for diversity, taste, flavour, quality and nutrition. In 'seed freedom' is the duty to save and exchange *native seeds* bred by farmers. This is seed sovereignty. For farmers, varieties conserved, used and bred as a commons means self-organisation and self-rule at the level of local communities. At national and international levels, it includes the obligation of governments to protect people and their freedom of biodiversity by regulating corporations to prevent them from undermining people's sovereignty through biopiracy on the one hand, and threats to biosafety from genetically engineered seeds and crops on the other. Freedom and sovereignty is to have the freedom to self-govern at the level of the community, to take care of the commons, and to share sustainably and equitably in their fruits. It also involves prevention of biopiracy and freedom from harm through national and international regulation on biosafety. (Index line 495; text 38).

11) And seeds which peasants have freely saved, exchanged, used, are being treated as the property of corporations. New legal property formations are being shaped as intellectual property rights treaties, through the World Trade Organization, trying to prevent peasants of the third world from having free access to their *own seed*, to have free exchange of their *own seed*. So that all peasants, all farmers around the world would be buying seed every year thus creating a new market for the global seed industry. (Index lines 249, 250; text 22)

12) We've taken inspiration from that and had the seed satyagraha. Nature gives it for free. Our ancestors had saved it and selected it and shared it, primarily women farmers who have been the seed keepers of every society, and we will continue to save and share seed as our moral duty to the future and, sorry, we will not recognize your patents. And we will not be criminalized under your intellectual property laws. And even more, we will not recognize laws that make it illegal for us to have our *own seeds*. In 2004, the government did try and introduce the law which would have made indigenous seed illegal. Everything indigenous is always illegal, because it has variety, and the dominant world view wants monocultures. It can only think through uniformity. So if there is a chicken who is red and another chicken who is brown, that's a problem. They should all be white. And if one chicken is in your front yard and the other is in the backyard, that's also a problem. They should all be in prisons. So uniformity is the way of governance. I have called it the monoculture of the mind. But the monoculture of the mind is not just a way of thinking; it's a way of controlling the world. The monoculture of the mind robs from nature her capacity, because it doesn't see her diversity. It robs from people their capacities, because it doesn't see their diversity. (Index line 330; text 31)

An agriculture which moves towards ecology or argro-ecology can be pursued through the utilization and re-utilization of farmer's own *seeds*. *Own seeds* and *Native seeds* are represented as the solution to debt, suicide, hunger and malnutrition of farmers. By using *native seeds*, farmers are free from the global

economy. *Native seeds* are the solution to an economy which is impoverishing farmers. Moreover, the use of *native seeds* and an indigenous way of life are being promoted as the solution to the current environmental crisis, to food security and to the conservation of biodiversity. While *sterile seeds* (see below extracts 59-62) are socially represented in opposition to seed freedom, *native seeds* create and promote freedom of seeds, of nature and of farmers. In particular, by employing the term *own*, Shiva is stressing that seeds belong to farmers and to the local community and cannot be ascribed with intellectual property rights to companies. Thus, *native seeds* and *own seeds* counter global policies and intellectual property rights treaties. As Shiva argues, ‘It’s a way of controlling the world’ and of rendering ‘indigenous seed illegal’ (extract 12). She promotes an indigenous way of life which is in harmony with nature.

Seeds as *living kinds* are defined by industries as *old* (MI=4.203195318026557) as illustrated in the extract below:

13) Three years ago, I did a seed pilgrimage through these areas where the suicides were very high and found out that the farmers had no seed. I would say, “If it’s failing, why aren’t you using your own seed?” They said, “The companies took the *old seed* away.” It’s called “seed replacement” in the seed industry jargon, as if seed is dirty socks that need throwing away. In fact, one of our ministers said—I was doing a seed exhibition. The chief minister of my state said, “But Vandana, why are you saving these *old seeds*? Seeds are like cars. We must have new models all the time.” I said, “No, they’re not like cars. Because you don’t live from cars. They don’t give you life.” They might give you a kick if you have that macho element in you. I find cars highly oppressive. But I’ve worked with our government. And that same chief minister then was forced to declare our state an organic state, the same chief minister who at one point was thinking it was crazy to do

organic farming and save *old seeds*. (Index lines 383, 384, 385; text 35)

Within the discourse, the emphasis is on the distinction between material objects and living organism which cannot be compared. The collocate *old* encloses a positive value as generator of life.

The collocate *supply* (MI=6.228069955374968) is displayed among the strongest collocates according to the MI score. The collocate predominantly occurs on the left of the node term *seed*. Extracts of the collocate *supply* retrieved from the *VS Corpus* are illustrated below:

14) GM seeds become a source of dependency because the GM companies destroy alternative *seed supply*. They go into communities and tell them to give up their old seed. They call it seed replacement, as if seed was dirty socks. But it's not. Seed is a basis of life. (Index line 443; text 35)

15) It has been very successful. We're in about seven zones now. We have the native *seed supply* taking over. I have just started two new seed banks in the heart of the "Green Revolution", one in western Uttar Pradesh, one in Punjab where about thirty farmers are giving up chemicals and getting off the chemical tread mill. They are starting to shift to use of native seeds and organic agricultural methods. The wonderful thing about seed is if you have even one, you have the potential of millions. (Index line 286; text 22)

16) Well it's really interesting. Europe has very strong biosafety regulations, unlike the United States. Because [the agrichemical industry] can't directly sell patented GMO seeds and collect royalties, they are accessing another way saying, "Okay, let's assault the independent *seed supply*." Varieties that are vital to organic agriculture. (Index line 144; text 17)

The collocate *supply* gives evidence of the rise of *polemic representations* due to the social conflict which determines a social change as the discourse intends to put forward an *emancipated representation* to counter the current social construction of *seed supply* provided by the global market. The current *social representation* of *seed supply* which has prevailed as hegemony is provided by the global market. *Supply* as a collocate of the node *seed* enhances. The *emancipated representation* is supported by terms around the collocation, such as *alternative, independent, native, common*, which concur to the construction of the environmental and cultural value of *seeds*. The identity of ‘seed’ fostered by Shiva’s discourse contrasts the dominant *social representation* imposed by the globalized industrial agriculture.

Another collocate which renders a valuable contribution to the construction of the identity of *seed* is *community*. There are 14 occurrences of the collocate *community* (MI=5.389061615962463) within the VS corpus and they mostly occur on the left of the node *seed*. The majority of these collocates are accompanied by the collocate *banks* which was discussed above. In fact, there are 12 occurrences of *community seed banks* within the VS corpus. Examples of the occurrences can be viewed in the extracts below:

- 17) Navdanya’s work begins with creating *community seed banks* to conserve biodiversity so communities of farmers start taking care of their seed. They facilitate seed collection and training, and they set up *community seed banks* so that they have their own seed supply. That’s one level. We have helped set up more than 120 *community seed banks* in the country. Unlike seed libraries in the United States, which are literally outside the agricultural system, our seed banks are the base of an

agriculture system, a non-industrial agricultural system. (Index lines 193,196,198; text 21)

18) From Chipko, I learnt about biodiversity, and biodiversity based living economies, the protection of which has become my life's mission. The lessons I learnt about diversity in the Himalayan forests have been transferred to the protection of biodiversity on our farms. Navdanya, the movement for biodiversity conservation and organic farming that I started in 1987 has saved seeds through creating *community seed banks* and helped farmers make a transition from fossil fuel and chemical based monocultures to biodiverse ecological systems nourished by the sun and the soil. Biodiversity has been my teacher of abundance and freedom, of cooperation and mutual giving. (Index line 546; text 38)

Community seed banks have been created to facilitate the collection and conservation of biodiversity. The occurrences of *community seed banks* within the VS Corpus are positively valued as a means of protecting biodiversity and ensuring seed security. They contribute to the construction of the identity of 'seed' from 'chemical based monocultures'. 'Community seed banks' are a relatively recent response to resisting the industrial agricultural system and the first *community seed banks* were created in the 1980s (Vernooy, Shrestha and Sthapit 2015). Through community seed banks, the emphasis is placed on local agro-biodiversity conservation and on traditional knowledge implemented by farmers. Community seed banks are often "associated with a number of priority activities reflecting their multifaceted purposes and legitimacy as local institutions that promote community-based conservation and sustainable use" (Galluzzi, Thomas, van Zonneveld, van Etten and Ramiriez 2015: 241). In 1987 Vandana Shiva created a community seed bank and in 1991 she officially founded

Navdanya, a national movement for protecting biological and cultural diversity. As it can be viewed above in table (8), *navdanya* (MI= 4.203195318026557) is a collocate of the keyword seed. Extracts of the collocate are given below:

19) Navdanya is a national program to basically fight the seed monopolies. I started it ten years ago when I could see the emergence of this kind of world of total control. *Navdanya* means nine *seeds*. Through it we save native seeds. In India we still have a lot of peasant agriculture. (Index line 275; text 22)

20) I started *Navdanya* and saving *seeds* when I found out that corporations wanted to patent life, when life is not created by them. It is created sui generis. It is part of creation. (Index line 25; text 11)

21) Part of our battle has been to give respect again to the innovation of farmers and the diversity that the earth has provided. What I often say is that through the *seed* saving of *Navdanya* we have managed to make the celebration of diversity our mode of resistance. (Index line 285; text 22)

22) Comparative yields of native and of Green Revolution varieties in farmers' fields have been assessed by *Navdanya*, a *Seed Conservation Movement*. Under conditions of low capital availability and fragile ecosystems, Green Revolution varieties are not higher yielding. Farmers' varieties are not intrinsically low yielding and Green Revolution varieties or industrial varieties are not intrinsically high yielding. (Index line 550; text 38)

The Navdanya organization is a network of farmers who save seeds in community seed banks. Navdanya means nine seeds. In an ever changing world due to globalization, climate-change and industrial agriculture community seed banks such as Navdanya have become a response to issues and actions which

focus on the economy and not on the environment. As a local resource, “community seed banks promote collective efforts to strengthen traditional seed systems and facilitate the systematic preservation, access, availability exchange and maintenance of high-quality seeds, especially of local varieties.” (Chaudhary, Devkoka, Upadhyay and Khadka 2015: 243). The value of agricultural biodiversity can be enhanced through community seed banks. Furthermore, community seed banks can also be viewed as a measure of empowerment of local communities. Vandana Shiva’s promotion of community seed banks intends to shift global and chemical resources provided by multinational companies to local and biodiverse resources provided by the natural environment. According to Shiva, biological seeds are life forms which are ‘part of creation’. Moreover, she states, “Green Revolution varieties are not higher yielding. Farmers’ varieties are not intrinsically low yielding and Green Revolution varieties or industrial varieties are not intrinsically high yielding” (Extract 22). The comparison between industrial and local seed varieties aims at deconstructing the value of industrial seed varieties as not being more-productive than local varieties. Thus, Vandana Shiva’s discourse intends to enhance local environment and culture. In so doing, she challenges global economic systems by fostering local practices.

Another collocate which emphasises local interest is the term *commons*. The term *commons* (MI=4.804099212690032) occurs as a collocate of the node *seed*. Examples of this collocate are given in the selected extracts below:

23) In 1991 I created the legal entity called Navdanya. We’ve created 54 community seed banks around India because we

believe *seed* is our *commons*. It has to be shared. It has to be saved for the future (Index line 453; text 35)

24) I have lots of friends who spent all of their time going to WTO meetings. At a certain point, I said no. Instead of going to WTO meetings, let's set up seed banks, set up *seed commons* and let's change the rules. Let's live by other rules and make it such big movements. Today I can say very happily that ten countries managed to roll back laws criminalising seed saving. (Index line 327; text 27)

The *seed commons* are common goods to which access must be guaranteed to farmers and people within a local community. Seeds must be freely shared within the community. Shiva contrasts corporate interests and she intends to 'change the rules' set by international economic systems in order to foster and renovate a system in which power is beheld by the local members of the environment. Seeds belong to nature and must be preserved by the people who live within the local system. Thus, the social and cultural local values are not to be separated from the local environmental system. The basics of the local environmental system are the inseparable parts of the environment: the local inhabitants and nature.

The collocate *free* (MI=3.4387489331277483) occurs in a middle position within the VS Corpus. In other words, the collocate occurs either on the right or on the left of the node term *seed*. Extracts of the collocate *free* are given below:

25) I started Navdanya as a political act so that farmers would have *free seed* in their hands, using that *free seed* they would be able to resist the kind of control system that the new corporations, corporate control, was trying to establish in India. Through

those seeds they can establish sustainable organic agriculture again. (Index line 278 and 279, text 22)

26) I tracked the whole TRIPs negotiations through and have followed the biotech industry from the day it wanted to become a giant industry. I have tried to do my best to defend the freedom of people; create seed banks so that farmers have *free seed*; nature has freedom of diversity; and these monopolies are restrained. (Index line 306, text 24)

27) New legal property formations are being shaped as intellectual property rights treaties, through the World Trade Organization, trying to prevent peasants of the third world from having free access to their own *seed*, to have *free* exchange of their own seed. So that all peasants, all farmers around the world would be buying seed every year thus creating a new market for the global seed industry. (Index line 249, text 22)

Seed is conceptualized again as a free entity which should not be restricted by laws or by systems which Shiva defines as monopolies or global seed industries which control seed and restrain its free exchange. Thus, Shiva's discursive practices frame *seed* as an independent free entity from an ecological perspective.

The collocate *freedom* (MI=5.341655774654867) of the search term *seed* intends to conceptualise *seed* as a free living entity. Collocates of *freedom* can be viewed in the following extracts:

28) It's a global campaign fighting against patent threats, against new laws that are constantly being put into place to close the space for *freedom* of the *seed* as well as the freedom for farmers to save seeds. (Index line 136; text 17)

29) I tracked the whole TRIPs negotiations through and have followed the biotech industry from the day it wanted to become a giant industry. I have tried to do my best to defend the freedom of people; create seed banks so that farmers have free *seed*; nature has *freedom* of diversity; and these monopolies are restrained. (Index line 306; text 24)

30) 'We have received these seeds from Creation and from our ancestors and it is our duty to pass them on in all their richness and diversity to future generations. Therefore we will not allow them to go extinct. Therefore we will not respect any law that prevents us from saving seed. We will respect the *freedom* of the *seed* and our own freedom.' (Index line 456; text 35)

The examples show that *freedom* is related to humans as well as nonhuman species such as seeds. According to McNay (1994:128), freedom is the "ability to exercise one's power autonomously..." Freedom and power are thus interconnected and autonomous practices of freedom enhance power. Furthermore, on the issue of freedom McNay argues that, "...the process through which individuals seek to influence each other should not be seen as a face-to-face confrontation which paralyses both sides, but rather as an antagonistic struggle in which individuals seek to refuse imposed forms of identity and also communicate their differences or 'otherness' to each other" (McNay, 1994:128). Thus, freedom fosters identity and can counter imposed forms of identity. Identity within Shiva's discourse includes nonhuman species and specifically *seeds*. The refusal of imposed forms of identity promotes the 'otherness' which under an environmental perspective can be viewed as 'diversity'. In order to protect and to promote 'diversity', power is extended to *seeds*. Indeed, within this perspective power can operate through freedom which can be fostered through cooperative ownership on a horizontal line among individuals. In so doing, Shiva's discourse

counters dominant global powers and their vertical “unidirectional imposition of dominatory relations reliant on force” (McNay, 1994: 126), and fosters a “horizontal direction of power that characterises relations between individuals” (McNay, 1994: 126), offering through *seeds* new possibilities to contrast the hegemonic role dominated by the globalized world.

Within the categorization of *living kinds*, two collocates highlight two specific typologies of seeds used for nutritional purposes: *oil* (MI=4.960218492567295) and *salt* (MI=4.5460831193090465). Extracts of these two collocates are given below:

31) In August 1998, small scale local processing of edible oil was banned in India through a "packaging order" which made sale of open oil illegal and required all oil to be packaged in plastic or aluminium. This shut down tiny "ghanis" or cold pressed mills. It destroyed the market for our diverse *oil seeds*- mustard, linseed, sesame, groundnut, coconut. (Index line 335; text 28)

32) India is a land rich in biodiversity. For over 10,000 years Indian farmers have used their brilliance and indigenous knowledge to domesticate and evolve thousands of crops, including 200,000 rice varieties, 1,500 wheat varieties, 1,500 banana and mango varieties, hundreds of species of dals and *oil seeds*, diverse millets and pseudo-cereals, vegetables and spices of every kind. (Index line 119; text 16)

33) Traditional farming systems are based on mixed and rotational cropping systems of cereals, pulses, and *oil seeds* with different varieties of each crop, while the Green Revolution package is based on genetically uniform monocultures. No realistic assessments are ever made of the yield of the diverse crop outputs in the mixed rotational systems. (Index line 549; text 38)

34) Okay. So in... you know, about ten years ago, climate extremes started to become more frequent. And you know, through Navdanya, the movement I started, the seed saving, we had saved every seed we could find. We weren't saying: "Oh, this is useful." We weren't saying: "This is high yielding." We were just saying: "If our ancestors used the seed, it can't be useless." So, among the seeds we had saved were *salt* tolerant *seeds* that farmers had evolved in the coastal areas. And when in 1999 a terrible cyclone hit twice the velocity of normal cyclones, it went much further inland and caused more damage, we were able to distribute these seeds. (Index line 44; text 14)

35) Because with the cyclone, salt from the sea comes on the land, so you need salt tolerance. Otherwise you can't grow crop. And then after... this was in 1999. In 2004, we had the tsunami. And I went to help; and the government of the areas said: "We can't do agriculture for five years." They called it a crop holiday. I said: "You call it a crop holiday. The farmers will starve. And we'll bring you *salt* tolerant *seeds*." "Oh it can't be, they don't exist." I said: "They jolly well do. They used to be here, you wiped them out. We'll bring from Orissa. Orissa farmers gifted two truckloads of *salt* tolerant *seeds*. Immediately, agriculture bounced back. (Index line 46, 47; text 14)

36) Stealing the knowledge and biodiversity evolved by the poor is not innovation, it is biopiracy. That is why I see patents on life as part of the arsenal in the contemporary war against the earth and her people. And that is why in 1987 I started Navdanya to protect biodiversity of the planet, and the rights of the communities who have conserved and evolved it. We save biodiversity as a commons and have set up 55 community *seed* banks. The *salt* tolerant rices in Navdanya's community seed banks have helped communities rejuvenate their agriculture after cyclones and the tsunami. (Index line 403; text 34)

The collocates illustrated above develop ecological patterns which do not involve the manipulation of nature. The value of indigenous knowledge within the social and natural environment is recognized through the recollection of

historical facts and events. Historical facts and events demonstrate how environmental problems are solved through the utilization of native seeds provided by local farmers. Thus, historical events are employed to provide evidence that indigenous knowledge is fundamental for maintaining agricultural production and for the preservation of biodiversity.

The noun *plants* (MI=4.1443014850413125) is another strong collocate of the *VS Corpus*. The term mainly occurs on the left of the node *seed*. Extracts of this collocate are displayed below:

37) Contemporary patents on life seem to be of a similar quality. They are pieces of paper issued by patent offices of the world that basically are telling corporations that if there's knowledge or living material, *plants*, *seeds*, medicines which the white man has not known about before, claim it on our behalf, and make profits out of it. (Index line 244; text 22)

38) I remember one meeting of 200 villagers who had been involved in seed saving and seed sharing with Navdanya, the trust that I founded to save seeds and promote organic agriculture. These 200 villagers gathered on World Environment Day in 1998 and declared sovereignty over their biodiversity—not sovereignty to rape and destroy, sovereignty to conserve. These 200 villagers, gathered in a high mountain village near a tributary of the Ganges, said, “We’ve received our medicinal *plants*, our *seeds*, our forests from nature through our ancestors; we owe it to them to conserve it for the future. We pledge we will never allow their erosion or their theft. We pledge we will never accept patenting, genetic modification, or allow our biodiversity to be polluted in any form, and we pledge that we will act as the peoples of this biodiversity.” (Index line 170; text 2)

39) There's inventions of salt-making, centuries after people had been making salt. But anything that was done the first time in the US counted as an invention and that kind of carries on,

except that now, what we are talking about is living material: *plants, seeds*, animals. I think it was literally two days before the other decision in March that is a decision of the Federal Court of Canada on the Percy Schmeiser case, (Index line 643; text 9)

The collocate, *plants*, together with its' node term *seeds*, is conceptualized as living material. They are acknowledged as distinct and independent entities which should neither be exploited for commercial needs nor manipulated and patented as inventions by humans. Humans enclose two essential roles: 1) the role of preservers of the natural environment and 2) the role of guaranteeing biodiversity and the freedom of nature to reproduce itself without the manipulation of humans.

Around the collocate *plants*, historical events are again being mentioned to support the validity of the discourse being carried out. For instance, The 'World Environment Day' held in 1998 (VS Corpus; Index line 170; text 2) is recalled in discourse to remind the claim made by local inhabitants as sovereigns of biodiversity, that is, those who behold the 'sovereignty to conserve' seeds which is placed in contrast to sovereigns who 'rape and destroy' through genetic manipulation and by including additives to seeds. Thus, as living forms *seeds* become personified and assume a female trait which is being dominated and abused by the global industrialized system. Another example which refers to historical facts to enhance a discourse in defence of seeds and of the natural environment, refers to the Percy Schmeiser case which took place at the Federal Court of Canada, (Index line 643; text 9). In 1998, Percy Schmeiser was sued by Monsanto, a multinational agricultural corporation for patent infringement. In

brief, Percy fought for the right to re-seed seeds which appeared to be patented seeds fallen on his property from the nearby fields and he won the case On May 21, 2004. Thus, property rights and farmers rights won over patent rights. The recollection of historical facts and events concur to highlight the construction of a new discourse for ecological and environmental issues.

Among the collocates of *seed*, the search term *seed* also reoccurs as a collocate of the node both in its singular and plural form. Thus, *seeds* (MI=3.9627969859078793) and *seed* (MI=4.606189515629625) appear to be strong collocates within the VS Corpus. Likewise, the collocates *farmer* (MI=4.103659404594433) and *farmers* (MI=4.166669327510378) are also both in their singular and plural form. Interestingly, the collocates *seed* and *farmer* occur among the first top four frequent nouns retrieved as lemmas within the noun frequency list of the VS Corpus⁷. Extracts of *seed*, *seeds*, *farmer*, *farmers* from the VS Corpus are illustrated below:

40) We are doubling food production per acre we are doubling nutrition production which is the most significant issue so it's a solution to hunger and poverty and malnutrition, but more important when *farmers* have *seed* sovereignty, when *farmers* do organic farming and are not blowing up money on patented seed royalties, expenditure on pesticides and fertilizers, they actually can increase income tenfold. Our members, who are small farmers, have done that. (Index line 28; text 13)

41) We attempt to make *farmers* sovereign in *seed* and food, to make communities sovereign in seed and food. Then it comes to Gandhi's most important lesson, not cooperating with unjust law. He first experimented with it when he was in South Africa

⁷ See chapter three, pp. 51-52, Table (4).

and they were laying the legal framework for the apartheid regime. The British passed a law that Indians had to wear a badge showing they were Indians and different from the whites. Gandhi said we are equal citizens. After all, it was in South Africa when they pushed him out of a train's first-class compartment— he was a lawyer and traveling first class, and they pushed him out. That's when he woke up to racism. That's when he realized how cruel the world can be. Then apartheid started, and he said, "We will not obey." He did a march, he went to jail. He organized the Indian community. That took place, interestingly, on September 11, 1906. We call it "the other September 11." (Index line 223; text 21)

42) I tracked the whole TRIPs negotiations through and have followed the biotech industry from the day it wanted to become a giant industry. I have tried to do my best to defend the freedom of people; create seed banks so that *farmers* have free *seed*; nature has freedom of diversity; and these monopolies are restrained. (Index line 306; text 24)

43) In India we don't spray herbicides, because we don't have Roundup-resistant crops because we don't have Roundup in our economy in a big way. But we do have the Bt cotton, which has pushed 200,000 farmers to suicide. So when I found the *farmers* had no *seed*, we started seed banks in that area. Once the farmers had non-GM seed, they could start to do organic farming. (Index line 389; text 31)

44) And the 'disease' they diagnosed and sought to cure was that *farmers* saved *seeds*. The cure was that farmers should be prevented from saving and exchanging seeds by defining these fundamental freedoms as a crime. (Index line 474; text 36)

45) And that's why at the end of this month we're going to have a very long series of mobilisations, we call it the BGR struggle[?]
— the mobilisation of the seed— and the theme is '*seed to seed, farmer to farmer*'. The seed should go to seed, it shouldn't be interrupted by technologies like terminator technology, it shouldn't be interrupted by a round of resistance. The future of the seed is to evolve and to go from seed to seed,

and corporate power sees that as an interference in markets. Unfortunately they are an interference in evolution. (Index line 619; text 7)

46) The second thing the industry said at that time was that they needed to do genetic engineering because without genetic engineering they could not get to their real objective which was patenting of life forms and patenting seeds. That was where the growth would come from: collecting rents from God's creation. *Seeds* reproduce, *seeds* give rise to *seeds*. That's the nature of Creation, but that is a problem for the industry. There are two ways in which they are trying to prevent creation from doing its work— the first is patents, patents make it illegal for anyone else but the patent holder to use, distribute, modify the patented product or the process that is being patented. (Index line 422; text 35)

47) The first inspiration was the spinning wheel. Gandhi had spun. He didn't take a gun and start shooting all these British who ruled us. He just spun cloth and said, You want to rule us by making us dependent, by taking our cotton and our indigo, forcing us to grow raw material for you, and then selling us the textiles and banning our own clothing? We will make our own clothing. We will be free. And that's why he pulled out the spinning wheel. I took inspiration from that and said, If what the industry is seeking is a global dictatorship over life, then we will start saving *seeds* one *seed* at a time and defend the freedom of life on earth, the freedom of our farmers, and the freedom of society to have food democracy. (Index line 366; text 31)

48) So, what's the spinning wheel of today? Now that Eva has thrown my mind in this terrible twirl, what is the spinning wheel of today? And by the time I got off my flight at home, I said: the *seed*. The *seed* is today's spinning wheel. The rest of my life I'm going to save seeds. So, at one level, one day I will write— if I ever do a biography, Eva— that at one level, it's your work for that meeting on laws of life that made me realise how important the seed is. It's small, but in the hands of every farmer. It's powerful. A garden, everywhere, on your terrace, in your backyard, in the school, in the church. And maybe this is a

second idea you can take back, since we are sitting in a Catholic space. And now they have a Pope that has written *Laudato Si*, the new encyclical. Now is the time to put the care for the Earth as the central issue. And care for the Earth begins with a garden. (Index line 49; text 14)

The collocates *farmer* and *farmers* affirm the strong connection between the node *seed* and *farmer(s)*, and thus, on the semantic level with reference to their hyponyms, between nature and its local inhabitants. According to Shiva's view, this connection must not be separated by the intervention of global economic issues and interests. Therefore, the discourse which fosters the exclusion of international economic systems intends to remove power from global corporate interests and to replace the inclusion of farmers and their local knowledge of the natural environment. The social re-representation of *seed* appears to be anchored to *farmers*. The identity of seeds is thus associated not only to its environment but to its local and cultural values. These values are extended and intended to involve every culture. Howarth (2011) argues that culture can be viewed "as something that we do through systems of representation, rather than something we have. In this way we can now examine how all cultures change and transform, meet and merge with others....." (p.5)." Shiva's discourse encloses cultural values which can be shared across cultures and which are embedded in 'systems of representations'. As a result, cultural patterns facilitate communication. Culture is employed in a twofold manner within Vandana Shiva's discourse: 1) to enhance the cultural values inherent to her country; 2) to promote a communion of values among individuals across the political borders. Furthermore, culture is employed as a means to encounter and interweave with other cultures and it can be acknowledged as a communicative

device for ‘cultural negotiation’ (Holliday et al, 2004). Howarth (2011) suggests that it is “a way of presenting and representing cultural knowledge in an ongoing system of negotiation” (p.6).

Shiva expresses the need for a new discourse of inclusion which reconstructs a natural order that can be conceptualized as an order given by “creation” in which “*Seeds* reproduce, *seeds* give rise to *seeds*. That’s the nature of Creation” (Extract 46): the capacity to reproduce itself without the technological intervention of humans.

Within the extracts given above, historical narratives and events re-occur among the concordance lines around the node and its collocate. In fact, narratives concerning the historical non-violent actions against ‘unjust laws’ carried out by Ghandi are recollected by Shiva engaging the listeners or readers to acknowledge and to share the same knowledge acquired from the historical event. Shiva creates a parallelism between her discourse practices and actions with Ghandi’s actions and discourse. She recalls Ghandi’s non-violent march which opposed unequal impositions for the ‘apartheid regime’. The march, which as Shiva states was held on September 11, 1906, is placed in contrast to the terrorist attack which took place in the Unites States on September 11, 2001. Thus, Shiva compares and socially represents Ghandi’s march as a ‘cultural otherness’ in contrast to the violent actions against the globalized world held on September 11, 2001. Historical narratives related to Ghandi are also utilized to represent seeds as a social issue which involves a widespread number of local communities. An example of Ghandi’s resistance to unequal British legislations against Indian citizens occurred through a spinning wheel. Shiva compares Ghandi’s peaceful

action of spinning cotton as the response to British laws of domination over Indian citizens, to her protest through her non-violent actions and discursive practices against laws and technological and genetic manipulations on seeds. In so doing, the spinning wheel concurs with the identity construction of ‘seeds’ as a means for peace, freedom and democracy. Thus, historical events and narratives in discourse are employed as empowering devices to legitimize current interests, actions and discourse practices against the dominant globalized world.

Collocates which are also related to the issues of freedom, peace and democracy are *varieties* (MI=4.122275335724508), *biodiversity* (MI=3.9692635909835423) and *diversity* (MI=3.596813613986243). The following extracts illustrate the collocate *varieties*:

49) I love my land, I love my people, and I’m proud of India’s ancient traditions, which have sustainability built into their core. These are not stagnant traditions; they’re evolving all the time. Part of what we do in Navdanya, the movement I started in 1987 when I realized that these poison corporations now wanted to own our seeds, is to save thousands of *seed varieties*. We’ve trained nearly a million farmers over the years in organic farming, in awareness of seeds and why they should be using their own seed. (Index line 188; text 21)

50) An example of the expansion of corporate freedom by extinguishing people’s freedom to save and exchange farmers’ *seed varieties* is the proposed EU seed law, and the push for harmonisation of seed-related laws in Africa. Other examples are the 2004 Seed Law of India which could never be enacted because of our resistance through a seed satyagraha, and the Colombian laws passed to implement the US-Colombia Free Trade agreement (Index line 509; text 36)

51) They can't patent the crops that women are growing, especially the open pollinated *seed varieties* that they are growing. And I have few copies of- I think one or two copies- of my series on the vitamin A. I called it, 'The Golden Rice Hoax'. Beginning, I called it, 'The Blind Approach to Blindness Prevention. (Index line 652; text 9)

The collocate *varieties* occurs on the right of the node term *seed*. This collocate intends to enhance the need for preserving seeds in order to maintain tradition and freedom. *Seed varieties* are menaced, according to Shiva, by legislations and patents which restrict the liberal use of seeds grown and used by farmers. Shiva fosters 'organic farming' (see Index line 188; text 21) and 'crops that women are growing' (see Index line 653; text 9). Organic farming is the core of seed growth development which has also been achieved through the foundation of *community seed banks* (as discussed above). Women is a central issue in Vandana Shiva's discourse and she is renowned as an eco-feminist. Thus, the construction of the identity of the seed also develops through an eco-feminist perspective. Ecofeminism, the abbreviation for 'ecological feminism' is an issue Shiva embraces within her discourse. A salient aspect of ecofeminism which contributes to the construction of the identity of seeds is given through Shiva's statement retrieved within the VS Corpus. In fact, as Shiva states:

Ecofeminism is about helping us remember that nature creates, people create, women are a huge creating force on this planet and the wonderful aspect of it is when we co-create with nature, not only do we meet our needs, we rejuvenate nature. The fiction of capital being a creative force can only exploit and deplete nature. Co-creation with nature actually gives us more fertile soils when we do organic farming; it gives us more biodiversity when we conserve seeds; it gives us more water when we conserve water; and it's the single biggest solution to the greenhouse gases that are being emitted— 40 per cent of which come from an industrial agricultural model. (Line 16; text 19 of the VS Corpus)

Shiva emphasises the connection between women and nature. This connection is embedded in an ecological and ideological perspective where women and nature are conceptualized as fount of life. The biological link of women and nature as ‘creating forces’ appeals as an alternative vision whereby gender and the natural environment merge and co-create together. Co-creation is the key to the fertility of soils, to biodiversity and to additional water. Thus, Shiva promotes an ecological and ideological perspective where the human-environment relationship appears to be presented as an alternative to the ‘industrial agricultural model’.

The collocates *diversity* (MI=3.596813613986243) and *biodiversity* (MI=3.9692635909835423) also occur to promote an alternative to the industrial agricultural model. Extracts where *diversity* and *biodiversity* are collocates of the node *seed* are given below:

52) These communities started in years past by saving locally bred *seeds* and saving *biodiversity*. Now they are seeking self-governance over food systems, water systems, and biodiversity systems. (Index line 171; text 2)

53) For me, technology is a tool and you look at what the tools do. In the case of agriculture, a tool is a very small component. The soil fertility decides how much you'll get, whether you have irrigation or not that decides how much output you have. The potential of the *seed* decides. The *biodiversity* intensification decides. The reason our systems produce more is we intensify biodiversity. And the more biodiversity there is, the more nutrition per acre there is. The industrial system which is called the use of technology actually kills—destroys—biodiversity, has destroyed the fertility of soils, that intensive agriculture

that's producing less food per acre is producing more commodities per acre. (Index line 34; text 12)

54) Bija Satyagraha, or the Seed Satyagraha, is a people's movement for the Resurgence of the Real Seed, of the intelligence of farmers to be breeders and to coevolve with the intelligence of the *seed* towards *diversity*, resilience and quality. It is a movement that springs from the higher laws of our being members of the Earth Community, Vasudhaiva Kutumbkam, from the higher laws of our duty to care, protect, conserve, share. (Index line 116; text 16)

55) In India we still have a lot of peasant agriculture. We still have a lot of *seed diversity*. We do not try and do it as a museum activity. I started Navdanya as a political act so that farmers would have free seed in their hands, using that free seed they would be able to resist the kind of control system that the new corporations, corporate control, was trying to establish in India. Through those seeds they can establish sustainable organic agriculture again. (Index line 277; text 22)

The collocates *diversity* and *biodiversity* enclose positive values of the node *seed* which can only be pursued through 'organic agriculture'. The extract unveils that the social representation of 'organic agriculture' is anchored in antinomy and thus, in opposition to 'industrial agriculture' which according to Shiva intends to control and destroy diversity and the fertility of soils. Escobar (1998) highlights that a significant 'conceptual innovation' is being developed among activists who define 'biodiversity' as 'territory plus culture' (p. 70). According to Shiva, within the industrial system, biodiversity cannot be preserved and shared among farmers. The requirement for *diversity* and *biodiversity* occurs through the collaboration between humans and the natural environment. The seed is personified as an intelligent being which should coevolve with the intelligence

of farmers (see Index line 116, text 16). Therefore, the identity of *seed* is also rooted in an ideological sphere of union between humans and nature because both possess the knowledge and the experience to coevolve. Also the identity of seeds fostered by Shiva in her discursive practices intends to reverse the dominant industrial and technological approach to Earth which is conceptualized as a fount of life.

Finally, *movement* (MI= 3.0792064737595615) is the last collocate of the node term *seed*. Examples of the collocate *movement* which occurs either on the right or on the left of the search term *seed* are illustrated below:

56) Because, you know, we do seed saving, the *movement*, for *seed* conservation we have in India, we have 250 varieties of rice on the farm, where we'll be starting this new college starting October. Our various community seed banks have saved about 2000- we used to have 200,000 rice varieties, and we have black rices and red rices and we got all kinds of rices, but I've never seen a jaundice rice. Why do they want to make a yellow rice? (Index line 649, 650; text 9)

57) Comparative yields of native and of Green Revolution varieties in farmers' fields have been assessed by Navdanya, a *Seed Conservation Movement*. Under conditions of low capital availability and fragile ecosystems, Green Revolution varieties are not higher yielding. Farmers' varieties are not intrinsically low yielding and Green Revolution varieties or industrial varieties are not intrinsically high yielding. (Index line 550; text 38)

58) I think this case is not just about Bowman, the Indiana farmer. It's about every farmer, every person and every seed in the world. First, the idea that Monsanto can patent a seed by putting a toxic gene for Roundup resistance into a plant, that that is a creation of seed, that has evolved over millennia, been bred over thousands of years in East Asia, not by Monsanto—

how can we be governed by an illusion that introducing a toxic gene is creation of life? It's an error. And it is this error that compelled me 26 years ago to start Navdanya, The *movement* for *seed* saving in India, because I do not think seed is invented, and therefore, a patent on seed is wrong from the first step. (Index line 8; text 10)

The occurrence of *movement* as a strong collocate of *seed* stresses the need to defend the identity of seeds and to resist the imposed version of reality generated by the global industry. Thus, local knowledge is placed in opposition to global and legal actions carried out on seeds. The resistance occurs through practical and active actions such as the creation of Navdanya which Shiva defines as *movement* and through the other *community seed banks* created around India. The collocate *movement* concurs with the construction of the identity of seeds by framing the idea and meaning of what is intended by seed. There is a shift from a practical and concrete action to a concrete image of seed. The truth which is also promoted through the collocate *satyagraha* (see above, pp.73-74) shifts from an *abstract knowledge* developed from the local cultural values to a *concrete knowledge* through the foundation of the *movement* for seeds and of the *community seed banks*. Thus, it is a type of knowledge which becomes visible to the eye. In so doing, *Personal knowledge* becomes concrete and can be socially shared and thus transformed and achieved as *social knowledge*⁸.

⁸ Teun A. van Dijk (2003) distinguishes knowledge into different typologies: Declarative vs procedural knowledge, personal vs social knowledge, general vs specific knowledge and types of knowledge such as interpersonal, group, cultural, national and universal knowledge. See Van Dijk (2003: 85-109) for a complete discussion.

4.3.2.2 The categorization and analysis of nouns and adjectives: artefact

The categorization which distinguished between *living kinds* and *artefact* (Kronberger and Wagner 2007) was applied to the collocates of *seed* as nouns and adjectives. The section above discussed concordances in which the node *seed* assumed a positive value and qualified according to the classification of *living kinds*. This section analyses and discusses collocates which assume a negative value around the node term *seed*. In fact, these collocates which occurred as strong collocates of the search node *seed* were classified as *artefact* according to the categorization proposed by Kronberger and Wagner (2007). The analysis and discussion below will provide further indications of the motivations underlying the classification of these collocates of *seed* as *artefact*. Moreover, the critical analysis which implements the social representations theory reveals how discursive practices construct and frame the concept and identity of *seed* in defence of ecology and the natural environment.

The list developed below indicates the collocates of *seed* which refer to *artifact*:

Number	Position	COLLOCATE	STATISTIC MEASURE (MI)	FREQ (COLL)	FREQ (CORPUS)
1.	L	STERILE	7.844740339626033	6	7
2.	L	HYBRID	7.466229004225321	12	14
3.	L	COSTLY	6.429703775869288	9	20
4.	R	MONOPOLIES	5.99674416069857	12	36
5.	L	GMO	5.7743520809021955	10	35
6.	L	MIRACLE	5.655707106093667	5	19
7.	R	SECTOR	5.511317853265303	5	21
8.	R	CHEMICALS	5.240669853002747	15	76
9.	L	PATENTS	5.073912198275565	16	91
10.	L	COTTON	4.996744234948334	14	84
11.	R	COMPANY	4.844741275148131	6	40
12.	R	COMPANIES	4.75163169534564	9	64
13.	R	LAW	4.612080498456026	12	94
14.	L	PRICE	4.318672385523921	5	48

15.					
16.	R	LAWS	3.9314528338282027	9	113
17.	R	MONSANTO	3.8513138137323346	11	146
18.	L	NEW	3.5886595802457837	13	207
19.	R	CORPORATE	3.427901564771315	5	89
20.	R	YEAR	3.4117817639279857	5	90
21.	R	INDUSTRY	3.217134446095058	5	103

Table (9) *Categorization of noun collocates of the search term 'seed' as 'Artifact'.*

The twenty-one collocates in table (9) have been categorized as *artefact* and they enclose negative values of the node term *seed*. The first strong collocate which assumes a negative value to the search term is *sterile* (MI=7.844740339626033). Although some instances of *sterile* occur on the right of the node term, the collocate occurs with major frequency on the left of the node. The collocate *sterile* qualifies *seed* as not capable of reproduction. Thus, *sterile* as an artifact of seeds is not represented as belonging to nature.

Extracts of concordance lines from the *VS Corpus* in which *sterile* occurs as a collocate of *seed* are illustrated below:

59) The second tool for preventing farmers from having their own seed, which also includes preventing nature from doing her work, is 'Terminator' technology, deliberately creating *sterile seeds*, preventing life from evolving into the future. I call this an evil technology, an evil thought and an evil technology. We managed to have it banned through the United Nations Convention on Biological Biodiversity. But more and more farmers tell us they're getting no crop from the seeds they are planting. And because the companies have total secrecy- not only do they have intellectual property through patents they have trade secrets and they don't tell governments what they are doing- no one else has the tools to test what they are doing but them. (Index line 439; text 35)

60) For us, seed freedom includes farmers' rights to save, exchange, breed and sell farmers' varieties—varieties that have evolved over millennia without interference of the state or corporations. We use 'seed freedom' as the right of the seed as a living, self-organised system to evolve freely into the future, without the threat of extinction, genetic contamination from GMOs, and the threat of termination through technologies such as the 'terminator technology' designed to make *seed sterile*. In 'seed freedom' is the freedom of bees to pollinate freely, without threat of extinction due to poisons. In 'seed freedom' is the freedom of the web of life to weave itself, with integrity and resilience, through inter-connectedness and well-being for all. (Index line 487; text 36)

61) When we wonder why our scientific mode of thinking has brought us to the level where human ingenuity is being used to create *sterile seeds*, we need to go back to the roots of that thinking. One of Bacon's books had a very interesting title: it was called *The Masculine Birth of Time*. The Royal Society in England, which was born in that period and was an organized structure of the new scientific revolution, very Eurocentric, very patriarchal—the secretary of the Royal Society said in 1664 that the objective of the society, the intention of the society was to raise a masculine philosophy whereby the mind of man may be ennobled with the knowledge of solid truths. (Index line 353; text 31)

62) A worldview that defines pollination as "theft by bees" and claims biodiversity "steals" sunshine is a worldview which itself aims at stealing nature's harvest by replacing open, pollinated varieties with hybrids and *sterile seeds*, and destroying biodiverse flora with herbicides such as Roundup. The threat posed to the Monarch butterfly by genetically engineered bt crops is just one example of the ecological poverty created by the new biotechnologies. As butterflies and bees disappear, production is undermined. As biodiversity disappears, with it go sources of nutrition and food. (Index lines 343; text 28)

The collocate *sterile* and the language around the node highlights that *seeds* produced without laws and restrictions by companies are rendered sterile through the application of technological manipulations which Shiva defines as ‘Terminator’ technology. The collocate *sterile* constructs the identity of artifact *seed* by re-representing *sterile seeds* through the mechanisms of naming and emotional anchoring as ‘Terminator’ technology (Extract 59).

Shiva stresses the interconnectedness between humans and nature, and *sterile seeds* impede the wellbeing of nature and as a consequence, of humans. *Sterile seeds* are socially represented in opposition to seed freedom and they put at risk the evolution of living entities. Biodiversity is destroyed by *sterile seeds* created by multinational companies and these *artifact* seeds are a threat to nature, to bees and to butterflies. In particular, the butterfly is personified in Shiva’s discourse and is represented as a Monarch.

The concordance lines around *sterile seed* also provide a historical explanation to the current worldview by setting its origins in the 17th century by reporting on Francis Bacon’s philosophical essay ‘The Masculine Birth of Time’. Bacon’s discourse on scientific progress leads Shiva to establish a cradle for the current masculine and ‘patriarchal system’ within the first scientific revolution of the 17th century (Index line 353; text 31).

Shiva promotes an alternative worldview which can be understood through the expression ‘web of life to weave itself’ (Extract 60). The concept of the *web of life* was first introduced in the field of human ecology by Park (1936 [1952]). And he (1952) argues,

The “web of life” in which all living organisms, plants and animals are alike, are bound together in a vast system of interlinked and interdependent lives, is nevertheless, as J. Arthur Thompson puts it, “one of the fundamental biological concepts” and is “as characteristically Darwinian as the struggle for existence” (p.145).

According to Park, the active principle which characterises the web of life is the struggle for existence (Hannigan 1995, 2006). Park, however, views human ecology as separate to plant and animal ecology (Hannigan 1995, 2006). Shiva’s metaphorical use of the ‘web of life’ encloses a different perspective. Instead, She includes human beings within the web of life. Moreover, Shiva proposes the solution to the struggle for existence through the expression ‘the web of life to weave itself’ (Extract 60). That is, she stresses the necessity of letting nature take care of itself without the intervention of humans, whereby humans are also part of nature. Her worldview through this metaphorical expression does not align with human ecology. Shiva’s worldview is closer to a native American known as ‘Chief Seattle’. He wrote a letter to the American President in 1852 in response to his request for the purchase of land. Chief Seattle (1786-1866) states in his letter (cited in Campbell and Moyers 1991):

Whatever befalls the Earth, befalls all the sons of the Earth. This we know: the earth does not belong to man, man belongs to the earth. All things are connected like the blood that unites us all. Man did not weave the web of life, he is merely a strand in it. Whatever he does to the web, he does to himself. [.....] Where will the thicket be? Gone. Where will the eagle be? Gone [.....] The end of living and the beginning of survival” (p.43)

According to Seattle, the ‘struggle for survival’ has been determined by man. Thus, Seattle and Shiva’s conceptualization of human and environmental life processes are interconnected and interweaved and they interact with nature.

Seeds which are identified as artefact are *GMO* (Genetically Modified organism) *seeds*, *hybrid seeds* and *new seeds*. These collocates occur on the left of the search node. Extracts below illustrate some of the concordance lines in which *GMO* (MI=5.7743520809021955), *hybrid* (MI=7.466229004225321) and *new* (MI= 3.5886595802457837) occur as collocates of seed:

63) Why did the farmers start to get into debt? We were able to establish through very detailed studies that it was the shift from ecological agriculture done with no purchased inputs to cash crops like cotton, which overtook 99 percent of these regions since globalization started to change our agriculture. *New seeds* and *hybrid seeds* can't be saved by farmers and the companies don't tell the farmers these are non-renewable seeds. The *hybrid seeds* are very pest-prone and therefore the farmers need pesticides. The farmers have no money (Index lines 84, 85; text 15).

64) After the Wars, there was cheap and abundant fertilizer in the west, and American companies were anxious to ensure higher fertilizer consumption overseas to recoup their investment. The fertilizer push was an important factor in the spread of the *new seeds*, because wherever the *new seeds* went, they opened up new markets for chemical fertilizers. (Index lines 394, 395; text 34)

65) 1984. I remember 84 was a very, very horrible famine of Ethiopia and I- I just dashed down. I got into a flight. 30,000 rupees it cost me, I didn't know anybody. It was the time of the dictatorship. I thought Ethiopia was going to be like India where you get into the place, find someone to escort you, you can go to a rural area. I didn't realize you can't move out of your hotel. But I was travelling with a pioneer hybrid person and he was going to sell corn seeds, *hybrid seeds*. I said but they're having a drought. And he said so what? We don't care whether it grows or not. All we care is sales (Index line 671; text 9).

66) Now the old mindset— I call it the fossilized mindset of the fossil fuel era. That fossilized mindset— I have had debates with the GMO industry and the biotech industry, where they talk about their *hybrid* and *GMO seeds* as preventing the bees from usurping the pollen. In their worldview, nature doing her own thing is stealing their profits. And that is why this idea of “the Green Economy” that was mentioned by Pablo Solón becomes so important. Because having devastated so much of nature, they are now looking at how to commodify the remaining functions of nature and exploit the remaining ecosystems of integrity. And they call it “the Green Economy”. I call it the Greed Economy. Because green is both the colour of the planet and of clothing. It is also the colour of that note in your wallet— it’s a greenback. So green can be the colour of greed or it can be the colour of Mother Earth. And which green we will grow depends on the paradigms we choose. This Tribunal and the process from which it has emerged and the process into which it will grow, hopefully, will allow the growth of the green of the Earth. (Index line 538; text 37)

67) As we said in our campaign that we launched on 8th of March this year on Women’s Day, women and biodiversity feed the world, not corporations and GMOs. And you know, my critique of the Green Revolution in a way extended to industrial agriculture using *GMO seeds*. The system is the same industrial system. It’s still a monoculture, it’s still energy intensive, it is still based on fossil fuels. It’s just that the seed itself is now a seed that’s genetically engineered and intellectual property. (Index line 36; text 14)

68) Biodiverse organic farms produce more food and higher incomes than industrial monocultures. Mitigating climate change, conserving biodiversity and increasing food security can thus go hand in hand. Three decades of Navdanya have shown that using native seeds and practicing agro-ecology, small farmers of India can produce enough, healthy, nutritious food for two Indias, and by not spending their precious money on buying poisons, and poison producing *GMO seeds*, they have the potential of enhancing their incomes tenfold, and stopping farmers suicides. A poison free, debt free, suicide free,

hunger and malnutrition free India and world is what I work for. (Index line 135; text 16)

69) What Monsanto is bringing, you know GMO, you could say genetically modified organisms, but it is a whole set of relationships. It's about owning life. It's about committing genocide. 270,000 Indian farmers have committed suicide since Monsanto took over our common seed supply, in 15 years. They come, they tell you what you do is primitive, give up your seeds. Then they will give you **GMO seeds** as the only option. They hijack our governments to say the only law that will be written will be a Monsanto law. We've got to reclaim our democracies. That is why it's so significant that you are here. (Index line 347; text 30)

70) Biopiracy is an epidemic. The most serious piracy involves plundering the innovation by farmers of the Third World who have evolved climate-resilient crops. Today the Monsantos and the Bill Gateses of the world are presenting the pirated climate-resilient crops as their inventions. Bill Gates wrote an article about it— “Oh, Melinda and I were visiting a farmer who is using seeds we introduced”— seeds that tolerate flooding. Well, it didn't come out of Bill Gates' labs, it came from Indian farmers. They pirate the seeds and take a patent. Monsanto, Bayer and Syngenta have 1,500 patents on climate-resilient crops! They are looking toward the climate crisis as a way to deepen their monopoly. If you look at the last few years, every time there has been a disaster— an earthquake, a tsunami, a cyclone— they have arrived with their **GMO seeds**. After the earthquake damaged Nepal so badly in April we kept getting calls— half of their seed banks had been damaged in the earthquake, buried under homes. The earthquake happened in April, by May we had to get the seeds there. We put the seeds together. At the border, the customs officer saw a very strange circular saying, “No seed except...”— and there was a list of companies, Monsanto and a Monsanto subsidiary. Only those seeds could enter. We checked with Nepal's agriculture minister and he said, “I never passed this order.” They'll even exploit an earthquake to make a monopoly! (Index line 237; text 21)

The conceptualizations of *GMO seed*, *hybrid seed* and *new seed* are thematically anchored to the industrial system through the SRT mechanism of *naming*. *GMO seeds* and *hybrid seeds* are the product of multinational corporations and are thus in opposition to *native seeds*. In addition, *new seeds* do not belong to the historical evolution of seeds and therefore, they are not categorized as *seeds*. They are qualified as ‘poison’ which negatively frames *GMO seeds* as artefact entities. The collocates *GMO* and *monopolies* concur to construct of the concept of monoculture which annuls diversity and which places itself in opposition to women and biodiversity. Thus, traditional farming by local inhabitants whose labour is in harmony with Nature is countered by the industrial agricultural system which is conceptualized as a monoculture and assumes a masculine trait.

Extracts of the collocate *monopolies* (MI=5.99674416069857) and *corporate* (MI=3.427901564771315) from the *VS Corpus* are shown below:

71) I’m here in Los Angeles to address a conference on International Women’s Day on global ecologies, on how globalization, shaped by a very patriarchal mindset, a capitalist, patriarchal mindset, has actually aggravated the violence against women, that we are living in a very violent economic order to which war has become essential—war against the earth, war against women’s bodies, war against local economies and war against democracy. And I think we need to see the connections between all these forms of violence, which impact women most. Whether it’s climate change or biodiversity erosion or *seed monopolies*, all of it is connected. It’s one piece. (Index line 4, text 10)

72) Definitely. People very, very much learn from what Gandhi had said. When I brought the TRIPs issues for the first time to

farmers' organizations in India, in '91 when the first draft of the WTO texts were ready, it was called the Dunkel draft text, I started to tell people what this would imply. It took no time: by '92, '93, we had giant farmer rallies. And the title was the Seed Satyagraha-- the non-violent, non-cooperation with laws that create *seed monopolies*, inspired totally by Gandhi walking to the Dandi Beach and picking the salt and saying, "You can't monopolize this which we need for life." (Index line 308, text 24)

73) To ensure that unjust laws do not destroy our last freedoms, we must remember Gandhi's call: 'As long as the superstition exists that unjust laws must be obeyed, so long will slavery exist.' And, there is only one way to defend freedom in the face of unjust laws-- satyagraha-- the Fight for Truth. We are being called on to practise seed satyagraha and food satyagraha to defend our everyday seed freedom and seed sovereignty, and food freedom and food democracy. Patents on Seeds and *Seed Monopolies* GMOs are intimately linked to seed patents. In fact, patenting of seeds is the real reason why industries are promoting GMOs. *Monopolies* over *seeds* are being established through patents, mergers and cross-licensing arrangements. Monsanto now controls the world's biggest seed company, Seminis, which has bought up Peto Seed, Bruinismo, (Index lines 525, 528; text 36)

74) We actually had, last year- and the count we have now in three years time is 20,000 farmers and this is one tiny organization like ours, with only two people who can actually go out to the field and monitor. Well, I'm sure it's much higher. But 20,000 is our count of how many farmers have committed suicide. We had brought Percy down last year- this was before the ruling came against him- partly because we wanted Indian farmers to know exactly how brutal these patent laws and these new *seed corporate monopolies* can function like. I basically call these technologies and property rights that are basically genocidal systems. They don't care how much they kill. But, you know, Monsanto doesn't care how many varieties of species they destroy with their RoundUp resistant crops. They don't care how many farmers die, as long as their profits work. (Index line 669; text 9)

75) However, even though WTO went into intensive care after the Seattle Ministerial, the ideology of free trade as corporate rule continues to be imposed undemocratically on people across the world through bilateral agreements. The US-India agriculture agreement with Monsanto, Con Agra and Walmart; and the Monsanto MOU with Nepal are examples of continued contest between seed and food freedom of the people, and *corporate monopolies* in *seed* and food. To push free trade as corporate freedom, three processes must be imposed simultaneously. (Index line 500; text 36)

76) But there is a way to reclaim our seeds: through seed freedom, where the control of seeds lies with farmers, instead of a system that views *seeds* as *corporate* intellectual property. Every place and every plate can be the site of a revolution against the poison cartel, which is responsible for a century of ecocide and genocide. (Index line 106; text 16)

The occurrence of *seed monopolies* and *seed corporate* concur to construct an identity of seeds which comes into existence from globalized worldviews. Within the concordance lines, *monopolies* and *corporate* also co-occur as collocates of seeds and both collocates enhance the destructive and ruling force of these *seeds* on people and nature. Moreover, in opposition to a biological link of women and nature as ‘creating forces’, *seed monopolies* are fostered by the global market which encloses a ‘patriarchal mindset’ and acts against women, against nature and earth, against the local economy and against democracy (Extract 71). Furthermore, the occurrence of these collocates intends to act against freedom and democracy of nature and humans in general. The lack of freedom and democracy affects both humans and seeds which are metaphorically personified as living entities. The collocate *monopolies* socially represents a different kind of seed which belongs to corporate multinationals, such as the Monsanto corporation. As

Trampe (2001) argues with reference to the language of agriculture regarding plants, animals and landscapes, these “Living beings are treated in accordance with the economic-technological ideology like objects that are *produced, managed, optimised* and *utilised*. Their exchange value determines the ethics” (p.237).

The construction of the identity of seed categorized as *artefact* diverges from the environmental and ecological view of seed as being created by nature. Indeed, “natural-kind identities implies the assumption of a stable, well-ordered universe of natural beings.” (Kronberger and Wagner 2007: 180). The concordance *seed monopolies* promotes the idea of a disorder which could take place in nature and offers the idea of a hierarchical order where power and domination is detained by multinational corporations from the industrialized global world. Economic interests over nature are supported by patents on seeds generating an unnatural, artificial identity of seed which does not belong to the natural environment. Indeed, if the laws of nature are not respected, human actions are destructive and produce disorder (Pope Francis 2015). Thus, the collocates *monopolies* and *corporate* classify seed as an *artefact* which belongs to the industrialized global world. Patents on seeds generate *monopolies* and power is beheld by owners of these patents.

The linguistic practice focuses on the construction of an identity of *seeds* which is socially represented through the anchoring in antinomies mechanism. In order to socially construct an image of seeds which belongs to nature and to counter *seeds* which come into existence through the manipulations of humans, some collocates such as *monopolies* are anchored in antinomies. Thus, the

collocate *monopolies* is in opposition to the collocate *commons* which occurs in the category of *living kinds* to highlight an idea of inclusion and of collaboration for the protection and preservation of nature. Social representations through the anchoring mechanism in antinomies generate oppositional viewpoints and contrast two divergent conceptualizations of seeds: seeds as living entities created by nature and seeds as artefact created and controlled by multinational corporations.

Monopolies that exercise power are multinational companies such as Monsanto. Thus, the abstract term monopolies becomes framed in concrete physical images through discourse. *Company* (MI=4.844741275148131), *companies* (MI=4.75163169534564) and *Monsanto* (MI=3.8513138137323346) occur as collocates of seed as shown in the following extracts:

77) Monopolies over seeds are being established through patents, mergers and cross-licensing arrangements. Monsanto now controls the world's biggest *seed company*, Seminis, which has bought up Peto Seed, Bruinismo, (Index line 529; text 36)

78) Monsanto is crucial to this fight because they are the biggest *seed company* now. *Monsanto* is privatizing the seed. They control 95 percent of the cotton in India, 90 percent of the soy in this country. They've taken over most of the *seed companies* of the world. Well, it comes down to seeds for the simple reason everything begins a seed. The food on our plate. You and me were seed at one point. The little calf that becomes the cow. Seed is the source of life. And seed is the source of renewal of life. That is where life gets renewed in perpetuity. (Index line 552; text 4)

79) Well sadly, that idea does very well in advertisements, but not on the ground. The technology of genetic engineering, which made *Monsanto* a *seed* giant before it was just a chemical giant, that had brought us dioxins and that had brought us the toxins, that genetic technology is not a breeding technology. It

takes existing plants that have been bred by farmers through selection or cross breeding or hybrids, and then it introduces it, through shooting with a gene gun, a gene that doesn't belong to that plant. (Index line 30, text 13)

80) Very rapidly, our farmers started to get into debt, but it's a different kind of debt. The earlier debt was to the public banks where they could stand and protest that they won't give back the debt. Now it was with the agents of the *seed company*. Normally, the agents would make them sign and say that the farmers will be millionaires if they would just sign the paper, and mortgage their land. And the farmer couldn't even imagine that for cotton he would lose, because cotton is a cash crop. Then farmers started to commit suicide. The figure from '95 to today is 284,000. More than a quarter million Indian farmers, most of them in the cotton belt, and most cotton is now GMO. (Index line 59; text 6)

81) Our system of food security is being destroyed in the name of economic growth and economic liberalization, and people don't have enough food to eat. Our farmers are being ravished by *seed companies*, being pushed into debt, and committing suicide. This system is going to cost lives even in the US, where people don't know how they'll pay for their health or retirement. (Index line 174; text 2)

Monsanto is one of the leading multinational companies in the world. In particular, in order to render Monsanto's power concrete, Shiva reports that Monsanto controls '95 percent of the cotton in India, 90 percent of the soy in the country'(Extract 78). The multinational company Monsanto is personified as a giant. Seed companies are negatively framed as being responsible for farmers' debt and suicide. Furthermore, these companies are responsible for the chemicals, toxins and modified seeds which are now being propagated in the world.

A strong collocate of the search term *seed* is *costly* (MI=6.429703775869288). The collocate *costly* often co-occurs with *chemicals* (MI=5.240669853002747), another collocate of the node. Instances of these collocates are shown below:

82) Farmers' seed sovereignty is at the heart of solutions to the epidemic of farmer suicides. Only when farmers have access to their own seeds will they be free of debt. And only through seed sovereignty can farmers' incomes be increased. Organic cotton farmers earn more by avoiding *costly seeds* and *chemicals*. Organic cotton is the future. (Index line 133; text 16)

83) In India there is a part of the country where the Bt cotton, the genetically engineered cotton, has been spread. Two hundred thousand farmers have been pushed to suicide because of the debt caused by this cotton. It's *costly seed, costly chemicals*. Farmers just can't pay it back. And the credit now is not from traditional moneylenders; it's from the agents of the seed companies. I call this new corporate feudalism, where the global corporations use feudal structures to maintain and expand their power. (Index line 373; text 31)

84) So it's a combination of false advertising, renewable seed becoming non-renewable, low cost *seed* becoming *costly* and the promise of pest control not working. (Index line 633; text 8)

85) Rarely is the increased cost of living and cost of production or the displacement of people from their land and livelihoods taken into account when "growth" is measured in terms of money flow and financial transactions. When ecological internal input farming is replaced by purchased inputs, the environment is destroyed and farmers are dispossessed. However, there is more "growth" when measured in increased purchases of *chemicals* and *costly seeds*. When corporations patent seeds, 1 trillion dollars of increased money will flow as royalty, but the farmers will be poorer. When water is commoditized and water markets of a trillion dollars are

created, corporate profits explode, GNP increases, but people are left thirsty and poor. (Index line 407; text 34)

86) If Cargill starts to do contract farming with Indian farmers, starts to make them slaves by selling *seed* and *chemicals*, buys the produce for cheap and they say it with no shame that the way we'll make the margins is by buying cheap from farmers. (Index line 608; text 7)

The co-occurrence of *chemicals* and *costly* aims at deconstructing the idea that *seeds* belong to companies as organisms belonging to nature. Instead, *seeds* assume a negative value and they are qualified on the same conceptual level as *chemicals*. Thus, *seeds* sold by companies destroy nature just like chemicals. Moreover, the discourse extracted from the *VS Corpus* attempts to provide evidence that *seeds* belonging to companies enhance the power detained by these companies who control the market. Therefore, economic growth benefits companies and does not improve the wealth of farmers who instead, become poorer due to the expenses they face when purchasing seeds and chemicals. The act of suicide by farmers due to debt is a recurring issue within the *VS Corpus*.

A collocate which is employed to outline the high cost of artifact seeds is *price* (MI=4.318672385523921). The collocate *price* sometimes also co-occurs with *cotton* (MI=4.996744234948334) and are illustrated in the extracts below:

87) In terms of the cost of monopoly, we witness what it does in India. Globalisation allowed companies like Monsanto into India in '95. In no time they had started to lock Indian companies into joint ventures and licensing arrangements. Very fast, 95% of the *cotton seed* was a GMO *cotton seed*. I won't

give you the story on how I sued Monsanto for illegal entry and they couldn't introduce it right away, but the main thing is that they started to take over the seed market. There was an 8000% jump in the *seed price*. Something that was available on the farm now has to be bought at 8000%. It doesn't really work to control pests, and we have a whole report that is available on our website. I couldn't find a better title for it than 'The GMO emperor has no clothes'. Because their three claims, that it produces more, reduces chemical use, and is efficient at controlling pests and weed— none of it is true. Globally, that is showing up. (Index lines 586, 587, 589; text 6)

88) In India, this kind of false claim to creation, false claim to invention, the collection of royalties from seed, has led to Monsanto controlling 95 percent of the *cotton seed* supply, 95 percent through a monopoly, not through the choice of the farmers, as it's often made out to be. Farmers are getting indebted because the *price of seed* jumped 8,000 percent, and there's no option, except the little options we are creating through Navdanya by saving open-pollinated seed. (Index lines 13, 14; text 10)

The collocate *price* occurs with *seeds* that are provided by companies and, in so doing, the purchase of seeds is fostered as being the reason of farmers' debt. Moreover, to explain the motivations which caused farmers' debt, Shiva reports a practical example practiced on *cotton seeds* and historical facts. For instance, Extracts 87 and 88 recollect Monsanto who practiced an 8000 percent increase on cotton seeds. To deconstruct the idea that seeds from multinational companies do not increase production, reduce chemical use, and are not efficient at controlling pests and weed, Shiva personifies Monsanto as an Emperor and metaphorically states "The GMO Emperor has no clothes" (Extract 87). Moreover, through the collocate *year* (MI=3.4117817639279857), Shiva stresses farmer's dependency on

companies who have become obliged to purchase *seeds* from companies every year as shown below:

89) The enclosure of the biological and intellectual commons in this way is a real threat to the future of people everywhere because it creates a situation where common practices that have been part of people's lives for generations become monopolies of a handful of pharmaceutical, agribusiness and agrichemical corporations. People then become incapable of looking after their own needs. Every farmer must go to the *seed* industry every *year* to buy their seed and pay an 80 percent royalty to a corporation. This is already happening in this country. Over-the-fence exchanges have started to be treated as crimes. Or, if you need a biological pest control, you can no longer use the seed in your back yard. Instead you have to depend on the Grace Corporation or some other entity. That kind of dependency basically leads to increased poverty and increased ecological destruction. (Index line 177; text 20)

90) So that all peasants, all farmers around the world would be buying *seed* every *year* thus creating a new market for the global seed industry. (Index line 251; text 22)

An issue employed to construct or deconstruct the identity of seeds is religion. For example, extracts of the collocate *new* (MI=3.5886595802457837) and *miracle* (MI=5.655707106093667) below show how artefact seeds are ironically attributed a divine agency:

91) So I did my book called 'The Violence of the Green Revolution' and what I really found out in that study was two things: one— that chemical agriculture/industrial farming had been promoted as a miracle. And the arrogance of it was that Borlaug, who did the dwarf varieties, sent out his 12 students as his 12 apostles. And the wheat they distributed they called them the '*miracle seeds*'. Nothing miraculous about those seeds— they were just bred to respond to chemicals and even the United

Nations has had to say that the term 'high yielding variety' is wrong. (Index line 412; text 35)

92) And it's always the men because they're the ones who go to the market place. That's where the agents of the company say "Here's a *miracle seed*. It's going to make you a millionaire". (Index line 631; text 8)

93) I've seen them use Jagannath Puri, Lord Jagannath of Puri as their salesman, they've used Hanuman in south India, whichever god works better in whichever region is their salesman. And they always have a message about how this god is coming with a *new seed*, which is a *miracle seed* that is going to make them millionaires. A lot of people say why do farmers go in for it? I said my god, if your god is bringing you a message you jolly well go in for it. That's what gods are for. (Index line 662; text 9)

94) Nothing to do with the GMOs at all. And where we have increased cotton production is because we have increased acreage. And it's the same story with the green revolution. India produced more rice and wheat, but we increased acreage of rice and wheat, and have had debates with the Borlaug Foundations that we have shown that the land and irrigation explain the increase in production. The idea of *miracle seeds* and chemicals and now miracle GMOs is covering up the real roots of where production increases. (Index line 31; text 13)

95) Having destroyed nature's mechanisms for controlling pests through the destruction of diversity, the '*miracle*' *seeds* of the green revolution became mechanisms for breeding new pests and creating new diseases. The treadmill of breeding new varieties runs incessantly as ecologically vulnerable varieties create new pests which create the need for breeding yet newer varieties. The only miracle that seems to have been achieved by the Green Revolution is the creation of new pests and diseases and with them the ever increasing demand for pesticides. Yet the new costs of new pests and poisonous pesticides were never counted as part of the 'miracle' of the *new seeds* that modern

plant breeders had gifted the world in the name of increasing “food security”. (Index line 397; text 34)

These artefact seeds are defined as *new seeds* which diverge from seeds generated by nature. These artefact seeds are thematically anchored to the Christian religion and *seed* is ironically conceptualized as a *miracle seed*. The people who distribute seeds around the world, belonging to multinationals, are figuratively compared to the twelve apostles who spread out around the world to promote the Gospel. The dominant global discourse of development which promotes the use of seeds from multinational corporations as a means to increase production, economic income and well-being due to control on seeds as a guarantee to food security, is rejected in Shiva’s discourse practice by deconstructing this dominant view through social re-representations of seeds (from multinationals) as destructive for the environment and for the quality of food.

Discourse is shaped in a historical perspective in which the current agricultural system is environmentally insecure and unstable. Security is an issue within Environmental discourse and the concepts of security and environment have been linked together as ‘environmental security discourse’ (Detraz and Betsill 2009). As Detraz and Betsill (2009) state, “the defining characteristic of the environmental security discourse is its emphasis on the security implications of environmental degradation for all human beings (rather than simply the state)” (p.306). Shiva’s negative frames of references transcend environmental degradation to power control over agriculture.

The control over agriculture occurs through the *seed sector*. Extracts from the *VS Corpus* show how the collocate *sector* (MI=5.511317853265303) detains negative values which are prominent in obtaining complete control over agriculture.

96) Every village I have visited in the state of Punjab has had suicides. Pesticide use has increased 2,000 percent in the last decade. The hybrid seeds are very costly. They are advertised and promoted in the most unethical ways. Part of what globalization has done is removed any regulation on the *seed sector*. Globalization is the deregulation of commerce. Companies can sell what they want on what terms they want, with no one to keep a check. We call it “Seeds of Suicide” because it is beginning with seeds. But we also have a program called Seeds of Hope where we’re getting open-pollinated varieties in the hands of farmers, especially in Punjab. (Index line 91; text 15)

97) Now I don’t believe at any point, in any society, anything is so far gone that you can’t create freedom. So, yes, the United States is very advanced in total corporate control over the *seed sector*— Monsanto being the big giant that controls the seed as well as the issues of biosafety. But the movements we started two decades ago are now growing. (Index line 156; text 17)

98) The falsehoods and the fictions that are ruling us have become life-threatening. Reclaiming life, celebrating life is the economic movement of our times, it’s the freedom movement of our times, it’s the equity movement of our times, it’s the peace movement of our times. Because whatever is destroying the planet is based on wars, whatever is becoming profitable is based on exploitation. And nobody except a few giant corporations are winning at this game: five in the water sector, five in the *seed sector*, five in the agribusiness sector. That, in my view, is a dictatorship. (Index line 390; text 31)

99) Well, that's exactly how the seed laws of India were changed in that report called, 'Seeds of Suicide'. It's really our monitoring

of the new phenomenon of suicides. Indian peasants have never committed suicides. They've been through the toughest circumstances- they can get flooded out one year, have drought the next year, have a crop failure third year, they won't give up. But they're starting to give up now. And why are they giving up? Because part of globalization and trade liberalization meant that the corporations like Cargill, which has now been bought up for the *seed sector* by Monsanto, who are then- which is then buying up a lot of the Indian private seed companies, that they can go without any kind of regulation into villages and sell their seeds. And I have watched them use Guru Nanak the Sikh Guru as their salesman. I've seen them use Jagannath Puri, Lord Jagannath of Puri as their salesman, they've used Hanuman in south India, whichever god works better in whichever region is their salesman. And they always have a message about how this god is coming with a new seed, which is a miracle seed that is going to make them millionaires. A lot of people say why do farmers go in for it? I said my god, if your god is bringing you a message you jolly well go in for it. That's what gods are for. (Index line 658; text 9)

The *seed sector* promoted in the global world is socially represented as a threat to life. The *seed sector* is being controlled by a small number of multinational companies. As a paradox, one of these companies, Monsanto, places these seeds under the umbrella theme of biosafety. The *seed sector* is thematically anchored to dictatorship.

Dictatorship is imposed through legislations and patents on seeds. The collocates *patents* (MI=5.073912198275565), *law* (MI=4.612080498456026)⁹ and

⁹ The collocate *law* mainly assumes a negative value and was therefore collocated within the artefact category. However, two collocates of *law* around the node term *seed* represent seeds as living kinds and counter the legislations on seeds in the world. These collocates refer to the manifesto 'The Law of the Seed' (Extract 104) which was created in defence of seeds. The social representations of 'The Law of the Seed' in comparison to the 'EU Legislation', a law proposed in 2013, are analysed in Chapter five.

laws (MI=3.9314528338282027) are employed to highlight the imposition that is enacted on seeds. These collocates are illustrated in the following abstracts:

100) *Seed laws* for compulsory registration, which are being pushed everywhere, are based on the illegitimate restriction of people's freedom in order to enhance corporate freedom to establish seed monopolies. An example of the expansion of corporate freedom by extinguishing people's freedom to save and exchange farmers' seed varieties is the proposed EU *seed law*, and the push for harmonisation of *seed*-related *laws* in Africa. Other examples are the 2004 *Seed Law* of India which could never be enacted because of our resistance through a seed satyagraha, and the Colombian laws passed to implement the US-Colombia Free Trade agreement (Index lines 510, 512; text 36)

101) Every small-scale cottage industry can make pesticide. And that pluralism of the economy is fine. But a patent gives a legal right to shut down other people's making, selling, buying. *Patents* on *seed*, which are now very prevalent in North America, allow a company like Monsanto to use detectives, to go into a farmer's field or home, and find not just the seed but even the trace of the seed that might have come through pollination. What does this have to do with neem, tamarind, pepper, that have been patented and are under corporate control? It means that sooner or later they can invoke this legal right to exclude others from the marketplace or from making their own thing. There are many judgments already in patent issues where corporations say, It doesn't matter if you're making your own seed, even if you're saving it for yourself and not selling it commercially. Your saving it is cutting into the commercial market of the company that could have sold it to you if you weren't. Therefore they interpret even subsistence activity as commercial activity. (Index line 95; text 15)

102) It was an intimate meeting and the attendees spoke plainly. They said, "We need genetic engineering to grow our *patents* on *seeds*." They said they needed immediate international law on intellectual property in order to impose *patents* on *seeds* worldwide. This is what became the trade-related intellectual

property rights agreement, later becoming the agreement at the WTO. (Index line 138, 139; text 17)

The discourse around these collocates highlight that patents and laws on seeds serve the interests of multinational companies who aim at controlling the agriculture sector. Thus, the discourse discloses motivations underlying seed patenting. Moreover, the discourse uncovers the ‘how’ and ‘why’ patents dictate limitations by providing practical examples of the consequences patents generate and by reporting on actions carried out to counter legislations on seed. In defence of seeds, Shiva together with other authors concerned with native seeds wrote a manifesto entitled “The Law of the Seed”. The collocate *law* which enclose a positive value of seeds is given below:

103) So, for example not only did we save seeds, we do participatory research, we do participatory breeding. And now we’ve written a little manifesto called "The *Law* of the *Seed*" which is absolutely by the top experts. You know, the person who used to head FAO’s Plant Genetic Resources commission, said Salvatore Ceccarelli, the world’s top participatory breeder. We put our minds together and said: What is the true *law* of the *seed*? What does the seed tell us and what does breeding from women tell us? That you breed for diversity, you breed for resilience, you breed for nourishment. What are the standards of the industrial breeding? Uniformity, uniformity, uniformity. This was what was being used two years ago to bulldozer a seed law on Europe, which was defeated because of the very broad alliance including the Seed Freedom Movement. And your own Arche Noah, the seed savers of Austria. (Index lines 74, 75, text 14)

‘The Law of the Seed’ which was written in defence of indigenous seeds, that is, seeds generated by nature will be analysed in the following chapter.

4.4. Final Considerations

This chapter uncovered how the *VS Corpus* counters the industrial globalized world in defence of the environment and in particular, of *seeds*. The findings of the study, through a corpus-based research which implemented a social and linguistic research approach on environmental issues, showed how the construction of the identity of seeds occurred through conceptual systems which operated in binary oppositions: *living kinds* and *artifact*. These binary oppositions constructed or de-constructed ecological patterns which. The overall aim of the environmental discourse analysed, was to construct a knowledge of the concrete and real item seed as a social object in opposition to the item seed propagated by multinational companies.

Furthermore, Shiva constructs the identity of *seeds* by countering current *hegemonic representations* and fostering *emancipated representations*. In other words, current social representations within social reality are deconstructed and are entailed a negative connotation revealed by the *artifact categorization* of *seeds*. Shiva constructs the identity of *seeds* by means of environmental discursive practices, revealed by the *living kinds categorization* of *seeds*. This categorization re-represented an alternative social reality, which, as uncovered within the chapter counters globalization and fosters local communities, which counters individual interests of large corporations and fosters the commons and farmers, which counters GMO's and monocultures and fosters seed saving which has occurred throughout the centuries.

The construction of the identity of *seeds* occurs through social representations which re-represent knowledge systems and social reality and thus,

providing *polemic representations* which intend to foster an alternative worldview based on an environmental framework where nature is core. In particular, Shiva represents an alternative social reality fostering an ecological paradigm of Nature as Living.

Chapter Five

Legal versus Environmental Social Representations: results and discussion

5.1 Introductory remarks

This chapter focuses on the second sub-corpora of the research study, namely, “The Law of the Seed” and “EU Law (2013/0137)”. The EU Law (2013/0137) was proposed in 2013, by the European Commission which intended to regulate plant reproductive material, in other words, any kind of plants (e.g. seeds) used for the production of other plants. The proposed law was made up of 12 Directives partly dating back to the 1960s. The 12 Directives, covering the most important plant species (about 150 listed species) on the EU market, were formulated with the aim of presenting a new and exhaustive Regulation, made up of 149 articles. The proposal had been put forth for two main reasons. First, the commission aimed at reinforcing conditions of food safety; second, it aimed at increasing exports of seed from the EU to the rest of the world. The law itself would have been mandatory for all member states to enforce as law the restriction of sale and use of any seeds which had not been registered with and approved by the European Union. These restrictions imposed by the regulation of seeds envisioned the control of agro-biodiversity and violation of farmer/breeder rights. This had led to a European petition promoted by consumer groups, small-scale farmers and gene banks as the legislation would have given power to the global seed industry and corporations, which control seeds through genetic engineering

and patents. As a result, traditional seed sharing and saving by local farmers would have become illegal. As stated in Art. 146,

this regulation will enter into force on the twentieth day following that of its publication in the Official Journal of the European Union and [...] 36 months from the entry in force [...], this regulation shall be binding in its entirety and directly applicable in all Member States (EU legislation, 2013: 93).

From an environmental viewpoint, this legislative control has been questioned for its historical, geographical and quantitative restrictions by several environmental advocates. Vandana Shiva who is also known as a prominent leader of environmental justice acquired in the forests of the Himalayas and through the social movement (Chipko, or to hug), knowledge about biodiversity and the urge to preserve it, has triggered her ongoing pursuit for environmental justice. Following the approval of the proposed European Commission's seed legislation, Shiva et al. (2013: 3) openly stated that:

the ecological and biological laws of the Seed draw upon the perennial laws of nature and evolution based on diversity, adaptation, resilience and openness. They also draw on principles of jurisprudence of human rights, public goods and the commons.

Thus, alongside the EU plant reproductive material law, Shiva drafted a new natural law, namely, The Law of the Seed (2013) with the purpose of putting “[...] diversity and [...] sustainability [...] at the centre of the scientific and legal frameworks that govern the seed [...]” (p. 7).¹⁰ Previous studies have investigated Shiva's position in terms of her counter-hegemonic discourse of biodiversity positioned within the alter-globalisation movement (e.g. Plastina 2014).

¹⁰ Thanks to concerns of social justice activists such as Vanadana Shiva, the validity of The EU Plant Reproductive Material Law (2013/0137) ended on 07/03/2015 and the Law was withdrawn.

This chapter is centred on the documents of the second sub-corpora and focuses on the ways in which the law of seeds was planned to be regulated within the institutional European legislative domain and within the context of the Working Group of Navdanya International, founded by Shiva as a network of seed keepers and organic producers spread across 17 states in India. The study intends to highlight the crucial role played by social representations in legal vs. environmental discourse. Social representations are purposed to different types of group interest so that the predicted internal structure of the representation and the extent to which it is dispersed within a recognisable group or social category will depend upon the functions it is serving (Breakwell 1992: 1).

These functions will obviously differ in legal vs. environmental discourse.

For example, while legal discourse on the release of genetically modified foods into our food supply is very flexible in the United States, Alexander (2009: 134) points out that:

Agriculture has become a capitalist business in most of the world; hence the use of the English word 'agribusiness' to describe the commodification of food production.

In this perspective, the study considers how new social representations in the regulation of seeds are pushed forward and old ones transformed through discourse, which shifts from the institutional EU normative sphere to that of Shiva's environmental-normative domain.

According to Jodelet (1991), social representations are "images that condense manifold meanings that allow people to interpret what is happening" (as cited in Howarth 2006: 70). The term, as mentioned in chapter two, was coined by Moscovici (1961) to indicate 'system of values, ideas and practices' in which a

social object is not only reproduced in the mind of an individual or group(s) but it is given life through the “socio-cognitive activity of its user that embeds it in a cultural and historical context. It is not a cognitive process or a social process: it is simultaneously both” (Voelklein & Howarth, 2005, p. 11). Representations are generated along a continuum where time, culture, technology and discourse shape the social representations of individuals and groups. Thus, social representations reflect changes which take place within historical, cultural and economic contexts, circumstances and practices in different ways (Höijer 2011). Representations are shaped by referring to the surrounding environment in order to understand it and convey meaning about it. In this sense, social representations serve two major functions: descriptive and normative. They can “familiarize the unfamiliar” (Moscovici 2000) through detailed descriptions, or they are sourced to evaluate things according to pre-established socio-legal norms. For the sake of this study, social representations are considered for their normative value as basically as “[...] they are beliefs embedded in systems of norms” (Doise 2002: 78). It follows that the roots of legal thinking can be sought in normative social representations more than in its institutional expression.

5.2 The Comparative Analysis

The normative social representations based on the regulation of plant reproductive material in terms of its social representations were investigated within the second sub-corpora (see Chapter 3). More specifically, the investigation attempts to identify and compare legislative differences between two

discourses dealing with the use of seeds in modern society from different socio-legal perspectives. In this, the following two research questions are posed:

1. How do social representations attributed to seeds operate in normative discourse?
2. Which are the social representational meanings constructed by the European Commission's legislation compared to Shiva's natural law?

5.3 The Corpus of the comparative study

Chapter three introduced the second sub-corpora of the *C Corpus* of the research study. The materials used for the study of the second sub-corpora include two main contrasting documents, namely, the EU Plant Reproductive Material Law (2013/0137) and the Law of the Seed (2013), proposed by Vandana Shiva. The corpus included the main sections of EU law (from the Explanatory Memorandum to article 149)¹¹ and Shiva's law, structured in 24 articles. Thus, the second sub-corpora was made up of 23,151 running words (the EU Plant Reproductive Material Law: 36,221 running words; The Law of the Seed: 9,530 running words).

A small corpus was thus created and the texts under analysis were investigated quantitatively through the application of *LANCBOX corpus toolbox* (Brezina et al.: 2015) and qualitatively, drawing on the social representations theory (Moscovici, 2000). The study, therefore, adopts a corpus-based approach and a critical discourse analysis approach in which the interface between social and discourse structures (cf. van Dijk, 1998) lies in the social representation of

¹¹ As mentioned in chapter 3, the tokens before the Explanatory Memorandum and after article 149 were not included within the corpus material due to the need to eliminate irrelevant text. The EU law (2013/0137) consists of 36,221 running words.

seeds. The aim of the research is to identify and compare differences between the two discourses in terms of social representations. Critical discourse analysis was first performed separately on the single documents to identify the social representations attributed to seeds and the types of mechanisms employed. In a subsequent phase, a comparative critical discourse analysis was conducted to highlight the representational meanings constructed and to seek the types of contrasts which emerged.

The method and procedure of the study have been discussed in detail in chapter three. Thus, with the intention to answer the two research questions of the study, the sections below discuss the findings on social representations of *seeds* within the second sub-corpora of the *C Corpus*.

5.4 Findings and Discussion

Seeds are valued and conceptualized through a variety of representations within the two documents analysed. The most common attributes allotted to seeds within the two discourses of the second sub-corpora are listed in Table (10).

EU law (2013/0137)	The Law of the Seed
1. marketing of seed	1. freely saving seed
2. intellectual property	2. seed exchange
3. creation	3. lifeforms
4. registration of varieties	4. seed related law
5. listed species	5. seed diversity
6. seed scheme rules & regulations	6. sovereign beings
7. certification of plant reproductive material	7. local species and varieties
	8. living organisms
	9. Seed Freedom

8. propagating material	10. Food security
9. seed testing	
10. technical and scientific developments	

Table (10): *Most common attributes related to 'seeds'*

Table (10) indicates how seeds are attributed a commercial value regulated by *EU Legislation* as opposed to the free saving of seeds which should not be subjected to restrictions. Thus, seeds are identified as intellectual property rather than as a source of exchange. Legal discourse reduces seeds to material goods which belong to a small category of humans (*professional operators*) and legislation clearly intends “to protect the commercial interests” (EU legislation, 2013: 18) of these operators. By contrast, environmental discourse emphasises that seeds are not human property but should be considered as an essential exchange in order to protect biodiversity and to face the current crisis, understood as “a crisis of ethics and values” (Shiva et al. 2013: 7). The third most common attributes are *creation vs. lifeforms*. In this case, seeds are created by *professional operators*, who claim ownership and seek regulation. Ecologically, seeds are lifeforms and as such, they regulate themselves naturally and through farmers and breeders’ traditional knowledge. Furthermore, seeds are artificially classified (*registration of varieties*) despite the fact that there is a natural *seed related law*. In this regard, Shiva et al. (2013: 4) argue against the dominant system of Industrial Patents on Seed which:

...treat seed as an ‘invention’, and hence the ‘intellectual property’ of corporations [...] which privilege uniformity and industrial

breeding[...]on farmers' varieties and open pollinated varieties, which are bred for diversity and resilience.

In legal discourse, only those species which are listed are legally acknowledged, whereas the natural diversity of seeds is indefinite and unlimited. In this way, Shiva juxtaposes the ecological power of seeds (*sovereign beings*) to *human seed scheme rule and regulation*. Thus, the '*Law of the Seed*' qualifies seeds as subjects, as animated independent organisms which possess the ability and capacity to self-organize themselves autonomously. In turn, there is no need for "technical examination concerning their distinctiveness, uniformity or stability" (EU legislation, 2013:18) or for a *certification of plant reproductive material* but rather the need to continue the ecological processes brought forth by farmers:

Farmers have bred for diversity, quality and resilience, as opposed to the paradigm which privileges Distinctiveness, Uniformity, and Stability (DUS); (Shiva et al. 2013: 32)

Thus, according to the environmental discourse, there is the need to consider the *local species and varieties* from farmers' *eco-perspectives*.

Seeds instead, become globalized and propagated materially as inanimate objects, losing their identity of living organisms. In this normative process, seeds are tested for selection so that Seed Freedom is strongly restricted with a heavy loss of biodiversity. Finally, the need for seed regulation is due to technical and scientific developments, which appear to prevail over the promotion of food security, and which can be guaranteed only through traditional farming.

5.4.1 Anchoring Mechanisms

Findings on the anchoring mechanisms of the social representations of seeds within legal and environmental discourse are reported below.

5.4.1.1 Naming and Emotional Anchoring

The anchoring mechanism of ‘naming’ was employed in both documents as shown in Examples (1) and (2) to represent *patents on seeds* vs. *patents on life*.

EU legislation and the Law of the Seed diverge in representing seeds. Examples (1) classifies seeds as *plant species*. The term species carries the semantic trait of typology and therefore something that needs classification, whereas example (2) stresses the essential feature of seeds as lifeforms which “makes patents on seeds morally, scientifically and legally inappropriate” (Shiva et al. 2013: 7).

(1)

- a) A number of Commission Horizontal Working Party meetings covering all the *plant species* were held in 2009-2011. (EU text, line 11)

- b) The uniformity examination should take into account the type of variety and type of reproduction. In addition, by secondary act it can be decided for which *plant species* additional requirements on value for cultivation and use (VCU) can be laid down. The Member States shall adopt more detailed criteria for the VCU examination of these plant species as regards their yield, quality characteristics, resilience and suitability for low input production systems including organic production. Thus, given the specific characteristics required for organic farming, the methodology and requirements established for variety examination should take due account of the specific needs. (EU text, line 52)

(2)

- a) The TRIPS clause on patents on life was due for a mandatory review in 1999, because the idea of “creating” and “inventing” life, and hence owning it, was so wrong. India, in its submission, had stated “Clearly, there is a case for re-examining the need to grant patents on *lifeforms* anywhere in the world. Until such systems are in place, it may be advisable to:- (a) exclude patents on all *lifeforms*,” (The Law of the Seed Text, line 16)

Furthermore, seed is named as *material* which is regulated by the European Commission as in Examples (3):

(3)

- a) in order to introduce flexibility for future technical and scientific developments, heterogeneous *material*, which does not fulfil the definition of a variety, could be exempted under certain conditions from the requirement that that *material* belongs to a registered variety. (EU Text, line 38)
- b) it bears an official label for pre-basic, basic or certified material, or an operator's label in case of standard *material*; (EU Text, line 35)

Conversely, within ‘The Law of the Seed’ seeds are named as *living organisms* and thus, as *life forms*. Shiva highlights the quality of being able to self-regulate without the intervention of human beings as in Example (4):

(4)

- a) *Living organisms* make themselves. *Life forms*, plants and seeds are all evolving, self-organized, sovereign beings. They have intrinsic worth, value and standing. Seeds are not invented by simply putting a gene into them. Adding a toxic gene should in fact be counted as “pollution”, not as “creation”, and furthermore, GMO seeds with toxic genes in them need to be regulated with biosafety in mind. (The Law of the Seed Text, line 19)

In Examples (5), the term ‘Seed’ is replaced and named by the European Commission as *Plant Reproductive Material*.

(5)

- a) The current EU legislation for making available on the market of plant reproductive material is based on two main pillars, namely the registration of varieties/material and the certification of individual *plant reproductive material* lots of plant species as identified in the Directives ('EU listed species'). (EU Text, line 4)
- b) As under this Regulation the definition of operator does not include private persons, the term 'professional operator' is used. Professional operators are defined by a single definition and shall be registered to ease the control activities. This register shall be combined with the register established under [title of the new Plant Health Regulation]. Basic obligations will be introduced for professional operators concerning the identification of the *plant reproductive material* they are producing or making available on the market, keeping of records, facilitation of controls and maintenance of the material. The traceability of any *plant reproductive material* is ensured by the obligation for the professional operators to have information one step before and one step after their commercial activities. (EU Text, line 25)

Example (6) illustrates how ‘The Law of the Seed’ names *genetically engineered seeds* which detain negative values as *terminator seeds*:

(6)

- a) Industrial breeding has used different technological tools to consolidate control over the seed– from so called High Yielding Varieties (HYVs), to hybrids, *genetically engineered seeds*, “**terminator seeds**”, and now, synthetic biology. The tools might change, but the quest to control life and society does not. (The Law of the Seed Text, line 26)

The term ‘terminator’, in Example (6), is a mechanism of both naming and emotional anchoring. In fact, ‘terminator seeds’ is not only associated to death by

the anchoring mechanism of naming but it is also anchored to environmental risk and fear of extinction.

Within the EU legislation, instead, instances of emotional anchoring do not occur due to the peculiarity of the genre.

5.4.1.2 Thematic Anchoring

Thematic anchoring plays an essential role within both discourses as it lays down the core patterns of thinking for re-representing *seeds*. *Seeds*, in fact, are no longer a hegemonic representation. The EU document is imposing an emancipated representation of seeds which is countered by Shiva's polemic representation, contrasting the EU document and re-establishing the traditional hegemonic representation.

Both the European and Shiva's discourse construct knowledge by drawing on the theme of *evolution*. EU justifies the restrictions imposed by the legislation of seeds by anchoring *legislation* to the theme of *evolution*, whereas Shiva anchors *nature* to *evolution* as in Examples (8) and (9):

(8)

- a) ***Evolution*** in the areas of agriculture, horticulture, forestry, plant breeding and making available on the market of plant reproductive material has shown that the ***legislation*** needs to be simplified and further adapted to the developments of the sector. Therefore, the above Directives should be replaced by a single Regulation on the production, with a view to making available on the market, and the making available on the market, of plant reproductive material within the Union. (EU Text, line 123)

(9)

- b) **Evolution** is the process by which **nature** practices its capacity of selection; for selection to exist, nature needs diversity. Diversity is also the basis for the farmer, for the breeder and for the agricultural scientist in general. We need diversity to allow evolution and thus capacity of adaptation. We need diversity in order to be able to select the best characteristics for crops. This diversity has been developed over thousands of generations and our duty is to safeguard it for those in the future. (The Law of the Seed Text, line 43)

Moreover, if the need for legislation is linked to evolution on the one hand, the objective of the legislation, that is, the *European and global market of plant reproductive material* is also anchored to the theme of *evolution* as in Example (10):

(10)

- a) Furthermore, the complexity and fragmentation of the existing legislation is likely to perpetuate existing uncertainties and discrepancies in its implementation between the Member States. This creates an uneven playing field for professional operators on the single market. There is a need to harmonise implementation of the legislation, reduce cost and administrative burdens and support innovation. It is also important to adapt to the technical progress in plant breeding, and to the rapid **evolution** of the **European and global market of plant reproductive material**. All those needs make the update and modernisation of the legislative framework imperative. (EU Text, line 7)

By contrast, ‘The Law of the Seed’ anchors years of *farmers’ breeding to evolution*. Moreover, *freely saving and sharing seed* are thematically anchored to both *evolution* and *culture* as indicated in Example (11):

(11)

- a) Seed is the first link in the food chain and embodies millennia of *evolution* and thousands of years of *farmers breeding* as well as the *culture* of *freely saving and sharing seed*. It is the expression of earth's intelligence and the intelligence of farming communities down the ages. (The Law of the Seed Text, line 2)

In addition, regulation is promoted in two diverging perspectives. On the one hand, EU legislation constructs knowledge on the need of a seed legislation by anchoring *plant species* to *health and quality, identity and traceability* as in Examples (12); on the other, 'The Law of the Seed' refers to regulation as the *ecological and biological laws*, which are anchored to the themes of *nature and evolution* as in Example (13).

(12)

- a) Detailed criteria need to be established to decide which genera and *plant species* shall not be made available on the market as standard material to ensure enhanced *quality and health, identity and traceability* of plant reproductive material as well as food and feed security. (EU Text, line 40)
- b) A number of Commission Horizontal Working Party meetings covering all the *plant species* were held in 2009-2011. In May 2011, four task forces created under the Hungarian presidency worked on specific topics. In addition, the Commission consulted the working group 'Seeds and Propagating Material' of the Advisory Group on the *Food Chain, Animal and Plant Health* on several occasions from 2009– 2011. (EU Text, line 11)

(13)

- a) *The ecological and biological laws* of the Seed draw upon the perennial laws of *nature and evolution* based on diversity,

adaptation, resilience and openness. (The Law of the Seed Text, line 3)

Finally, Examples (14) is a case of thematic anchoring in the EU document of the current legislation in the needs of change:

(14)

- a) The main objective of the consultations was to seek views on the provisions and application of existing *legislation* and the *needs for change*. Overall, stakeholders were satisfied with the principles underlying the existing Directives, but supported the Commission's intention to revise the legislation. (EU Text, line 12)

- b) As regards definitions, *the main change* is the introduction of a common term to cover all the *plant reproductive material*, either in the form of seeds or other types of plant propagating material. Plant reproductive material is defined to mean plants or parts of plant capable of and intended for producing or reproducing entire plants. This includes also young plants. All those types of plant reproductive material are subject to common principles with regard to their production with a view to making available on the market and with regard to making them available on the market. (EU Text, line 22)

The main objective of the consultations was to seek views on the provisions and application of existing legislation and the needs for change.

Conversely, 'The Law of the Seed' anchors varieties to local tradition (Example 15), underlining the loss of diversity caused by genetically homogenous varieties which legislation is planning to introduce within EU countries:

(15)

- a) Considering that since the beginnings of agriculture, a considerable amount of biodiversity has built up in crop production; the application of scientific methods to plant breeding, however, led to the substitution of *traditional local* varieties by widespread genetically homogeneous *varieties*, and

thus to a dramatic loss of diversity; (The Law of the Seed Text, lines 125,126)

5.4.1.3 Anchoring in Antinomies

Antinomies can generate oppositional and new viewpoints, creating tensions and contrasting ideas and values in society.

The EU document justifies the power to adopt acts, by highlighting the need to prevent forest reproductive material from the risk of lack of quality and health as shown in Example (16):

(16)

- a) In order *to avoid risks in relation to quality and health of the forest reproductive material* concerned, *the power to adopt acts* in accordance with Article 290 TFEU should be delegated to the Commission in respect of supplementing the requirements set out in this Regulation concerning clones and clonal mixtures, by determining the maximum number of years or the maximum number of ramets to which the approval of clones or clonal mixtures should be restricted. (EU Text, line 275)

Shiva, instead, criticises this legislation for violating natural laws without any jurisprudential grounds as in Examples (17):

(17)

- a) In contrast, the dominant legislation today, related to seed, is in total violation of the Law of the Seed and democratic processes without any basis in jurisprudence or science. An *arsenal of legal instruments* are steadily being invented and imposed that criminalize *age-old farmers' seed breeding, seed saving and seed sharing*. (The Law of the Seed Text, line 4)

- b) The Law of the Seed puts at its centre Seed Freedom– the *freedom of the seed, of farmers and of citizens*– in place of the *illegitimate freedom of corporations* to claim the genetic wealth of the planet as their property, and criminalize citizen freedoms. The freedom to save and exchange seed is vital in our time characterized by multiple crises– the biodiversity crisis, the water crisis, the food crisis, climate crisis, and the economic crisis, all of them part of a single crisis: a crisis of ethics and values. (line 34)

In fact, Example (17b) places ‘the freedom of the seed, of farmers and of citizens’ in antinomy to the ‘illegitimate freedom of corporations’ that claim property rights on the planet. Moreover, Example (17a) also uses the mechanism of emotional anchoring by placing the dominant legislation with its arsenal of legal instruments in clear opposition to age-old farmers who are criminalized.

5.4.2 Objectifying Mechanisms

Findings on the objectifying mechanisms of the social representations of seeds within legal and environmental discourse are reported below.

5.4.2.1 Emotional Objectification

Emotional Objectification is useful for familiarizing a concept, idea, or value rendering it concrete and perceivable through representation. Emotional Objectification does not occur within the EU document due to the peculiarity of the genre. Instead, Shiva makes use of a strong emotional component in the following examples (18,19,20):

(18)

- a) Such laws are being framed everywhere, preventing us from responding to climate change, preventing us from making a transition from high cost industrial agriculture – which is leading farmers to being pushed off the land and, in extreme cases, *committing suicide* – to ecological agriculture. (The Law of the Seed Text, line 21)

(19)

- a) With patents on seed, this implies that the farmers’ right to save and share seed is now in effect defined as “*theft*”, an “intellectual property *crime*”. (The Law of the Seed Text, line 28)

(20)

- a) [...] modern plant breeding, an activity which eventually affects food production and hence food security in a world where one of the major *threats* is climate change and its consequences including, among others, *newly invasive pests and diseases*. (The Law of the Seed Text, line 74)

The term suicide in Example (18) evokes a human image of death, while theft and crime in Example (19) arouse the emotion of a personal object that is illegally taken away. In Example (20), threats refer to the current legislation as favouring climate change and diseases which evoke catastrophic consequences.

5.4.2.2 Personification

While no instances of Personification were found in the EU legislation, significant samples occurring in Shiva’s Law of the Seed are provided in Examples (21) and (22):

(21)

- a) [Seed] is the expression of *earth’s intelligence* and the intelligence of farming communities down the ages. (The Law of the Seed Text, line 2)

(22)

- a) The gift or exchange of seed of any variety, or its placing on the market, shall be governed by the principles of *seed sovereignty*. (The Law of the Seed Text, line 168)

Thus, the Earth lies on the same plane as traditional farmers, both gifted with the balanced intelligence to favour sustainability and diversity throughout the centuries. In this scenario, the seed itself holds the power of a sovereign who governs human manipulation and profit.

In other words, the trilogy formed by Earth, nature and seed, is capable of ruling itself, and fights against forms of human technology and legislation.

By reanimating nature, it supports the view that the universe is more like a living being than a machine to be exploited. By personifying Earth, it implies that it has intrinsic value and that its interests as a whole are worth human consideration.

5.5 Final Considerations

This chapter has investigated the legislative and environmental discourses of seeds, highlighting the ways in which their social representations are constructed, supported and promoted by EU legislation and the ecological work of Vandana Shiva. As pointed out by Jovchelovitch (2010: 3.5):

[...] we come into a social world that is already structured by social representations and through processes of social influence this social world is ready to structure us [...]

In this respect, the social representations constructed by legislative documents impose an artificial perspective of seeds on European Citizens. The attributes found in the study indicate how the emancipated representations conveyed through legislative discourse are in clear contrast with the hegemonic value seeds have had for centuries within the ecological system of biodiversity. This conflict, which arises from phenomena including globalization, as well as industrial and technological advancements, was found to generate polemic representations in the environmental discourse analysed. Furthermore, the mechanisms employed in the two types of discourses suggest that social change can be fostered by re-representations of social reality which can be countered via polemic representations. Normative discourse can be a very powerful tool for the promotion of changes within social reality. Laws can, indeed, impose a diverse perspective shaped by means of representations which justify their enforcement. In this regard, the study has shown how legislation supports shifts in social practices, including genetic engineering. On the other hand, Shiva's environmental discourse of biodiversity suggests that practices of chemical industrial agriculture and chemical monocultures, which are legally endorsed, are unsustainable as they are driven by human profit and not by the laws of nature.

Chapter Six

Conclusions

6.1 Summary

This study critically explored Vandana Shiva's normative and environmental discourse. The purpose of the study was to reveal social representations of the item *seed* within normative and environmental discourse and to construct the identity of *seed* in the current modern world.

During the past decades, the physical and social reality has been developed by the hegemonic economic discourse (Stibbe 2010) and the mainstream worldview is constructed around globalization (Alexander 2003).

By answering the four research questions, this study uncovered how Vandana Shiva's discourse counters the industrial globalized world in defence of the environment and in particular, of *seeds*. The findings of the study, through a corpus-based research which was subsequently implemented by a social and linguistic research approach on environmental issues, showed how Shiva constructs the identity of *seeds* through conceptual systems organized in patterns which operated in binary oppositions: *living kinds* and *artifact*. In other words, ecological patterns were revealed within the collocates categorized as *living kinds* which were in opposition to non-ecological patterns categorized as *artifact*.

Moreover, Shiva's discursive practices counters current *hegemonic representations* and fosters *emancipated representations*. Shiva rejects the current structure of the industrialized global society proposing an alternative through the

construction of an ecological order. “The most important task today”, Bateson (1972) argues, “is, perhaps, to learn to think in a new way” (p. 462). The binary opposition uncovered in environmental discourse organises a new way of thinking the world by fostering the categorization of *living kinds* as knowledge of the real.

Findings revealed how Shiva re-constructs and re-represents social representations to enhance alterity and transformation within collective thinking. Shiva proposes an “ecological paradigm of Nature as living” (Shiva 2013, *lectio Magistralis*) and Earth as living beings/organisms where nature is reanimated in society in the attempt to sensitize global citizens to contribute to altering the current social reality for contributing to social change.

6.2 Strengths and limitations of the study

This research adopted a multi-methodological approach which included studies in different disciplinary fields such as sociology, psycholinguistics and in different branches within linguistic studies. Therefore, there are some limitations to the study due to the variety of disciplines which were worth to be thoroughly discussed but which were not wholly investigated. The research narrowed down its focus to the social and linguistic field of research and in particular to the critical discourse analysis of language and language patterns implementing the social representations theory. Moreover, to carry out the quantitative analysis, the study involved corpus linguistics by adopting a corpus-based study on the corpus in order to retrieve the data. The corpus-based research proved to be useful for the qualitative analysis and for the outcomes of the study. Of course, the analysis is a critical exploration which implies a subjective interpretation and evaluation. Thus,

the research is open to criticism and to new insights which could lead to a broader understanding of discourse.

6.3 Further Research

This research study which adopted a multidisciplinary approach focused on language use. In particular, it provided answers to the research questions concerning the construction of the identity *seeds* and social representations of *seeds* in environmental and normative discourse. Further research studies widening this direction could be conducted employing communication and social semiotics theories. Specifically, multimodal approaches and theories could be worth investigation in order to provide, for example, through visual and spatial resources insights into actions and materials used for communicative purposes and employed in environmental discourse in defence of the environment.

Furthermore, further research on visual resources could also be investigated to uncover how visuals contribute to the meaning-making processes in environmental discourse.

Kress and Van Leeuwen (2001) are considered the founder fathers of multimodality and it can be conceived as a relatively new discipline in research studies. Broadening research by moving beyond 'language use' enclosing other communicative features which thus do not merely refer to texts could contribute to provide new outcomes in the current modern world.

Resources

Corpus tools:

Brezina, V., McEnery, T., & Wattam, S. (2015). Collocations in context: A new perspective on collocation networks. *International Journal of Corpus Linguistics*, 20(2), 139-173.

EU Law (2013/0137):

European Commission, (2013/0137). *Regulation of the European Parliament and of the Council on the production and making available on the market of plant reproductive material*. Brussels.

The Law of the Seed:

Shiva, V., Lockhart, C. & Shroff, R. (eds), (2013). *The Law of the Seed*. Firenze: RISMA.

VS Corpus:

Shiva, V. (2017). Statement by Dr Vandana Shiva. Women's Day 2017. European Parliament, Brussels. Posted online on March 8, 2017. Link: <http://audiovisual.europarl.europa.eu/Assetdetail.aspx?ref=I135030>. (VS Corpus, Text 33)

Shiva, V. (2017). Interview: Talking Green. Interviewed by Nadine Compton. Posted online on September 27, 2017. Link: <https://www.cleantechloops.com/vandana-shiva>. (VS Corpus, Text 26)

Shiva, V. (2017). Interview: Seed Freedom and the Future of Farming. Interviewed by Roar Magazine. Posted online on February 6, 2018. Link: <https://zcomm.org/znetarticle/seed-freedom-and-the-future-of-farming/>. (VS Corpus, Text 16)

Shiva, V. (2016). Interview: The Earth and the people are not inputs to your capitalist system, sorry sir! Interviewed by Ethemcan Turhan. Posted on March 8, 2016 by entitlecollective. Link: <https://entitleblog.org/2016/03/08/the-earth-and-the-people-are-not-inputs-to-your-capitalist-system-sorry-sir/>. (VS Corpus, Text 27)

Shiva, V. (2016). Interview: Seeds of Revolution. Interviewed by Chris Walters. Reprinted from *ACRES –the Voice of Eco-Agriculture*, Vol. 46, No. 1, January 2016. (VS Corpus, Text 21)

Shiva, V. (2016). Interview. On leadership. Interviewed by Seana Lowe Steffen. Posted online on 2nd May 2016. <http://www.restorative-leadership.org/on-leading-podcast/vandana-shiva>. (VS Corpus, Text 1)

Shiva, V. (2015). Interview: Vandana Shiva on new solutions for old problems. Interviewed by Edith Vanghelof. Posted online on October 24, 2015. Link: <http://wien.gbw.at/artikelansicht/beitrag/a-good-world-for-everybody/>. (VS Corpus, Text 14)

Shiva, V. (2014). Interview: Ecofeminism. Interviewed by Lucy Bradley. Posted online on November 16, 2014. Link: <http://podacademy.org/podcasts/ecofeminism/>. (VS Corpus, Text 18)

Shiva, V. (2014). Interview with Dr. Shiva. Interviewed by John Hockenberry. Posted online on September 23, 2014. Link: <http://www.thetakeaway.org/story/transcript-vandana-shiva-anti-gmo-debate/>. (VS Corpus, Text 13)

Shiva, V. (2014). Food Otherwise Conference. Speech held by Vandana Shiva. Wageningen, February 21, 2014. Link: https://www.tni.org/files/download/transcript_speech_vandana_shiva.pdf. (VS Corpus, Text 6)

Shiva, V. (2014). Rights of Nature Tribunal. Universal Declaration of the Rights of Mother Earth, adopted in Quito Ecuador on January 17, 2014. Link: <https://therightsofnature.org/vandana-shiva-president-tribunal/>. (VS Corpus, Text 37)

Shiva, V. (2013). Seed Freedom and Food Freedom in Times of Globalisation. The Mahesh Chandra Regmi Lecture, December 22, 2013. Nepal: Himal Books. (VS Corpus, Text 36)

Shiva, V. (2013). Interview: Vandana Shiva and Jane Goodall on Serving the Earth & how Women can Address Climate Crisis. Interview with Dr. Shiva. Interviewed by Amy Goodman. Posted online on December 5 2013. Link: <http://www.resilience.org/stories/2013-12-05/vandana-shiva-jane-goodall-on-serving-the-earth-how-women-can-address-climate-crisis/>. (VS Corpus, Text 12)

Shiva, V. (2013). Interview: Geoengineering. Interviewed by Maria Heibel. Terra Futura 2013: Posted online on July 9, 2013 <http://www.nogeoingegneria.com/interviste/terra-futura-2013-interview-with-vandana-shiva-about-geoengineering/>. (VS Corpus, Text 29)

Shiva, V. (2013). Dr. Vandana Shiva, social activist, on the importance of saving seeds. Interviewed by Rachel James. Posted online on October 27, 2013. Link: <http://www.smartplanet.com/blog/pure-genius/q-a-dr-vandana-shiva-social-activist-on-the-importance-of-saving-seeds/10103>. (VS Corpus, Text 17)

Shiva, V. (2013). “Freedom is our future”. Posted online on January 16, 2013 by Hawaii Independent Staff. Link: <http://hawaiiindependent.net/story/freedom-is-our-future>. (VS Corpus, Text 30)

Shiva, V. (2013) Lectio Magistralis, Dipartimento di Farmacia e scienze della Salute e della Nutrizione, Università della Calabria. (VS Corpus, Text 38)

Shiva, V. (2013) Interview: Vandana Shiva on Int’l Women’s Day: “Capitalist Patriarchy Has Aggravated Violence Against Women” Interviewed by Amy Goodman. Link: https://www.democracynow.org/2013/3/8/vandana_shiva_on_intl_womens_day . (VS Corpus, Text 10)

Shiva, V. (2012). Interview: Vandana Shiva on the Problem with Genetically Modified Seeds. Interviewed by Bill Moyers. Posted online on 13th July, 2012. Link: <http://billmoyers.com/segment/vandana-shiva-on-the-problem-with-genetically-modified-seeds/>. (VS Corpus, Text 4)

Shiva, V. (2011). Interview: War on the earth. Interviewed by David Barsamian. Posted online June 15, 2011. Link: <http://sydneypeacefoundation.org.au/david-barsamian-war-on-the-earth-an-interview-with-dr-vandana-shiva>. (VS Corpus, Text 25)

Shiva, V. (2011). Interview: Earth Day Special: Vandana Shiva and Maude Barlow on the Rights of Mother Earth. Interviewed by Amy Goodman. Link: https://www.democracynow.org/2011/4/22/earth_day_special_vandana_shiva_and . (VS Corpus, Text 11)

Shiva, V. (2010). The Future of Food. Lecture at the 2010 Annual Conference of the National Justice and Peace Network of England and Wales entitled ‘Our Daily Bread – Food Security, People and Planet’, July 17, 2010. Link: <http://static1.1.sqspcdn.com/static/f/931111/13324406/1311345791110/Text-VandanaShiva.pdf?token=NBQql437XLWII21%2Fb78wGeywycE%3D>. (VS Corpus, Text 35)

Shiva, V. (2010). Making Peace with the Earth. City of Sydney, Peace Prize Lecture, November 3, 2010. Link: http://sydneypeacefoundation.org.au/wp-content/uploads/2012/02/2010-SPP_Vandana-Shiva1.pdf . (VS Corpus, Text 34)

Shiva, V. (2010). Interview: Peace Prize winner Dr Shiva joins Lateline. (Interviewed by Leigh Sales). Posted online on November 2, 2010. Link: http://www.abc.net.au/lateline/peace-prize-winner-dr-shiva-joins_lateline/2322116 (VS Corpus, Text 8)

Shiva, V. (2009). Shakti: Feminine Power for Change. Denver: Metropolitan State College, 19 October 2009. Posted online on March 22 2010. Link: <https://lvk104.wordpress.com/2010/03/22/shakti-feminine-power-for-change-by-vandana-shiva-via-alternative-radio/>. (VS Corpus, Text 31)

Shiva, V. (2007). Interview: Global Food Politics. Interviewed by Steve Curwood. Posted online on November 2, 2007 by PRI's Environmental News Magazine. Link: <http://www.loe.org/shows/segments.html?programID=07-P13-00044&segmentID=6>. (VS Corpus, Text 32)

Shiva, V. (2004). Interview: The Role of Patents in the Rise of Globalization. Interviewed by Nic Paget-Clarke on August 27, 2003 for In Motion Magazine in New Delhi, India. Posted online in In Motion Magazine March 28, 2004. Link: http://www.inmotionmagazine.com/global/vshiva4_int.html. (VS Corpus, Text 24)

Shiva, V. (2003). Interview with Dr. Vandana Shiva. Interviewed by Bill Moyers. Posted online on September 5, 2003. Link: http://www.pbs.org/now/transcript/transcript_shiva.html. (VS Corpus, Text 5)

Shiva, V. (2002). Interview: Monocultures of the Mind. Interviewed by David Barsamian. Posted online on December 1, 2002. Link: <https://zcomm.org/zmagazine/monocultures-of-the-mind-an-interview-with-vandana-shiva-by-david-barsamian/>. (VS Corpus, Text 15)

Shiva, V. (2002). Interview: Earth Democracy. Interviewed by Sarah Ruth van Gelder. Posted online on December 31, 2002. Link: <http://www.yesmagazine.org/issues/what-would-democracy-look-like/earth-democracy-an-interview-with-vandana-shiva>. (VS Corpus, Text 2)

Shiva, V. (2002). Interview: Discussing 'Water Wars'. Resurrection of commons, community rights, and direct and basic democracy. Interviewed by Nic Paget-Clarke on September 1, 2002 at St Stithians, site of the People's Earth Summit parallel event to the United Nations World Summit on Sustainable Development in Johannesburg, South Africa. Posted online in In Motion Magazine on March 6, 2003. Link: <http://www.inmotionmagazine.com/global/vshiva3.html>. (VS Corpus, Text 23)

Shiva, V. (2001). Vandana Shiva - Rice, Patenting of Life and Genocide. Lecture held by Vandana Shiva. Vancouver, Canada. Posted online on March 15, 2007. Link: <http://www.cjly.net/deconstructingdinner/031507transcript.htm>. (VS Corpus, Text 9)

Shiva, V. (2000). Global Capital, Local Responses. Speech held by Vandana Shiva. Melbourne, Australia, September 12, 2000. Link: <http://www.abc.net.au/specials/shiva/shiva.htm>. (VS Corpus, Text 7)

Shiva, V. (2000). "Poverty & globalisation", 5th Reith Lecture in British Broadcasting Corporation (BBC) series "Respect for the Earth", May 10, 2000. London. Link: <http://www.bbc.co.uk/radio4/reith2000/>. (VS Corpus, Text 28)

Shiva, V. (1998). Interview with Dr. Vandana Shiva. Interviewed by Nic Paget-Clarke in St. Louis, Missouri at the 'First Grassroots Gathering on Biodevastation: Genetic Engineering' Conference, on July 18, 1998. Posted online in In Motion Magazine on August 14, 1998. Link: <http://www.inmotionmagazine.com/shiva.html>. (VS Corpus, Text 22)

Shiva V. (2014). Speech by Vandana Shiva October 2104. School of Oriental and African Studies (Soas), University Of London. Posted online on November 2, 2014. <http://podacademy.org/bookpods/ecofeminism/>. (VS Corpus, Text 19)

Shiva V. (1998). Interview: In the Footsteps of Gandhi. Interviewed by Scott London. Posted online on May 10, 2013. Link: <http://www.scottlondon.com/interviews/shiva.html>. (VS Corpus, Text 20)

Shiva V. (1997). Vandana Shiva on McDonald's, Exploitation and the Global Economy. Interviewed by One-Off Productions for their TV documentary, McLibel: Two Worlds Collide. Posted online on March 4, 2000. Link: http://www.mcspotlight.org/people/interviews/vandana_transcript.html. (VS Corpus, Text 3)

References

Abric, J.-C. (1994). *Pratiques sociales et représentations*. Paris: Presses universitaires de France.

Alexander R. J. (2003). 'Resisting imposed metaphors of value: Vandana Shiva's role in supporting Third World agriculture.' *metaphorik.de* 04/2003, 6-29.

Alexander, R. J. (2009). *Framing Discourse on the Environment: A Critical Discourse Approach*. New York: Routledge.

Álvarez Bermúdez, J. (2004). 'El Contexto social y teórico del surgimiento de la teoría de las representaciones sociales'. In R. Rodríguez, E. (Ed.), *Representaciones Sociales: Atisbos y cavilaciones del devenir de cuatro décadas*. Puebla: Benemérita Universidad Autónoma de Puebla (BUAP), 29-53.

Augoustinos, M. (2001). 'Social categorization: Towards theoretical integration'. In K. Deaux and G. Philogène (eds.), *Representations of the social: Bridging theoretical traditions*. Oxford: Blackwell, 201–216.

Baker, P. (2004). "Querying Keywords: Questions of Difference, Frequency and Sense in Keywords Analysis". *Journal of English Linguistics*. 32/4: 346-59

Baker, P. (2006). *Using Corpora in Discourse Analysis*. London: Continuum.

Baker, P. and McEnery, T. (2005). "A Corpus-based Approach to Discourses of Refugees and Asylum Seekers in UN and Newspaper Texts". *Journal of Language and Politics*. 4/2: 197-226.

Baker, P., Gabrielatos, C., Khosravini, M., Krzyzanowski, M., McEnery, T., & Wodak, R. (2008). "A useful methodological synergy? Combining critical discourse analysis and corpus linguistics to examine discourses of refugees and asylum seekers in the UK press". *Discourse and Society*. 19/3: 273-306.

Barthes, R. (1957; 1972). *Mythologies*. Translated by Annette Lavers. New York: Hill & Wang.

Berglez, P., Höijer, B. and U. Olausson (2009). 'Individualisation and Nationalisation of the Climate Issue. In T. Boyce and J. Lewis (eds), *Two Ideological Horizons in Swedish News, Climate Change and the Media Media*'. New York: Peter Lang, 211-223.

Berman, T. (2001) "The Rape of Mother Nature? Women in the Language of Environmental Discourse." In A. Fill and P. Mühlhäusler (eds), *The Ecolinguistics Reader. Language, Ecology and Environment*. London: Continuum. 2001.

Bernardini, S. (2004). Corpora in the classroom. In J. McH. Sinclair (ed.), *How to use corpora in language teaching*. Amsterdam: John Benjamins, 15-36.

Bondi, M. and Scott, M. (eds) (2010). *Keyness in Texts. Studies in Corpus Linguistics. Vol.41*. Amsterdam: John Benjamins Publishing Company.

Bourdieu, P. (1994). "Structures, Habitus, Power: Basis for a Theory of Symbolic Power." In N. B. Dirks, G. Eley, and S. B. Orthner, (eds.), *Culture, Power, History: A Reader in Contemporary Social Theory*. Princeton University Press.

Breakwell, G. M. (1992). *Social Representations and Social Identity*. Position paper presented at the First International Conference on Social Representations, Ravello, Italy, October, 1992. Link: http://www.psych.lse.ac.uk/psr/PSR1993/2_1993Brea2.pdf.

Breakwell, G. M. (2001). 'Social representational constraints upon identity processes'. In K. Deaux and G. Philogène (eds), *Representations of the social: Bridging theoretical traditions*. Oxford: Blackwell, 271–284.

Brewer, M. B. (2001). 'Social identities and social representations: A question of priority?' In K. Deaux and G. Philogène (eds.) *Representations of the social: Bridging theoretical traditions*. Oxford: Blackwell, 305–311.

Brezina, V., McEnery, T., & Wattam, S. (2015). Collocations in context: A new perspective on collocation networks. *International Journal of Corpus Linguistics*, 20(2), 139-173.

Bucholtz, M. (2003). 'Theories of Discourse as Theories of Gender: Discourse Analysis in Language and Gender Studies.' In J. Holmes and M. Meyerhoff (eds.), *The Handbook of Language and Gender*. Malden, MA: Blackwell, 43-68.

Campbell, J. and Moyers, B. (1991). *The Power of Myth*. New York: Anchor Books.

Chrysoschoou, X. (2003). 'Studying identity in social psychology, Some thoughts on the definition of identity and its relation to action'. *Journal of Language and Politics*, 2(2), 225-242.

Cicovacki, P. (1997). *Anamorphosis: Kant on Knowledge and Ignorance*. Boston: University Press of America.

Colombo, D. and Porcu, M. (2014). 'Environment and neoliberalism: a critical discourse analysis of three Italian cases'. ESSACHESS. *Journal for Communication Studies*. 7, 1(13), 63-82.

Doise, W. (1998). Social Representations in Personal Identity. In S. Worchel, J. F. Morales, E. Paez, and J. C. Deschamps (eds.), *Social Identity. International Perspectives*. London: Sage.

Doise, W. (2002). *Human Rights as Social Representations*. London: Routledge.

Dryzek, J.S. (2005 2nd ed., 1997 1st ed.). *The Politics of the Earth: Environmental discourses*. Oxford: Oxford University Press.

Duveen, G. (2001). 'Representations, identities, resistance'. In K. Deaux and G. Philogène (eds), *Representations of the social: Bridging theoretical traditions*. Oxford: Blackwell, 257–70.

Eco, U. (2000). *Kant and the Platypus: Essays on Language and Cognition*. New York: Harcourt Brace.

Escobar, A. (1998). Whose knowledge, Whose nature? Biodiversity, Conservation and the Political Ecology of Social Movements. *Journal of Political Ecology*, Vol.5.

Escobar, A. (2010) Planning. In Sachs, W. (ed.) (2010 2nd ed., 1992 1st ed.) *Development Dictionary: A Guide to Knowledge as Power*. London: Zed Books, 145-159.

Fairclough, N. (1989). *Language and Power*. London: Longman.

Fairclough, N. (1992). *Discourse and Social Change*. Cambridge: Polity Press.

Fairclough, N. (1995). *Critical discourse analysis: papers in the critical study of language*. London: Longman.

Fairclough, N. (2003). *Analyzing Discourse. Textual Analysis for Social Research*. London: Routledge.

Fairclough, N., & Wodak, R. (1997). 'Critical Discourse Analysis'. In T. van Dijk (ed.). *Discourse Studies: A Multidisciplinary Introduction, Vol. 2*, 258-284. London: Sage.

Farr, R. M. (1991). 'Individualism as a collective representation'. In *Ideologies et representations sociales*, ed. V. Aebischer, J. P. Deconchy, and E. M. Lipiansky. Fribourg, Switzerland: Cousset, 129–43.

Fill A. and Mühlhäusler, P. (eds.) (2001). *The Ecolinguistics Reader. Language, Ecology and Environment*. London: Continuum.

Firth, J. (1935). 'The technique of semantics'. Quoted in Stubbs, M. (1996) *Text and Corpus Analysis*. Oxford, UK: Blackwell

Firth, J. R. (1957). 'A synopsis of linguistic theory, 1930–55', in *Studies in Linguistic Analysis*, Oxford: Blackwell.

Fitch, L. K. (2005). *Handbook of language and social interaction*. Lawrence Erlbaum Associates, Publishers, USA.

Flament, C. and Rouquette, M. L. (2003). *Anatomie des Idées Ordinaires*. Paris: Armand Colin.

Gee, J. P. (2005 2nd ed., 1999 1st ed.). *An Introduction to Discourse Analysis: Theory and Method*. New York: Routledge.

Giddens, A. (1984). *The Constitution of Society: Outline of the Theory of Structuration*. Cambridge: Polity Press.

Greimas, Algirdas J. (1990). *The Social Sciences, a Semiotic View*. Minneapolis: University of Minnesota Press.

Gunnarsson, B. L. (2009). *Professional Discourse*. London and New York: Continuum International Publishing Group.

Halliday, M.A.K. (1978). *Language as social semiotic: the social interpretation of language and meaning*. London: Edward Arnold.

Harré, R., Brockmeier J., and Miihlhausler P. (1999). *Greenspeak: a study of environmental discourse*. Thousand Oaks: Sage Publications.

Harris, Z. S. (1952). 'Discourse Analysis'. *Language* 28:1–30.

Hajer, M. A. (1995). *The Politics of Environmental Discourse: Ecological Modernization and the Policy Process*. Oxford: Oxford University Press.

Höijer, B. (2011). 'Social Representations Theory: A New Theory for Media Research'. *Nordicom Review*, 32 (2): 3-16.

Howarth, C. (2002). "Identity in whose Eyes?: the Role of Representations in Identity Construction," *Journal for the Theory of Social Behaviour*, 32, 2, 145-162.

Howarth, C. (2006). 'A Social Representation is not a Quiet Thing: Exploring the Critical Potential of Social Representations Theory'. *British Journal of Social Psychology* 45(1): 65-86.

Howarth C. (2011). 'Representations, identity and resistance in communication'. In Hook, D., Franks, B. and Bauer, M. (eds.). *Communication, Culture and Social Change: The Social Psychological Perspective*. London, UK: Palgrave Macmillan.

Howarth, C.; Andreouli, E. and Kesi, S. (2014). 'Social representations and the politics of participation'. In P. Nesbitt-Larking, C. Kinnvall; T. Capelos, and H. Dekker, (eds.), *The Palgrave Handbook of Global Political Psychology*. Houndmills: Palgrave, 19–38.

Hunston, S. (2002). *Corpora in Applied Linguistics*. Cambridge: Cambridge University Press.

Jäger, S. (2001). 'Discourse and knowledge: theoretical and methodological aspects of a critical discourse and dispositive analysis'. In R. Wodak and M. Meyer (eds.), *Methods of Critical Discourse Analysis*. London: Sage, 32–62.

Jodelet, D. (1988). 'La representación social: fenómeno, concepto y teoría'. In Moscovici, S. (ed.), *Psicología Social II*, Barcelona: Paidós.

Jodelet, D. (1989). 'Représentations sociales: un domaine en expansion'. In D. Jodelet (ed.), *Les représentations sociales*. Paris: Presses Universitaires de France, 31-61.

Jodelet, D. (1991). *Madness and Social Representations*. Hemel Hempstead: Harvester Wheatsheaf.

Joffe, H. (2007). Identity, Self-Control, and Risk. In Moloney, G. & Walker, I. (eds.), *Social representations and identity: content, process, and power*. New York: Palgrave Macmillan, 197-213.

Jørgensen M. and Phillips L. (2002). *Discourse Analysis as Theory and Method*. London: Sage Publications.

Jovchelovitch, S. (2010). From Social Cognition to the Cognition of the Social: Remembering Gerard Duveen. *Papers on Social Representations*, 19, (3.1-3.10) Online Journal. Link: <http://www.psych.lse.ac.uk/psr/>

Karlberg, M. (2005). The Power of Discourse and the Discourse of Power: Pursuing Peace through Discourse Intervention, *International Journal of Peace Studies*, Volume 10, Number 1, Spring/Summer 2005, 63-85.

Kramsch, C. and Boner, E. (2010). Shadows of Discourse: Intercultural Communication in Global Contexts. In Coupland, N. (ed.). *The Handbook of Language and Globalization*. London: Wiley- Blackwell, 495-519.

Kitayama, S., and Markus, H. R. (1999). Yin and Yang of the Japanese self. The Cultural Psychology of Personality Coherence. In D. Cervone and Y. Shoda (eds.), *The Coherence of Personality Social-Cognitive Bases of Consistency, variability, and Organization*. New York: Guildford Press, 242-302.

Kress, G. and Hodge, B. (1979). *Language and Ideology*. London: Routledge & Kegan Paul.

Kress, G. and Van Leeuwen, T. (2001). *Multimodal Discourse: The Modes and Media of Contemporary Communication*. London: Arnold.

Kress, G. and Van Leeuwen, T. (2006). *Reading Images: The Grammar of Visual Design (2nd ed.)*. London: Routledge.

Kretzschmar, W.A., Jr. and Schneider E. (1996). *Introduction to Quantitative Analysis of Linguistic Survey Data*. Los Angeles: Sage.

Kronberger, N. and Wagner W. (2007). Inviolable versus Alterable Identities: Culture, Biotechnology, and Resistance. In G. Moloney and I. Walker, (eds), *Social Representations and Identity: content, process, and power*. New York: Palgrave Macmillan, 177-196.

Langer, J. (1998). *Tabloid Television: popular journalism and 'other news'*. London and New York: Routledge.

Liu, J. H. and László, J. (2007). 'A Narrative Theory of History and Identity: social identity, social representations, society and the individual'. In G. Moloney and I. Walker, (eds), *Social Representations and Identity: content, process, and power*. New York: Palgrave Macmillan, 85-108.

Liu, J. H. and Hilton D. (2005). 'How the Past Weighs on the Present: Social Representations of History and their Role in Identity Politics'. *British Journal of Social Psychology*, 44, 1–21.

Locke, T. (2004). *Critical Discourse Analysis*. London: Cromwell Press.

Lotman, Y. M. (1990). *Universe of the Mind: A Semiotic Theory of Culture*. Bloomington: Indiana University Press.

Macnaghten, P., and Urry, J. (1998). *Contested Natures*. Thousand Oaks. CA: Sage.

Marková, I. (2003). *Dialogicality and Social Representations. The Dynamics of Mind*. Cambridge, UK: Cambridge University Press.

Marková, I. (2012). 'Social Representations as an Anthropology of Culture'. In J. Valsiner (ed.), *The Oxford Handbook of Culture and Psychology*. New York: Oxford University Press, 487-509.

Markus, H. R., and Kitayama, S. (1998). The cultural Psychology of Personality. *Journal of cross-cultural psychology*, 29(1), 63-87.

Markus, H. R., Mullaly, P. R., and Kitayama, S. (1997). Selfways: Diversity in modes of cultural participation'. In U. Neisser and D. A. Jopling (eds.), *The conceptual self in context, culture, experience, self-understanding*. Cambridge: University Press, 13-61.

McCarthy, M. (1991). *Discourse Analysis for Language Teachers*. Cambridge: Cambridge University Press.

McEnery, T. & Gabrielatos, C. (2006). 'English corpus linguistics'. In B. Aarts & A. McMahon (eds.), *The Handbook of English Linguistics*. Oxford: Blackwell, 33-71.

McEnery, T. and Hardie, A (2012). *Corpus Linguistics: Method, Theory and Practice*. Cambridge University Press, Cambridge.

McNay, L. (1994). *Foucault. A Critical Introduction*. New York: Polity Press.

Meyer, C.F. (2004). *English Corpus Linguistics: An Introduction*. Cambridge: Cambridge University Press.

Meyer, M. (2001). Between Theory, Method and Politics: Positioning of the Approaches to CDA. In R. Wodak, & M. Meyer, (eds.), *Methods of Critical Discourse Analysis*. London: Sage Publications, 14-31.

Mills, S. (2004 2nd ed., 1997 1st ed.). *Discourse*. London and New York: Routledge.

Moloney, G. and Walker, I. (eds.) (2007). *Social representations and identity: content, process, and power*. New York: Palgrave Macmillan.

Moscovici, S. (1961). *La Psychanalyse, Son Image et Son Public*. Paris: Presses Universitaires de France.

- Moscovici, S. (1963). Attitudes and opinions. *Annual Review of Psychology*, 14 : 231-260.
- Moscovici, S. (1973). 'Foreword'. In C. Herzlich (ed). *Health and illness: A social psychological analysis*. London and New York: Academic Press, ix–xiv.
- Moscovici, S. (1984). The Phenomenon of Social Representations. In Farr, R. & Moscovici, S. (eds.), *Social Representations*. Cambridge: Cambridge University Press, 3-69.
- Moscovici, S. (1988). 'Notes Towards a Description of Social Representations', *European Journal of Social Psychology* 18, 211-250.
- Moscovici, S. (2000). *Social Representations. Explorations in Social Psychology*. Cambridge, UK: Polity Press.
- Moscovici, S. (2001). 'Why a Theory of Social Representations?', In K. Deaux and G. Philogéne (eds). *Representations of the Social*. Oxford, UK: Blackwell Publishers, 8-35.
- Moscovici, S. (2007). *Psychoanalysis. Its Image and Its Public*. Oxford: Blackwell Publishing.
- Oakes, M. P. (1998). *Statistics for Corpus Linguistics*. Edinburgh: Edinburgh University Press.
- Olausson, U. (2009). 'Global Warming – Global Responsibility? Media Frames of Collective Action and Scientific Certainty', *Public Understanding of Science* 18: 421-436.
- Olausson, U. (2010). 'Towards a European Identity? The News Media and the Case of Climate Change', *European Journal of Communication* 25 (2010)14: 138-152.
- Orpin, D. (2005). 'Corpus Linguistics and Critical Discourse Analysis: Examining the ideology of sleaze'. *International Journal of Corpus Linguistics*. 10/1: 37-61.
- Orr, E., Mana, A., and Mana, Y. (2003). 'Immigrant identity of Israeli adolescents from Ethiopia and the former USSR: Culture-specific principles of organization'. *European Journal of Social Psychology* 33:71–92.
- Park, R.E. (1952). *Human Communities: The City and Human Ecology*. Illinois: The Free Press.

Plastina, A. F. (2014). 'The Counter-Hegemonic Discourse of Biodiversity: CDA of Vandana Shiva's Honorary Doctorate Acceptance Speech'. In G. Balirano, & M. C. Nisco, (eds.), *Languaging Diversity: Identities, Genres, Discourses*. Newcastle upon Tyne: Cambridge Scholars Publishing.

Pope Francis (2015). *Laudato si'*. *Lettera Enciclica sulla cura della casa comune*. LEV, Città del Vaticano.

Preminger A. and Brogan T.V.F. (eds.) (1993). *The New Princeton Encyclopedia of Poetry and Poetics*. Princeton, NJ: Princeton University Press.

Wodak, R. and Meyer, M. (eds.) (2001). *Methods of Critical Discourse Analysis: Methods of Critical*. London: Sage Publications.

Rahimi, F., Riasati, M.J. (2011). 'Critical Discourse Analysis: Scrutinizing Ideologically-Driven Discourses'. *International Journal of Humanities and Social Science, Vol. 1 No. 16*; November 2011, 107-112.

Rateau, P., Molinelli, P., Guimelli C., and Abric, J-C (2011). "Social Representation Theory". In P. A. M. Van Lange, A. W. Kruglanski and E. T. Higgins (eds.), *Handbook of Theories of Social Psychology*. Thousand Oaks, CA: Sage, 477-497.

Schiffrin, D., Tannen, D. and Hamilton H. (eds.) (2001). *The Handbook of discourse analysis*. Oxford: Blackwell.

Serrano, S. E. (2013). The potential of social representations theory (SRT) for gender equitable research. *Acta Colombiana de Psicología*, 16 (2), 63-70.

Shannon, C.E. (1948). 'A mathematical theory of communication'. *Bell System Technical J* 27:379-423.

Shiva, Vandana (2012). *Making Peace with the Earth: Beyond Resource, Land and Food Wars*. New Delhi: Women Unlimited: An associate of Kali for Women.

Shuy, R. W. (2001). 'Discourse Analysis in the Legal Context'. In D. Schiffrin, D. Tannen, and H. Hamilton (eds) *The Handbook of discourse analysis*. Oxford: Blackwell, 437-452.

Sinclair, J. (1991). *Corpus, Concordance, Collocation*. Oxford: OUP.

Sinclair, J. (1996). 'The search for units of meaning'. *Textus*, 9, 1: 75-106.

- Sinclair, J. (1999). 'The computer, the corpus and the theory of language.' In Azzaro G. & Margherita Ulrych (eds.), *Transiti linguistici e culturali*. Atti del XVIII Congresso nazionale dell'A.I.A. Trieste: E.U.T, 1–15.
- Sinclair, J. (2004). *Trust the Text. Language, corpus and discourse*. London: Routledge.
- SiScott, M., and Tribble, C. (2006). *Textual patterns*. Amsterdam: John Benjamins.
- Stibbe, A. (2010). 'Ecolinguistics and Globalization'. In N. Coupland (ed.), *The Handbook of Language and Globalization*. West Sussex: Wiley-Blackwell, 406-425.
- Stibbe, A. (2014). 'An Ecolinguistic Approach to Critical Discourse Studies'. *Critical Discourse Studies*, 11(1), 117-128.
- Stubbs, M. (1996). *Text and Corpus Analysis*. Oxford, UK: Blackwell
- Stubbs M. (2001). *Words and Phrases. Corpus Studies of Lexical Semantics*. Oxford: Blackwell.
- Tognini-Bonelli, E. (2001). *Corpus linguistics at work*. Amsterdam: John Benjamins.
- Trampe, W. (2001). 'Language and Ecological Crisis. Extracts from a Dictionary of Industrial Agriculture'. In A. Fill & P. Mühlhäusler, (eds.), *The Ecolinguistics Reader. Language, Ecology and Environment*. London: Continuum, 232-240.
- Van Dijk, T.A. (1993). 'Principles of critical discourse analysis'. *Discourse and Society*, vol. 4(2), 249-283
- Van Dijk, T.A (1998). *Ideology: A Multidisciplinary Approach*. London: Sage Publications.
- Van Dijk, T.A (2003). 'The Discourse-Knowledge Interface'. In G. Weiss and R. Wodak (eds.) (2003). *Critical Discourse Analysis: Theory and Interdisciplinarity*. New York: Palgrave MacMillan, 85-109.
- Van Dijk, T. A. (2008). *Discourse and Context: a sociocognitive approach*. Cambridge: Cambridge University Press.
- Vergara, J.R. and Estévez, P.A. (2014). 'A review of feature selection methods based on mutual information'. *Neural Comput & Applic* 24:175–186.

- Vernooy, R., Shrestha, P. and Sthapit B., (eds.) (2015). *Community Seed Banks: Origins, Evolution and Prospects*. London and New York: Routledge.
- Voelklein, C., & Howarth, C. (2005). 'A review of controversies about social representations theory: A British debate'. *Culture & Psychology*, 11(4), 431-454.
- Wagner, W. and Hayes, N. (2005). *Everyday Discourse and Common Sense: The theory of social representations*. Basingstoke: Palgrave.
- Wagner, W. (2012). Social Representations Theory. In, D. J. Christie (ed.), *Encyclopedia of Peace Psychology*. Malden, MA: Wiley-Blackwell.
- Walker, I., Broderick, P. and Correia, H. (2007). "Conceptions and Misconceptions: Social Representations of Medically Assisted Reproduction". In G. Moloney and I. Walker, (eds), *Social Representations and Identity: content, process, and power*. New York: Palgrave Macmillan, 157-176.
- Weiss G. and Wodak R. (eds.) (2003). *Critical Discourse Analysis: Theory and Interdisciplinarity*. New York: Palgrave MacMillan.
- Wodak, R., (ed.) (1989). *Language, Power and Ideology*. Amsterdam: Benjamins.
- Wodak, R. (2001). 'What CDA is about – a summary of its history, important concepts, and its development'. In R. Wodak and M. Meyers (eds.), *Methods of Critical Discourse Analysis*. London: Sage Publication, 1-13.
- Wodak, R. (2011). 'Critical Discourse Analysis'. In K. Hyland, & B. Paltridge (eds.), *The Continuum Companion to Discourse Analysis*. London: Continuum International Publishing Group, 38-53.
- Wodak, R. and Meyer, M., (eds.) (2001). *Methods of Critical Discourse Analysis*. London: Sage Publications.
- Woods, A. Fletcher, P. and Hughes, A. (1986). *Statistics in Language Studies*. Cambridge: Cambridge University Press.
- Zavalloni, M. (2001). 'E-motional memory and the identity system: Its interplay with representations of the social world'. In K. Deaux and G. Philogène (eds.), *Representations of the social: Bridging theoretical traditions*. Oxford: Blackwell, 285–304.

APPENDICES

APPENDIX ONE

Concordance lines of the search term 'seed' of the VS Corpus

LANCSBOX corpus toolbox (Brezina et al.: 2015)

N	Text N.	Concordance		
1	Text 1.txt	at Navdanya work through three prongs. Community	seed	saving: we defend seeds as a commons,
2	Text 1.txt	three prongs. Community seed saving: we defend	seeds	as a commons, so community seed banks
3	Text 1.txt	defend seeds as a commons, so community	seed	banks are the first. You know, to
4	Text 10.txt	it's climate change or biodiversity erosion or	seed	monopolies, all of it is connected. It's
5	Text 10.txt	about every farmer, every person and every	seed	in the world. First, the idea that
6	Text 10.txt	the idea that Monsanto can patent a	seed	by putting a toxic gene for Roundup
7	Text 10.txt	plant, that that is a creation of	seed,	that has evolved over millennia, been bred
8	Text 10.txt	ago to start Navdanya, the movement for	seed	saving in India, because I do not
9	Text 10.txt	in India, because I do not think	seed	is invented, and therefore, a patent on
10	Text 10.txt	is invented, and therefore, a patent on	seed	is wrong from the first step. Secondly,
11	Text 10.txt	from the first step. Secondly, actually, Roundup-resistant	seeds	are not controlling weeds. They have created
12	Text 10.txt	to invention, the collection of royalties from	seed,	has led to Monsanto controlling 95 percent
13	Text 10.txt	Monsanto controlling 95 percent of the cotton	seed	supply, 95 percent through a monopoly, not
14	Text 10.txt	are getting indebted because the price of	seed	jumped 8,000 percent, and there's no option,
15	Text 10.txt	are creating through Navdanya by saving open-pollinated	seed.	Two hundred and seventy thousand Indian farmers
16	Text 10.txt	committed suicide since Monsanto entered the Indian	seed	market. That's more than a quarter-million. It's
17	Text 10.txt	affected, let us call globally for a	seed	satyagraha. A satyagraha is the fight for truth. When
18	Text 10.txt	governments of the world, they've received these	seeds	from nature, from our ancestors, from communities
19	Text 10.txt	protect them. A law that says saving	seed,	growing seed and our seed freedom is
20	Text 10.txt	A law that says saving seed, growing	seed	and our seed freedom is a crime
21	Text 10.txt	says saving seed, growing seed and our	seed	freedom is a crime is a law
22	Text 10.txt	of women's knowledge and women's skills in	seed	saving. As long as seed was in

23	Text 10.txt	skills in seed saving. As long as	seed	was in woman's hand, no crop failed,
24	Text 10.txt	no farmer committed suicide. As soon as	seed	moved into Monsanto's hands, we have illegitimate
25	Text 11.txt	of species. I started Navdanya and saving	seeds	when I found out that corporations wanted
26	Text 11.txt	with them to help set up community	seed	banks for seed conservation, like we do
27	Text 11.txt	help set up community seed banks for	seed	conservation, like we do in Navdanya. Binayak
28	Text 13.txt	malnutrition, but more important when farmers have	seed	sovereignty, when farmers do organic farming and
29	Text 13.txt	are not blowing up money on patented	seed	royalties, expenditure on pesticides and fertilizers, they
30	Text 13.txt	of genetic engineering, which made Monsanto a	seed	giant before it was just a chemical
31	Text 13.txt	increase in production. The idea of miracle	seeds	and chemicals and now miracle GMOs is
32	Text 13.txt	into it and says I've invented the	seed,	that is not creation; it is not
33	Text 13.txt	impacts of that something. You're selling a	seed	where you're collecting royalty in the name
34	Text 13.txt	output you have. The potential of the	seed	decides. The biodiversity intensification decides. The reason
35	Text 14.txt	that made me dedicate my life to	seed	freedom. Start Navdanya and everything else I've done since
36	Text 14.txt	way extended to industrial agriculture using GMO	seeds.	The system is the same industrial system.
37	Text 14.txt	on fossil fuels. It's just that the	seed	itself is now a seed that's genetically
38	Text 14.txt	that the seed itself is now a	seed	that's genetically engineered and intellectual property. And
39	Text 14.txt	know one of the strongest movements for	seed	savings, for organic farming, for local food
40	Text 14.txt	know, through Navdanya, the movement I started, the	seed	saving, we had saved every seed we
41	Text 14.txt	the seed saving, we had saved every	seed	we could find. We weren't saying: "Oh,
42	Text 14.txt	just saying: "If our ancestors used the	seed,	it can't be useless." So, among the
43	Text 14.txt	it can't be useless." So, among the	seeds	we had saved were salt tolerant seeds
44	Text 14.txt	seeds we had saved were salt tolerant	seeds	that farmers had evolved in the coastal
45	Text 14.txt	damage, we were able to distribute these	seeds.	Because with the cyclone, salt from the
46	Text 14.txt	starve. And we'll bring you salt tolerant	seeds."	"Oh it can't be, they don't exist."
47	Text 14.txt	farmers gifted two truckloads of salt tolerant	seeds.	Immediately, agriculture bounced back. So, the
48	Text 14.txt	misleading. Now because of our work on	seeds	and biodiversity as well as our organic
49	Text 14.txt	my flight at home, I said: the	seed.	The seed is today's spinning wheel. The

50	Text 14.txt	at home, I said: the seed. The	seed	is today's spinning wheel. The rest of
51	Text 14.txt	of my life I'm going to save	seeds.	So, at one level, one day I
52	Text 14.txt	that made me realise how important the	seed	is. It's small, but in the hands
53	Text 14.txt	Second: owning more of the climate resilient-	seeds	that farmers have evolved- through patents. We
54	Text 14.txt	a report of Navdanya called theBiopiracy of climate resilient	seeds.	1,500 patents in the hands of the
55	Text 14.txt	the Syngentas. Do they make climate resilient	seeds?	No, because it's a complex trait. They
56	Text 14.txt	for climate fund should go for improved	seeds."	And for them, improved seeds means in
57	Text 14.txt	for improved seeds." And for them, improved	seeds	means in their hands. When it moves
58	Text 14.txt	becomes improved magically. It's basically a pirated	seed.	And I've challenged the Gates Foundation in
59	Text 14.txt	"Can you tell me where the original	seed	came from? Why don't you declare your
60	Text 14.txt	declare your original sources of plants? Which	seedbank?	Which gene bank? Which country?" Columbus did this,
61	Text 14.txt	America. Stop keep pretending you're inventing the	seed.	All you do is steal it.
62	Text 14.txt	chemicals, then they control chemicals with the	seeds	through genetic engineering. Now they want to
63	Text 14.txt	engineering. Now they want to control the	seed,	the soil, the chemicals, the water- and
64	Text 14.txt	a drought. "You'll buy our salt tolerant	seeds."	And this total control net system that
65	Text 14.txt	amazing. They will tell you exactly which	seed	will do good in an area with
66	Text 14.txt	So, as I mentioned, my work on	seeds	really gets connected back to the corporations
67	Text 14.txt	to put in laws on ownership of	seed	Article 27(3)(b) of the TRIPS Agreement, in
68	Text 14.txt	it. The first is total ownership on	seeds,	on medicines, on information, on knowledge. No
69	Text 14.txt	all of you look at the website	seedfreedom.info	where we have the manifesto Terra viva. Terra viva connects
70	Text 14.txt	wouldn't have a Monsanto claiming invention of	seed	as a machine. And as I've written
71	Text 14.txt	written a patent law. Now all your	seeds	are mine. I've written a patent law.
72	Text 14.txt	human health and the planet. And the	seed	is a very important area for this.
73	Text 14.txt	for example not only did we save	seeds,	we do participatory research, we do participatory
74	Text 14.txt	little manifesto called "The Law of the	Seed"	which is absolutely by the top experts.
75	Text 14.txt	What is the true law of the	seed?	What does the seed tell us and
76	Text 14.txt	law of the seed? What does the	seed	tell us and what does breeding from

77	Text 14.txt	used two years ago to bulldozer a	seed	law on Europe, which was defeated because
78	Text 14.txt	Freedom Movement. And your own Arche Noah, the	seed	savers of Austria. I think it's
79	Text 14.txt	relationship with the soil. You plant the	seed.	You plant seeds carefully to maximize photosynthesis
80	Text 14.txt	soil. You plant the seed. You plant	seeds	carefully to maximize photosynthesis and biomass. You
81	Text 14.txt	to me: "We love your work on	seed,	but our big problem is youth unemployment."
82	Text 15.txt	five life lords trying to own the	seeds	of this planet. I view biotechnology through
83	Text 15.txt	is by giving women the diversity of	seeds	that are sources of vitamin A. They
84	Text 15.txt	globalization started to change our agriculture. New	seeds	and hybrid seeds can't be saved by
85	Text 15.txt	change our agriculture. New seeds and hybrid	seeds	can't be saved by farmers and the
86	Text 15.txt	don't tell the farmers these are non-renewable	seeds.	The hybrid seeds are very pest-prone and
87	Text 15.txt	farmers these are non-renewable seeds. The hybrid	seeds	are very pest-prone and therefore the farmers
88	Text 15.txt	very high interest rates to move the	seeds	and the chemicals. Within a year or
89	Text 15.txt	being a consumer of purchased inputs like	seeds	and chemicals. Quietly, the men will take
90	Text 15.txt	percent in the last decade. The hybrid	seeds	are very costly. They are advertised and
91	Text 15.txt	done is removed any regulation on the	seed	sector. Globalization is the deregulation of commerce.
92	Text 15.txt	to keep a check. We call it	"Seeds	of Suicide" because it is beginning with
93	Text 15.txt	of Suicide" because it is beginning with	seeds.	But we also have a program called
94	Text 15.txt	But we also have a program called	Seeds	of Hope where we're getting open-pollinated varieties
95	Text 15.txt	other people's making, selling, buying. Patents on	seed,	which are now very prevalent in North
96	Text 15.txt	or home, and find not just the	seed	but even the trace of the seed
97	Text 15.txt	seed but even the trace of the	seed	that might have come through pollination. What
98	Text 15.txt	doesn't matter if you're making your own	seed,	even if you're saving it for yourself
99	Text 15.txt	warfare. You begin to genetically engineer a	seed.	Where does that begin? It begins with
100	Text 15.txt	we have collective control. The saving of	seed	is a recovery of the commons. Keeping
101	Text 15.txt	a hundred. We rush back and multiply	seeds	again. Wherever there are initiatives to build
102	Text 16.txt	then tried to take control of our	seeds	through genetic engineering and patenting. But there
103	Text 16.txt	there is a way to reclaim our	seeds:	through seed freedom, where the control of seeds

104	Text 16.txt	a way to reclaim our seeds: through	seed	freedom, where the control of seeds lies with
105	Text 16.txt	seeds: through seed freedom, where the control of	seeds	lies with farmers, instead of a system
106	Text 16.txt	farmers, instead of a system that views	seeds	as corporate intellectual property. Every place and every
107	Text 16.txt	genocide. It is time to sow the	seeds	to make peace with the earth, and
108	Text 16.txt	Gandhi's 1930 Salt Satyagraha inspired Navdanya's contemporary	"Seed	Satyagraha" and the Seed Freedom movement. Since 1987,
109	Text 16.txt	inspired Navdanya's contemporary "Seed Satyagraha" and the	Seed	Freedom movement. Since 1987, when I first heard
110	Text 16.txt	I first heard corporations talk of owning	seeds	through intellectual property rights, my conscience did
111	Text 16.txt	I made a lifetime commitment to saving	seeds,	and not to co-operate with the intellectual
112	Text 16.txt	the intellectual property rights regime that makes	seed-	and seed exchange a crime. Bija Satyagraha,
113	Text 16.txt	property rights regime that makes seed-saving and	seed	exchange a crime. Bija Satyagraha, or the
114	Text 16.txt	exchange a crime. Bija Satyagraha, or the	Seed	Satyagraha, is a people's movement for the
115	Text 16.txt	movement for the Resurgence of the Real	Seed,	of the intelligence of farmers to be
116	Text 16.txt	to coevolve with the intelligence of the	seed	towards diversity, resilience and quality. It is
117	Text 16.txt	states the following: We have received these	seeds	from nature and our ancestors. It is
118	Text 16.txt	will continue to save and share our	seeds.	Over four-and-a-half decades I have participated in
119	Text 16.txt	hundreds of species of dals and oil	seeds,	diverse millets and pseudo-cereals, vegetables and spices
120	Text 16.txt	process of the past, our intelligence in	seed-	breeding and agriculture was denied, our seeds
121	Text 16.txt	seed- breeding and agriculture was denied, our	seeds	were called "primitive" and we were displaced.
122	Text 16.txt	reduced to rice and wheat. Corporations breed	seeds	that respond to their chemicals. Chemicals need
123	Text 16.txt	makes a significant contribution. Genetic engineering of	seeds	was started by the poison cartel because
124	Text 16.txt	by imposing patents on the use of	seeds	in free trade agreements. As one Monsanto
125	Text 16.txt	problem they diagnosed was that farmers save	seeds.	The case of Monsanto and its genetically
126	Text 16.txt	of Monsanto and its genetically modified cotton	seed	called "Bt cotton" provides a clear example.
127	Text 16.txt	to force farmers to use Bt cotton	seeds,	it established a monopoly that prevented farmers
128	Text 16.txt	that prevented farmers access to alternative cotton	seeds.	By now, 99 percent of the cotton
129	Text 16.txt	Meanwhile, Monsanto has raised the price of	seeds	by nearly 80,000 percent, forcing farmers to
130	Text 16.txt	of the debt-trap they landed in. Farmers'	seed	sovereignty is at the heart of solutions

131	Text 16.txt	when farmers have access to their own	seeds	will they be free of debt. And
132	Text 16.txt	be free of debt. And only through	seed	sovereignty can farmers' incomes be increased. Organic
133	Text 16.txt	cotton farmers earn more by avoiding costly	seeds	and chemicals. Organic cotton is the future.
134	Text 16.txt	of Navdanya have shown that using native	seeds	and practicing agro-ecology, small farmers of India
135	Text 16.txt	on buying poisons, and poison producing GMO	seeds,	they have the potential of enhancing their
136	Text 17.txt	close the space for freedom of the	seed	as well as the freedom for farmers
137	Text 17.txt	as the freedom for farmers to save	seeds.	It was in 1984 in India that
138	Text 17.txt	genetic engineering to grow our patents on	seeds."	They said they needed immediate international law
139	Text 17.txt	property in order to impose patents on	seeds	worldwide. This is what became the trade-related
140	Text 17.txt	share." I immediately committed myself to saving	seeds.	That's how the organization Navdanya got started.
141	Text 17.txt	can only come through control of the	seed	and collecting rent from marrying seeds to
142	Text 17.txt	the seed and collecting rent from marrying	seeds	to our chemicals— like herbicide-resistant crops and
143	Text 17.txt	agrichemical industry] can't directly sell patented GMO	seeds	and collect royalties, they are accessing another
144	Text 17.txt	way saying, "Okay, let's assault the independent	seed	supply." Varieties that are vital to organic
145	Text 17.txt	It's a very fascinating time. [We at]	Seed	Freedom Alliance [have] just announced that we're
146	Text 17.txt	We're going to do this through saving	seeds	and cultivating gardens of resistance and hope.
147	Text 17.txt	the government was forced to withdraw the	Seed	Act of 2004. Yes it is. Based
148	Text 17.txt	constructive action-- like planting a garden. Saving	seeds	is a constructive action. It is also
149	Text 17.txt	the fight for the truth of the	seed:	seed reproduces, seed multiples, seed is shared.
150	Text 17.txt	fight for the truth of the seed:	seed	reproduces, seed multiples, seed is shared. That's
151	Text 17.txt	the truth of the seed: seed reproduces,	seed	multiples, seed is shared. That's the truth
152	Text 17.txt	of the seed: seed reproduces, seed multiples,	seed	is shared. That's the truth of the
153	Text 17.txt	is shared. That's the truth of the	seed.	The United States is of course the
154	Text 17.txt	in creating laws for corporate monopoly on	seed	and denying laws that would protect farmers'
155	Text 17.txt	that would protect farmers' rights to save	seeds.	Monsanto vs. Bowman was an example of
156	Text 17.txt	advanced in total corporate control over the	seed	sector-- Monsanto being the big giant that
157	Text 17.txt	being the big giant that controls the	seed	as well as the issues of biosafety.

158	Text 17.txt	two decades ago are now growing. The	seed	savers of the United States are very
159	Text 17.txt	down the road of the denial of	seed	and the denial of healthy food.
160	Text 18.txt	but in a dedicated way of saving	seed,	spreading the infection among others for loving
161	Text 19.txt	now said we've got to own the	seed;	to own the seed we've got to
162	Text 19.txt	to own the seed; to own the	seed	we've got to own patents; to have
163	Text 19.txt	a plant is not put together. A	seed	is not a manufacture. But just like
164	Text 19.txt	directly through appropriation through the theft of	seeds,	the theft of water, or the theft
165	Text 19.txt	gives us more biodiversity when we conserve	seeds;	it gives us more water when we
166	Text 2.txt	a monopoly. You cannot sell us the	seeds	you stole from us, and you cannot
167	Text 2.txt	200 villagers who had been involved in	seed	saving and seed sharing with Navdanya, the
168	Text 2.txt	had been involved in seed saving and	seed	sharing with Navdanya, the trust that I
169	Text 2.txt	the trust that I founded to save	seeds	and promote organic agriculture. These 200 villagers
170	Text 2.txt	said, "We've received our medicinal plants, our	seeds,	our forests from nature through our ancestors;
171	Text 2.txt	in years past by saving locally bred	seeds	and saving biodiversity. Now they are seeking
172	Text 2.txt	instability and population growth. Instead of leaving	seeds	in the hands of the peasants who
173	Text 2.txt	who co-evolve them in partnership with nature,	seeds	become a monopoly in the hands of
174	Text 2.txt	eat. Our farmers are being ravished by	seed	companies, being pushed into debt, and committing
175	Text 20.txt	of a medicinal plant, or find a	seed	that farmers use, come back here, claim
176	Text 20.txt	rich collective heritage involving the use of	seeds	for growing crops and medicinal plants for
177	Text 20.txt	needs. Every farmer must go to the	seed	industry every year to buy their seed
178	Text 20.txt	seed industry every year to buy their	seed	and pay an 80 percent royalty to
179	Text 20.txt	you can no longer use the need	seed	in your back yard. Instead you have
180	Text 20.txt	first started out, we called it the	seed	satyagraha. As you know, Gandhi had started
181	Text 20.txt	same kinds of actions around biodiversity and	seed.	Nature has gifted this rich biological diversity
182	Text 20.txt	symbol of our first independence, then the	seed	is the symbol of our second independence."
183	Text 21.txt	enters the scene with its Bt cotton	seed,	pushing farmers into debt by shooting the
184	Text 21.txt	into debt by shooting the prices of	seed	up thousands of percent higher to collect

185	Text 21.txt	royalties— illegal because Monsanto doesn't own the	seed—	in India they were not allowed to
186	Text 21.txt	deaths have to do with Bt cotton	seed.	I love my land, I love my
187	Text 21.txt	poison corporations now wanted to own our	seeds,	is to save thousands of seed varieties.
188	Text 21.txt	our seeds, is to save thousands of	seed	varieties. We've trained nearly a million farmers
189	Text 21.txt	years in organic farming, in awareness of	seeds	and why they should be using their
190	Text 21.txt	why they should be using their own	seed.	We've built the largest domestic network of
191	Text 21.txt	organic products. These farmers are saving their	seeds,	doing organic farming and participating in fair
192	Text 21.txt	they shift the market. They're sovereign in	seed,	they're sovereign in food, and they're sovereign
193	Text 21.txt	farmers. Navdanya's work begins with creating community	seed	banks to conserve biodiversity so communities of
194	Text 21.txt	of farmers start taking care of their	seed.	They facilitate seed collection and training, and
195	Text 21.txt	taking care of their seed. They facilitate	seed	collection and training, and they set up
196	Text 21.txt	and training, and they set up community	seed	banks so that they have their own
197	Text 21.txt	banks so that they have their own	seed	supply. That's one level. We have helped
198	Text 21.txt	helped set up more than 120 community	seed	banks in the country. Unlike seed libraries
199	Text 21.txt	community seed banks in the country. Unlike	seed	libraries in the United States, which are
200	Text 21.txt	are literally outside the agricultural system, our	seed	banks are the base of an agriculture
201	Text 21.txt	us, it's very important that we save	seeds	to shape another agriculture, because we can't
202	Text 21.txt	another agriculture, because we can't isolate the	seeds	and trying to shape agriculture in isolation
203	Text 21.txt	all a part of one system! The	seed	saving is our foundation. The seed saving
204	Text 21.txt	The seed saving is our foundation. The	seed	saving then leads to an agriculture that
205	Text 21.txt	agroecology and organic farming. We teach living	seed,	living soil— because industrial agriculture presents soil
206	Text 21.txt	dead and inert and an empty container,	seed	as an empty container waiting for toxic
207	Text 21.txt	central India gets to market. So community	seed	banks coordinate at the regional level, cooperatives
208	Text 21.txt	to distribute a newspaper devoted to ending	seed	slavery, which is available on the Seed
209	Text 21.txt	seed slavery, which is available on the	Seed	Freedom website, seedfreedom.info. California passed an insane
210	Text 21.txt	is available on the Seed Freedom website,	seedfreedom.info.	California passed an insane law that took
211	Text 21.txt	January 2015 saying that people cannot exchange	seed	beyond three miles and only Sacramento can

212	Text 21.txt	Sacramento can write any law related to	seed—	no county, no local governments— and that
213	Text 21.txt	and farm breeding give us robust, resilient	seed,	full of nutrition, the final straw in
214	Text 21.txt	of nutrition, the final straw in that	seed	law which must be challenged is the
215	Text 21.txt	problems, including California and its very silly	seed	law. There should be civil disobedience against
216	Text 21.txt	For us, it's exactly the same. Our	seeds	are not primitive; they're seeds of freedom
217	Text 21.txt	same. Our seeds are not primitive; they're	seeds	of freedom and seeds of hope. Monsanto's
218	Text 21.txt	not primitive; they're seeds of freedom and	seeds	of hope. Monsanto's GMO seeds are seeds
219	Text 21.txt	freedom and seeds of hope. Monsanto's GMO	seeds	are seeds of death and seeds of
220	Text 21.txt	seeds of hope. Monsanto's GMO seeds are	seeds	of death and seeds of soil destruction.
221	Text 21.txt	GMO seeds are seeds of death and	seeds	of soil destruction. We've just done a
222	Text 21.txt	We call it bija swaraj— bija is	seed,	swaraj is serenity and self-governance. I wrote
223	Text 21.txt	We attempt to make farmers sovereign in	seed	and food, to make communities sovereign in
224	Text 21.txt	and food, to make communities sovereign in	seed	and food. Then it comes to Gandhi's
225	Text 21.txt	has been the basis of us having	seeds	that we can use after cyclones and
226	Text 21.txt	Tree fruits that are delicious and tasty,	seeds	that have more nutrition like our wheat,
227	Text 21.txt	that have more nutrition like our wheat,	seeds	like the basmati seed which were patented
228	Text 21.txt	like our wheat, seeds like the basmati	seed	which were patented by an American company—
229	Text 21.txt	on India. It wasn't working because native	seeds	and chemicals don't go together. Norman Borlaug
230	Text 21.txt	it is full of knowledge, that through	seed	sovereignty and ecological agriculture and your own
231	Text 21.txt	neem leaves in our grain and our	seeds,	we use the neem leaves in our
232	Text 21.txt	in organic farming, because before I started	seed	saving in 1987 we were already creating
233	Text 21.txt	oil comes from the kernel of the	seed.	You can harvest it every year. The
234	Text 21.txt	were visiting a farmer who is using	seeds	we introduced"— seeds that tolerate flooding. Well,
235	Text 21.txt	farmer who is using seeds we introduced"—	seeds	that tolerate flooding. Well, it didn't come
236	Text 21.txt	came from Indian farmers. They pirate the	seeds	and take a patent. Monsanto, Bayer and
237	Text 21.txt	cyclone— they have arrived with their GMO	seeds.	After the earthquake damaged Nepal so badly
238	Text 21.txt	we kept getting calls— half of their	seed	banks had been damaged in the earthquake,

239	Text 21.txt	by May we had to get the	seeds	there. We put the seeds together. At
240	Text 21.txt	get the seeds there. We put the	seeds	together. At the border, the customs officer
241	Text 21.txt	saw a very strange circular saying, "No	seed	except..."— and there was a list of
242	Text 21.txt	Monsanto and a Monsanto subsidiary. Only those	seeds	could enter. We checked with Nepal's agriculture
243	Text 21.txt	the trees in the forest and the	seeds	in our farms are all part of
244	Text 22.txt	if there's knowledge or living material, plants,	seeds,	medicines which the white man has not
245	Text 22.txt	of phenomena that we call biopiracy, where	seeds	such as the Basmati seed, the aromatic
246	Text 22.txt	biopiracy, where seeds such as the Basmati	seed,	the aromatic rice from India, which we
247	Text 22.txt	that last resource in the form of	seed,	medicinal plants, fodder, which allowed them access
248	Text 22.txt	also being taken over through patenting. And	seeds	which peasants have freely saved, exchanged, used,
249	Text 22.txt	from having free access to their own	seed,	to have free exchange of their own
250	Text 22.txt	to have free exchange of their own	seed.	So that all peasants, all farmers around
251	Text 22.txt	farmers around the world would be buying	seed	every year thus creating a new market
252	Text 22.txt	creating a new market for the global	seed	industry. 80 percent of India takes care
253	Text 22.txt	resources of the poor. It really is	seeds	of uncontrollable violence and decay of societies
254	Text 22.txt	very large scale. When we plant a	seed	there's a very simple prayer that every
255	Text 22.txt	every peasant in India says: "Let the	seed	be exhaustless, let it never get exhausted,
256	Text 22.txt	never get exhausted, let it bring forth	seed	next year." Farmers have such pride in
257	Text 22.txt	in saying "this is the tenth generation	seeds	that I'm planting," "this is the fifth
258	Text 22.txt	I'm planting," "this is the fifth generation	seed	that I'm planting." Just the other day
259	Text 22.txt	Just the other day I had a	seed	exchange fair in my valley and a
260	Text 22.txt	and a farmer brought Basmati aromatic rice	seed	and he said "this is five generations
261	Text 22.txt	treated it as their duty to save	seed	and ensure its continuity. But that prayer
262	Text 22.txt	continuity. But that prayer to let the	seed	be exhaustless seems to be changing into
263	Text 22.txt	be changing into the prayer, "let this	seed	get terminated so that I can make
264	Text 22.txt	technology whose aim is merely to prevent	seed	from germinating so that they don't have
265	Text 22.txt	that they don't yet have means. Hybrid	seeds	are also not good for saving. It

266	Text 22.txt	year. But the difference is that hybrid	seeds	don't give good seed. It's not that
267	Text 22.txt	is that hybrid seeds don't give good	seed.	It's not that they fail to germinate.
268	Text 22.txt	a way to prevent farmers from saving	seed.	But with patents you still have to
269	Text 22.txt	detectives to ensure that farmers aren't saving	seeds.	The terminator is an extremely secure technology
270	Text 22.txt	whose basic right, in my view, is	seed	saving. A farmer's duty, is protecting the
271	Text 22.txt	it's fertility, and maintaining the fertility of	seed.	That is part of being a farmer.
272	Text 22.txt	to the land and relates to the	seed	and keeps it for future generations, keeps
273	Text 22.txt	No farmer in the world has done	seed	selection sitting in tropical Africa and trying
274	Text 22.txt	a national program to basically fight the	seed	monopolies. I started it ten years ago
275	Text 22.txt	world of total control. Navdanya means nine	seeds.	Through it we save native seeds. In
276	Text 22.txt	nine seeds. Through it we save native	seeds.	In India we still have a lot
277	Text 22.txt	agriculture. We still have a lot of	seed	diversity. We do not try and do
278	Text 22.txt	act so that farmers would have free	seed	in their hands, using that free seed
279	Text 22.txt	seed in their hands, using that free	seed	they would be able to resist the
280	Text 22.txt	trying to establish in India. Through those	seeds	they can establish sustainable organic agriculture again.
281	Text 22.txt	can establish sustainable organic agriculture again. New	seeds	are bred for heavy chemical influence and
282	Text 22.txt	chemicals. If they were to bring these	seeds	into India there would be a twenty-fold
283	Text 22.txt	have never used chemicals. Through the native	seeds	we can become free of agri-chemicals, farmers
284	Text 22.txt	still continue to call these wonderfully nourishing	seeds	primitive cultivars. Part of our battle has
285	Text 22.txt	I often say is that through the	seed	saving of Navdanya we have managed to
286	Text 22.txt	seven zones now. We have the native	seed	supply taking over. I have just started
287	Text 22.txt	over. I have just started two new	seed	banks in the heart of the "Green
288	Text 22.txt	starting to shift to use of native	seeds	and organic agricultural methods. The wonderful thing
289	Text 22.txt	organic agricultural methods. The wonderful thing about	seed	is if you have even one, you
290	Text 23.txt	productivity. That the reason you need these	seeds,	these crops, these chemicals is to produce
291	Text 23.txt	rights go where water can be conserved,	seeds	can be conserved, biodiversity can be conserved,
292	Text 24.txt	But, medicine has been brought into monopolies.	Seed	has been brought into monopolies. Cells have

293	Text 24.txt	spaces within life forms for reproduction. A	seed	cannot reproduce without permission of the patent
294	Text 24.txt	a patent is granted, for example, on	seed	it means a farmer who grows a
295	Text 24.txt	it means a farmer who grows a	seed	cannot save seed from the harvested crop
296	Text 24.txt	farmer who grows a seed cannot save	seed	from the harvested crop because that is
297	Text 24.txt	because that is constituted as making the	seed	and the exclusive right to the seed
298	Text 24.txt	seed and the exclusive right to the	seed	belongs to the company. It means seed-saving
299	Text 24.txt	seed belongs to the company. It means	seed- saving	by farmers is now defined as intellectual
300	Text 24.txt	normal in farming, which is saving their	seed.	Exchanging seed with your neighbor, which is
301	Text 24.txt	farming, which is saving their seed. Exchanging	seed	with your neighbor, which is called brown-bagging--
302	Text 24.txt	because the companies interpret that by exchanging	seed	you are taking the market away from
303	Text 24.txt	as monopoly and recognize that things like	seeds	should be accessible to farmers, things like
304	Text 24.txt	also the pharmaceutical industry, is also the	seed	industry, is also the biotech industry. There
305	Text 24.txt	to defend the freedom of people; create	seed	banks so that farmers have free seed;
306	Text 24.txt	seed banks so that farmers have free	seed;	nature has freedom of diversity; and these
307	Text 24.txt	the title (of the movement) was the	Seed	Satyagraha-- the non-violent, non-cooperation with laws that
308	Text 24.txt	the non-violent, non-cooperation with laws that create	seed	monopolies, inspired totally by Gandhi walking to
309	Text 24.txt	groups is the creative side of saving	seeds,	doing agriculture without corporate dependence- without chemicals,
310	Text 24.txt	without corporate dependence without chemicals, without their	seed.	All this is talked about in the
311	Text 24.txt	fight on three fronts-- water, food, and	seed.	JalSwaraj- JalSwaraj is water independence- water freedom
312	Text 24.txt	freedom, food sovereignty. And Bija Swaraj is	seed	freedom and seed sovereignty. (In regard to
313	Text 24.txt	And Bija Swaraj is seed freedom and	seed	sovereignty. (In regard to these fronts) Swa
314	Text 24.txt	to have access to water, access to	seed,	access to food, access to medicine." Well,
315	Text 24.txt	practice meaning, as we do here, with	seed	Swaraj, with Anna Swaraj, saving seeds, growing
316	Text 24.txt	with seed Swaraj, with Anna Swaraj, saving	seeds,	growing your own seed, not going to
317	Text 24.txt	Anna Swaraj, saving seeds, growing your own	seed,	not going to Monsanto in every season
318	Text 24.txt	Monsanto in every season and having your	seed	collapse. I was just told, yesterday, that
319	Text 24.txt	one season. If farmers are saving the	seed,	growing their crop, they are making reclamation

320	Text 24.txt	that time of colonialism, ownership over biodiversity,	seeds,	genes, medicine is doing in today's world.
321	Text 25.txt	of rivers, the privatization and patenting of	seeds	(the basis of my work in Navdanya)
322	Text 26.txt	been displaced hugely. They've been displaced from	seed,	they've been displaced from agriculture. A lot
323	Text 27.txt	this idea of 'empty earth' is the	seed	of the Anthropocene. They bulldoze an ancient 1500
324	Text 27.txt	little bit of land, little bit of	seed	in the name of some progress that
325	Text 27.txt	food from them and take away their	seeds	in order to feed them". So what we
326	Text 27.txt	going to WTO meetings, let's set up	seed	banks, set up seed commons and let's
327	Text 27.txt	let's set up seed banks, set up	seed	commons and let's change the rules. Let's
328	Text 27.txt	countries managed to roll back laws criminalising	seed	saving. In a crazy way, this market-mafia
329	Text 28.txt	millets and paddy have been lured by	seed	companies to buy hybrid cotton seeds referred
330	Text 28.txt	by seed companies to buy hybrid cotton	seeds	referred to by the seed merchants as
331	Text 28.txt	hybrid cotton seeds referred to by the	seed	merchants as "white gold", which were supposed
332	Text 28.txt	millionaires. Instead they became paupers. Their native	seeds	have been displaced with new hybrids which
333	Text 28.txt	are now trying to introduce genetically engineered	seed	which will further increase costs and ecological
334	Text 28.txt	is leading to a concentration of the	seed	industry, increased use of pesticides, and, finally,
335	Text 28.txt	destroyed the market for our diverse oil	seeds-	mustard, linseed, sesame, groundnut, coconut. And the
336	Text 28.txt	poor will have to pay for the	seeds	and medicines they have evolved and have
337	Text 28.txt	and corporations. When patents are granted for	seeds	and plants, as in the case of
338	Text 28.txt	defined as creation, and saving and sharing	seed	is defined as theft of intellectual property.
339	Text 28.txt	soya bean, mustard are suing farmers for	seed	saving and hiring detective agencies to find
340	Text 28.txt	to find out if farmers have saved	seed	or shared it with neighbours. The recent
341	Text 28.txt	In 1992, when Indian farmers destroyed Cargill's	seed	plant in Bellary, Karnataka, to protest against
342	Text 28.txt	plant in Bellary, Karnataka, to protest against	seed	failure, the Cargill Chief Executive stated, "We
343	Text 28.txt	open, pollinated varieties with hybrids and sterile	seeds,	and destroying biodiverse flora with herbicides such
344	Text 30.txt	on earth, to create freedom for every	seed,	every child, every woman, every culture. What
345	Text 30.txt	suicide since Monsanto took over our common	seed	supply, in 15 years. They come, they
346	Text 30.txt	you do is primitive, give up your	seeds.	Then they will give you GMO seeds

347	Text 30.txt	seeds. Then they will give you GMO	seeds	as the only option. They hijack our
348	Text 30.txt	because five corporations want to control our	seed	and food. Well they can manage four
349	Text 30.txt	and each of them in diversity. The	seed	banks have created 3,000 varieties of rice,
350	Text 30.txt	gardens came up. Young unemployed youth became	seed	savers and organic gardeners. Gardening is our
351	Text 30.txt	not GMOs. Freedom is our future, not	seed	slavery. You are the future.
352	Text 31.txt	to distort the prices. Monsanto doesn't produce	seed.	It just owns the patents and does
353	Text 31.txt	ingenuity is being used to create sterile	seeds,	we need to go back to the
354	Text 31.txt	get manufactured. If I can save my	seed	on my farm, where on earth will
355	Text 31.txt	idea that corporations can own and patent	seed	and life forms and collect rents from
356	Text 31.txt	is no scarcity. I take a tiny	seed	and I put it into the soil.
357	Text 31.txt	put it into the soil. That one	seed	will give me sometimes a million seeds
358	Text 31.txt	seed will give me sometimes a million	seeds	in one plant. And the millets? The
359	Text 31.txt	millets is because they give a million	seeds.	You think millets are just for feeding
360	Text 31.txt	Monsanto says for farmers who are saving	seed,	they are now intellectual property criminals, because
361	Text 31.txt	now intellectual property criminals, because once a	seed	is patented and becomes intellectual property, then
362	Text 31.txt	patented and becomes intellectual property, then saving	seed	becomes a crime. I believe saving seed
363	Text 31.txt	seed becomes a crime. I believe saving	seed	is our ecological, ethical duty. That is
364	Text 31.txt	when I started Navdanya, which means nine	seeds,	I started it with two inspirations from
365	Text 31.txt	over life, then we will start saving	seeds	one seed at a time and defend
366	Text 31.txt	then we will start saving seeds one	seed	at a time and defend the freedom
367	Text 31.txt	taken inspiration from that and had the	seed	satyagraha. Nature gives it for free. Our
368	Text 31.txt	primarily women farmers who have been the	seed	keepers of every society, and we will
369	Text 31.txt	we will continue to save and share	seed	as our moral duty to the future
370	Text 31.txt	illegal for us to have our own	seeds.	In 2004, the government did try and
371	Text 31.txt	the law which would have made indigenous	seed	illegal. Everything indigenous is always illegal, because
372	Text 31.txt	Every community garden that comes up, every	seed- saving	movement that comes up. In India there
373	Text 31.txt	debt caused by this cotton. It's costly	seed,	costly chemicals. Farmers just can't pay it

374	Text 31.txt	moneylenders; it's from the agents of the	seed	companies. I call this new corporate feudalism,
375	Text 31.txt	power. Three years ago, I did a	seed	pilgrimage through these areas where the suicides
376	Text 31.txt	found out that the farmers had no	seed.	I would say, "If it's failing, why
377	Text 31.txt	failing, why aren't you using your own	seed?"	They said, "The companies took the old
378	Text 31.txt	They said, "The companies took the old	seed	away." It's called "seed replacement" in the
379	Text 31.txt	took the old seed away." It's called	"seed	replacement" in the seed industry jargon, as
380	Text 31.txt	away." It's called "seed replacement" in the	seed	industry jargon, as if seed is dirty
381	Text 31.txt	in the seed industry jargon, as if	seed	is dirty socks that need throwing away.
382	Text 31.txt	of our ministers said—I was doing a	seed	exhibition. The chief minister of my state
383	Text 31.txt	Vandanaji, why are you saving these old	seeds?	Seeds are like cars. We must have
384	Text 31.txt	why are you saving these old seeds?	Seeds	are like cars. We must have new
385	Text 31.txt	to do organic farming and save old	seeds.	This year India has had a tremendous
386	Text 31.txt	Wherever farmers had grown the Green Revolution	seeds,	they were still waiting for planting their
387	Text 31.txt	when I found the farmers had no	seed,	we started seed banks in that area.
388	Text 31.txt	the farmers had no seed, we started	seed	banks in that area. Once the farmers
389	Text 31.txt	that area. Once the farmers had non-GM	seed,	they could start to do organic farming.
390	Text 31.txt	in the water sector, five in the	seed	sector, five in the agribusiness sector. That,
391	Text 32.txt	spent on buying toxic chemicals and costly	seeds	rather than being spent on feeding children,
392	Text 32.txt	converted into a market for sales of	seeds	and agrichemicals. And on the other hand,
393	Text 34.txt	the Earth begins in the mind. Its	seeds	were sown when the living Earth was
394	Text 34.txt	factor in the spread of the new	seeds,	because wherever the new seeds went, they
395	Text 34.txt	the new seeds, because wherever the new	seeds	went, they opened up new markets for
396	Text 34.txt	food includes cereals and pulses and oil	seeds	and vegetables, not just rice and wheat.
397	Text 34.txt	through the destruction of diversity, the 'miracle'	seeds	of the green revolution became mechanisms for
398	Text 34.txt	part of the 'miracle' of the new	seeds	that modern plant breeders had gifted the
399	Text 34.txt	use. The farmers suffer twice over. Costly	seeds	and costly chemicals push them into debt
400	Text 34.txt	their lives, Navdanya brought out its report	"Seeds	of Suicide". One by one the women

401	Text 34.txt	Navdanya we have promoted Organic Farming and	'Seeds	of Hope', to help farmers move away
402	Text 34.txt	to help farmers move away from Monsanto's	"Seeds	of Suicide". Organic farmers in Vidharbha are
403	Text 34.txt	commons and have set up 55 community	seed	banks. The salt tolerant rices in Navdanya's
404	Text 34.txt	The salt tolerant rices in Navdanya's community	seed	banks have helped communities rejuvenate their agriculture
405	Text 34.txt	sustenance. That is why for me reclaiming	seed,	biodiversity, water as commons is vital for
406	Text 34.txt	their land and water, their forests and	seeds.	"Hungry" money is predating on the last
407	Text 34.txt	in increased purchases of chemicals and costly	seeds.	When corporations patent seeds, 1 trillion dollars
408	Text 34.txt	chemicals and costly seeds. When corporations patent	seeds,	1 trillion dollars of increased money will
409	Text 34.txt	climate chaos. That is why we save	seeds	and protect biodiversity. The industrial model must
410	Text 34.txt	right to the commons– the rivers, the	seeds,	the biodiversity, the atmosphere. I have given
411	Text 35.txt	farmers will use new chemicals and new	seeds	and they'll get prosperous and prosperous farmers
412	Text 35.txt	they distributed they called them the 'miracle	seeds'.	Nothing miraculous about those seeds– they were
413	Text 35.txt	the 'miracle seeds'. Nothing miraculous about those	seeds–	they were just bred to respond to
414	Text 35.txt	is when I decided to start saving	seeds.	The reason I was compelled to start
415	Text 35.txt	reason I was compelled to start saving	seeds	was this. Because of my book on
416	Text 35.txt	now becoming the biotech giants and the	seed	giants. But they all pleaded smallness. "We
417	Text 35.txt	today controls the largest sector in the	seeds	supply and in GM seeds controls more
418	Text 35.txt	in the seeds supply and in GM	seeds	controls more than 95 percent of commercially
419	Text 35.txt	more than 95 percent of commercially sold	seeds.	More than 95 percent! So when people
420	Text 35.txt	People aren't choosing Monsanto. Monsanto is the	seed	monopoly. The second thing the industry said
421	Text 35.txt	was patenting of life forms and patenting	seeds.	That was where the growth would come
422	Text 35.txt	come from: collecting rents from God's creation.	Seeds	reproduce, seeds give rise to seeds. That's
423	Text 35.txt	collecting rents from God's creation. Seeds reproduce,	seeds	give rise to seeds. That's the nature
424	Text 35.txt	creation. Seeds reproduce, seeds give rise to	seeds.	That's the nature of Creation, but that
425	Text 35.txt	that is being patented. So when a	seed	is patented, then any farmer saving seed
426	Text 35.txt	seed is patented, then any farmer saving	seed	on their farm becomes a thief. A
427	Text 35.txt	farm becomes a thief. A farmer exchanging	seed	with their neighbour becomes a thief. And

428	Text 35.txt	I said this is so wrong because	seed	is not an invention of Monsanto. Monsanto
429	Text 35.txt	an invention of Monsanto. Monsanto doesn't invent	seeds.	Monsanto adds a toxic gene to seed.
430	Text 35.txt	seeds. Monsanto adds a toxic gene to	seed.	That is polluting seed, not creating seed.
431	Text 35.txt	toxic gene to seed. That is polluting	seed,	not creating seed. Seed makes itself and
432	Text 35.txt	seed. That is polluting seed, not creating	seed.	Seed makes itself and makes the next
433	Text 35.txt	That is polluting seed, not creating seed.	Seed	makes itself and makes the next generation,
434	Text 35.txt	the next generation, so a patent on	seed	and a patent on life is wrong
435	Text 35.txt	herbicides, and, if you don't buy their	seed	and there's herbicide being sprayed you lose
436	Text 35.txt	they do is sell BollGuard 2, a	seed	with two toxic genes. For Roundup they
437	Text 35.txt	captive customer base for our octo stack	seed ² -	octo stack is eight toxic genes. The
438	Text 35.txt	for preventing farmers from having their own	seed,	which also includes preventing nature from doing
439	Text 35.txt	work, is 'Terminator' technology, deliberately creating sterile	seeds,	preventing life from evolving into the future.
440	Text 35.txt	us they're getting no crop from the	seeds	they are planting. And because the companies
441	Text 35.txt	a royalty component. A 7 rupee cotton	seed	is now costing 3, 600 rupees, of
442	Text 35.txt	market forever. Chemicals are ecological narcotics. GM	seeds	become a source of dependency because the
443	Text 35.txt	dependency because the GM companies destroy alternative	seed	supply. They go into communities and tell
444	Text 35.txt	tell them to give up their old	seed.	They call it seed replacement, as if
445	Text 35.txt	up their old seed. They call it	seed	replacement, as if seed was dirty socks.
446	Text 35.txt	They call it seed replacement, as if	seed	was dirty socks. But it's not. Seed
447	Text 35.txt	seed was dirty socks. But it's not.	Seed	is a basis of life. The reason
448	Text 35.txt	reason we have built up the community	seed	banks is because I knew that if
449	Text 35.txt	banks is because I knew that if	seed	is patented and there is only GM
450	Text 35.txt	is patented and there is only GM	seed	we won't have options. So in 1987
451	Text 35.txt	So in 1987 we started to save	seeds.	In 1991 I created the legal entity
452	Text 35.txt	entity called Navdanya. We've created 54 community	seed	banks around India because we believe seed
453	Text 35.txt	seed banks around India because we believe	seed	is our commons. It has to be
454	Text 35.txt	a simple one: 'We have received these	seeds	from Creation and from our ancestors and

455	Text 35.txt	any law that prevents us from saving	seed.	We will respect the freedom of the
456	Text 35.txt	We will respect the freedom of the	seed	and our own freedom.’ And this is
457	Text 35.txt	our own freedom.’ And this is our	seed	sovereignty. This is the foundation of food
458	Text 35.txt	of food sovereignty, that with our own	seeds	we have the capacity to produce our
459	Text 35.txt	our food. If you don’t have your	seeds	there is no way you can be
460	Text 35.txt	practice. And because, if we’ve saved these	seeds,	these seeds must find eaters, we’ve built
461	Text 35.txt	because, if we’ve saved these seeds, these	seeds	must find eaters, we’ve built up the
462	Text 35.txt	when Monsanto is a monopoly supplier of	seed	they will raise the price of seed.
463	Text 35.txt	seed they will raise the price of	seed.	When Cargill or the supermarkets are the
464	Text 35.txt	of course we have Monsanto pushing GM	seeds	and we have Wall Mart saying, “Corporate
465	Text 35.txt	of you is expanding our network of	seedbanks	expanding our capacity to help farmers convert
466	Text 35.txt	suicides are happening. We need to create	seedbanks	called ‘seeds of hope’ and organic cotton–
467	Text 35.txt	happening. We need to create seedbanks called ‘	seeds	of hope’ and organic cotton– production and
468	Text 35.txt	very serious situation. You can’t find cotton	seeds	that are not GM. We are doing
469	Text 35.txt	remote areas to find the one cotton	seed	which we then have to multiply. So
470	Text 35.txt	scramble of my name. It means ‘nine	seeds’	and also the ‘new gift’ and is
471	Text 36.txt	livelihoods, to have access to vital resources—	seed,	food, water, land. And, we refer to
472	Text 36.txt	the last drop of water, the last	seed,	the last morsel of food. In the
473	Text 36.txt	of life. Creating markets by destroying people’s	seed	and food freedom is at the heart
474	Text 36.txt	sought to cure was that farmers saved	seeds.	The cure was that farmers should be
475	Text 36.txt	should be prevented from saving and exchanging	seeds	by defining these fundamental freedoms as a
476	Text 36.txt	as a crime. TRIPS imposes patents on	seeds,	allowing corporations like Monsanto to prevent farmers
477	Text 36.txt	like Monsanto to prevent farmers from saving	seeds.	Worse, as in the case of Monsanto
478	Text 36.txt	saving and protecting life, especially biodiversity and	seeds,	on Earth is the highest duty, the
479	Text 36.txt	genetic engineering and patents on life and	seeds	and a ‘free trade’ agreement. Navdanya is
480	Text 36.txt	creating Earth Democracy based on Bija Swaraj	(Seed	Freedom/Sovereignty), Anna Swaraj (Food Freedom/Sovereignty),
481	Text 36.txt	and sovereignty as interchangeable terms. Bija Swaraj=	Seed	Freedom= Seed Sovereignty Commons are spheres of

482	Text 36.txt	as interchangeable terms. Bija Swaraj= Seed Freedom=	Seed	Sovereignty Commons are spheres of life self-governed
483	Text 36.txt	share or sell his farm produce including	seed	of a variety protected under this Act
484	Text 36.txt	into force of this Act. For us,	seed	freedom includes farmers' rights to save, exchange,
485	Text 36.txt	of the state or corporations. We use	'seed	freedom' as the right of the seed
486	Text 36.txt	'seed freedom' as the right of the	seed	as a living, self-organised system to evolve
487	Text 36.txt	as the 'terminator technology' designed to make	seed	sterile. In 'seed freedom' is the freedom
488	Text 36.txt	technology' designed to make seed sterile. In	'seed	freedom' is the freedom of bees to
489	Text 36.txt	threat of extinction due to poisons. In	'seed	freedom' is the freedom of the web
490	Text 36.txt	and well-being for all. We refer to	'seed	freedom' as the freedom of farmers to
491	Text 36.txt	and exchange farmers' varieties freely among themselves.	Seed	and biodiversity are the ultimate commons, and
492	Text 36.txt	and its bureaucratic apparatus. We refer to	'seed	freedom' as the freedom of eaters to
493	Text 36.txt	to have access to food grown from	seeds	bred for diversity, taste, flavour, quality and
494	Text 36.txt	diversity, taste, flavour, quality and nutrition. In	'seed	freedom' is the duty to save and
495	Text 36.txt	the duty to save and exchange native	seeds	bred by farmers. This is seed sovereignty.
496	Text 36.txt	native seeds bred by farmers. This is	seed	sovereignty. For farmers, varieties conserved, used and
497	Text 36.txt	and threats to biosafety from genetically engineered	seeds	and crops on the other. Freedom and
498	Text 36.txt	monopoly power through intellectual property rights on	seeds	in so called 'free trade' treaties, based
499	Text 36.txt	Nepal are examples of continued contest between	seed	and food freedom of the people, and
500	Text 36.txt	of the people, and corporate monopolies in	seed	and food. To push free trade as
501	Text 36.txt	is the privatisation of commons such as	seeds,	through IPR and seed laws imposed by
502	Text 36.txt	commons such as seeds, through IPR and	seed	laws imposed by state or inter-state bodies
503	Text 36.txt	on behalf of corporations. Thus, patents on	seeds	were imposed through genetic engineering. In addition
504	Text 36.txt	being the privatisation of commons such as	seeds	and life, it is also the enclosure
505	Text 36.txt	account, there is no justification for privatising	seeds	through patents. Intellectual property rights on seeds
506	Text 36.txt	seeds through patents. Intellectual property rights on	seeds	lead to policing and regulating of citizens
507	Text 36.txt	instrument of corporate sovereignty and people's slavery.	Seed	laws for compulsory registration, which are being
508	Text 36.txt	order to enhance corporate freedom to establish	seed	monopolies. An example of the expansion of

509	Text 36.txt	people's freedom to save and exchange farmers'	seed	varieties is the proposed EU seed law,
510	Text 36.txt	farmers' seed varieties is the proposed EU	seed	law, and the push for harmonisation of
511	Text 36.txt	law, and the push for harmonisation of	seed-related	laws in Africa. Other examples are the
512	Text 36.txt	in Africa. Other examples are the 2004	Seed	Law of India which could never be
513	Text 36.txt	enacted because of our resistance through a	seed	satyagraha, and the Colombian laws passed to
514	Text 36.txt	the production, use and marketing of all	seeds	in the country (Resolution 970 of 2010);
515	Text 36.txt	Expansion of intellectual property rights to include	seeds	(Law 1518 of 2012); and • Prohibition
516	Text 36.txt	to public health, and socio-economic harm through	seed	monopolies, leading to distress among farmers. That
517	Text 36.txt	Why else would governments and corporations impose	seed	laws to prohibit the use of local
518	Text 36.txt	laws to prohibit the use of local	seeds	and breeds which have been evolved by
519	Text 36.txt	harm, and not police citizens through undemocratic	seed	and food laws whose only objective is
520	Text 36.txt	order to establish corporate totalitarianism over our	seed	and food. To ensure that unjust laws
521	Text 36.txt	We are being called on to practise	seed	satyagraha and food satyagraha to defend our
522	Text 36.txt	and food satyagraha to defend our everyday	seed	freedom and seed sovereignty, and food freedom
523	Text 36.txt	to defend our everyday seed freedom and	seed	sovereignty, and food freedom and food democracy.
524	Text 36.txt	food freedom and food democracy. Patents on	Seeds	and Seed Monopolies GMOs are intimately linked
525	Text 36.txt	and food democracy. Patents on Seeds and	Seed	Monopolies GMOs are intimately linked to seed
526	Text 36.txt	Seed Monopolies GMOs are intimately linked to	seed	patents. In fact, patenting of seeds is
527	Text 36.txt	to seed patents. In fact, patenting of	seeds	is the real reason why industries are
528	Text 36.txt	why industries are promoting GMOs. Monopolies over	seeds	are being established through patents, mergers and
529	Text 36.txt	arrangements. Monsanto now controls the world's biggest	seed	company, Seminis, which has bought up Peto
530	Text 36.txt	company, Seminis, which has bought up Peto	Seed,	Bruinismo, Table 1: World's Top Ten Seed
531	Text 36.txt	Seed, Bruinismo, Table 1: World's Top Ten	Seed	Companies SN Company 2007 seed sales (USD
532	Text 36.txt	Top Ten Seed Companies SN Company 2007	seed	sales (USD million) % of global proprietary
533	Text 36.txt	sales (USD million) % of global proprietary	seed	market 1 Monsanto (USA) 4694 23 2
534	Text 37.txt	actually ecological systems, indigenous systems and native	seeds	produce much more food. 72% of the
535	Text 37.txt	small farms, doing ecological agriculture, using local	seeds	and indigenous knowledge. Only 28% of the

536	Text 37.txt	have invented life, have invented the corn	seed.	This is a violation of the intelligence
537	Text 37.txt	the terminator technology, which would genetically engineer	seeds	to be sterile by design, when the
538	Text 37.txt	they talk about their hybrid and GMO	seeds	as preventing the bees from usurping the
539	Text 37.txt	of the soil and renewal of the	seed.	Let us celebrate this year, the World
540	Text 37.txt	and capacity. This tribunal was called a	Seed	Tribunal. It is a seed sown, which
541	Text 37.txt	called a Seed Tribunal. It is a	seed	sown, which has a lot of potential.
542	Text 37.txt	You know they are criminalizing savers of	seeds,	and we having to deal with making
543	Text 37.txt	confident that they can continue to save	seeds.	And work with seeds according to the
544	Text 37.txt	continue to save seeds. And work with	seeds	according to the laws of the Earth,
545	Text 37.txt	new paths collectively. This is a small	seed	that I can see growing into a
546	Text 38.txt	that I started in 1987 has saved	seeds	through creating community seed banks and helped
547	Text 38.txt	1987 has saved seeds through creating community	seed	banks and helped farmers make a transition
548	Text 38.txt	impoverishment of nature and culture. Its contemporary	seeds	were sown when the living Earth was
549	Text 38.txt	cropping systems of cereals, pulses, and oil	seeds	with different varieties of each crop, while
550	Text 38.txt	fields have been assessed by Navdanya, a	Seed	Conservation Movement. Under conditions of low capital
551	Text 4.txt	our farmers to be able to have	seed,	the most fundamental source of livelihood in
552	Text 4.txt	this fight because they are the biggest	seed	company now. Monsanto is privatizing the seed.
553	Text 4.txt	seed company now. Monsanto is privatizing the	seed.	They control 95 percent of the cotton
554	Text 4.txt	country. They've taken over most of the	seed	companies of the world. Well, it comes
555	Text 4.txt	the world. Well, it comes down to	seeds	for the simple reason everything begins a
556	Text 4.txt	for the simple reason everything begins a	seed.	The food on our plate. You and
557	Text 4.txt	on our plate. You and me were	seed	at one point. The little calf that
558	Text 4.txt	The little calf that becomes the cow.	Seed	is the source of life. And seed
559	Text 4.txt	Seed is the source of life. And	seed	is the source of renewal of life.
560	Text 4.txt	was the path to get patenting on	seeds--	I sat at meetings where the corporations
561	Text 4.txt	they changed the language. They say the	seed	is no more a seed. It's an
562	Text 4.txt	say the seed is no more a	seed.	It's an intellectual property. They make the

563	Text 4.txt	its thinking of what is at stake.	Seed	is the first link in the food
564	Text 4.txt	food chain. And therefore, when you control	seed,	you control food. Well I come from
565	Text 4.txt	the streets of India. So from the	seed	to the table, corporations are saying, "We
566	Text 4.txt	to be the only players." Five in	seed,	five in grain trade, five in processing,
567	Text 4.txt	by not allowing them to have their	seed.	It's taken away from the consumer by
568	Text 4.txt	saying, "We need retaliation." This is a	seed	war. This is a war. President Bush
569	Text 4.txt	governments to shut down alternatives and push	seed	against the will of people. And President
570	Text 4.txt	food system. We want Monsanto-free, G.M.O.-free, patent-free	seed."	Unfortunately, he's so totally wrong on this
571	Text 4.txt	wrong on this assumption that genetically modified	seeds	produce more. In India, Monsanto came in
572	Text 4.txt	are a recipe for hunger. But worse,	seed,	patents are a way of getting money
573	Text 4.txt	Chemicals don't grow food. That only Monsanto's	seeds	will be able to remove hunger. And
574	Text 5.txt	How do we do our agriculture? What	seeds	we plant? What price our crops will
575	Text 6.txt	you the protein. When I was doing	seed	collections I went to every campus that
576	Text 6.txt	of wheat to what became the Cambridge	seed	bank, which was then privatised to Unilever
577	Text 6.txt	disappearing waters, a totally chaotic climate, no	seeds-	it is a recipe for an absolute,
578	Text 6.txt	as good as zero, pulses have disappeared, all	seeds	are gone, basic foods that are vital
579	Text 6.txt	that was started to conserve biodiversity and	seeds,	we intensify biodiversity. We ask farmers to
580	Text 6.txt	Monsanto was collecting royalties on farm- saved	seed.	So another reason why we need another
581	Text 6.txt	free even though Monsanto has all its	seed	production on the island of Hawaii. We
582	Text 6.txt	the sprays that are put on the	seeds.	Dow is suing the local government that
583	Text 6.txt	The problem they defined was 'farmers save	seeds'	and the solution they offered was that
584	Text 6.txt	day I decided that I would save	seeds	and not recognise patents. Because life is
585	Text 6.txt	and I will not accept patents on	seed.	GMOs in fact translate into "God, Move
586	Text 6.txt	arrangements. Very fast, 95% of the cotton	seed	was a GMO cotton seed. I won't
587	Text 6.txt	the cotton seed was a GMO cotton	seed.	I won't give you the story on
588	Text 6.txt	that they started to take over the	seed	market. There was an 8000% jump in
589	Text 6.txt	There was an 8000% jump in the	seed	price. Something that was available on the

590	Text 6.txt	it was with the agents of the	seed	company. Normally, the agents would make them
591	Text 6.txt	collecting a trillion dollars royalty annually from	seed	sales hasn't worked, but that dream is
592	Text 6.txt	there. That is why Europe got the	seed	law. Because if you can't put GMOs
593	Text 6.txt	can't put GMOs straight, then make local	seeds	illegal so that people are forced to
594	Text 6.txt	so that people are forced to buy	seeds.	First, will be hybrids, and then it
595	Text 6.txt	sent back the draft [of the EU	seed	law]. It should never return, because seed
596	Text 6.txt	seed law]. It should never return, because	seed	is good only when it's diverse, when
597	Text 6.txt	Centralisation is a wrong management system for	seeds	which can only grow according to the
598	Text 6.txt	want it. They are locked into a	seed	slavery. Pablo had those slides on slavery
599	Text 6.txt	a parallel. When starting to fight for	seed	freedom, it's because I saw a parallel.
600	Text 6.txt	is still on paper. Just as the	seed	awl that was attempted in India in
601	Text 6.txt	in 2004. A law like your European	seed	law was being brought for compulsory registration.
602	Text 6.txt	it makes sense. But I have a	seed	from my great grandmother and I have
603	Text 6.txt	of the food system. Five companies controlling	seed,	five companies controlling grain trade, five processors,
604	Text 6.txt	take care of the soil and the	seed,	to take care of the jobs of our
605	Text 6.txt	come or not, food is the place,	seed	is the place where we have to
606	Text 7.txt	method of growing rice, method of selecting	seed	from rice, method of harvesting seed, method
607	Text 7.txt	selecting seed from rice, method of harvesting	seed,	method of cooking rice— is all their
608	Text 7.txt	starts to make them slaves by selling	seed	and chemicals, buys the produce for cheap
609	Text 7.txt	where Monsanto, for example, has entered with	seeds,	or Novartis. One of the big areas
610	Text 7.txt	God bringing down these wonderful new multinational	seeds	to make you an instant millionaire. Now
611	Text 7.txt	make you an instant millionaire. Now when	seeds	are sold through mycology like that, and
612	Text 7.txt	it's true, they try it out, the	seed	fails. The seed was 450 kilograms, it
613	Text 7.txt	try it out, the seed fails. The	seed	was 450 kilograms, it required pesticides, it
614	Text 7.txt	of rewarding innovation, what's being patented? Our	seeds,	our cells, our methods of healing. I
615	Text 7.txt	the same logic is being applied to	seed.	If I have saved my seed on
616	Text 7.txt	to seed. If I have saved my	seed	on my own farm from my harvest

617	Text 7.txt	the BGR struggle[?] — the mobilisation of the	seed—	and the theme is 'seed to seed,
618	Text 7.txt	of the seed— and the theme is	'seed	to seed, farmer to farmer'. The seed
619	Text 7.txt	seed— and the theme is 'seed to	seed,	farmer to farmer'. The seed should go
620	Text 7.txt	'seed to seed, farmer to farmer'. The	seed	should go to seed, it shouldn't be
621	Text 7.txt	to farmer'. The seed should go to	seed,	it shouldn't be interrupted by technologies like
622	Text 7.txt	round of resistance. The future of the	seed	is to evolve and to go from
623	Text 7.txt	is to evolve and to go from	seed	to seed, and corporate power sees that
624	Text 7.txt	evolve and to go from seed to	seed,	and corporate power sees that as an
625	Text 7.txt	we said we will make our own	seed,	we will grow our own food, and
626	Text 7.txt	calves, from our plants giving birth to	seeds.	Amazing, eh? Collecting rents from land was
627	Text 8.txt	Well the connection is basically through debt.	Seeds	used to be farmers' common property and
628	Text 8.txt	the Monsanto's coming in with genetically engineered	seed-	in the case of India genetically engineered
629	Text 8.txt	two thirds of the price of the	seed	is royalty. Seed that used to cost
630	Text 8.txt	the price of the seed is royalty.	Seed	that used to cost 5 rupees jumps
631	Text 8.txt	of the company say "Here's a miracle	seed.	It's going to make you a millionaire".
632	Text 8.txt	it's a combination of false advertising, renewable	seed	becoming non-renewable, low cost seed becoming costly
633	Text 8.txt	advertising, renewable seed becoming non-renewable, low cost	seed	becoming costly and the promise of pest
634	Text 8.txt	of protein are very, very important. Oil	seeds	went down. Oil seeds are important. It's
635	Text 8.txt	very important. Oil seeds went down. Oil	seeds	are important. It's the only way you
636	Text 8.txt	and today India's having to import oil	seeds	and pulses. So food is not just
637	Text 8.txt	movement I started in India to save	seeds	and promote organic farming- has shown, you
638	Text 8.txt	on violence. Take the example of patenting	seed,	these are not inventions. They're not subject
639	Text 9.txt	related to the grain, not to the	seed.	You know, when the rice is in
640	Text 9.txt	rice is in the husk, it will	seed.	When it is de-husked, you can sell
641	Text 9.txt	a plant out of it. So the	seed	patents they maintained for themselves. But the
642	Text 9.txt	is going. The farmer's right to save	seed,	the government couldn't care about it. At
643	Text 9.txt	are talking about is living material: plants,	seeds,	animals. I think it was literally two

644	Text 9.txt	part to prevent any farmer from sowing	seed,	growing out their crop, etc. We're still
645	Text 9.txt	accept that he did not buy the	seed,	they accept he did not take it
646	Text 9.txt	it has come through contamination, either through	seeds	falling off trucks that went past the
647	Text 9.txt	only has patents on plant material and	seeds,	through contamination they actually manage to expand
648	Text 9.txt	crops of farmers, who never bought the	seeds	from them. And that is one reason
649	Text 9.txt	jaundice rice. Because, you know, we do	seed	saving, the movement, for seed conservation we
650	Text 9.txt	we do seed saving, the movement, for	seed	conservation we have in India, we have
651	Text 9.txt	new college starting October. Our various community	seed	banks have saved about 2000- we used
652	Text 9.txt	women are growing, especially the open pollinated	seed	varieties that they are growing. And I
653	Text 9.txt	where you use mustard oil from the	seed,	we also eat the leaves. The best
654	Text 9.txt	the scientist who works on the oil	seed	doesn't even know there's a plant that
655	Text 9.txt	with a patent, is substitutable with the	seed	that actually gives you paddy. And since
656	Text 9.txt	the world. Well, that's exactly how the	seed	laws of India were changed in that
657	Text 9.txt	India were changed in that report called,	'Seeds	of Suicide'. It's really our monitoring of
658	Text 9.txt	has now been bought up for the	seed	sector by Monsanto, who are then- which
659	Text 9.txt	up a lot of the Indian private	seed	companies, that they can go without any
660	Text 9.txt	of regulation into villages and sell their	seeds.	And I have watched them use Guru
661	Text 9.txt	this god is coming with a new	seed,	which is a miracle seed that is
662	Text 9.txt	a new seed, which is a miracle	seed	that is going to make them millionaires.
663	Text 9.txt	As a result of the shift in	seed	supply, in some places like Warangal, from
664	Text 9.txt	going under a hybrid see. And hybrid	seed	can't be saved. You have to go
665	Text 9.txt	worked out that, linked to these new	seeds	is new use of pesticide- huge amount
666	Text 9.txt	corporations and their agents which supply the	seeds	and the chemicals. So within two or
667	Text 9.txt	suicide. It's totally related to the new	seeds.	Just going to show you another phenomena
668	Text 9.txt	parts. We had a public hearing on	seeds	last year. Those are farmers who've sold
669	Text 9.txt	brutal these patent laws and these new	seed	corporate monopolies can function like. I basically
670	Text 9.txt	and he was going to sell corn	seeds,	hybrid seeds. I said but they're having

671	Text 9.txt	was going to sell corn seeds, hybrid	seeds.	I said but they're having a drought.
672	Text 9.txt	the area of agriculture through patents on	seeds,	monopolies in the area of health through
673	Text 9.txt	many people were involved in patents on	seeds	issues a decade ago- look how many
674	Text 9.txt	run through the figures for you- oil	seeds	is one because, you know, with the
675	Text 9.txt	village level, where we take our oil	seed,	get it extracted in front of our
676	Text 9.txt	farmers lost half their income- the oil	seed	farmers in India lost all their income.
677	Text 9.txt	not ever going to follow patents on	seeds,	we're going to violate them everyday. The

APPENDIX TWO

Concordance lines including the collocates of the search term 'seed'

LANCSBOX corpus toolbox (Brezina et al.: 2015)

Seed*/ Exchanging

Index Line N.	Text N.	Concordance		
300	Text 24.txt	normal in farming, which is saving their	seed.	Exchanging seed with your neighbor, which is
301	Text 24.txt	farming, which is saving their seed. Exchanging	seed	with your neighbor, which is called brown-bagging--
302	Text 24.txt	because the companies interpret that by exchanging	seed	you are taking the market away from
427	Text 35.txt	farm becomes a thief. A farmer exchanging	seed	with their neighbour becomes a thief. And
475	Text 36.txt	should be prevented from saving and exchanging	seeds	by defining these fundamental freedoms as a

Seed*/ Sterile

Index Line N.	Text N.	Concordance		
343	Text 28.txt	open, pollinated varieties with hybrids and sterile	seeds,	and destroying biodiverse flora with herbicides such
353	Text 31.txt	ingenuity is being used to create sterile	seeds,	we need to go back to the
439	Text 35.txt	work, is 'Terminator' technology, deliberately creating sterile	seeds,	preventing life from evolving into the future.
487	Text 36.txt	as the 'terminator technology' designed to make	seed	sterile. In 'seed freedom' is the freedom
488	Text 36.txt	technology' designed to make seed sterile. In	'seed	freedom' is the freedom of bees to
537	Text 37.txt	the terminator technology, which would genetically engineer	seeds	to be sterile by design, when the

Seed*/ Hybrid

Index Line N.	Text N.	Concordance		
84	Text 15.txt	globalization started to change our agriculture. New	seeds	and hybrid seeds can't be saved by
85	Text 15.txt	change our agriculture. New seeds and hybrid	seeds	can't be saved by farmers and the
86	Text 15.txt	don't tell the farmers these are non-renewable	seeds.	The hybrid seeds are very pest-prone and
87	Text 15.txt	farmers these are non-renewable seeds. The hybrid	seeds	are very pest-prone and therefore the farmers
90	Text 15.txt	percent in the last decade. The hybrid	seeds	are very costly. They are advertised and
265	Text 22.txt	that they don't yet have means. Hybrid	seeds	are also not good for saving. It
266	Text 22.txt	year. But the difference is that hybrid	seeds	don't give good seed. It's not that
330	Text 28.txt	by seed companies to buy hybrid cotton	seeds	referred to by the seed merchants as
538	Text 37.txt	they talk about their hybrid and GMO	seeds	as preventing the bees from usurping the
664	Text 9.txt	going under a hybrid see. And hybrid	seed	can't be saved. You have to go
670	Text 9.txt	and he was going to sell corn	seeds,	hybrid seeds. I said but they're having
671	Text 9.txt	was going to sell corn seeds, hybrid	seeds.	I said but they're having a drought.

Seed*/ Saving

Index Line N.	Text N.	Concordance		
1	Text 1.txt	at Navdanya work through three prongs. Community	seed	saving: we defend seeds as a commons,
2	Text 1.txt	three prongs. Community seed saving: we defend	seeds	as a commons, so community seed banks
8	Text 10.txt	ago to start Navdanya, the movement for	seed	saving in India, because I do not

15	Text 10.txt	are creating through Navdanya by saving open-pollinated	seed.	Two hundred and seventy thousand Indian farmers
19	Text 10.txt	protect them. A law that says saving	seed,	growing seed and our seed freedom is
20	Text 10.txt	A law that says saving seed, growing	seed	and our seed freedom is a crime
22	Text 10.txt	of women's knowledge and women's skills in	seed	saving. As long as seed was in
25	Text 11.txt	of species. I started Navdanya and saving	seeds	when I found out that corporations wanted
40	Text 14.txt	know, through Navdanya, the movement I started, the	seed	saving, we had saved every seed we
100	Text 15.txt	we have collective control. The saving of	seed	is a recovery of the commons. Keeping
111	Text 16.txt	I made a lifetime commitment to saving	seeds,	and not to co-operate with the intellectual
140	Text 17.txt	share." I immediately committed myself to saving	seeds.	That's how the organization Navdanya got started.
146	Text 17.txt	We're going to do this through saving	seeds	and cultivating gardens of resistance and hope.
148	Text 17.txt	constructive action-- like planting a garden. Saving	seeds	is a constructive action. It is also
160	Text 18.txt	but in a dedicated way of saving	seed,	spreading the infection among others for loving
167	Text 2.txt	200 villagers who had been involved in	seed	saving and seed sharing with Navdanya, the
168	Text 2.txt	had been involved in seed saving and	seed	sharing with Navdanya, the trust that I
171	Text 2.txt	in years past by saving locally bred	seeds	and saving biodiversity. Now they are seeking
191	Text 21.txt	organic products. These farmers are saving their	seeds,	doing organic farming and participating in fair
203	Text 21.txt	all a part of one system! The	seed	saving is our foundation. The seed saving
204	Text 21.txt	The seed saving is our foundation. The	seed	saving then leads to an agriculture that
232	Text 21.txt	in organic farming, because before I started	seed	saving in 1987 we were already creating
268	Text 22.txt	a way to prevent farmers from saving	seed.	But with patents you still have to
269	Text 22.txt	detectives to ensure that farmers aren't saving	seeds.	The terminator is an extremely secure technology
270	Text 22.txt	whose basic right, in my view, is	seed	saving. A farmer's duty, is protecting the
285	Text 22.txt	I often say is that through the	seed	saving of Navdanya we have managed to

300	Text 24.txt	normal in farming, which is saving their	seed.	Exchanging seed with your neighbor, which is
309	Text 24.txt	groups is the creative side of saving	seeds,	doing agriculture without corporate dependence- without chemicals,
316	Text 24.txt	with seed Swaraj, with Anna Swaraj, saving	seeds,	growing your own seed, not going to
319	Text 24.txt	one season. If farmers are saving the	seed,	growing their crop, they are making reclamation
328	Text 27.txt	countries managed to roll back laws criminalising	seed	saving. In a crazy way, this market-mafia
338	Text 28.txt	defined as creation, and saving and sharing	seed	is defined as theft of intellectual property.
339	Text 28.txt	soya bean, mustard are suing farmers for	seed	saving and hiring detective agencies to find
360	Text 31.txt	Monsanto says for farmers who are saving	seed,	they are now intellectual property criminals, because
362	Text 31.txt	patented and becomes intellectual property, then saving	seed	becomes a crime. I believe saving seed
363	Text 31.txt	seed becomes a crime. I believe saving	seed	is our ecological, ethical duty. That is
365	Text 31.txt	over life, then we will start saving	seeds	one seed at a time and defend
366	Text 31.txt	then we will start saving seeds one	seed	at a time and defend the freedom
383	Text 31.txt	Vandanaji, why are you saving these old	seeds?	Seeds are like cars. We must have
414	Text 35.txt	is when I decided to start saving	seeds.	The reason I was compelled to start
415	Text 35.txt	reason I was compelled to start saving	seeds	was this. Because of my book on
426	Text 35.txt	seed is patented, then any farmer saving	seed	on their farm becomes a thief. A
455	Text 35.txt	any law that prevents us from saving	seed.	We will respect the freedom of the
475	Text 36.txt	should be prevented from saving and exchanging	seeds	by defining these fundamental freedoms as a
477	Text 36.txt	like Monsanto to prevent farmers from saving	seeds.	Worse, as in the case of Monsanto
649	Text 9.txt	jaundice rice. Because, you know, we do	seed	saving, the movement, for seed conservation we

Seed*/ Banks

Index Line N.	Text N.	Concordance		
3	Text 1.txt	defend seeds as a commons, so community	seed	banks are the first. You know, to
26	Text 11.txt	with them to help set up community	seed	banks for seed conservation, like we do
27	Text 11.txt	help set up community seed banks for	seed	conservation, like we do in Navdanya. Binayak
193	Text 21.txt	farmers. Navdanya's work begins with creating community	seed	banks to conserve biodiversity so communities of
196	Text 21.txt	and training, and they set up community	seed	banks so that they have their own
198	Text 21.txt	helped set up more than 120 community	seed	banks in the country. Unlike seed libraries
200	Text 21.txt	are literally outside the agricultural system, our	seed	banks are the base of an agriculture
207	Text 21.txt	central India gets to market. So community	seed	banks coordinate at the regional level, cooperatives
238	Text 21.txt	we kept getting calls— half of their	seed	banks had been damaged in the earthquake,
287	Text 22.txt	over. I have just started two new	seed	banks in the heart of the "Green
305	Text 24.txt	to defend the freedom of people; create	seed	banks so that farmers have free seed;
326	Text 27.txt	going to WTO meetings, let's set up	seed	banks, set up seed commons and let's
327	Text 27.txt	let's set up seed banks, set up	seed	commons and let's change the rules. Let's
349	Text 30.txt	and each of them in diversity. The	seed	banks have created 3,000 varieties of rice,
388	Text 31.txt	the farmers had no seed, we started	seed	banks in that area. Once the farmers
403	Text 34.txt	commons and have set up 55 community	seed	banks. The salt tolerant rices in Navdanya's
404	Text 34.txt	The salt tolerant rices in Navdanya's community	seed	banks have helped communities rejuvenate their agriculture
448	Text 35.txt	reason we have built up the community	seed	banks is because I knew that if
452	Text 35.txt	entity called Navdanya. We've created 54 community	seed	banks around India because we believe seed
547	Text 38.txt	1987 has saved seeds through creating community	seed	banks and helped farmers make a transition
651	Text 9.txt	new college starting October. Our various community	seed	banks have saved about 2000- we used

Seed*/ Save

Index Line N.	Text N.	Concordance		
51	Text 14.txt	of my life I'm going to save	seeds.	So, at one level, one day I
73	Text 14.txt	for example not only did we save	seeds,	we do participatory research, we do participatory
125	Text 16.txt	problem they diagnosed was that farmers save	seeds.	The case of Monsanto and its genetically
137	Text 17.txt	as the freedom for farmers to save	seeds.	It was in 1984 in India that
155	Text 17.txt	that would protect farmers' rights to save	seeds.	Monsanto vs. Bowman was an example of
169	Text 2.txt	the trust that I founded to save	seeds	and promote organic agriculture. These 200 villagers
187	Text 21.txt	poison corporations now wanted to own our	seeds,	is to save thousands of seed varieties.
188	Text 21.txt	our seeds, is to save thousands of	seed	varieties. We've trained nearly a million farmers
201	Text 21.txt	us, it's very important that we save	seeds	to shape another agriculture, because we can't
261	Text 22.txt	treated it as their duty to save	seed	and ensure its continuity. But that prayer
276	Text 22.txt	nine seeds. Through it we save native	seeds.	In India we still have a lot
295	Text 24.txt	it means a farmer who grows a	seed	cannot save seed from the harvested crop
296	Text 24.txt	farmer who grows a seed cannot save	seed	from the harvested crop because that is
354	Text 31.txt	get manufactured. If I can save my	seed	on my farm, where on earth will
369	Text 31.txt	we will continue to save and share	seed	as our moral duty to the future
385	Text 31.txt	to do organic farming and save old	seeds.	This year India has had a tremendous
409	Text 34.txt	climate chaos. That is why we save	seeds	and protect biodiversity. The industrial model must
451	Text 35.txt	So in 1987 we started to save	seeds.	In 1991 I created the legal entity
543	Text 37.txt	confident that they can continue to save	seeds.	And work with seeds according to the
583	Text 6.txt	The problem they defined was 'farmers save	seeds'	and the solution they offered was that

584	Text 6.txt	day I decided that I would save	seeds	and not recognise patents. Because life is
637	Text 8.txt	movement I started in India to save	seeds	and promote organic farming- has shown, you
642	Text 9.txt	is going. The farmer's right to save	seed,	the government couldn't care about it. At

Seed*/ Saved

Index Line N.	Text N.	Concordance		
41	Text 14.txt	the seed saving, we had saved every	seed	we could find. We weren't saying: "Oh,
43	Text 14.txt	it can't be useless." So, among the	seeds	we had saved were salt tolerant seeds
85	Text 15.txt	change our agriculture. New seeds and hybrid	seeds	can't be saved by farmers and the
340	Text 28.txt	to find out if farmers have saved	seed	or shared it with neighbours. The recent
460	Text 35.txt	practice. And because, if we've saved these	seeds,	these seeds must find eaters, we've built
474	Text 36.txt	sought to cure was that farmers saved	seeds.	The cure was that farmers should be
546	Text 38.txt	that I started in 1987 has saved	seeds	through creating community seed banks and helped
580	Text 6.txt	Monsanto was collecting royalties on farm- saved	seed.	So another reason why we need another
616	Text 7.txt	to seed. If I have saved my	seed	on my own farm from my harvest
651	Text 9.txt	new college starting October. Our various community	seed	banks have saved about 2000- we used
664	Text 9.txt	going under a hybrid see. And hybrid	seed	can't be saved . You have to go

Seed*/ Swaraj

Index Line N.	Text N.	Concordance		
222	Text 21.txt	We call it bija swaraj — bija is	seed,	swaraj is serenity and self-governance. I wrote

312	Text 24.txt	freedom, food sovereignty. And Bija Swaraj is	seed	freedom and seed sovereignty. (In regard to
315	Text 24.txt	practice meaning, as we do here, with	seed	Swaraj , with Anna Swaraj, saving seeds, growing
316	Text 24.txt	with seed Swaraj, with Anna Swaraj , saving	seeds,	growing your own seed, not going to
480	Text 36.txt	creating Earth Democracy based on Bija Swaraj	(Seed	Freedom/Sovereignty), Anna Swaraj (Food Freedom/Sovereignty), Bhu Swaraj
481	Text 36.txt	and sovereignty as interchangeable terms. Bija Swaraj =	Seed	Freedom= Seed Sovereignty Commons are spheres of
482	Text 36.txt	as interchangeable terms. Bija Swaraj = Seed Freedom=	Seed	Sovereignty Commons are spheres of life self-governed

Seed*/ Costly

Index Line N.	Text N.	Concordance		
90	Text 15.txt	percent in the last decade. The hybrid	seeds	are very costly . They are advertised and
133	Text 16.txt	cotton farmers earn more by avoiding costly	seeds	and chemicals. Organic cotton is the future.
373	Text 31.txt	debt caused by this cotton. It's costly	seed,	costly chemicals. Farmers just can't pay it
391	Text 32.txt	spent on buying toxic chemicals and costly	seeds	rather than being spent on feeding children,
399	Text 34.txt	use. The farmers suffer twice over. Costly	seeds	and costly chemicals push them into debt
407	Text 34.txt	in increased purchases of chemicals and costly	seeds.	When corporations patent seeds, 1 trillion dollars
633	Text 8.txt	advertising, renewable seed becoming non-renewable, low cost	seed	becoming costly and the promise of pest

Seed*/ Supply

Index Line N.	Text N.	Concordance		
13	Text 10.txt	Monsanto controlling 95 percent of the cotton	seed	supply , 95 percent through a monopoly, not
144	Text 17.txt	way saying, "Okay, let's assault the independent	seed	supply ." Varieties that are vital to organic

197	Text 21.txt	banks so that they have their own	seed	supply. That's one level. We have helped
286	Text 22.txt	seven zones now. We have the native	seed	supply taking over. I have just started
345	Text 30.txt	suicide since Monsanto took over our common	seed	supply, in 15 years. They come, they
417	Text 35.txt	today controls the largest sector in the	seeds	supply and in GM seeds controls more
443	Text 35.txt	dependency because the GM companies destroy alternative	seed	supply. They go into communities and tell
663	Text 9.txt	As a result of the shift in	seed	supply, in some places like Warangal, from
666	Text 9.txt	corporations and their agents which supply the	seeds	and the chemicals. So within two or

Seed*/ Native

Index Line N.	Text N.	Concordance		
134	Text 16.txt	of Navdanya have shown that using native	seeds	and practicing agro-ecology, small farmers of India
229	Text 21.txt	on India. It wasn't working because native	seeds	and chemicals don't go together. Norman Borlaug
276	Text 22.txt	nine seeds. Through it we save native	seeds.	In India we still have a lot
283	Text 22.txt	have never used chemicals. Through the native	seeds	we can become free of agri-chemicals, farmers
286	Text 22.txt	seven zones now. We have the native	seed	supply taking over. I have just started
288	Text 22.txt	starting to shift to use of native	seeds	and organic agricultural methods. The wonderful thing
332	Text 28.txt	millionaires. Instead they became paupers. Their native	seeds	have been displaced with new hybrids which
495	Text 36.txt	the duty to save and exchange native	seeds	bred by farmers. This is seed sovereignty.
534	Text 37.txt	actually ecological systems, indigenous systems and native	seeds	produce much more food. 72% of the

Seed*/ Exchange

Index Line N.	Text N.	Concordance
112	Text 16.txt	the intellectual property rights regime that makes seed-saving and seed exchange a crime. Bija Satyagraha,
113	Text 16.txt	property rights regime that makes seed-saving and seed exchange a crime. Bija Satyagraha, or the
211	Text 21.txt	January 2015 saying that people cannot exchange seed beyond three miles and only Sacramento can
259	Text 22.txt	Just the other day I had a seed exchange fair in my valley and a
495	Text 36.txt	the duty to save and exchange native seeds bred by farmers. This is seed sovereignty.
509	Text 36.txt	people's freedom to save and exchange farmers' seed varieties is the proposed EU seed law,

Seed*/ Sovereignty

Index Line N.	Text N.	Concordance
28	Text 13.txt	malnutrition, but more important when farmers have seed sovereignty , when farmers do organic farming and
130	Text 16.txt	of the debt-trap they landed in. Farmers' seed sovereignty is at the heart of solutions
132	Text 16.txt	be free of debt. And only through seed sovereignty can farmers' incomes be increased. Organic
230	Text 21.txt	it is full of knowledge, that through seed sovereignty and ecological agriculture and your own
313	Text 24.txt	And Bija Swaraj is seed freedom and seed sovereignty . (In regard to these fronts) Swa
457	Text 35.txt	our own freedom.' And this is our seed sovereignty . This is the foundation of food
481	Text 36.txt	and sovereignty as interchangeable terms. Bija Swaraj= Seed Freedom= Seed Sovereignty Commons are spheres of
482	Text 36.txt	as interchangeable terms. Bija Swaraj= Seed Freedom = Seed Sovereignty Commons are spheres of life self-governed
496	Text 36.txt	native seeds bred by farmers. This is seed sovereignty . For farmers, varieties conserved, used and
523	Text 36.txt	to defend our everyday seed freedom and seed sovereignty , and food freedom and food democracy.

Seed*/ Hope

Index Line N.	Text N.	Concordance
94	Text 15.txt	But we also have a program called Seeds of Hope where we're getting open-pollinated varieties
218	Text 21.txt	not primitive; they're seeds of freedom and seeds of hope . Monsanto's GMO seeds are seeds
219	Text 21.txt	freedom and seeds of hope . Monsanto's GMO seeds are seeds of death and seeds of
401	Text 34.txt	Navdanya we have promoted Organic Farming and ' Seeds of Hope ', to help farmers move away
467	Text 35.txt	happening. We need to create seedbanks called ' seeds of hope ' and organic cotton- production and

Seed*/ Monopolies

Index Line N.	Text N.	Concordance
4	Text 10.txt	it's climate change or biodiversity erosion or seed monopolies , all of it is connected. It's
274	Text 22.txt	a national program to basically fight the seed monopolies . I started it ten years ago
292	Text 24.txt	But, medicine has been brought into monopolies . Seed has been brought into monopolies. Cells have
308	Text 24.txt	the non-violent, non-cooperation with laws that create seed monopolies , inspired totally by Gandhi walking to
500	Text 36.txt	of the people, and corporate monopolies in seed and food. To push free trade as
508	Text 36.txt	order to enhance corporate freedom to establish seed monopolies . An example of the expansion of
516	Text 36.txt	to public health, and socio-economic harm through seed monopolies , leading to distress among farmers. That
524	Text 36.txt	food freedom and food democracy. Patents on Seeds and Seed Monopolies GMOs are intimately linked
525	Text 36.txt	and food democracy. Patents on Seeds and Seed Monopolies GMOs are intimately linked to seed
528	Text 36.txt	why industries are promoting GMOs. Monopolies over seeds are being established through patents, mergers and
669	Text 9.txt	brutal these patent laws and these new seed corporate monopolies can function like. I basically

672	Text 9.txt	the area of agriculture through patents on	seeds,	monopolies in the area of health through
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Seed*/ Satyagraha

Index Line N.	Text N.	Concordance		
17	Text 10.txt	affected, let us call globally for a	seed	satyagraha. A satyagraha is the fight for truth. When
108	Text 16.txt	Gandhi's 1930 Salt Satyagraha inspired Navdanya's contemporary	"Seed	Satyagraha" and the Seed Freedom movement. Since 1987,
109	Text 16.txt	inspired Navdanya's contemporary "Seed Satyagraha" and the	Seed	Freedom movement. Since 1987, when I first heard
114	Text 16.txt	exchange a crime. Bija Satyagraha, or the	Seed	Satyagraha, is a people's movement for the
180	Text 20.txt	first started out, we called it the	seed	satyagraha. As you know, Gandhi had started
307	Text 24.txt	the title (of the movement) was the	Seed	Satyagraha-- the non-violent, non-cooperation with laws that
367	Text 31.txt	taken inspiration from that and had the	seed	satyagraha. Nature gives it for free. Our
513	Text 36.txt	enacted because of our resistance through a	seed	satyagraha, and the Colombian laws passed to
521	Text 36.txt	We are being called on to practise	seed	satyagraha and food satyagraha to defend our

Seed*/ Patented

Index Line N.	Text N.	Concordance		
29	Text 13.txt	are not blowing up money on patented	seed	royalties, expenditure on pesticides and fertilizers, they
143	Text 17.txt	agrichemical industry] can't directly sell patented GMO	seeds	and collect royalties, they are accessing another
228	Text 21.txt	like our wheat, seeds like the basmati	seed	which were patented by an American company—
361	Text 31.txt	now intellectual property criminals, because once a	seed	is patented and becomes intellectual property, then
425	Text 35.txt	that is being patented. So when a	seed	is patented, then any farmer saving seed

449	Text 35.txt	banks is because I knew that if	seed	is patented and there is only GM
614	Text 7.txt	of rewarding innovation, what's being patented? Our	seeds,	our cells, our methods of healing. I

Seed*/ GMO

Index Line N.	Text N.	Concordance		
36	Text 14.txt	way extended to industrial agriculture using GMO	seeds.	The system is the same industrial system.
135	Text 16.txt	on buying poisons, and poison producing GMO	seeds,	they have the potential of enhancing their
143	Text 17.txt	agricultural industry] can't directly sell patented GMO	seeds	and collect royalties, they are accessing another
219	Text 21.txt	freedom and seeds of hope. Monsanto's GMO	seeds	are seeds of death and seeds of
220	Text 21.txt	seeds of hope. Monsanto's GMO seeds are	seeds	of death and seeds of soil destruction.
237	Text 21.txt	cyclone— they have arrived with their GMO	seeds.	After the earthquake damaged Nepal so badly
347	Text 30.txt	seeds. Then they will give you GMO	seeds	as the only option. They hijack our
538	Text 37.txt	they talk about their hybrid and GMO	seeds	as preventing the bees from usurping the
586	Text 6.txt	arrangements. Very fast, 95% of the cotton	seed	was a GMO cotton seed. I won't
587	Text 6.txt	the cotton seed was a GMO cotton	seed.	I won't give you the story on

Seed*/ Miracle

Index Line N.	Text N.	Concordance		
31	Text 13.txt	increase in production. The idea of miracle	seeds	and chemicals and now miracle GMOs is
397	Text 34.txt	through the destruction of diversity, the 'miracle'	seeds	of the green revolution became mechanisms for
412	Text 35.txt	they distributed they called them the 'miracle	seeds'.	Nothing miraculous about those seeds— they were

631	Text 8.txt	of the company say "Here's a miracle	seed.	It's going to make you a millionaire".
662	Text 9.txt	a new seed, which is a miracle	seed	that is going to make them millionaires.

Seed*/ Patenting

Index Line N.	Text N.	Concordance		
248	Text 22.txt	also being taken over through patenting . And	seeds	which peasants have freely saved, exchanged, used,
321	Text 25.txt	of rivers, the privatization and patenting of	seeds	(the basis of my work in Navdanya)
421	Text 35.txt	was patenting of life forms and patenting	seeds.	That was where the growth would come
527	Text 36.txt	to seed patents. In fact, patenting of	seeds	is the real reason why industries are
560	Text 4.txt	was the path to get patenting on	seeds--	I sat at meetings where the corporations
638	Text 8.txt	on violence. Take the example of patenting	seed,	these are not inventions. They're not subject

Seed*/ Sector

Index Line N.	Text N.	Concordance		
91	Text 15.txt	done is removed any regulation on the	seed	sector. Globalization is the deregulation of commerce.
156	Text 17.txt	advanced in total corporate control over the	seed	sector-- Monsanto being the big giant that
390	Text 31.txt	in the water sector, five in the	seed	sector, five in the agribusiness sector. That,
417	Text 35.txt	today controls the largest sector in the	seeds	supply and in GM seeds controls more
658	Text 9.txt	has now been bought up for the	seed	sector by Monsanto, who are then- which

Seed*/ Own

Index Line N.	Text N.	Concordance		
82	Text 15.txt	five life lords trying to own the	seeds	of this planet. I view biotechnology through
98	Text 15.txt	doesn't matter if you're making your own	seed,	even if you're saving it for yourself
131	Text 16.txt	when farmers have access to their own	seeds	will they be free of debt. And
161	Text 19.txt	now said we've got to own the	seed;	to own the seed we've got to
162	Text 19.txt	to own the seed; to own the	seed	we've got to own patents; to have
185	Text 21.txt	royalties— illegal because Monsanto doesn't own the	seed—	in India they were not allowed to
187	Text 21.txt	poison corporations now wanted to own our	seeds,	is to save thousands of seed varieties.
190	Text 21.txt	why they should be using their own	seed.	We've built the largest domestic network of
197	Text 21.txt	banks so that they have their own	seed	supply. That's one level. We have helped
249	Text 22.txt	from having free access to their own	seed,	to have free exchange of their own
250	Text 22.txt	to have free exchange of their own	seed.	So that all peasants, all farmers around
316	Text 24.txt	with seed Swaraj, with Anna Swaraj, saving	seeds,	growing your own seed, not going to
317	Text 24.txt	Anna Swaraj, saving seeds, growing your own	seed,	not going to Monsanto in every season
355	Text 31.txt	idea that corporations can own and patent	seed	and life forms and collect rents from
370	Text 31.txt	illegal for us to have our own	seeds.	In 2004, the government did try and
377	Text 31.txt	failing, why aren't you using your own	seed?"	They said, "The companies took the old
438	Text 35.txt	for preventing farmers from having their own	seed,	which also includes preventing nature from doing
456	Text 35.txt	We will respect the freedom of the	seed	and our own freedom.' And this is
458	Text 35.txt	of food sovereignty, that with our own	seeds	we have the capacity to produce our
616	Text 7.txt	to seed. If I have saved my	seed	on my own farm from my harvest
625	Text 7.txt	we said we will make our own	seed,	we will grow our own food, and

Seed*/ Community

Index Line N.	Text N.	Concordance
1	Text 1.txt	at Navdanya work through three prongs. Community seed saving: we defend seeds as a commons,
3	Text 1.txt	defend seeds as a commons, so community seed banks are the first. You know, to
26	Text 11.txt	with them to help set up community seed banks for seed conservation, like we do
193	Text 21.txt	farmers. Navdanya's work begins with creating community seed banks to conserve biodiversity so communities of
196	Text 21.txt	and training, and they set up community seed banks so that they have their own
198	Text 21.txt	helped set up more than 120 community seed banks in the country. Unlike seed libraries
207	Text 21.txt	central India gets to market. So community seed banks coordinate at the regional level, cooperatives
403	Text 34.txt	commons and have set up 55 community seed banks. The salt tolerant rices in Navdanya's
404	Text 34.txt	The salt tolerant rices in Navdanya's community seed banks have helped communities rejuvenate their agriculture
448	Text 35.txt	reason we have built up the community seed banks is because I knew that if
452	Text 35.txt	entity called Navdanya. We've created 54 community seed banks around India because we believe seed
546	Text 38.txt	that I started in 1987 has saved seeds through creating community seed banks and helped
547	Text 38.txt	1987 has saved seeds through creating community seed banks and helped farmers make a transition
651	Text 9.txt	new college starting October. Our various community seed banks have saved about 2000- we used

Seed*/ Freedom

Index Line N.	Text N.	Concordance
21	Text 10.txt	says saving seed, growing seed and our seed freedom is a crime is a law
35	Text 14.txt	that made me dedicate my life to seed freedom . Start Navdanya and everything else I've done since

109	Text 16.txt	inspired Navdanya’s contemporary “Seed Satyagraha” and the	Seed	Freedom movement. Since 1987, when I first heard
136	Text 17.txt	close the space for freedom of the	seed	as well as the freedom for farmers
145	Text 17.txt	It’s a very fascinating time. [We at]	Seed	Freedom Alliance [have] just announced that we’re
209	Text 21.txt	seed slavery, which is available on the	Seed	Freedom website, seedfreedom.info. California passed an insane
210	Text 21.txt	is available on the Seed Freedom website,	seedfreedom.info.	California passed an insane law that took
217	Text 21.txt	same. Our seeds are not primitive; they’re	seeds	of freedom and seeds of hope. Monsanto’s
218	Text 21.txt	not primitive; they’re seeds of freedom and	seeds	of hope. Monsanto’s GMO seeds are seeds
306	Text 24.txt	seed banks so that farmers have free	seed;	nature has freedom of diversity; and these
312	Text 24.txt	freedom, food sovereignty. And Bija Swaraj is	seed	freedom and seed sovereignty. (In regard to
313	Text 24.txt	And Bija Swaraj is seed freedom and	seed	sovereignty. (In regard to these fronts) Swa
344	Text 30.txt	on earth, to create freedom for every	seed,	every child, every woman, every culture. What
456	Text 35.txt	We will respect the freedom of the	seed	and our own freedom.’ And this is
473	Text 36.txt	of life. Creating markets by destroying people’s	seed	and food freedom is at the heart
481	Text 36.txt	and sovereignty as interchangeable terms. Bija Swaraj=	Seed	Freedom= Seed Sovereignty Commons are spheres of
482	Text 36.txt	as interchangeable terms. Bija Swaraj= Seed Freedom=	Seed	Sovereignty Commons are spheres of life self-governed
484	Text 36.txt	into force of this Act. For us,	seed	freedom includes farmers’ rights to save, exchange,
485	Text 36.txt	of the state or corporations. We use	‘seed	freedom’ as the right of the seed
488	Text 36.txt	technology’ designed to make seed sterile. In	‘seed	freedom’ is the freedom of bees to
489	Text 36.txt	threat of extinction due to poisons. In	‘seed	freedom’ is the freedom of the web
490	Text 36.txt	and well-being for all. We refer to	‘seed	freedom’ as the freedom of farmers to
492	Text 36.txt	and its bureaucratic apparatus. We refer to	‘seed	freedom’ as the freedom of eaters to
494	Text 36.txt	diversity, taste, flavour, quality and nutrition. In	‘seed	freedom’ is the duty to save and
499	Text 36.txt	Nepal are examples of continued contest between	seed	and food freedom of the people, and

508	Text 36.txt	order to enhance corporate freedom to establish	seed	monopolies. An example of the expansion of
522	Text 36.txt	and food satyagraha to defend our everyday	seed	freedom and seed sovereignty, and food freedom
523	Text 36.txt	to defend our everyday seed freedom and	seed	sovereignty, and food freedom and food democracy.
599	Text 6.txt	a parallel. When starting to fight for	seed	freedom , it's because I saw a parallel.

Seed*/ Chemicals

Index Line N.	Text N.	Concordance		
31	Text 13.txt	increase in production. The idea of miracle	seeds	and chemicals and now miracle GMOs is
62	Text 14.txt	chemicals, then they control chemicals with the	seeds	through genetic engineering. Now they want to
88	Text 15.txt	very high interest rates to move the	seeds	and the chemicals . Within a year or
89	Text 15.txt	being a consumer of purchased inputs like	seeds	and chemicals . Quietly, the men will take
133	Text 16.txt	cotton farmers earn more by avoiding costly	seeds	and chemicals . Organic cotton is the future.
142	Text 17.txt	the seed and collecting rent from marrying	seeds	to our chemicals — like herbicide-resistant crops and
229	Text 21.txt	on India. It wasn't working because native	seeds	and chemicals don't go together. Norman Borlaug
310	Text 24.txt	without corporate dependence- without chemicals , without their	seed .	All this is talked about in the
373	Text 31.txt	debt caused by this cotton. It's costly	seed ,	costly chemicals . Farmers just can't pay it
391	Text 32.txt	spent on buying toxic chemicals and costly	seeds	rather than being spent on feeding children,
399	Text 34.txt	use. The farmers suffer twice over. Costly	seeds	and costly chemicals push them into debt
407	Text 34.txt	in increased purchases of chemicals and costly	seeds .	When corporations patent seeds, 1 trillion dollars
411	Text 35.txt	farmers will use new chemicals and new	seeds	and they'll get prosperous and prosperous farmers
608	Text 7.txt	starts to make them slaves by selling	seed	and chemicals , buys the produce for cheap
666	Text 9.txt	corporations and their agents which supply the	seeds	and the chemicals . So within two or

Seed*/ Patents

Index Line N.	Text N.	Concordance		
54	Text 14.txt	a report of Navdanya called the Biopiracy of climate resilient	seeds.	1,500 patents in the hands of the
95	Text 15.txt	other people's making, selling, buying. Patents on	seed,	which are now very prevalent in North
138	Text 17.txt	genetic engineering to grow our patents on	seeds.”	They said they needed immediate international law
139	Text 17.txt	property in order to impose patents on	seeds	worldwide. This is what became the trade-related
268	Text 22.txt	a way to prevent farmers from saving	seed.	But with patents you still have to
476	Text 36.txt	as a crime. TRIPS imposes patents on	seeds,	allowing corporations like Monsanto to prevent farmers
503	Text 36.txt	on behalf of corporations. Thus, patents on	seeds	were imposed through genetic engineering. In addition
505	Text 36.txt	account, there is no justification for privatising	seeds	through patents. Intellectual property rights on seeds
524	Text 36.txt	food freedom and food democracy. Patents on	Seeds	and Seed Monopolies GMOs are intimately linked
526	Text 36.txt	Seed Monopolies GMOs are intimately linked to	seed	patents. In fact, patenting of seeds is
572	Text 4.txt	are a recipe for hunger. But worse,	seed,	patents are a way of getting money
585	Text 6.txt	and I will not accept patents on	seed.	GMOs in fact translate into “God, Move
641	Text 9.txt	a plant out of it. So the	seed	patents they maintained for themselves. But the
672	Text 9.txt	the area of agriculture through patents on	seeds,	monopolies in the area of health through
673	Text 9.txt	many people were involved in patents on	seeds	issues a decade ago- look how many
677	Text 9.txt	not ever going to follow patents on	seeds,	we're going to violate them everyday. The

Seed*/ Cotton

Index Line N.	Text N.	Concordance		
13	Text 10.txt	Monsanto controlling 95 percent of the cotton	seed	supply, 95 percent through a monopoly, not

126	Text 16.txt	of Monsanto and its genetically modified cotton	seed	called “Bt cotton” provides a clear example.
127	Text 16.txt	to force farmers to use Bt cotton	seeds,	it established a monopoly that prevented farmers
128	Text 16.txt	that prevented farmers access to alternative cotton	seeds.	By now, 99 percent of the cotton
183	Text 21.txt	enters the scene with its Bt cotton	seed,	pushing farmers into debt by shooting the
186	Text 21.txt	deaths have to do with Bt cotton	seed.	I love my land, I love my
330	Text 28.txt	by seed companies to buy hybrid cotton	seeds	referred to by the seed merchants as
373	Text 31.txt	debt caused by this cotton. It’s costly	seed,	costly chemicals. Farmers just can’t pay it
441	Text 35.txt	a royalty component. A 7 rupee cotton	seed	is now costing 3, 600 rupees, of
468	Text 35.txt	very serious situation. You can’t find cotton	seeds	that are not GM. We are doing
469	Text 35.txt	remote areas to find the one cotton	seed	which we then have to multiply. So
586	Text 6.txt	arrangements. Very fast, 95% of the cotton	seed	was a GMO cotton seed. I won’t
587	Text 6.txt	the cotton seed was a GMO cotton	seed.	I won’t give you the story on

Seed*/ Growing

Index Line N.	Text N.	Concordance		
19	Text 10.txt	protect them. A law that says saving	seed,	growing seed and our seed freedom is
20	Text 10.txt	A law that says saving seed, growing	seed	and our seed freedom is a crime
158	Text 17.txt	two decades ago are now growing. The	seed	savers of the United States are very
176	Text 20.txt	rich collective heritage involving the use of	seeds	for growing crops and medicinal plants for
316	Text 24.txt	with seed Swaraj, with Anna Swaraj, saving	seeds,	growing your own seed, not going to
317	Text 24.txt	Anna Swaraj, saving seeds, growing your own	seed,	not going to Monsanto in every season
319	Text 24.txt	one season. If farmers are saving the	seed,	growing their crop, they are making reclamation

644	Text 9.txt	part to prevent any farmer from sowing	seed,	growing out their crop, etc. We're still
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Seed*/ Genetically

Index Line N.	Text N.	Concordance		
38	Text 14.txt	that the seed itself is now a	seed	that's genetically engineered and intellectual property. And
99	Text 15.txt	warfare. You begin to genetically engineer a	seed.	Where does that begin? It begins with
126	Text 16.txt	of Monsanto and its genetically modified cotton	seed	called "Bt cotton" provides a clear example.
333	Text 28.txt	are now trying to introduce genetically engineered	seed	which will further increase costs and ecological
497	Text 36.txt	and threats to biosafety from genetically engineered	seeds	and crops on the other. Freedom and
537	Text 37.txt	the terminator technology, which would genetically engineer	seeds	to be sterile by design, when the
571	Text 4.txt	wrong on this assumption that genetically modified	seeds	produce more. In India, Monsanto came in
628	Text 8.txt	the Monsantos coming in with genetically engineered	seed-	in the case of India genetically engineered

Seed*/ Oil

Index Line N.	Text N.	Concordance		
119	Text 16.txt	hundreds of species of dals and oil	seeds,	diverse millets and pseudo-cereals, vegetables and spices
335	Text 28.txt	destroyed the market for our diverse oil	seeds-	mustard, linseed, sesame, groundnut, coconut. And the
396	Text 34.txt	food includes cereals and pulses and oil	seeds	and vegetables, not just rice and wheat.
549	Text 38.txt	cropping systems of cereals, pulses, and oil	seeds	with different varieties of each crop, while
634	Text 8.txt	of protein are very, very important. Oil	seeds	went down. Oil seeds are important. It's
635	Text 8.txt	very important. Oil seeds went down. Oil	seeds	are important. It's the only way you

636	Text 8.txt	and today India's having to import oil	seeds	and pulses. So food is not just
653	Text 9.txt	where you use mustard oil from the	seed,	we also eat the leaves. The best
654	Text 9.txt	the scientist who works on the oil	seed	doesn't even know there's a plant that
674	Text 9.txt	run through the figures for you- oil	seeds	is one because, you know, with the
675	Text 9.txt	village level, where we take our oil	seed,	get it extracted in front of our
676	Text 9.txt	farmers lost half their income- the oil	seed	farmers in India lost all their income.

Seed*/ Buy

Index Line N.	Text N.	Concordance		
178	Text 20.txt	seed industry every year to buy their	seed	and pay an 80 percent royalty to
329	Text 28.txt	millets and paddy have been lured by	seed	companies to buy hybrid cotton seeds referred
330	Text 28.txt	by seed companies to buy hybrid cotton	seeds	referred to by the seed merchants as
435	Text 35.txt	herbicides, and, if you don't buy their	seed	and there's herbicide being sprayed you lose
594	Text 6.txt	so that people are forced to buy	seeds.	First, will be hybrids, and then it
645	Text 9.txt	accept that he did not buy the	seed,	they accept he did not take it

Seed*/ Using

Index Line N.	Text N.	Concordance		
36	Text 14.txt	way extended to industrial agriculture using GMO	seeds.	The system is the same industrial system.
134	Text 16.txt	of Navdanya have shown that using native	seeds	and practicing agro-ecology, small farmers of India
190	Text 21.txt	why they should be using their own	seed.	We've built the largest domestic network of

234	Text 21.txt	were visiting a farmer who is using	seeds	we introduced”— seeds that tolerate flooding. Well,
279	Text 22.txt	seed in their hands, using that free	seed	they would be able to resist the
377	Text 31.txt	failing, why aren't you using your own	seed?"	They said, “The companies took the old
535	Text 37.txt	small farms, doing ecological agriculture, using local	seeds	and indigenous knowledge. Only 28% of the

Seed*/ Set

Index Line N.	Text N.	Concordance		
26	Text 11.txt	with them to help set up community	seed	banks for seed conservation, like we do
196	Text 21.txt	and training, and they set up community	seed	banks so that they have their own
326	Text 27.txt	going to WTO meetings, let's set up	seed	banks, set up seed commons and let's
327	Text 27.txt	let's set up seed banks, set up	seed	commons and let's change the rules. Let's

Seed*/ Company

Index Line N.	Text N.	Concordance		
299	Text 24.txt	seed belongs to the company. It means	seed- saving	by farmers is now defined as intellectual
529	Text 36.txt	arrangements. Monsanto now controls the world's biggest	seed	company, Seminis, which has bought up Peto
531	Text 36.txt	Seed, Bruinismo, Table 1: World's Top Ten	Seed	Companies SN Company 2007 seed sales (USD
532	Text 36.txt	Top Ten Seed Companies SN Company 2007	seed	sales (USD million) % of global proprietary
552	Text 4.txt	this fight because they are the biggest	seed	company now. Monsanto is privatizing the seed.
590	Text 6.txt	it was with the agents of the	seed	company. Normally, the agents would make them

Seed*/ Commons

Index Line N.	Text N.	Concordance		
2	Text 1.txt	three prongs. Community seed saving: we defend	seeds	as a commons, so community seed banks
3	Text 1.txt	defend seeds as a commons, so community	seed	banks are the first. You know, to
327	Text 27.txt	let's set up seed banks, set up	seed	commons and let's change the rules. Let's
453	Text 35.txt	seed banks around India because we believe	seed	is our commons. It has to be
482	Text 36.txt	as interchangeable terms. Bija Swaraj= Seed Freedom=	Seed	Sovereignty Commons are spheres of life self-governed
501	Text 36.txt	is the privatisation of commons such as	seeds,	through IPR and seed laws imposed by
504	Text 36.txt	being the privatisation of commons such as	seeds	and life, it is also the enclosure

Seed*/ Companies

Index Line N.	Text N.	Concordance		
174	Text 2.txt	eat. Our farmers are being ravished by	seed	companies, being pushed into debt, and committing
329	Text 28.txt	millets and paddy have been lured by	seed	companies to buy hybrid cotton seeds referred
374	Text 31.txt	moneylenders; it's from the agents of the	seed	companies. I call this new corporate feudalism,
443	Text 35.txt	dependency because the GM companies destroy alternative	seed	supply. They go into communities and tell
531	Text 36.txt	Seed, Bruinismo, Table 1: World's Top Ten	Seed	Companies SN Company 2007 seed sales (USD
554	Text 4.txt	country. They've taken over most of the	seed	companies of the world. Well, it comes
603	Text 6.txt	of the food system. Five companies controlling	seed,	five companies controlling grain trade, five processors,
659	Text 9.txt	up a lot of the Indian private	seed	companies, that they can go without any

Seed*/ Law

Index Line N.	Text N.	Concordance		
74	Text 14.txt	little manifesto called "The Law of the	Seed"	which is absolutely by the top experts.
75	Text 14.txt	What is the true law of the	seed?	What does the seed tell us and
77	Text 14.txt	used two years ago to bulldozer a	seed	law on Europe, which was defeated because
212	Text 21.txt	Sacramento can write any law related to	seed—	no county, no local governments— and that
214	Text 21.txt	of nutrition, the final straw in that	seed	law which must be challenged is the
215	Text 21.txt	problems, including California and its very silly	seed	law. There should be civil disobedience against
510	Text 36.txt	farmers' seed varieties is the proposed EU	seed	law, and the push for harmonisation of
512	Text 36.txt	in Africa. Other examples are the 2004	Seed	Law of India which could never be
515	Text 36.txt	Expansion of intellectual property rights to include	seeds	(Law 1518 of 2012); and • Prohibition
592	Text 6.txt	there. That is why Europe got the	seed	law. Because if you can't put GMOs
595	Text 6.txt	sent back the draft of the EU	seed	law. It should never return, because seed
601	Text 6.txt	in 2004. A law like your European	seed	law was being brought for compulsory registration

Seed*/ Seed

Index Line N.	Text N.	Concordance		
19	Text 10.txt	protect them. A law that says saving	seed,	growing seed and our seed freedom is
20	Text 10.txt	A law that says saving seed, growing	seed	and our seed freedom is a crime
21	Text 10.txt	says saving seed, growing seed and our	seed	freedom is a crime is a law
26	Text 11.txt	with them to help set up community	seed	banks for seed conservation, like we do
27	Text 11.txt	help set up community seed banks for	seed	conservation, like we do in Navdanya. Binayak

49	Text 14.txt	my flight at home, I said: the	seed.	The seed is today's spinning wheel. The
50	Text 14.txt	at home, I said: the seed . The	seed	is today's spinning wheel. The rest of
80	Text 14.txt	soil. You plant the seed . You plant	seeds	carefully to maximize photosynthesis and biomass. You
103	Text 16.txt	there is a way to reclaim our	seeds:	through seed freedom, where the control of seeds
112	Text 16.txt	the intellectual property rights regime that makes	seed- saving	and seed exchange a crime. Bija Satyagraha,
149	Text 17.txt	the fight for the truth of the	seed:	seed reproduces, seed multiples, seed is shared.
150	Text 17.txt	fight for the truth of the seed :	seed	reproduces, seed multiples, seed is shared. That's
151	Text 17.txt	the truth of the seed : seed reproduces,	seed	multiples, seed is shared. That's the truth
152	Text 17.txt	of the seed: seed reproduces, seed multiples,	seed	is shared. That's the truth of the
167	Text 2.txt	200 villagers who had been involved in	seed	saving and seed sharing with Navdanya, the
168	Text 2.txt	had been involved in seed saving and	seed	sharing with Navdanya, the trust that I
194	Text 21.txt	of farmers start taking care of their	seed.	They facilitate seed collection and training, and
195	Text 21.txt	taking care of their seed . They facilitate	seed	collection and training, and they set up
210	Text 21.txt	is available on the Seed Freedom website,	seedfreedo m.info.	California passed an insane law that took
295	Text 24.txt	it means a farmer who grows a	seed	cannot save seed from the harvested crop
296	Text 24.txt	farmer who grows a seed cannot save	seed	from the harvested crop because that is
300	Text 24.txt	normal in farming, which is saving their	seed.	Exchanging seed with your neighbor, which is
301	Text 24.txt	farming, which is saving their seed . Exchanging	seed	with your neighbor, which is called brown- bagging--
312	Text 24.txt	freedom, food sovereignty. And Bija Swaraj is	seed	freedom and seed sovereignty. (In regard to
313	Text 24.txt	And Bija Swaraj is seed freedom and	seed	sovereignty. (In regard to these fronts) Swa
365	Text 31.txt	over life, then we will start saving	seeds	one seed at a time and defend
387	Text 31.txt	when I found the farmers had no	seed,	we started seed banks in that area.
388	Text 31.txt	the farmers had no seed , we started	seed	banks in that area. Once the farmers

431	Text 35.txt	toxic gene to seed. That is polluting	seed,	not creating seed. Seed makes itself and
432	Text 35.txt	seed. That is polluting seed, not creating	seed.	Seed makes itself and makes the next
433	Text 35.txt	That is polluting seed, not creating seed.	Seed	makes itself and makes the next generation,
481	Text 36.txt	and sovereignty as interchangeable terms. Bija Swaraj=	Seed	Freedom= Seed Sovereignty Commons are spheres of
482	Text 36.txt	as interchangeable terms. Bija Swaraj= Seed Freedom=	Seed	Sovereignty Commons are spheres of life self-governed
487	Text 36.txt	as the 'terminator technology' designed to make	seed	sterile. In 'seed freedom' is the freedom
488	Text 36.txt	technology' designed to make seed sterile. In	'seed	freedom' is the freedom of bees to
522	Text 36.txt	and food satyagraha to defend our everyday	seed	freedom and seed sovereignty, and food freedom
523	Text 36.txt	to defend our everyday seed freedom and	seed	sovereignty, and food freedom and food democracy.
524	Text 36.txt	food freedom and food democracy. Patents on	Seeds	and Seed Monopolies GMOs are intimately linked
612	Text 7.txt	it's true, they try it out, the	seed	fails. The seed was 450 kilograms, it
613	Text 7.txt	try it out, the seed fails. The	seed	was 450 kilograms, it required pesticides, it
618	Text 7.txt	of the seed— and the theme is	'seed	to seed, farmer to farmer'. The seed
619	Text 7.txt	seed— and the theme is 'seed to	seed,	farmer to farmer'. The seed should go
623	Text 7.txt	is to evolve and to go from	seed	to seed, and corporate power sees that
624	Text 7.txt	evolve and to go from seed to	seed,	and corporate power sees that as an
629	Text 8.txt	two thirds of the price of the	seed	is royalty. Seed that used to cost
630	Text 8.txt	the price of the seed is royalty.	Seed	that used to cost 5 rupees jumps

Seed*/ Salt

Index Line N.	Text N.	Concordance		
44	Text 14.txt	seeds we had saved were salt tolerant	seeds	that farmers had evolved in the coastal

46	Text 14.txt	starve. And we'll bring you salt tolerant	seeds."	"Oh it can't be, they don't exist."
47	Text 14.txt	farmers gifted two truckloads of salt tolerant	seeds.	Immediately, agriculture bounced back. So, the
64	Text 14.txt	a drought. "You'll buy our salt tolerant	seeds."	And this total control net system that
403	Text 34.txt	commons and have set up 55 community	seed	banks. The salt tolerant rices in Navdanya's

Seed*/ Let

Index Line N.	Text N.	Concordance		
255	Text 22.txt	every peasant in India says: "Let the	seed	be exhaustless, let it never get exhausted,
262	Text 22.txt	continuity. But that prayer to let the	seed	be exhaustless seems to be changing into
263	Text 22.txt	be changing into the prayer, "let this	seed	get terminated so that I can make
539	Text 37.txt	of the soil and renewal of the	seed.	Let us celebrate this year, the World

Seed*/ Give

Index Line N.	Text N.	Concordance		
266	Text 22.txt	year. But the difference is that hybrid	seeds	don't give good seed. It's not that
267	Text 22.txt	is that hybrid seeds don't give good	seed.	It's not that they fail to germinate.
346	Text 30.txt	you do is primitive, give up your	seeds.	Then they will give you GMO seeds
347	Text 30.txt	seeds. Then they will give you GMO	seeds	as the only option. They hijack our
357	Text 31.txt	put it into the soil. That one	seed	will give me sometimes a million seeds
359	Text 31.txt	millets is because they give a million	seeds.	You think millets are just for feeding
422	Text 35.txt	come from: collecting rents from God's creation.	Seeds	reproduce, seeds give rise to seeds. That's

423	Text.txt	collecting rents from God's creation. Seeds reproduce,	seeds	give rise to seeds. That's the nature
424	Text 35.txt	creation. Seeds reproduce, seeds give rise to	seeds.	That's the nature of Creation, but that
587	Text 6.txt	the cotton seed was a GMO cotton	seed.	I won't give you the story on

Seed*/ Price

Index Line N.	Text N.	Concordance		
14	Text 10.txt	are getting indebted because the price of	seed	jumped 8,000 percent, and there's no option,
129	Text 16.txt	Meanwhile, Monsanto has raised the price of	seeds	by nearly 80,000 percent, forcing farmers to
463	Text 35.txt	seed they will raise the price of	seed.	When Cargill or the supermarkets are the
589	Text 6.txt	There was an 8000% jump in the	seed	price. Something that was available on the
629	Text 8.txt	two thirds of the price of the	seed	is royalty. Seed that used to cost

Seed*/ Plant

Index Line N.	Text N.	Concordance		
79	Text 14.txt	relationship with the soil. You plant the	seed.	You plant seeds carefully to maximize photosynthesis
80	Text 14.txt	soil. You plant the seed. You plant	seeds	carefully to maximize photosynthesis and biomass. You
254	Text 22.txt	very large scale. When we plant a	seed	there's a very simple prayer that every
341	Text 28.txt	In 1992, when Indian farmers destroyed Cargill's	seed	plant in Bellary, Karnataka, to protest against
358	Text 31.txt	seed will give me sometimes a million	seeds	in one plant. And the millets? The
398	Text 34.txt	part of the 'miracle' of the new	seeds	that modern plant breeders had gifted the
574	Text 5.txt	How do we do our agriculture? What	seeds	we plant? What price our crops will
647	Text 9.txt	only has patents on plant material and	seeds,	through contamination they actually manage to expand

Seed*/ Old

Index Line N.	Text N.	Concordance		
378	Text 31.txt	They said, "The companies took the old	seed	away." It's called "seed replacement" in the
383	Text 31.txt	Vandanaji, why are you saving these old	seeds?	Seeds are like cars. We must have
384	Text 31.txt	why are you saving these old seeds?	Seeds	are like cars. We must have new
385	Text 31.txt	to do organic farming and save old	seeds.	This year India has had a tremendous
444	Text 35.txt	tell them to give up their old	seed.	They call it seed replacement, as if

Seed*/ Navdanya

Index Line N.	Text N.	Concordance		
25	Text 11.txt	of species. I started Navdanya and saving	seeds	when I found out that corporations wanted
168	Text 2.txt	had been involved in seed saving and	seed	sharing with Navdanya, the trust that I
275	Text 22.txt	world of total control. Navdanya means nine	seeds.	Through it we save native seeds. In
285	Text 22.txt	I often say is that through the	seed	saving of Navdanya we have managed to
550	Text 38.txt	fields have been assessed by Navdanya, a	Seed	Conservation Movement. Under conditions of low capital

Seed*/ Control

Index Line N.	Text N.	Concordance		
63	Text 14.txt	engineering. Now they want to control the	seed,	the soil, the chemicals, the water- and
102	Text 16.txt	then tried to take control of our	seeds	through genetic engineering and patenting. But there

105	Text 16.txt	seeds: through seed freedom, where the control of	seeds	lies with farmers, instead of a system
141	Text 17.txt	can only come through control of the	seed	and collecting rent from marrying seeds to
156	Text 17.txt	advanced in total corporate control over the	seed	sector— Monsanto being the big giant that
348	Text 30.txt	because five corporations want to control our	seed	and food. Well they can manage four
553	Text 4.txt	seed company now. Monsanto is privatizing the	seed.	They control 95 percent of the cotton
564	Text 4.txt	food chain. And therefore, when you control	seed,	you control food. Well I come from

Seed*/ Creating

Index Line N.	Text N.	Concordance		
193	Text 21.txt	farmers. Navdanya's work begins with creating community	seed	banks to conserve biodiversity so communities of
431	Text 35.txt	toxic gene to seed. That is polluting	seed,	not creating seed. Seed makes itself and
432	Text 35.txt	seed. That is polluting seed, not creating	seed.	Seed makes itself and makes the next
433	Text 35.txt	That is polluting seed, not creating seed.	Seed	makes itself and makes the next generation,
439	Text 35.txt	work, is 'Terminator' technology, deliberately creating sterile	seeds,	preventing life from evolving into the future.
546	Text 38.txt	that I started in 1987 has saved	seeds	through creating community seed banks and helped
547	Text 38.txt	1987 has saved seeds through creating community	seed	banks and helped farmers make a transition

Seed*/ Farmers

Index Line N.	Text N.	Concordance		
28	Text 13.txt	malnutrition, but more important when farmers have	seed	sovereignty, when farmers do organic farming and
44	Text 14.txt	seeds we had saved were salt tolerant	seeds	that farmers had evolved in the coastal

53	Text 14.txt	Second: owning more of the climate resilient-	seeds	that farmers have evolved- through patents. We
105	Text 16.txt	seeds: through seed freedom, where the control of	seeds	lies with farmers, instead of a system
125	Text 16.txt	problem they diagnosed was that farmers save	seeds.	The case of Monsanto and its genetically
130	Text 16.txt	of the debt-trap they landed in. Farmers'	seed	sovereignty is at the heart of solutions
132	Text 16.txt	be free of debt. And only through	seed	sovereignty can farmers' incomes be increased. Organic
137	Text 17.txt	as the freedom for farmers to save	seeds.	It was in 1984 in India that
175	Text 20.txt	of a medicinal plant, or find a	seed	that farmers use, come back here, claim
183	Text 21.txt	enters the scene with its Bt cotton	seed,	pushing farmers into debt by shooting the
223	Text 21.txt	We attempt to make farmers sovereign in	seed	and food, to make communities sovereign in
256	Text 22.txt	never get exhausted, let it bring forth	seed	next year." Farmers have such pride in
268	Text 22.txt	a away to prevent farmers from saving	seed.	But with patents you still have to
269	Text 22.txt	detectives to ensure that farmers aren't saving	seeds.	The terminator is an extremely secure technology
299	Text 24.txt	seed belongs to the company. It means	seed-saving	by farmers is now defined as intellectual
306	Text 24.txt	seed banks so that farmers have free	seed;	nature has freedom of diversity; and these
339	Text 28.txt	soya bean, mustard are suing farmers for	seed	saving and hiring detective agencies to find
340	Text 28.txt	to find out if farmers have saved	seed	or shared it with neighbours. The recent
341	Text 28.txt	In 1992, when Indian farmers destroyed Cargill's	seed	plant in Bellary, Karnataka, to protest against
373	Text 31.txt	debt caused by this cotton. It's costly	seed,	costly chemicals. Farmers just can't pay it
376	Text 31.txt	found out that the farmers had no	seed.	I would say, "If it's failing, why
387	Text 31.txt	when I found the farmers had no	seed,	we started seed banks in that area.
389	Text 31.txt	that area. Once the farmers had non-GM	seed,	they could start to do organic farming.
474	Text 36.txt	sought to cure was that farmers saved	seeds.	The cure was that farmers should be
477	Text 36.txt	like Monsanto to prevent farmers from saving	seeds.	Worse, as in the case of Monsanto

484	Text 36.txt	into force of this Act. For us,	seed	freedom includes farmers' rights to save, exchange,
495	Text 36.txt	the duty to save and exchange native	seeds	bred by farmers. This is seed sovereignty.
496	Text 36.txt	native seeds bred by farmers. This is	seed	sovereignty. For farmers, varieties conserved, used and
509	Text 36.txt	people's freedom to save and exchange farmers'	seed	varieties is the proposed EU seed law,
583	Text 6.txt	The problem they defined was 'farmers save	seeds'	and the solution they offered was that
676	Text 9.txt	farmers lost half their income- the oil	seed	farmers in India lost all their income.

Seed*/ Plants

Index Line N.	Text N.	Concordance		
60	Text 14.txt	declare your original sources of plants? Which	seedbank?	Which gene bank? Which country?" Columbus did this,
170	Text 2.txt	said, "We've received our medicinal plants, our	seeds,	our forests from nature through our ancestors;
244	Text 22.txt	if there's knowledge or living material, plants,	seeds,	medicines which the white man has not
247	Text 22.txt	that last resource in the form of	seed,	medicinal plants, fodder, which allowed them access
337	Text 28.txt	and corporations. When patents are granted for	seeds	and plants, as in the case of
643	Text 9.txt	are talking about is living material: plants,	seeds,	animals. I think it was literally two

Seed*/ Varieties

Index Line N.	Text N.	Concordance		
144	Text 17.txt	way saying, "Okay, let's assault the independent	seed	supply." Varieties that are vital to organic
188	Text 21.txt	our seeds, is to save thousands of	seed	varieties. We've trained nearly a million farmers
509	Text 36.txt	people's freedom to save and exchange farmers'	seed	varieties is the proposed EU seed law,

549	Text 38.txt	cropping systems of cereals, pulses, and oil	seeds	with different varieties of each crop, while
652	Text 9.txt	women are growing, especially the open pollinated	seed	varieties that they are growing. And I

Seed*/ Farmer

Index Line N.	Text N.	Concordance		
426	Text 35.txt	seed is patented, then any farmer saving	seed	on their farm becomes a thief. A
427	Text 35.txt	farm becomes a thief. A farmer exchanging	seed	with their neighbour becomes a thief. And
618	Text 7.txt	of the seed— and the theme is	'seed	to seed, farmer to farmer'. The seed
619	Text 7.txt	seed— and the theme is 'seed to	seed,	farmer to farmer'. The seed should go
620	Text 7.txt	'seed to seed, farmer to farmer'. The	seed	should go to seed, it shouldn't be
644	Text 9.txt	part to prevent any farmer from sowing	seed,	growing out their crop, etc. We're still

Seed*/ Biodiversity

Index Line N.	Text N.	Concordance		
4	Text 10.txt	it's climate change or biodiversity erosion or	seed	monopolies, all of it is connected. It's
34	Text 13.txt	output you have. The potential of the	seed	decides. The biodiversity intensification decides. The reason
48	Text 14.txt	misleading. Now because of our work on	seeds	and biodiversity as well as our organic
171	Text 2.txt	in years past by saving locally bred	seeds	and saving biodiversity. Now they are seeking
181	Text 20.txt	same kinds of actions around biodiversity and	seed.	Nature has gifted this rich biological diversity
320	Text 24.txt	that time of colonialism, ownership over biodiversity,	seeds,	genes, medicine is doing in today's world.
405	Text 34.txt	sustenance. That is why for me reclaiming	seed,	biodiversity, water as commons is vital for

409	Text 34.txt	climate chaos. That is why we save	seeds	and protect biodiversity. The industrial model must
410	Text 34.txt	right to the commons— the rivers, the	seeds,	the biodiversity, the atmosphere. I have given
478	Text 36.txt	saving and protecting life, especially biodiversity and	seeds,	on Earth is the highest duty, the
491	Text 36.txt	and exchange farmers’ varieties freely among themselves.	Seed	and biodiversity are the ultimate commons, and
579	Text 6.txt	that was started to conserve biodiversity and	seeds,	we intensify biodiversity. We ask farmers to

Seed*/ Seeds

Index Line N.	Text N.	Concordance		
79	Text 14.txt	relationship with the soil. You plant the	seed.	You plant seeds carefully to maximize photosynthesis
84	Text 15.txt	globalization started to change our agriculture. New	seeds	and hybrid seeds can’t be saved by
85	Text 15.txt	change our agriculture. New seeds and hybrid	seeds	can’t be saved by farmers and the
86	Text 15.txt	don’t tell the farmers these are non-renewable	seeds.	The hybrid seeds are very pest-prone and
87	Text 15.txt	farmers these are non-renewable seeds. The hybrid	seeds	are very pest-prone and therefore the farmers
104	Text 16.txt	a way to reclaim our seeds: through	seed	freedom, where the control of seeds lies with
219	Text 21.txt	freedom and seeds of hope. Monsanto’s GMO	seeds	are seeds of death and seeds of
220	Text 21.txt	seeds of hope. Monsanto’s GMO seeds are	seeds	of death and seeds of soil destruction.
234	Text 21.txt	were visiting a farmer who is using	seeds	we introduced”— seeds that tolerate flooding. Well,
235	Text 21.txt	farmer who is using seeds we introduced”—	seeds	that tolerate flooding. Well, it didn’t come
366	Text 31.txt	then we will start saving seeds one	seed	at a time and defend the freedom
383	Text 31.txt	Vandanaji, why are you saving these old	seeds?	Seeds are like cars. We must have
384	Text 31.txt	why are you saving these old seeds?	Seeds	are like cars. We must have new
422	Text 35.txt	come from: collecting rents from God’s creation.	Seeds	reproduce, seeds give rise to seeds. That’s

423	Text 35.txt	collecting rents from God's creation. Seeds reproduce,	seeds	give rise to seeds. That's the nature
460	Text 35.txt	practice. And because, if we've saved these	seeds,	these seeds must find eaters, we've built
461	Text 35.txt	because, if we've saved these seeds , these	seeds	must find eaters, we've built up the
466	Text 35.txt	suicides are happening. We need to create	seedbanks	called' seeds of hope' and organic cotton-
525	Text 36.txt	and food democracy. Patents on Seeds and	Seed	Monopolies GMOs are intimately linked to seed
670	Text 9.txt	and he was going to sell corn	seeds,	hybrid seeds . I said but they're having
671	Text 9.txt	was going to sell corn seeds , hybrid	seeds.	I said but they're having a drought.

Seed*/ Laws

Index Line N.	Text N.	Concordance		
154	Text 17.txt	in creating laws for corporate monopoly on	seed	and denying laws that would protect farmers'
308	Text 24.txt	the non-violent, non-cooperation with laws that create	seed	monopolies, inspired totally by Gandhi walking to
328	Text 27.txt	countries managed to roll back laws criminalising	seed	saving. In a crazy way, this market-mafia
502	Text 36.txt	commons such as seeds, through IPR and	seed	laws imposed by state or inter-state bodies
507	Text 36.txt	instrument of corporate sovereignty and people's slavery.	Seed	laws for compulsory registration, which are being
511	Text 36.txt	law, and the push for harmonisation of	seed- related	laws in Africa. Other examples are the
517	Text 36.txt	Why else would governments and corporations impose	seed	laws to prohibit the use of local
519	Text 36.txt	harm, and not police citizens through undemocratic	seed	and food laws whose only objective is
656	Text 9.txt	the world. Well, that's exactly how the	seed	laws of India were changed in that

Seed*/ Away

Index	Text	Concordance
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Line N.	N.			
325	Text 27.txt	food from them and take away their	seeds	in order to feed them". So what we
378	Text 31.txt	They said, "The companies took the old	seed	away." It's called "seed replacement" in the
379	Text 31.txt	took the old seed away." It's called	"seed	replacement" in the seed industry jargon, as
402	Text 34.txt	to help farmers move away from Monsanto's	"Seeds	of Suicide". Organic farmers in Vidharbha are
567	Text 4.txt	by not allowing them to have their	seed.	It's taken away from the consumer by

Seed*/ Their

Index Line N.	Text N.	Concordance		
57	Text 14.txt	for improved seeds." And for them, improved	seeds	means in their hands. When it moves
131	Text 16.txt	when farmers have access to their own	seeds	will they be free of debt. And
178	Text 20.txt	seed industry every year to buy their	seed	and pay an 80 percent royalty to
190	Text 21.txt	why they should be using their own	seed.	We've built the largest domestic network of
191	Text 21.txt	organic products. These farmers are saving their	seeds,	doing organic farming and participating in fair
194	Text 21.txt	of farmers start taking care of their	seed.	They facilitate seed collection and training, and
197	Text 21.txt	banks so that they have their own	seed	supply. That's one level. We have helped
237	Text 21.txt	cyclone— they have arrived with their GMO	seeds.	After the earthquake damaged Nepal so badly
238	Text 21.txt	we kept getting calls— half of their	seed	banks had been damaged in the earthquake,
249	Text 22.txt	from having free access to their own	seed,	to have free exchange of their own
250	Text 22.txt	to have free exchange of their own	seed.	So that all peasants, all farmers around
278	Text 22.txt	act so that farmers would have free	seed	in their hands, using that free seed
300	Text 24.txt	normal in farming, which is saving their	seed.	Exchanging seed with your neighbor, which is

301	Text 24.txt	farming, which is saving their seed. Exchanging	seed	with your neighbor, which is called brown-bagging--
310	Text 24.txt	without corporate dependence- without chemicals, without their	seed.	All this is talked about in the
319	Text 24.txt	one season. If farmers are saving the	seed,	growing their crop, they are making reclamation
325	Text 27.txt	food from them and take away their	seeds	in order to feed them". So what we
332	Text 28.txt	millionaires. Instead they became paupers. Their native	seeds	have been displaced with new hybrids which
406	Text 34.txt	their land and water, their forests and	seeds.	"Hungry" money is predated on the last
426	Text 35.txt	seed is patented, then any farmer saving	seed	on their farm becomes a thief. A
427	Text 35.txt	farm becomes a thief. A farmer exchanging	seed	with their neighbour becomes a thief. And
435	Text 35.txt	herbicides, and, if you don't buy their	seed	and there's herbicide being sprayed you lose
438	Text 35.txt	for preventing farmers from having their own	seed,	which also includes preventing nature from doing
444	Text 35.txt	tell them to give up their old	seed.	They call it seed replacement, as if
567	Text 4.txt	by not allowing them to have their	seed.	It's taken away from the consumer by
644	Text 9.txt	part to prevent any farmer from sowing	seed,	growing out their crop, etc. We're still
660	Text 9.txt	of regulation into villages and sell their	seeds.	And I have watched them use Guru

Seed*/ Our

Index Line N.	Text N.	Concordance		
20	Text 10.txt	A law that says saving seed, growing	seed	and our seed freedom is a crime
21	Text 10.txt	says saving seed, growing seed and our	seed	freedom is a crime is a law
48	Text 14.txt	misleading. Now because of our work on	seeds	and biodiversity as well as our organic
64	Text 14.txt	a drought. "You'll buy our salt tolerant	seeds."	And this total control net system that
81	Text 14.txt	to me: "We love your work on	seed,	but our big problem is youth unemployment."

84	Text 15.txt	globalization started to change our agriculture. New	seeds	and hybrid seeds can't be saved by
102	Text 16.txt	then tried to take control of our	seeds	through genetic engineering and patenting. But there
103	Text 16.txt	there is a way to reclaim our	seeds:	through seed freedom, where the control of seeds
104	Text 16.txt	a way to reclaim our seeds: through	seed	freedom, where the control of seeds lies with
118	Text 16.txt	will continue to save and share our	seeds.	Over four-and-a-half decades I have participated in
120	Text 16.txt	process of the past, our intelligence in	seed-	breeding and agriculture was denied, our seeds
121	Text 16.txt	seed- breeding and agriculture was denied, our	seeds	were called "primitive" and we were displaced.
138	Text 17.txt	genetic engineering to grow our patents on	seeds."	They said they needed immediate international law
142	Text 17.txt	the seed and collecting rent from marrying	seeds	to our chemicals— like herbicide-resistant crops and
170	Text 2.txt	said, "We've received our medicinal plants, our	seeds,	our forests from nature through our ancestors;
187	Text 21.txt	poison corporations now wanted to own our	seeds,	is to save thousands of seed varieties.
200	Text 21.txt	are literally outside the agricultural system, our	seed	banks are the base of an agriculture
203	Text 21.txt	all a part of one system! The	seed	saving is our foundation. The seed saving
204	Text 21.txt	The seed saving is our foundation. The	seed	saving then leads to an agriculture that
216	Text 21.txt	For us, it's exactly the same. Our	seeds	are not primitive; they're seeds of freedom
227	Text 21.txt	that have more nutrition like our wheat,	seeds	like the basmati seed which were patented
231	Text 21.txt	neem leaves in our grain and our	seeds,	we use the neem leaves in our
243	Text 21.txt	the trees in the forest and the	seeds	in our farms are all part of
335	Text 28.txt	destroyed the market for our diverse oil	seeds-	mustard, linseed, sesame, groundnut, coconut. And the
345	Text.txt	suicide since Monsanto took over our common	seed	supply, in 15 years. They come, they
348	Text 30.txt	because five corporations want to control our	seed	and food. Well they can manage four
351	Text 30.txt	not GMOs. Freedom is our future, not	seed	slavery. You are the future.
363	Text 31.txt	seed becomes a crime. I believe saving	seed	is our ecological, ethical duty. That is
369	Text	we will continue to save and share	seed	as our moral duty to the future

	31.txt			
370	Text 31.txt	illegal for us to have our own	seeds.	In 2004, the government did try and
437	Text 35.txt	captive customer base for our octo stack	seed' –	octo stack is eight toxic genes. The
453	Text 35.txt	seed banks around India because we believe	seed	is our commons. It has to be
456	Text 35.txt	We will respect the freedom of the	seed	and our own freedom.' And this is
457	Text 35.txt	our own freedom.' And this is our	seed	sovereignty. This is the foundation of food
458	Text 35.txt	of food sovereignty, that with our own	seeds	we have the capacity to produce our
465	Text 35.txt	of you is expanding our network of	seedbanks,	expanding our capacity to help farmers convert
520	Text 36.txt	order to establish corporate totalitarianism over our	seed	and food. To ensure that unjust laws
522	Text 36.txt	and food satyagraha to defend our everyday	seed	freedom and seed sovereignty, and food freedom
574	Text 5.txt	How do we do our agriculture? What	seeds	we plant? What price our crops will
614	Text 7.txt	of rewarding innovation, what's being patented? Our	seeds,	our cells, our methods of healing. I
625	Text 7.txt	we said we will make our own	seed,	we will grow our own food, and
651	Text 9.txt	new college starting October. Our various community	seed	banks have saved about 2000- we used
675	Text 9.txt	village level, where we take our oil	seed,	get it extracted in front of our

Seed*/ Call

Index Line N.	Text N.	Concordance		
92	Text 15.txt	to keep a check. We call it	"Seeds	of Suicide" because it is beginning with
245	Text 22.txt	of phenomena that we call biopiracy, where	seeds	such as the Basmati seed, the aromatic
374	Text 31.txt	moneylenders; it's from the agents of the	seed	companies. I call this new corporate feudalism,
444	Text 35.txt	tell them to give up their old	seed.	They call it seed replacement, as if
445	Text 35.txt	up their old seed. They call it	seed	replacement, as if seed was dirty socks.

Seed*/ Monsanto

Index Line N.	Text N.	Concordance		
30	Text 13.txt	of genetic engineering, which made Monsanto a	seed	giant before it was just a chemical
155	Text 17.txt	that would protect farmers' rights to save	seeds.	Monsanto vs. Bowman was an example of
156	Text 17.txt	advanced in total corporate control over the	seed	sector— Monsanto being the big giant that
352	Text 31.txt	to distort the prices. Monsanto doesn't produce	seed.	It just owns the patents and does
420	Text 35.txt	People aren't choosing Monsanto. Monsanto is the	seed	monopoly. The second thing the industry said
429	Text 35.txt	an invention of Monsanto. Monsanto doesn't invent	seeds.	Monsanto adds a toxic gene to seed.
464	Text 35.txt	of course we have Monsanto pushing GM	seeds	and we have Wall Mart saying, "Corporate
533	Text 36.txt	sales (USD million) % of global proprietary	seed	market 1 Monsanto (USA) 4694 23 2
552	Text 4.txt	this fight because they are the biggest	seed	company now. Monsanto is privatizing the seed.
658	Text 9.txt	has now been bought up for the	seed	sector by Monsanto, who are then- which

Seed*/ Organic

Index Line N.	Text N.	Concordance		
39	Text 14.txt	know one of the strongest movements for	seed	savings, for organic farming, for local food
133	Text 16.txt	cotton farmers earn more by avoiding costly	seeds	and chemicals. Organic cotton is the future.
169	Text 2.txt	the trust that I founded to save	seeds	and promote organic agriculture. These 200 villagers
191	Text 21.txt	organic products. These farmers are saving their	seeds,	doing organic farming and participating in fair
288	Text 22.txt	starting to shift to use of native	seeds	and organic agricultural methods. The wonderful thing
350	Text 30.txt	gardens came up. Young unemployed youth became	seed	savers and organic gardeners. Gardening is our

401	Text 34.txt	Navdanya we have promoted Organic Farming and	'Seeds	of Hope', to help farmers move away
402	Text 34.txt	to help farmers move away from Monsanto's	"Seeds	of Suicide". Organic farmers in Vidharbha are
637	Text 8.txt	movement I started in India to save	seeds	and promote organic farming- has shown, you

Seed*/ Use

Index Line N.	Text N.	Concordance		
124	Text 16.txt	by imposing patents on the use of	seeds	in free trade agreements. As one Monsanto
127	Text 16.txt	to force farmers to use Bt cotton	seeds,	it established a monopoly that prevented farmers
175	Text 20.txt	of a medicinal plant, or find a	seed	that farmers use, come back here, claim
176	Text 20.txt	rich collective heritage involving the use of	seeds	for growing crops and medicinal plants for
179	Text 20.txt	you can no longer use the need	seed	in your back yard. Instead you have
231	Text 21.txt	neem leaves in our grain and our	seeds,	we use the neem leaves in our
288	Text 22.txt	starting to shift to use of native	seeds	and organic agricultural methods. The wonderful thing
334	Text 28.txt	is leading to a concentration of the	seed	industry, increased use of pesticides, and, finally,
485	Text 36.txt	of the state or corporations. We use	'seed	freedom' as the right of the seed
518	Text 36.txt	laws to prohibit the use of local	seeds	and breeds which have been evolved by
665	Text 9.txt	worked out that, linked to these new	seeds	is new use of pesticide- huge amount

Seed*/ Called

Index Line N.	Text N.	Concordance		
94	Text 15.txt	But we also have a program called	Seeds	of Hope where we're getting open-pollinated varieties

121	Text 16.txt	seed- breeding and agriculture was denied, our	seeds	were called "primitive" and we were displaced.
126	Text 16.txt	of Monsanto and its genetically modified cotton	seed	called "Bt cotton" provides a clear example.
180	Text 20.txt	first started out, we called it the	seed	satyagraha. As you know, Gandhi had started
378	Text 31.txt	They said, "The companies took the old	seed	away." It's called "seed replacement" in the
379	Text 31.txt	took the old seed away." It's called	"seed	replacement" in the seed industry jargon, as
466	Text 35.txt	suicides are happening. We need to create	seedbanks	called 'seeds of hope' and organic cotton-
467	Text 35.txt	happening. We need to create seedbanks called'	seeds	of hope' and organic cotton- production and
498	Text 36.txt	monopoly power through intellectual property rights on	seeds	in so called 'free trade' treaties, based
540	Text 37.txt	and capacity. This tribunal was called a	Seed	Tribunal. It is a seed sown, which
657	Text 9.txt	India were changed in that report called,	'Seeds	of Suicide'. It's really our monitoring of

Seed*/ Started

Index Line N.	Text N.	Concordance		
40	Text 14.txt	through Navdanya, the movement I started, the	seed	saving, we had saved every seed we
123	Text 16.txt	makes a significant contribution. Genetic engineering of	seeds	was started by the poison cartel because
232	Text 21.txt	in organic farming, because before I started	seed	saving in 1987 we were already creating
274	Text 22.txt	a national program to basically fight the	seed	monopolies. I started it ten years ago
287	Text 22.txt	over. I have just started two new	seed	banks in the heart of the "Green
364	Text 31.txt	when I started Navdanya, which means nine	seeds,	I started it with two inspirations from
387	Text 31.txt	when I found the farmers had no	seed,	we started seed banks in that area.
388	Text 31.txt	the farmers had no seed, we started	seed	banks in that area. Once the farmers
451	Text 35.txt	So in 1987 we started to save	seeds.	In 1991 I created the legal entity

Seed*/ Patent

Index Line N.	Text N.	Concordance		
6	Text 10.txt	the idea that Monsanto can patent a	seed	by putting a toxic gene for Roundup
10	Text 10.txt	is invented, and therefore, a patent on	seed	is wrong from the first step. Secondly,
355	Text 31.txt	idea that corporations can own and patent	seed	and life forms and collect rents from
407	Text 34.txt	in increased purchases of chemicals and costly	seeds.	When corporations patent seeds, 1 trillion dollars
408	Text 34.txt	chemicals and costly seeds. When corporations patent	seeds,	1 trillion dollars of increased money will
434	Text 35.txt	the next generation, so a patent on	seed	and a patent on life is wrong

Seed*/ Means

Index Line N.	Text N.	Concordance		
57	Text 14.txt	for improved seeds.” And for them, improved	seeds	means in their hands. When it moves
265	Text 22.txt	that they don't yet have means. Hybrid	seeds	are also not good for saving. It
275	Text 22.txt	world of total control. Navdanya means nine	seeds.	Through it we save native seeds. In
294	Text 24.txt	a patent is granted, for example, on	seed	it means a farmer who grows a
299	Text 24.txt	seed belongs to the company. It means	seed-saving	by farmers is now defined as intellectual
364	Text 31.txt	when I started Navdanya, which means nine	seeds,	I started it with two inspirations from
470	Text 35.txt	scramble of my name. It means ‘nine	seeds’	and also the ‘new gift’ and is

Seed*/ Your

Index Line N.	Text N.	Concordance		
71	Text 14.txt	written a patent law. Now all your	seeds	are mine. I've written a patent law.
81	Text 14.txt	to me: "We love your work on	seed,	but our big problem is youth unemployment."
98	Text 15.txt	doesn't matter if you're making your own	seed,	even if you're saving it for yourself
179	Text 20.txt	you can no longer use the need	seed	in your back yard. Instead you have
301	Text 24.txt	farming, which is saving their seed. Exchanging	seed	with your neighbor, which is called brown-bagging--
316	Text 24.txt	with seed Swaraj, with Anna Swaraj, saving	seeds,	growing your own seed, not going to
317	Text 24.txt	Anna Swaraj, saving seeds, growing your own	seed,	not going to Monsanto in every season
318	Text 24.txt	Monsanto in every season and having your	seed	collapse. I was just told, yesterday, that
346	Text 30.txt	you do is primitive, give up your	seeds.	Then they will give you GMO seeds
377	Text 31.txt	failing, why aren't you using your own	seed?"	They said, "The companies took the old
459	Text 35.txt	our food. If you don't have your	seeds	there is no way you can be
601	Text 6.txt	in 2004. A law like your European	seed	law was being brought for compulsory registration.

Seed*/ Diversity

Index Line N.	Text N.	Concordance		
83	Text 15.txt	is by giving women the diversity of	seeds	that are sources of vitamin A. They
116	Text 16.txt	to coevolve with the intelligence of the	seed	towards diversity , resilience and quality. It is
277	Text 22.txt	agriculture. We still have a lot of	seed	diversity . We do not try and do
349	Text 30.txt	and each of them in diversity . The	seed	banks have created 3,000 varieties of rice,
397	Text 34.txt	through the destruction of diversity , the 'miracle'	seeds	of the green revolution became mechanisms for

493	Text 36.txt	to have access to food grown from	seeds	bred for diversity, taste, flavour, quality and
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Seed*/ New

Index Line N.	Text N.	Concordance		
84	Text 15.txt	globalization started to change our agriculture. New	seeds	and hybrid seeds can't be saved by
281	Text 22.txt	can establish sustainable organic agriculture again. New	seeds	are bred for heavy chemical influence and
287	Text 22.txt	over. I have just started two new	seed	banks in the heart of the "Green
394	Text 34.txt	factor in the spread of the new	seeds,	because wherever the new seeds went, they
395	Text 34.txt	the new seeds, because wherever the new	seeds	went, they opened up new markets for
398	Text 34.txt	part of the 'miracle' of the new	seeds	that modern plant breeders had gifted the
411	Text 35.txt	farmers will use new chemicals and new	seeds	and they'll get prosperous and prosperous farmers
610	Text 7.txt	God bringing down these wonderful new multinational	seeds	to make you an instant millionaire. Now
661	Text 9.txt	this god is coming with a new	seed,	which is a miracle seed that is
665	Text 9.txt	worked out that, linked to these new	seeds	is new use of pesticide- huge amount
667	Text 9.txt	suicide. It's totally related to the new	seeds.	Just going to show you another phenomena
669	Text 9.txt	brutal these patent laws and these new	seed	corporate monopolies can function like. I basically

Seed*/ Up

Index Line N.	Text N.	Concordance		
26	Text 11.txt	with them to help set up community	seed	banks for seed conservation, like we do
184	Text 21.txt	into debt by shooting the prices of	seed	up thousands of percent higher to collect

196	Text 21.txt	and training, and they set up community	seed	banks so that they have their own
326	Text 27.txt	going to WTO meetings, let's set up	seed	banks, set up seed commons and let's
327	Text 27.txt	let's set up seed banks, set up	seed	commons and let's change the rules. Let's
346	Text 30.txt	you do is primitive, give up your	seeds.	Then they will give you GMO seeds
372	Text 31.txt	Every community garden that comes up , every	seed- saving	movement that comes up. In India there
403	Text 34.txt	commons and have set up 55 community	seed	banks. The salt tolerant rices in Navdanya's
444	Text 35.txt	tell them to give up their old	seed.	They call it seed replacement, as if
448	Text 35.txt	reason we have built up the community	seed	banks is because I knew that if
530	Text 36.txt	company, Seminis, which has bought up Peto	Seed,	Bruinismo, Table 1: World's Top Ten Seed
658	Text 9.txt	has now been bought up for the	seed	sector by Monsanto, who are then-which

Seed*/ Its

Index Line N.	Text N.	Concordance		
183	Text 21.txt	enters the scene with its Bt cotton	seed,	pushing farmers into debt by shooting the
215	Text 21.txt	problems, including California and its very silly	seed	law. There should be civil disobedience against
261	Text 22.txt	treated it as their duty to save	seed	and ensure its continuity. But that prayer
393	Text 34.txt	the Earth begins in the mind. Its	seeds	were sown when the living Earth was
400	Text 34.txt	their lives, Navdanya brought out its report	"Seeds	of Suicide". One by one the women
548	Text 38.txt	impoverishment of nature and culture. Its contemporary	seeds	were sown when the living Earth was
581	Text 6.txt	free even though Monsanto has all its	seed	production on the island of Hawaii. We

Seed*/ Free

Index Line N.	Text N.	Concordance
124	Text 16.txt	by imposing patents on the use of seeds in free trade agreements. As one Monsanto
249	Text 22.txt	from having free access to their own seed, to have free exchange of their own
278	Text 22.txt	act so that farmers would have free seed in their hands, using that free seed
279	Text 22.txt	seed in their hands, using that free seed they would be able to resist the
306	Text 24.txt	seed banks so that farmers have free seed; nature has freedom of diversity; and these
479	Text 36.txt	genetic engineering and patents on life and seeds and a 'free trade' agreement. Navdanya is

Seed*/ Corporate

Index Line N.	Text N.	Concordance
106	Text 16.txt	farmers, instead of a system that views seeds as corporate intellectual property. Every place and every
154	Text 17.txt	in creating laws for corporate monopoly on seed and denying laws that would protect farmers'
500	Text 36.txt	of the people, and corporate monopolies in seed and food. To push free trade as
624	Text 7.txt	evolve and to go from seed to seed, and corporate power sees that as an
669	Text 9.txt	brutal these patent laws and these new seed corporate monopolies can function like. I basically

Seed*/ Year

Index Line N.	Text N.	Concordance
177	Text 20.txt	needs. Every farmer must go to the seed industry every year to buy their seed
251	Text 22.txt	farmers around the world would be buying seed every year thus creating a new market

256	Text 22.txt	never get exhausted, let it bring forth	seed	next year." Farmers have such pride in
385	Text 31.txt	to do organic farming and save old	seeds.	This year India has had a tremendous
668	Text 9.txt	parts. We had a public hearing on	seeds	last year. Those are farmers who've sold

Seed*/ Can't

42	Text 14.txt	just saying: "If our ancestors used the	seed,	it can't be useless." So, among the
46	Text 14.txt	starve. And we'll bring you salt tolerant	seeds."	"Oh it can't be, they don't exist."
85	Text 15.txt	change our agriculture. New seeds and hybrid	seeds	can't be saved by farmers and the
202	Text 21.txt	another agriculture, because we can't isolate the	seeds	and trying to shape agriculture in isolation
468	Text 35..txt	very serious situation. You can't find cotton	seeds	that are not GM. We are doing

Seed*/ Put

Index Line N.	Text N.	Concordance		
163	Text 19.txt	a plant is not put together. A	seed	is not a manufacture. But just like
239	Text 21.txt	by May we had to get the	seeds	there. We put the seeds together. At
240	Text 21.txt	get the seeds there. We put the	seeds	together. At the border, the customs officer
356	Text 31.txt	is no scarcity. I take a tiny	seed	and I put it into the soil.
582	Text 6.txt	the sprays that are put on the	seeds.	Dow is suing the local government that

Seed*/ Industry

Index Line N.	Text N.	Concordance		
177	Text 20.txt	needs. Every farmer must go to the	seed	industry every year to buy their seed

252	Text 22.txt	creating a new market for the global	seed	industry. 80 percent of India takes care
304	Text 24.txt	also the pharmaceutical industry, is also the	seed	industry, is also the biotech industry. There
334	Text 28.txt	is leading to a concentration of the	seed	industry, increased use of pesticides, and, finally,
380	Text 31.txt	away.” It’s called “seed replacement” in the	seed	industry jargon, as if seed is dirty

Seed*/ Should

Index Line N.	Text N.	Concordance		
215	Text 21.txt	problems, including California and its very silly	seed	law. There should be civil disobedience against
303	Text 24.txt	as monopoly and recognize that things like	seeds	should be accessible to farmers, things like
595	Text 6.txt	sent back the draft [of the EU	seed	law]. It should never return, because seed
620	Text 7.txt	‘seed to seed, farmer to farmer’. The	seed	should go to seed, it shouldn’t be
621	Text 7.txt	to farmer’. The seed should go to	seed,	it shouldn’t be interrupted by technologies like

Seed*/ Create

Index Line N.	Text N.	Concordance		
305	Text 24.txt	to defend the freedom of people; create	seed	banks so that farmers have free seed;
308	Text 24.txt	the non-violent, non-cooperation with laws that create	seed	monopolies, inspired totally by Gandhi walking to
353	Text 31.txt	ingenuity is being used to create sterile	seeds,	we need to go back to the
466	Text 35.txt	suicides are happening. We need to create	seedbanks	called ‘seeds of hope’ and organic cotton–
467	Text 35.txt	happening. We need to create seedbanks called ‘	seeds	of hope’ and organic cotton– production and

Seed*/ Go

Index Line N.	Text N.	Concordance		
56	Text 14.txt	for climate fund should go for improved	seeds.”	And for them, improved seeds means in
177	Text 20.txt	needs. Every farmer must go to the	seed	industry every year to buy their seed
443	Text 35.txt	dependency because the GM companies destroy alternative	seed	supply. They go into communities and tell
620	Text 7.txt	‘seed to seed, farmer to farmer’. The	seed	should go to seed, it shouldn’t be
621	Text 7.txt	to farmer’. The seed should go to	seed,	it shouldn’t be interrupted by technologies like
623	Text 7.txt	is to evolve and to go from	seed	to seed, and corporate power sees that

Seed*/ Also

Index Line N.	Text N.	Concordance		
93	Text 15.txt	of Suicide” because it is beginning with	seeds.	But we also have a program called
265	Text 22.txt	that they don't yet have means. Hybrid	seeds	are also not good for saving. It
304	Text 24.txt	also the pharmaceutical industry, is also the	seed	industry, is also the biotech industry. There
438	Text 35.txt	for preventing farmers from having their own	seed,	which also includes preventing nature from doing
470	Text 35.txt	scramble of my name. It means ‘nine	seeds’	and also the ‘new gift’ and is
653	Text 9.txt	where you use mustard oil from the	seed,	we also eat the leaves. The best

Seed*/ Movement

Index Line N.	Text N.	Concordance		
8	Text 10.txt	ago to start Navdanya, the movement for	seed	saving in India, because I do not

307	Text 24.txt	the title of the movement was the	Seed	Satyagraha-- the non-violent, non-cooperation with laws that
372	Text 31.txt	Every community garden that comes up, every	seed-saving	movement that comes up. In India there
550	Text 38.txt	fields have been assessed by Navdanya, a	Seed	Conservation Movement . Under conditions of low capital
649	Text 9.txt	jaundice rice. Because, you know, we do	seed	saving, the movement , for seed conservation we
650	Text 9.txt	we do seed saving, the movement , for	seed	conservation we have in India, we have

Seed*/ Going

Index Line N.	Text N.	Concordance		
51	Text 14.txt	of my life I'm going to save	seeds.	So, at one level, one day I
317	Text 24.txt	Anna Swaraj, saving seeds, growing your own	seed,	not going to Monsanto in every season
631	Text 8.txt	of the company say "Here's a miracle	seed.	It's going to make you a millionaire".
662	Text 9.txt	a new seed, which is a miracle	seed	that is going to make them millionaires.
667	Text 9.txt	suicide. It's totally related to the new	seeds.	Just going to show you another phenomena
677	Text 9.txt	not ever going to follow patents on	seeds,	we're going to violate them everyday. The

Seed*/ Take

Index Line N.	Text N.	Concordance		
236	Text 21.txt	came from Indian farmers. They pirate the	seeds	and take a patent. Monsanto, Bayer and
325	Text 27.txt	food from them and take away their	seeds	in order to feed them". So what we
356	Text 31.txt	is no scarcity. I take a tiny	seed	and I put it into the soil.
588	Text 6.txt	that they started to take over the	seed	market. There was an 8000% jump in

604	Text 6.txt	take care of the soil and the	seed,	to take care of the jobs of
675	Text 9.txt	village level, where we take our oil	seed,	get it extracted in front of our

Seed*/ Living

Index Line N.	Text N.	Concordance		
205	Text 21.txt	agroecology and organic farming. We teach living	seed,	living soil— because industrial agriculture presents soil
244	Text 22.txt	if there's knowledge or living material, plants,	seeds,	medicines which the white man has not
486	Text 36.txt	'seed freedom' as the right of the	seed	as a living, self-organised system to evolve
643	Text 9.txt	are talking about is living material: plants,	seeds,	animals. I think it was literally two

APPENDIX THREE

The Law of the Seed

LANCSBOX corpus toolbox (Brezina et al.: 2015)

LINE N.	The Law of the Seed
1	INTRODUCTION
2	Seed is the first link in the food chain and embodies millennia of evolution and thousands of years of farmers breeding as well as the culture of freely saving and sharing seed. It is the expression of earth's intelligence and the intelligence of farming communities down the ages.
3	The ecological and biological laws of the Seed draw upon the perennial laws of nature and evolution based on diversity, adaptation, resilience and openness. They also draw on principles of jurisprudence of human rights, public goods and the commons.
4	In contrast, the dominant legislation today, related to seed, is in total violation of the Law of the Seed and democratic processes without any basis in jurisprudence or science. An arsenal of legal instruments are steadily being invented and imposed that criminalize age-old farmers' seed breeding, seed saving and seed sharing. And this arsenal is being shaped by the handful of corporations who first introduced toxic chemicals into agriculture, and are now controlling the seed through genetic engineering and patents.
5	The scientific paradigm is also being transformed. From a vibrant holistic and ecological system, agriculture has been industrialized and compartmentalized into a fragmented and mechanistic paradigm where Nature's contributions and farmers' contributions do not enter into the equation.
6	This because these contributions cannot be made into commodities and commercialized by those corporate interests which, through patents, aim to get absolute power and absolute ownership over seed, circumventing all ecological and social responsibility of the impact of monopolies and genetically engineered seed associated with it.
7	When those that need to be regulated write the laws to get absolute power and absolute ownership over seed, which is life itself, while freeing themselves of all ecological and social responsibility of the impact of monopolies and genetically engineered seeds associated with it, we do not just have a crisis of food and agriculture, we have a crisis of democracy.
8	Monsanto wrote the Patents on Life clauses of the TRIPS agreement of WTO. In the US, Monsanto wrote and sneaked into the budget law, HR 993, a deregulation section 735, protecting genetically modified seeds from litigation in the face of ecological and health risks. In India, the government

	sneaked in the Biotechnology Regulatory Authority of India Bill (BRAI
9	· India's Monsanto Protection Act) in Parliament on Earth Day, a corporate freedom law for deregulation of GMOs meant to replace the existing law for GMO regulation.
10	There are 3 aspects in the dominant system of seed related laws:
11	· Industrial Patents on Seed which treat seed as an "invention", and hence the "intellectual property" of corporations by merely adding a gene, artificially, into the organism;
12	· Breeders' Rights as in UPOV (The International Union for the Protection of New Varieties of Plants) which privilege uniformity and industrial breeding;
13	· Seed Laws extending industrial criteria of uniformity on farmers' varieties and open pollinated varieties, which are bred for diversity and resilience.
14	Corporations shaped the Global Intellectual Property and Patent Laws in the Trade Related Intellectual Property Rights (TRIPs) Agreement of the World Trade Organization, defining seed as their creation and invention, thus preventing farmers from sharing and saving their seed. This is how the TRIPs Agreement of the World Trade Organization was born. Article 27.3(b) of the TRIPs Agreement states: "Parties may exclude from patentability plants and animals other than micro-organisms, and essentially biological
15	processes for the production of plants or animals other than non-biological and micro-biological processes. However, parties shall provide for the protection of plant varieties either by patents or by an effective sui generis system or by any combination thereof." Again, this protection on plant varieties is precisely what prohibits the free exchange of seeds between farmers, threatening their subsistence and ability to save and exchange seeds amongst one another.
16	The TRIPs clause on patents on life was due for a mandatory review in 1999, because the idea of "creating" and "inventing" life, and hence owning it, was so wrong. India, in its submission, had stated "Clearly, there is a case for re-examining the need to grant patents on lifeforms anywhere in the world. Until such systems are in place, it may be advisable to:- (a) exclude patents on all lifeforms;"
17	The African group too, stated "The African Group maintains its reservations about patenting any life forms as explained on previous occasions by the Group and several other delegations. In this regard, the Group proposes that Article 27.3 (b) be revised, to prohibit patents on plants, animals, micro-organisms, essentially biological processes for the production of plants or animals, and non-biological and microbiological processes for the production of plants or animals."
18	This mandatory review has been subverted by governments under the influence of corporations within the WTO: this long overdue review must be taken up, to reverse Patents on life and Patents on Seed.

19	Living organisms make themselves. Life forms, plants and seeds are all evolving, self-organized, sovereign beings. They have intrinsic worth, value and standing. Seeds are not invented by simply putting a gene into them. Adding a toxic gene should in fact be counted as “pollution”, not as “creation”, and furthermore, GMO seeds with toxic genes in them need to be regulated with biosafety in mind.
20	Uniformity is being pushed as positive criteria, in order to legitimize corporate control over seed, based on uniformity. Moreover, African governments are being pressured to adopt UPOV 1991 through regional harmonization of plant variety protection policies and laws.
21	Such laws are being framed everywhere, preventing us from responding to climate change, preventing us from making a transition from high cost industrial agriculture– which is leading farmers to being pushed off the land and, in extreme cases, committing suicide– to ecological agriculture.
22	The criteria for industrial breeding and industrial agriculture is ‘DUS’– Distinctiveness, Uniformity, Stability– and is based on intensive use of chemicals, water and fossils. DUS ignores the need for diversity, nutrition and safety, and the need to create low cost sustainable livelihoods in the context of economic collapse and slow-down, and the consequent need to localize food systems:
23	· While farmers breed for diversity, corporations breed for uniformity.
24	· While farmers breed for resilience, corporations breed vulnerability.
25	· While farmers breed for taste, quality and nutrition, industry breeds for industrial processing and long distance transport in a globalized food system.
26	Industrial breeding has used different technological tools to consolidate control over the seed– from so called High Yielding Varieties (HYVs), to hybrids, genetically engineered seeds, “terminator seeds”, and now, synthetic biology. The tools might change, but the quest to control life and society does not.
27	The deeper level at which the corporate law of the seed is undermining the very fabric of life is the ethical dimension of this issue. We are all members of the earth family, a steward in the web of life. Yet corporations are now claiming the role of creator. They have declared seed to be their “invention”, hence their patented property. A patent is an exclusive right granted
28	for an “invention”, which allows the patent holder to exclude everyone else from making, selling, distributing and using the patented product. With patents on seed, this implies that the farmers’ right to save and share seed is now in effect defined as “theft”, an “intellectual property crime”.
29	Patents on seeds are legally wrong because seeds are not an invention.
30	Patents on seeds are ethically wrong because seeds are life forms, they are our kin members of our earth family.

31	Owning life by claiming it to be a corporate invention is both ethically and legally wrong.
32	It is in this context that the Working Group on the Law of the Seed of Navdanya International and the International Commission on the Future of Seed and Food bring to citizens and Governments of the world “The Law of the Seed”, to put diversity and democracy, sustainability and people’s rights, at the centre of the scientific and legal frameworks that govern the seed, in place of the current trend of monocultures and monopolies, uniformity and privatization, corporate control and criminalization of bio-diversity and famers.
33	The Law of The Seed aims to bring back biodiversity and recognition of farmers’ rights, to bring back democratic systems in society to shape laws as well as knowledge.
34	The Law of the Seed puts at its centre Seed Freedom– the freedom of the seed, of farmers and of citizens– in place of the illegitimate freedom of corporations to claim the genetic wealth of the planet as their property, and criminalize citizen freedoms. The freedom to save and exchange seed is vital in our time characterized by multiple crises– the biodiversity crisis, the water crisis, the food crisis, climate crisis, and the economic crisis, all of them part of a single crisis: a crisis of ethics and values.
35	The Law of the Seed comes out of an ecological and democratic imperative for the long term future of the planet and of its
36	inhabitants. Through it, we hope to sow the seed for a paradigm shift in seed, food and agriculture. Like the seed, this is a work in evolution. Adapt it, use it for your context. Its future is in your hands.
37	Note
38	The European Commission’s newly approved proposed Seed legislation (6 May 2013) continues to disregard the imperative of protecting and enhancing agro-biodiversity and continues to put the global seed industry and corporations above the interests and rights of farmers and breeders.
39	We hope that this Law of the Seed document will help farmers and seed breeders in their demands that politicians uphold their rights as seed savers and producers and so too help convince politicians that agro-biodiversity must be at the heart of any seed legislation if they are to tackle the hazards of climate change and food security.
40	WHY AGRO-BIODIVERSITY
41	IS IMPORTANT
42	Agricultural biological diversity, or more specifically, genetic resources for food and agriculture, are the storehouse that provides humanity with food, clothes and medicines. It is essential in the development of sustainable agriculture and food security.

43	Evolution is the process by which nature practices its capacity of selection; for selection to exist, nature needs diversity. Diversity is also the basis for the farmer, for the breeder and for the agricultural scientist in general. We need diversity to allow evolution and thus capacity of adaptation. We need diversity in order to be able to select the best characteristics for crops. This diversity has been developed over thousands of generations and our duty is to safeguard it for those in the future.
44	In spite of its vital importance for human survival, agricultural biodiversity is being lost at an alarming rate. It is estimated that some ten thousand species have been used for human food and agriculture. Currently no more than 120 cultivated species provide 90% of human food supplied by plants, and 12 plant species and five animal species alone provide more than 70% of all human food. A mere four plant species (potatoes, rice, maize and wheat) and three animal species (cattle, swine and chickens) provide more than half. Hundreds of thousands of farmers' heterogeneous plant varieties and landraces, that existed for generations in farmers' fields until the beginning of the twentieth century, have been substituted by a small number of modern and highly uniform commercial varieties. The loss of agricultural biodiversity has drastically reduced the capability of
45	present and future generations to face unpredictable environmental changes and human needs.
46	Also, meta-analyses published since 2005 ¹ have shown that, as a general rule, reductions in the number of genes, species and functional groups of organisms reduce the efficiency by which whole communities capture biologically essential resources (nutrients, water, light, prey), and convert those resources into biomass. Thus biodiversity increases the stability of ecosystem functions through time.
47	Feeding the world
48	The number of hungry people in October 2012 reached numbers never attained in the history of Humanity getting to one billion in 2010 and 925 millions in 2012 (almost 20% of the world population). Although today this number has slightly reduced, the reasons that caused the crisis in 2008 remain, and some have intensified. In fact, food prices were highest at the end of 2010 surpassing by 29% those of the previous year and a bounce back is expected in 2013.
49	Nevertheless, the problem is not the lack of food. According to FAO, there is sufficient food to feed up to 70% more of Earth's population, but the hungry have no access to it. Food in the inter-national market is not available to those who are hungry, because hunger and poverty often go hand in hand. Lack of access is due to lack of food produced at the local level, on one hand, and also to lack of funds to buy it from those places where it is in excess.
50	If we take into account that most of the hungry population (75%) live in rural areas, promoting 'in situ' production seems the most efficient and perhaps the only durable solution. Local production must be streamlined to provide more options to

51	1 Cardinale BJ, Duffy JE, Gonzalez A, Hooper DU, Perrings C, Venail P, Narwani A, Mace GM, Tilman D, Wardle DA, Kinzig AP, Daily GC, Loreau M, Grace JB, Larigauderie A, Srivastava DS, Naeem S, 2012, Biodiversity loss and its impact on humanity, Nature 486: 59-67.
52	small scale farmers and rural communities, to improve quality and quantity. This means supporting small farmers and communities in the development of their own crops and agricultural systems. Unfortunately, technical assistance for the small farmer and inter-national research to improve production in traditional low-input farming systems, including the genetic improvement of neglected crops and local varieties adapted to these systems, has been very limited and is often non-existent.
53	The FAO in its report «Pathways to success» (Nov. 2009) indicates that one of the best and most profitable ways to escape from poverty and hunger in rural areas is to support small farmers. Close to 85% of the world's plots of agricultural land are less than two hectares in area and small farmers and their families comprise some 2 billion people, a third of the world's population.
54	Genetic erosion puts at risk food production and sustainable agriculture
55	The concentration of population in urban areas and the rising demand for food has led, among other things, to a high mechanized production of standardized, homogeneous crops and plants to meet the demand. This in turn has led to the loss of many heterogeneous traditional farmers' varieties.
56	According to the State of the World's Plant Genetic Resources for Food and Agriculture (PGRFA), over 67% of the wheat fields in Bangladesh were planted with the same cultivar ("Sonalika") in 1983. By the 1990s in Ireland, 90% of the total wheat area is sown to just six varieties. Of the 7098 apple varieties that were documented in the USA at the beginning of the twentieth century, approximately 96% have been lost. Similarly 95% of the cabbage; 91% of the field maize; 94% of the pea; and 81% of the tomato varieties are lost. In Mexico, only 20% of the maize varieties reported in 1930 are known today; in the Republic of Korea, only 26% of the landraces of 14 crops cultivated in home gardens in 1985 were still present in 1993.
57	The loss of local species and varieties leads to the irreversible loss of the genetic diversity they contain, including the genes for adaptation to the conditions in which they evolved. This genetic erosion has dangerously shrunk the genetic pool available for the natural selection, and selection by farmers and plant breeders, with a consequent increase in the vulnerability of agricultural crops to sudden climatic changes, as well as the appearance of new pests and diseases. For instance, in the United States in 1970, the fungus <i>Helminthosporium maydis</i> , destroyed over half the standing maize crop in the southern part of the country. The crop had been grown from hybrid seeds obtained by cytoplasmic male sterility from a common origin, which also carries susceptibility to this disease. ² The problem was resolved by breeding resistant varieties using genetic resources obtained from Latin America and Africa respectively.

58	Any one country relies on crop genetic diversity from all over the world. No country is self sufficient in genetic resources for food and agriculture: the average genetic interdependency among countries for their most important crops is around 70%; however, the degree of dependency varies considerably between countries, and in general developed countries are much more dependant than developing countries.
59	The value of both farmers' traditional varieties and wild relatives of cultivated plants in crop improvement and agricultural development cannot be overemphasized. Indeed, the concept of 'usefulness' varies according to the needs and to the information available. For example: One local variety of wheat found in Turkey, collected by J. R. Harlan in 1948, was ignored for many years because of its many negative agricultural- characteristics. But in the 1980s, it was discovered that the variety carries genes resistant to the fungus Puccinia- Striformis, 35 strains of Tilletia- caries and T. foetida, and 10 varieties of the fungus T. controversa, and is also tolerant to certain species of Urocystis,- Fusarium. It then was used as a source of resistance- to a whole array of diseases.
60	2 Kronstad, ,W.E. Germplasm: the key to past and future wheat improvement, in Smith, El, Genetic improvement of yield in wheat, p. 41-54, Special publication 13, Crop Science Society of America, Madison, Wisconsin (1986).
61	Crop Genetic Diversity is indispensable to provide resilience to face unpredictable environmental and climatic changes, to adapt to variation in productions systems, to meet the needs of the expanding human population, to develop resistance to continuously evolving pests and diseases, to use in any plant improvement program, to provide greater production stability, to improve the living conditions of farmers, and to protect the natural environment.
62	Types of diversity and options
63	With the loss of plant genetic diversity, options have been lost for present and future generations. Losing these options reduces freedom to select what may be necessary or desired. This loss has occurred in different levels of diversity.
64	Intravarietal diversity:
65	The requirement of DUS, as a pre-requisite for seed registration in many cases, has led to very uniform varieties with practically no intervarietal diversity. Uniformity has then become a key feature. It should be noted however, that DUS could be applied only for very concrete and specific characteristics needed to characterize the variety, while maximizing heterozygosis in the rest of the genome.
66	Intervarietal diversity:
67	In the 20th century alone, hundreds of thousands of traditional varieties, substituted by modern commercial uniform varieties, have been lost forever.

	For many major crops, more than 90% of those varieties available at the beginning of the century have been lost forever. See examples above (Genetic erosion...).
68	Interspecific diversity:
69	According to FAO3, more than 7,000 species have been used in the history of humanity to feed Humanity and meet basic human needs. At present only 30 crops constitute 90% of the calories
70	3 First Report of the State of the World's Plant Genetic Resources for Food and Agriculture (1997). http://apps3.fao.org/wIEWS/docs/SWRFULL2.PDF
71	in the human diet, and only three species (rice, wheat, maize) account for more than half of the energy supply. There is then a wealth of species that have been neglected.
72	Uniformity increases vulnerability
73	and reduces stability in food production
74	The dominant system of seed production is based on uniformity and homogeneity. This trend fits well with industrial agriculture's requirement for a uniform response to the application of chemicals to control pests, diseases and weeds, or to fertilizers. On the contrary, farmers have traditionally used crop and variety diversity as a way to adapt to diversifying risks, a concept that is very clear to the managers of financial assets who always advise clients who want to minimize risk to diversify their financial investments. This concept, which was, and still is, present in farmers' breeding, has disappeared from modern plant breeding, an activity which eventually affects food production and hence food security in a world where one of the major threats is climate change and its consequences including, among others, newly invasive pests and diseases.
75	"Anti-evolutionary" requirements in favour of private rights and the consolidation of monopolies
76	The tendency of plant breeding towards uniformity has been legitimated by the introduction of the DUS (distinctiveness, uniformity and stability) requirements. In a number of countries, registration of varieties (and the need to be registered to be "legally" cultivated) requires testing for DUS and, for some crops, for VCU (value for cultivation and use) for a minimum of two years. Distinctiveness means that the variety must be distinguishable by one or more characteristics from all other registered varieties. Uniformity means that all plants from the same batch of seed must be the same. Stability means that the plants must be the same throughout successive generations. VCU means that compared to
77	other registered varieties, the new one being registered offers a qualitative or technological advance.
78	The three concepts do not have a biological justification. Who-ever decided to impose uniformity because it makes it easier to distinguish varieties from

	each other, probably ignores that in many countries farmers also grow heterogeneous landraces of the same crop that despite their heterogeneity are identified with distinct names and characteristics even if not uniform. They are kept in cultivation because they are much more stable (over time) than the Distinct, Uniform and Stable varieties.
79	Uniformity and stability seems to be the opposite of what is needed in the presence of continuously evolving pests and diseases and in the presence of a moving target such as the increase of temperatures and droughts because of climate changes.
80	Moreover breeding and so-called “field trials” are often done in agricultural research stations under “ideal” or artificial conditions and not on farmers’ fields, thus ignoring characteristics that are actually beneficial to farmers. The interest of farmers is consistency of production over time (resilience)– while the interest of the seed companies is consistency of production over space. The two interests are therefore at opposite ends, and not only the plant breeding programs but also the registration procedures, which concentrate on irrelevant aspects such as DUS, are organized to respond only to the latter. Legal constraints therefore hinder the evolution of the system, which is hostage to the tool that was developed just to fulfill a good service to society.
81	Plant breeding opportunities to reconcile agro-biodiversity and the needs of farmers
82	It is possible to reconcile resilience, biodiversity and food quality with food security and production of sufficient food. Science and technology are powerful “tools” to serve society; however, they can be used in all directions (towards uniformity and towards diversity), and it is in exercising wisdom that most benefits can be harnessed.
83	For a while, commercial plant breeding has excluded local solutions, which could not be profitably exploited, thus ignoring local (indigenous) knowledge, regardless of whether this was formally documented or not, and has disconnected the people who are eventually affected by these technologies. Participatory research, in general, is defined as that type of research in which users are involved in the design– and not merely in the final testing– of a new technology. When the new technology is a variety, Participatory Plant Breeding (PPB) is defined as that type of plant breeding in which farmers, as well as other partners, such as extension staff, seed producers, consumers, traders, NGOs, etc., participate in the development of a new variety.
84	PPB is a dynamic and permanent collaboration that exploits the comparative advantages both of plant breeding institutions (national or international) that have the institutional responsibility for plant breeding, and of farmers and possibly other partners. In a true PPB program both the roles of partners and the extent and the manner in which they collaborate change with time. It is also important to mention that a truly participatory program is necessarily inclusive in relation to gender and has an empowering effect on the participants.

85	A PPB program has four important organizational features:
86	1. Most of the program takes place in farmers' fields (i.e. is decentralized);
87	2. The decisions are taken jointly by the breeder and the farmers, and other partners;
88	3. The program can be replicated in several locations with different methodologies and types of germplasm;
89	4. Selection is conducted by farmers and breeders in each location independently from the other locations.
90	The last difference is of particular importance because it is in this way that preference is given to specific adaptation which, on one side, maximizes yield and adaptation in individual locations,
91	hence increasing production at global level, on the other increases agro biodiversity in space, because different varieties are generally selected in different locations. As a participatory program continues, there is also a rapid turnover of varieties thus increasing also agro biodiversity in time.
92	Participatory–evolutionary breeding programs can be constituted, for example in vegetatively propagated and in self-pollinated crops, by a mixture of segregating populations coming from a wide range of crosses. In the cross-pollinated crops, populations can be made by mixing experimental hybrids. These populations will be left evolving in a multitude of environments, chosen by the farmers and characterized by single abiotic or biotic stresses, or combinations of stresses, and under different types of agronomic management with the expectation that the frequency of geno-types with adaptation to the conditions (climate, soil, agronomic practices and biotic stresses) of the locations where each year the population is grown will gradually increase.
93	The simplest and cheapest way of implementing evolutionary breeding is for the farmers to plant and harvest in the same location. It is also possible and actually desirable, to plant samples in other locations affected by different stresses, or different combinations of stresses, by sharing the population with other farmers. The key aspect of the method is that, while the lines are continuously extracted, evaluated and exploited, the population is left evolving for an indefinite amount of time, thus becoming a unique source of continuously better-adapted genetic material directly in the hands of the farmers– a sort of evolving gene bank.
94	IPR Rules based on an obsolete science: a major obstacle to biological evolution and capacity of adaptation
95	Some 10 years after the first complete sequencing of the human genome, fascinating information was released on the molecule of life. One thing was to know the structure, and quite another to
96	know how it works. The challenge is not trivial for the under-standing of the

	<p>variability of function. The number of base pairs in the DNA chain is one million in bacteria, 3.2 billions in the human genome, up to 150 billions in the plant with the largest genome. In all cases, only a small percentage of the DNA is made up of genes with the information needed to synthesize proteins, the remaining part, once being considered as “junk DNA, is now known to have a relevant role. Indeed, most fragments of ‘junk’ DNA, whether they transcribe or not, have an essential function, that of activating or deactivating genes, or controlling and deciding where and when to produce proteins. In a very simplified manner, the DNA of a gene is transcribed, copied into another molecule (the RNA), which in turn produces a protein. Genes can therefore be considered ‘recipes’ for making proteins, which is what gives living organisms their appearance. Moreover, the dogma that one gene equals one protein is no longer valid, and it is now accepted that one gene may make many proteins, depending on the external and internal environment. For instance in humans 23,000 genes are endowed with the information for the synthesis of one million different proteins. Consequently, the basic unit of heredity is not the gene but the transcript, and the gene concept now groups all transcripts (scattered here and there) that have the information for different proteins.</p>
97	<p>Thus, the biological premise on which IPR rules are based, derives from an obsolete, mechanistic view of life, according to which living systems are considered to result from the addition of independent and stable components thus liable to be optimized through selection. Life is based on the capacity to evolve throughout generations, and to be plastic is to be endowed with the ability to change during life. Thus living systems should be genetically heterogeneous, namely endowed both with high levels of heterozygosity favoring homeostasis of individuals, that is, to change in changing environments, and thus maintain the same structure/functions, and the genetic variation for evolution through positive selection. Moreover, it has recently been shown that the genetic variability that is really relevant for production is based in</p>
98	<p>the non-coding regulatory part of the genomes, not even mentioned in IPRs.⁴ Furthermore the final level and quality of production of single genomes is known to be highly dependent on the natural and social environments controlling the amount and quality of proteins produced according to local epigenetic dynamics. IPRs do not consider the plasticity levels in different environments nor the relevance of cultural traditions that often strongly influence the structure of epigenomes in a heritable way. Apart from the known cases of epigenetic inheritance, this is particularly relevant in vegetatively propagated crops as well as in seed propagated ones. Environment induced differences are the reason for the labeling in Europe of a number of local productions covered by specific environment related labels.</p>
99	<p>4 1)R.J.Taft, J.S.Mattiick,2003: Increasing biological complexity is positively correlated with the relative genome-wide expansion of non-coding DNA sequences, <i>Genome Biology</i>, :5 PI. 2)Cavalier-Smith, ,T. The evolution of Genome size, 2002</p>
100	<p>THE LAW OF THE SEED</p>

101	The following principles have inspired the drafting of the Law of the Seed:
102	1. Long term interest of Humanity, including present and future generations, should prevail over short term and private interest.
103	2. The conservation of natural resources, including agro-biodiversity, should have precedence over any unsustainable use by the present generations.
104	3. Agro-biodiversity, be it genetic, technological or even deriving from the effects of
105	agricultural systems, can be considered the fuel of the engine of Sustainable Development and the needed buffer to secure Sustainable Agriculture in an uncertain future, dominated by new phenomena such as globalization and climate change.
106	4. Maintaining and using diversity is equivalent to keeping options alive for all.
107	5. No specific agricultural production system should be undemocratically imposed.
108	6. Diversity of production systems should be able to co-evolve, to ensure respect for the environment and natural resources, respect for cultural and biological diversity, and human values.
109	7. Innovation in agriculture is a cumulative, collective and continuous process that should be used for the benefit of all.
110	8. Sharing, and not appropriation, should apply to biodiversity and genetic resources as well as to their associated knowledge.
111	9. Plants, plant varieties, their parts and components including genes– even if isolated– (as well as essential biological processes for the production of plant varieties) should not be subject to patentability.
112	Preliminary considerations
113	Considering that;
114	· agriculture started about 10,000 years ago and that full dependency on domesticated crops and animals started during the Bronze Age;
115	Convinced that Crop Genetic Diversity is indispensable to:
116	· provide resilience to face unpredictable environmental and climatic changes,
117	· adapt to variation in productions systems,
118	· meet the needs of the expanding human population,

119	· improve the quality of food, including nutrition, taste, and appropriateness,
120	· develop resistance to continuously evolving pests and dis-eases,
121	· use in any plant improvement program,
122	· provide greater production stability,
123	· improve the living conditions of many farmers, and
124	· enhance the integrity of agro-ecosystems;
125	Considering that;
126	· since the beginnings of agriculture, a considerable amount of biodiversity has built up in crop production; the application of scientific methods to plant breeding, however, led to the substitution of traditional local varieties by widespread
127	genetically homogeneous varieties, and thus to a dramatic loss of diversity;
128	· out of more than 7,000 plant species that have been used by humanity for food and agriculture, the number of crops currently under cultivation is very limited and only 12 ac-count for most of the caloric intake of mankind;
129	Considering that all countries rely on crop genetic diversity from all over the world;
130	Alarmed by the continuing erosion of genetic resources also within species (e.g. for major crops more than 75 % of farmers' varieties have disappeared in the last century) and the unacceptable figures of hunger in the world (more than 20% of the population);
131	Noting that hunger is not due to lack of food at the global level but to lack of access to it, we consider that the best way to fight hunger is to produce food at the local level;
132	Aware of our responsibility to past and future generations to conserve the World's diversity of plant genetic resources for food and agriculture;
133	Considering that;
134	· the essential contributions of past, present and future farmers worldwide, particularly those in centres of origin and diversity, to develop, conserve, improve and make available plant genetic resources; and that
135	· long before Mendel and modern plant breeding, farmers planted, harvested, stored and exchanged seeds, fed them-selves and others, and, by doing so, built a large reservoir of knowledge about crops, their characteristics and possible uses, and their interactions with the surrounding environment;
136	Considering, however, that;

137	· all this knowledge has often been ignored by modern plant breeding;
138	· that farmers, while slowly and steadily improving their crops, also maintained, and continue to maintain, a large amount of biodiversity, in the so called “primitive” agricultural systems practiced by poor farmers in remote and/or marginal conditions;
139	· diversity and heterogeneity serve to buffer the risk of crop failure due to unpredictable environmental variations;
140	· in the last Century or so, plant breeding has mainly moved from farmers’ fields to research stations and from farmers to scientists, and later from publicly to privately funded operations, and in this process many crops have been neglected by science;
141	Considering that;
142	· the Green Revolution was based on mechanization and the introduction of uniform cultivars, able to produce high-yields and perform well in many different locations and countries, only in the presence of the artificial modification of the environment through agronomic inputs such as irrigation, fertilizers, pesticides, rather than adapting the varieties to specific environments and sites;
143	· this strategy caused major problems, related to the impact of the heavy use of chemicals on the environment, neglecting the poorest farmers not able to purchase the needed chemicals for the desired performance of the new varieties, and overlooking agricultural biodiversity;
144	Considering that;
145	· “participatory plant breeding” (PPB) ⁵ in the development
146	⁵ Defined as the process of plant breeding that collectively involves farmers,
147	of a new variety, helps to maintain biodiversity and pro-mote resilience and food security while allowing for food quality and productivity, and therefore needs to be used, particularly by public institutions;
148	· participatory programs allow users to decide which type of varieties better suit their needs in terms of management (e.g. organic, conventional), genetic structure (hybrids, open pollinated varieties, pure lines, mixtures) and can therefore be tailored to adapt to participants’ priorities;
149	Considering that new scientific knowledge and better understanding of on DNA/gene expression, including that related to epigenetic phenomena, and on how biological evolution works, should lead to a revision of current seed legislation;
150	Considering that;
151	· the actual legislation on the marketing of seeds, designed and put in place

	since the 1960s in Europe, and spread throughout the world, mainly due to pressure by commercial interests, supported by some international agreements, is pushing activities of “on farm” conservation of biodiversity and traditional breeding methods into illegality;
152	· this is mainly due to the fact that heirloom varieties cannot be registered on official catalogues because of not complying with Uniformity and Stability criteria set out by the legislation for obtaining mandatory marketing authorizations;
153	· this legislation was established without due consideration to sanitary or environmental risks, out of mere interventionism, in order to orient agricultural systems towards industrialisation, through higher yields, mechanisation, standardisation of production, division of work tasks and the replacement
154	scientists, extension staff, seed producers, consumers, traders, NGOs, etc., in a gender inclusive manner.
155	of traditional farmers’ varieties by uniform varieties, selected with modern agronomical methods;
156	· the current legislation has not even acknowledged the international treaty on plant genetic resources recognizing the contribution of local communities and indigenous peoples and the rights of farmers for the conservation and enhancement of local varieties;
157	Considering that;
158	· gift, exchange, selling and planting of traditional farmers’ seeds belonging to the public domain are being increasingly penalized and criminalized; ⁶
159	· this is due to the imposition of rigid legislation on the marketing of seeds;
160	Alarmed by recent statements of the European Court of Justice as illustrated in the ‘Kokopelli’ case (C-59/11), leading to the subordination of biodiversity and freedom of commerce to productivity;
161	Considering that;
162	· this legislation, initially seeking the attainment of objectives of general interest, is now oriented towards the protection of mere commercial interests of the breeding industry;
163	· the full convergence of DUS criteria for the granting of marketing authorizations and for the granting of Plant Breeder’s Rights has led to the exclusion of varieties belonging to the Public Domain from the market; and that
164	· seed-savers organisations are thus forced to operate in clandestineness, or merely rely on unofficial tolerance;

165	6 Example: Kokopelli case, brought before the French Supreme Court by the prosecuting Republic of France;
166	· given the negative evolution of agricultural biodiversity worldwide, no legislation should lead to criminalize diverse farming and breeding, nor the marketing of heirloom varieties belonging to the public domain;
167	Considering that the trends described above need to be urgently reverted, especially as a vast reform of the European legislation on the marketing of seeds and plant reproductive material is ongoing;
168	Considering the need to clearly state and reaffirm that the placing on the market, gift or exchange of any seed or plant reproductive material bred through any breeding method and belonging to the public domain, should remain free;
169	While recognizing that in the last two decades the development of International Agreements such as the International Treaty on Plant Genetic Resources, including Farmer's Rights and a Multilateral System for Access and Benefit- Sharing, as well as the Convention on Biological Diversity and its Protocol on Access and Benefit-Sharing (the Nagoya protocol) are important steps forward to achieve a fair and equitable system, we consider that the ultimate and ideal objective should be the recognition of seeds as Commons and its full availability for those that have no intention to appropriate it;
170	Worried however that agro-biodiversity and other essential Commons for the survival of humankind and agricultural production are being steadily appropriated;
171	Considering that innovation in agriculture is a cumulative, collective and continuous process;
172	Considering that;
173	· Seeds and life forms are not inventions, and thus allowing patent holders to prevent farmers from saving and conserving seeds, makes patents on seeds morally, scientifically and legally inappropriate;
174	Considering that;
175	· the TRIPS agreement includes a mandatory review of Article 27.3(b) which deals with patentability or non-patentability of plant and animal inventions, and the protection of plant varieties;
176	· this mandatory review must be completed to align Inter-national Law with the Law of the Seed;
177	Considering that;
178	· the seed industry has the possibility to draft patent claims at their discretion and thereby to obtain "tailor made" patents suitable for their commercial

	purposes;
179	· these “tailor made” patents allow patent holders to prevent farmers from saving and exchanging seeds;
180	· such “tailored” patent claims can be used to circumvent, or avoid by mere skilful drafting, the statutory bars set by the legislator in Art. 53 b of European Patent Convention to plant patents and plant breeding processes;
181	Considering that such skilful drafting of claims can be achieved:
182	· through appropriate choice of the category of the claims (G 2-12 Tomato II),
183	· through chemical refining of seed by additives (T 49/83– Propagating material/ CIBA-GEIGY),
184	· through drafting species or variety non-specific or trans-variety claims (G 1/98 Novartis II),
185	· through cutting-off critical steps of a process (Wisconsin WARF G2/06),
186	· through adding redundant, but technical process steps (i.e. genetic engineering steps, transgenic steps) to an otherwise biological process (G1/08 Broccoli / Tomato 1);
187	Considering that the “whole content approach”, recognised by the European Patent Office in the WARF case (G2/06) and by the European Court of Justice in the Brüstle case, when in-terpreting Directive 98/44/EC and recently emphasised by the EU Parliament Resolution of 10 May 2012 on the patenting of essential biological processes is the appropriate solution to these kinds of skilful drafting of patent claims;
188	Considering that products derived from conventional breeding and all conventional breeding methods, including SMART breeding (precision breeding) and breeding material used for conventional breeding shall be excluded from patenting, as demanded by said recent EU Parliament Resolution;
189	Considering that;
190	· misappropriation of traditional knowledge and genetic resources by biopiracy shall be prevented and sanctioned against; and that furthermore
191	· digital libraries of traditional knowledge, including community biodiversity registers, should be introduced in all countries with considerable biological resources; these libraries should be made compulsory in all countries;
192	· this initiative should be financed by public, national or international institutions so that this knowledge remains in the public domain;
193	Considering that patent offices of all countries should be required in a compulsory way to consult said libraries in their patent examination and

	prosecution work;
194	Considering that;
195	· patents on life and misappropriation of traditional knowledge and genetic resources in bad faith or gross negligence should be acknowledged to constitute infringement of Ordre Public under Section 5, Article 27.2 of the TRIPS agreement ⁷ and Article 53(a) of the European Patent Convention and numerous national Patent Acts;
196	· a duty of disclosure of the source of biological material and traditional knowledge should be required, as it is the case, for example, in the Swiss 2007/08 Patent Act and as governments are demanding in the review of TRIPS;
197	Considering however that non-compliance with this duty of disclosure, i.e. concealing the source of the biological material and/or traditional knowledge in bad faith or gross negligence constitutes fraud on the patent authority and therefore the sanctions need to be dissuasive, including revocation of the patent, as provided for example by US Law (37 CFR ch. I § 1.56).
198	7 1 Section 5 of Article 27.2 says: “Members may exclude from patentability inventions, the prevention within their territory of the commercial exploitation of which is necessary to protect ordre public or morality, including to protect human, animal or plant life or health or to avoid serious prejudice to the environment, provided that such exclusion is not made merely because the exploitation is prohibited by their law.”
199	The Law of the Seed
200	Part 1– Conservation of agricultural biodiversity
201	Article 1- Overall objective of diversity
202	Legislation shall not run against the overall objective of conservation and enrichment of diversity.
203	Article 2- Genetic erosion
204	The current trend of genetic erosion in plant genetic resources for food and agriculture, either among species, within species or at varietal levels, shall be reverted. Action shall be taken to minimize and, ultimately, eliminate the causes of genetic erosion.
205	Article 3- Plant genetic resources as commons
206	Plant genetic resources for food and agriculture shall be considered as commons.
207	Article 4- Surveys and inventories of plant genetic resources for food and agriculture

208	Surveys and inventories of plant genetic resources for food and agriculture, and the relevant information and traditional knowledge associated to it, shall be carried out.
209	Article 5- “Ex situ” conservation of plant genetic resources
210	Public institutions shall conserve genetic resources for food and agriculture. Due attention shall be given to its adequate documentation, characterization, regeneration and evaluation.
211	Access to these collections shall be made freely available for all, provided that there is no intention to appropriate them.
212	Article 6- On farm conservation of plant genetic resources
213	On farm conservation means the conservation of plant genetic
214	resources in the field and land of farmers; on farm conservation and use of plant genetic resources for food and agriculture shall be encouraged and supported, through, inter alia, publicly funded programmes.
215	Article 7- “In situ” conservation
216	In situ conservation of wild crop relatives and wild plants for food production shall be promoted, including in protected areas, by supporting, inter alia, the efforts of indigenous and local communities.
217	Article 8- Absence of restrictions for the use and production of plant genetic resources by farmers
218	Nothing in the present law can be interpreted as meaning the restriction of use and production of plant genetic resources by farmers in their location of origin.
219	Part 2– Plant breeding and Seed Production
220	Article 9- Farmers as breeders
221	Farmers, and local and small breeders, especially women, have been plant breeders and seed producers throughout agricultural history;
222	Farmers have bred for diversity, quality and resilience, as op-posed to the paradigm which privileges Distinctiveness, Uniformity, and Stability (DUS);
223	Article 10- Technology and Breeding
224	Scientific plant breeding must lead to the enhancement of bio-
225	diversity, the enlargement of the genetic base of cultivated crops and the protection of traditional farmers’ varieties.
226	Article 11- Research programs

227	Public research programs shall give priority, inter alia, to:
228	· Understanding farmers' knowledge of breeding;
229	· Broaden the genetic base of crops and increase the range of genetic diversity available;
230	· Promote the use of local and locally adapted crops, varieties and underutilized species;
231	· Strengthen the capacity to develop varieties particularly adapted to concrete social, economic and ecological conditions, including marginal areas;
232	· Enhance and conserve plant genetic resources by maximizing intra- and inter-specific variation for the benefit of farmers, especially those who generate and use their own varieties and apply ecological principles to maintain soil fertility and to combat diseases, weeds and pests;
233	· Gather knowledge and information of underutilised crops and wild relatives of food crops.
234	Article 12- Promotion of agro-ecological, participatory and evolutionary plant breeding programs
235	Public plant breeding programs must respect the environmental and cultural farming context and therefore include, and give priority to, agro-ecological methods, participatory research methods and participatory-evolutionary breeding programs. For this Law of the Seed these terms should be understood as follows:
236	Agro-ecological methods ⁸ are the ones that apply the ecological science to the study, design and management of sustainable
237	⁸ This widely accepted definition is based on: "Altieri, M.A. 1995. Agroecology: The Science of Sustainable Agriculture, 2nd ed. Westview Press, Boulder, Colorado".
238	agro-ecosystems; these methods require as few agrochemicals and energy inputs as possible, and instead rely on ecological interactions and synergisms between biological components, to produce the mechanisms that will enable the systems to boost their own soil fertility, productivity and crop protection;
239	Participatory plant breeding (PPB) refers to a methodology that collectively involves farmers, scientists, extension staff, seed producers, consumers, traders, NGOs, etc., in a gender inclusive manner, for the development of new crop varieties;
240	Participatory–evolutionary breeding is a methodology where a crop population, coming from a wide range of crosses or from mixtures, is left evolving for an indefinite amount of time in a multitude of individual locations, allowing farmers to continuously extract, evaluate and develop specifically adapted varieties.

241	Part 3– Farmers’ Rights
242	Article 13– Farmers’ rights
243	Farmers’ rights to freely breed and produce, save and exchange, share or sell shall be fully recognised in accordance with the freedom of trade and commerce under national and international law, in particular with
244	· the Protection of Plant Varieties and Farmers’ Rights Act 2001 of India ⁹ , and
245	· article 9 on Farmers’ Rights of the International Treaty on Plant Genetic Resources for Food and Agriculture,
246	and shall be interpreted in this context and shall be fully respected and implemented both at national and international levels. Recognition of the contribution of local communities and indigenous
247	9 “A farmer shall be deemed to be entitled to save, use, sow, resow, exchange, share or sell his farm produce including seed of a variety protected under this Act in the same manner as he was entitled before the coming into force of this Act”.
248	and farmers’ rights, referred to in Article 9 of the international treaty, can also be achieved through systems of collective ownership of local varieties implemented by the public at the regional level and/or local level ¹⁰ .
249	Article 14- Right to Exchange
250	The gift or exchange of seed of any variety, or its placing on the market, shall be governed by the principles of seed sovereignty. ¹¹ Farmers, seed savers and gardeners cannot be prosecuted or criminalized for any activity related to exchange of seeds and plant reproductive material belonging to the public domain.
251	Article 15- Absence of administrative burden
252	For the handling of varieties and plant reproductive material belonging to the public domain, no registration, payment of fees, traceability, certification, or any kind of administrative burden shall be required from private or public operators.
253	The expression “belonging to the public domain” means not protected by any kind of intellectual property right.
254	Article 16- Labelling
255	Seeds and plant reproductive material belonging to the public domain and placed on the market, may only be subject to labelling rules, set by farmer communities themselves, regarding denomination, simple botanical description, characteristics of germination, and guarantee of sanitary quality, reasonable varietal and specific purities.

256	10 See Regional Law of Tuscany, no. 64 of 16th November, 2004 “Protection and valorization of the heritage of local breeds and varieties of agricultural, live-stock and forestry interest”.
257	11 Seed sovereignty in terms of informal exchange means self governance by farming communities. In the case of placing on the market, seed sovereignty implies the recognition in law, the sovereign rights of farmers.
258	Labels must be clear, true and not confusing.
259	Informal exchanges shall not be submitted to compliance with any labelling rule.
260	Article 17- Packaging
261	Seeds and plant reproductive material belonging to the public domain shall not be required to comply with any packaging rule other than the one relating to labelling.
262	Article 18- Farmers’ rights as consumers
263	Farmers have a right to safe, reliable, affordable, diverse seed and to freely reproduce plant material exchanged with other farmers or small breeders. Monopolies that prevent farmers from having choices violate farmers’ rights. ¹² All sales of seeds by corporations shall be governed by biosafety regulations.
264	Part 4– Intellectual Property Rights
265	Article 19- Patents and Conventional breeding
266	For all plants that are not engineered by transgenesis in genetic engineering, breeding processes shall constitute ‘essentially
267	12 Bowman v/s Monsanto– Monsanto sued Indiana farmer Vernon Bowman in 2007 accusing Bowman of patent infringement for planting and saving seeds that contained Monsanto’s genetically altered Roundup Ready Technology even though Bowman bought those seeds as part of a mix of undifferentiated commodity seeds. and OSGATA et al v/s Monsanto- Organic Seed Growers & Trade Association et al. v. Monsanto was filed in federal district court in Manhattan, NY, on March 29, 2011, on behalf of 60 family farmers, seed businesses and agricultural organizations and challenges Monsanto’s patents on genetically engineered (GE) seed. This land-mark lawsuit also seeks Court protection for family farmers who, through no fault of their own, may have become contaminated by Monsanto’s patented GE seed and find themselves accused of patent infringement. (www.osgata.org)
268	biological processes for the production of plants’ and as such be excluded from patenting.
269	Products derived from conventional plant breeding and all conventional plant breeding methods, and breeding material used for conventional plant

	breeding shall be excluded from patenting.
270	Article 20- Whole content approach
271	In assessing inventions and patent applications for compliance with the exclusion provision of Article 20, the whole content of the specification of the patent application shall be considered, not only the claims.
272	Technically unavoidable pre-process steps and technically unavoidable post-process steps and/or unavoidable post-process uses of the products are considered to constitute part of the content of the specification, even if they are not explicitly included in the specification and/or the claims of a patent application.
273	Article 21- Misappropriation of traditional knowledge and genetic resources through patenting
274	Misappropriation of traditional knowledge and genetic re-sources through patenting in bad faith or gross negligence shall constitute infringement of Ordre Public and shall be sanctioned accordingly by dismissal of patent applications and/or by revocation of patents.
275	Article 22- Digital libraries of traditional knowledge & biological resources
276	Digital libraries of traditional knowledge and biological re-sources shall be promoted and introduced in each country of origin of these knowledge and resources.
277	These digital libraries shall qualify as public institutions and shall remain in the public domain.
278	The content of these digital libraries shall be legally binding
279	for the patent authorities of all countries and shall therefore be consulted as state of the art by these authorities when assessing novelty, inventive step and sufficient disclosure of inventions in their examination and prosecution work.
280	Article 23- Opposition to patent applications by authorities of the country of origin
281	Notwithstanding the rights of any other legal entities, the competent authorities for intellectual property in the countries of origin of traditional knowledge & biological resources shall be entitled to initiate, within or outside the respective countries of origin, appropriate legal procedures in opposition to unlawful patent applications and unlawfully granted patents for such traditional knowledge & biological resources.
282	Article 24- Duty of disclosure of the source of biological material
283	The sources of biological material and traditional knowledge shall be explicitly disclosed in any patent application procedure based on, or making

	use of, such material.
284	Concealing or falsifying such source of material in bad faith or gross negligence shall constitute fraud on the patent authority and be sanctioned by dismissal of the patent application and/or revocation of the patent in its entirety.
285	NOTE TO READERS
286	The Law of the Seed is put forward as a tool to be used by citizens everywhere and in every context to defend their seed freedom and seed sovereignty as well as to provide a practical guide to all future development of laws and policies on seed.
287	We hope that it will serve as a catalyst for citizens to spread awareness of the critical state of the seed and of biodiversity and of how science and laws are being manipulated, threatening the seed and food sovereignty of peoples in all parts of the world. We hope that citizens everywhere will use The Law of the Seed as an advocacy tool to push for local, regional and national legislation that favors and respects seed freedom and the law of the seed.
288	We urge people's representatives and institutions to use The Law of the Seed as an instrument to help shape laws related to the seed, putting the obligation of protecting biodiversity, farmers' rights and overall ecological productivity as the superior objectives, and to strengthen laws governing their patent offices to keep seed in the public domain. The Law of the Seed reminds and urges national governments of their obligation to complete the mandatory review of Article 27.3(b) of the TRIPS Agreement of WTO as well as to commit themselves to their constitutional obligations to protect biodiversity and reverse patents on life and patents on seed.
289	We hope also that the Law of the Seed will serve to ensure that the integrity and independence of scientific research is defended, and dedicated to the promotion and mainstreaming of biodiversity, farmers' rights and the public good, and to boost research on seed diversity, quality and resilience which address the challenges of the ecological, economic and food security crisis within a world scenario of climate change.
290	This document is based on inputs and discussions at a working group meeting of leading lawyers and scientists, and members of the International Commission on the Future of Food and Agriculture, that took place at Navdanya International, Florence, Italy in February 2013. The document includes subsequent modifications of the working group which have been merged and streamlined into the present document by an editorial team composed of
291	Vandana Shiva, Research Foundation for Technology, Science and Ecology/Navdanya, Caroline Lockhart, Navdanya International, and Ruchi Shroff, Navdanya.
292	The Working Group on the Law of the Seed was composed of the following persons:

293	Marcello Buiatti– Full Professor of Genetics, University of Florence; President of the Inter-University Center of Philosophy of Biology, “Res Viva” La Sapienza, Rome; Member of the National Council for Environment, Rome.
294	Salvatore Ceccarelli– Leading authority and pioneer in participatory plant breeding, CGIAR, agronomist and barley breeder at ICARDA Syria from 1984 to 2011, For-merly Full Professor in Agricultural Genetics at the University of Perugia, Italy.
295	Fritz Dolder– Eminent patent lawyer since 1985 in many EPO bio-patenting cases including the Neem case and two open cases on broccoli and tomatoes; Professor of Intellectual Property, Faculty of Law, University of Basel, Switzerland.
296	José T. Esquinas– Eminent expert on plant genetic resources and food security, long standing authority in global discussions on policies and ethics in food and agriculture, key negotiator of the International Treaty on Plant Genetic Resources for Food and Agriculture.
297	Maria Grazia Mammuccini– former Director of ARSIA, (Region of Tuscany Agency for Agriculture and Research) from 1995 to 2010, member of the Georgofili Academy, Florence, Vice President of Navdanya International, Italy.
298	Blanche Magarinos-Rey– Rights Lawyer for the Environment and Urban Develop-ment, Lawyer on the ‘Kokopelli’ Case.
299	Giannozzo Pucci– Publisher/Editor of The Ecologist, Italy, founding member of ASCI (Italian farmers’ association to protect small farmers and artisans), leading environmentalist and Vice President of Navdanya International, Italy.
300	Vandana Shiva– Founder of the Research Foundation for Science, Technology and Ecology, India, and Founder of Navdanya (9 Seeds), Ph.D in quantum physics, leading environmentalist and farmer’s rights advocate.

APPENDIX FOUR

EU Plant Reproductive Material law (2013/0137)

LANCSBOX corpus toolbox (Brezina et al.: 2015)

LINE N.	EU Law (2013/0137)
1	EXPLANATORY MEMORANDUM
2	1.
3	CONTEXT OF THE PROPOSAL
4	Plant reproductive material is a fundamental input for the productivity, the diversity, and the health and quality of agriculture, horticulture and food and feed production and our environment. Forests cover a large area of the Union and fulfil multiple social, economic, environmental, ecological and cultural functions. The current EU legislation for making available on the market of plant reproductive material is based on two main pillars, namely the registration of varieties/material and the certification of individual plant reproductive material lots of plant species as identified in the Directives ('EU listed species').
5	The draft proposal consolidates and updates the legislation on marketing of plant reproductive material by repealing and replacing the following 12 Directives: Council Directive 66/401/EEC on the marketing of fodder plant seed, Council Directive 66/402/EEC on the marketing of cereal seed, Council Directive 2002/53/EC on the common catalogue of varieties of agricultural plant species, Council Directive 2002/54/EC on the marketing of beet seed, Council Directive 2002/55/EC on the marketing of vegetable seed, Council Directive 2002/56/EC on the marketing of seed potatoes, Council Directive 2002/57/EC on the marketing of seed of oil and fibre plants, Council Directive 68/193/EEC on the marketing of material for the vegetative propagation of the vine, Council Directive 1998/56/EC on the marketing of propagating material of ornamental plants, Council Directive 92/33/EEC on the marketing of vegetable propagating and planting material, other than seed, Council Directive 2008/90/EC on the marketing of fruit plant propagating material and fruit plants intended for fruit production and Council Directive 1999/105/EC of 22 December 1999 on the marketing of forest reproductive material.
6	The majority of Council Directives for making available on the market of plant reproductive material have first been adopted between 1966 and 1971 and some Directives are more recent. The old Directives have been updated both frequently and substantially, creating the need for clarity and transparency. As a consequence of this history, the Directives are quite diverse in the technical backgrounds they are based on, but also in their approaches, ranging from official controls on products to official supervision of processes. In particular, the product control is very demanding for competent authorities.
7	Furthermore, the complexity and fragmentation of the existing legislation is likely to perpetuate existing uncertainties and discrepancies in its implementation between the Member States. This creates an uneven playing

	<p>field for professional operators on the single market. There is a need to harmonise implementation of the legislation, reduce cost and administrative burdens and support innovation. It is also important to adapt to the technical progress in plant breeding, and to the rapid evolution of the European and global market of plant reproductive material. All those needs make the update and modernisation of the legislative framework imperative. The aim of in situ conservation of agro-biodiversity should be further strengthened. In addition, the weak horizontal coordination with other EU legislation, policies and strategies is an obstacle to their more efficient implementation. In the past years, agricultural policy in the EU has come to be seen as strategically important for food security and safety, the nutritional value of food, the environment, biodiversity and climate change. "Sustainable intensification" and greening of food crop production, in which yields are increased without adverse environmental impact and without the cultivation of more land, have become a central concern. Plant reproductive material legislation is critically important for reaching this aim. The EU Forest Strategy emphasises the importance of the multifunctional role of forest and its sustainable management.</p>
8	<p>Coherence and synergies with the Plant Health Law concerning the plant health checks which are part of the plant reproductive material certification process or integration of general principles relating to official controls embedded in Regulation (EC) No 882/2004 on official controls are needed.</p>
9	<p>2.</p>
10	<p>RESULTS OF CONSULTATIONS WITH THE INTERESTED PARTIES AND IMPACT ASSESSMENTS</p>
11	<p>The impact assessment of this proposal builds on the results of the evaluation of the EU legislation on the marketing of seed and plant propagating material (now plant reproductive material) that was carried out in 2007/2008 by the Food Chain Evaluation Consortium (FCEC), on the results of a study on variety registration conducted by the same consortium in the first half of 2010. It is furthermore based on a broad survey of all interested parties, in particular the competent authorities in the Member States, private sector representatives at EU and at national level, relevant international standard setting bodies, non-governmental organisations and the Community Plant Variety Office (CPVO). A number of Commission Horizontal Working Party meetings covering all the plant species were held in 2009-2011. In May 2011, four task forces created under the Hungarian presidency worked on specific topics. In addition, the Commission consulted the working group 'Seeds and Propagating Material' of the Advisory Group on the Food Chain, Animal and Plant Health on several occasions from 2009– 2011. On 18 March 2009 an open conference "Ensuring Seed Availability in the 21st Century" was organised to present and discuss the evaluation results with different stakeholders. Finally, a web-based stakeholder survey using an "Interactive Policy Making" (IPM) questionnaire to collect comments on an "Options and Analysis" paper was organised from 19 April to 30 May 2011. It yielded 257 responses from a very wide range of stakeholder groups.</p>
12	<p>The main objective of the consultations was to seek views on the provisions and application of existing legislation and the needs for change. Overall, stakeholders were satisfied with the principles underlying the existing Directives, but supported the Commission's intention to revise the legislation.</p>

	Room for improvement was in particular identified pertaining to legal simplification, cost reductions and efficiency gains, increased flexibility for professional operators, the level of harmonisation among Member States, the role of niche and emerging markets and the conservation of agro-biodiversity and plant genetic resources. Maintaining the general principles of the current legislation– especially the procedures for the registration of varieties and the pre-marketing certification of seed lots– was strongly supported by a majority of stakeholders. In addition, concerning the EU legislation on forest reproductive material, the stakeholders requested to maintain the current approach.
13	The Impact Assessment identified the following main axes along which the system has to change in order to be fit for the changing economic, environmental, social, scientific circumstances: (i) Simplification of the basic legal acts (from 12 Directives to one Regulation), (ii) Cost recovery and improvement of the effectiveness and efficiency of the system and (iii) Horizontal coordination with recent, already adopted EU policies. Various ways– increased flexibility, deregulation or centralisation– are explored for improving the efficiency of the system, while maintaining the assurances for high quality plant reproductive material, competitiveness and addressing new challenges such as biodiversity. Based on these 3 axes, 5 policy options were identified, where legal simplification and cost recovery are constant for all options. In the various options, issues regarding SMEs and micro-enterprises have been addressed throughout, especially in order to ensure access for these enterprises to public services for the execution of certain tasks they cannot perform themselves and to support and further develop their flexibility to gain improved access to the plant reproductive material market. Specific attention is given to trade-offs between transferring operational work and keeping of quality of plant reproductive material.
14	The impact assessment concludes that no single option succeeds in achieving the objectives of the review in an efficient, effective and coherent manner and suggests, in line with stakeholder opinion, a preferred option which combines elements from option 2, 4 and 5. The proposal thus creates an environment providing legal security for professional operators and consumers, guaranteeing high quality of plant reproductive material and securing competitive advantage on the internal and the world markets. This combination aims at striking a balance between flexibility for professional operators (option 2 and 4) and biodiversity (option 4) and the necessary rigor in health and quality requirement (elements of option 2 and 5) for the fair functioning of the market and for maintaining the quality and health of plant reproductive material. This is combined with elements allowing minor crops or crops with particular uses low-burden access to specific or small market segments, but with coupled minimum obligations ensuring traceability, health and information to the consumer so that a level playing for all professional operators is established.
15	3.
16	LEGAL ELEMENTS OF THE PROPOSAL
17	The aim of the proposal is to replace the existing 12 Directives by one single proposed Regulation.
18	3.1.

19	Part I– General provisions
20	The scope of the proposed Regulation covers all types of plant reproductive material. The largest part of it covers, though, the species currently regulated by the 12 Directives (so called 'listed species'). However, to clarify and harmonise the existing approaches in the Member States on the other species, i.e. plant species not listed and thus not covered by the current Directives, also these species will be subject to some very basic rules (see Part III, Title III).
21	In order to take into account the needs of producers and the requirements of flexibility and proportionality, the Regulation will not to apply to plant reproductive material intended for testing and scientific purposes and intended for breeding (selection) purposes. In addition, it should not apply to material intended to or maintained in gene banks, organisations and networks of ex-situ and in-situ or on farm conservation of genetic resources following national strategies on conservation of genetic resources. Furthermore, plant reproductive material exchanged in kind between two persons other than professional operators is excluded from the scope of the Regulation.
22	As regards definitions, the main change is the introduction of a common term to cover all the plant reproductive material, either in the form of seeds or other types of plant propagating material. Plant reproductive material is defined to mean plants or parts of plant capable of and intended for producing or reproducing entire plants. This includes also young plants. All those types of plant reproductive material are subject to common principles with regard to their production with a view to making available on the market and with regard to making them available on the market.
23	3.2.
24	Part II– Professional operators
25	As under this Regulation the definition of operator does not include private persons, the term 'professional operator' is used. Professional operators are defined by a single definition and shall be registered to ease the control activities. This register shall be combined with the register established under [title of the new Plant Health Regulation]. Basic obligations will be introduced for professional operators concerning the identification of the plant reproductive material they are producing or making available on the market, keeping of records, facilitation of controls and maintenance of the material. The traceability of any plant reproductive material is ensured by the obligation for the professional operators to have information one step before and one step after their commercial activities.
26	3.3.
27	Part III– Plant reproductive material other than forest reproductive material
28	Title I General provisions
29	Definitions of variety and its maintenance, variety with official description or variety with officially recognised description, clone as well as of the different marketing categories are laid down.
30	Title II Production and making available on the market of listed species
31	In general, the basic approach on registration of varieties/material and certification/inspection of lots before making available on the market will be

	<p>maintained. However, more flexibility will be given to the professional operators so that they may decide to carry out the necessary examination for variety registration or inspections, sampling and analysis of plant reproductive material for certification under the official supervision of the competent authorities. In addition, secondary acts will be adopted setting out the specific requirements for the production and making available on the market of particular species and their categories (pre-basic, basic, certified and standard material). This is important to increase flexibility for changes due to technical and scientific developments and at the same time respecting proportionality and sustainability in regulatory approach.</p>
32	<p>The requirements for making available on the market of plant reproductive material may be summarised as follows:</p>
33	<ul style="list-style-type: none"> · it belongs to a variety or clone registered in accordance the provisions of this Regulation;
34	<ul style="list-style-type: none"> · it complies with the specific requirements adopted for the marketing category concerned per genera and species;
35	<ul style="list-style-type: none"> · it bears an official label for pre-basic, basic or certified material, or an operator's label in case of standard material;
36	<ul style="list-style-type: none"> · it complies with the handling requirements;
37	<ul style="list-style-type: none"> · it complies with the requirements for certification and identification.
38	<p>The obligation of variety registration shall not apply to rootstocks which do not fulfil the conditions of a variety. In addition, in order to introduce flexibility for future technical and scientific developments, heterogeneous material, which does not fulfil the definition of a variety, could be exempted under certain conditions from the requirement that that material belongs to a registered variety. Furthermore, a specific derogation for niche market plant reproductive material is laid down.</p>
39	<p>Certain genera and species of plant reproductive material, which are listed in the current Directives, should continue to be subject to enhanced requirements relating to their production and making available on the market (listed species). However, there is a need to set criteria to decide on these plant species. Genera or species of plants which represent a significant area and value of production, are produced and made available on the market by a significant number of professional operators or they contain substances requiring specific rules to protect human, animal health or the environment should be included in the list.</p>
40	<p>Plant reproductive material should only be produced and made available on the market as pre-basic, basic, certified or standard material, in order to ensure transparency and informed choices for users. Detailed criteria need to be established to decide which genera and plant species shall not be made available on the market as standard material to ensure enhanced quality and health, identity and traceability of plant reproductive material as well as food and feed security. Specific requirements should be adopted per genera and species for each of those categories. The requirements on identity, purity, health and other quality requirements, labelling, lots, packaging including small packages, post-certification control tests, comparative tests and trial and mixtures will continue to be applied.</p>
41	<p>Derogations</p>

42	The existing permanent derogations on making available on the market to a limited extent not-yet registered varieties for testing on farm and not finally certified material and authorisation of more stringent national requirements should be maintained. This should also concern the important temporary derogations on emergency measures, temporary difficulties in supply and temporary experiments.
43	Derogation on niche market plant reproductive material
44	In addition, proportionate and sustainable rules for small scale activities concerning plant reproductive material, which is adapted to local conditions, and made available on the market in small quantities, should be established. Such varieties should be exempted from the requirements on registration and making available on the market. This material is defined as niche market plant reproductive material. The exemption should concern e.g. farmer-breeders or gardener-breeders whether being professional operators or not. However, some basic rules on labelling and traceability of the material should be laid down. In order to prevent an abuse of the exemption the material should only be made available on the market in a defined size of packages.
45	Imports and exports
46	The EU equivalence system is maintained as a basic condition for imports from third countries. However, exports are included in the scope of the Regulation. Exports should take place in line with legislation, standards, code of practice or any other legal or administrative procedure in place in the importing third country. Where a bilateral or multilateral agreement between the Union and the third country exists, the exports from the Union shall comply with the agreement. Furthermore, in the absence of the latter, an agreement conducted between the professional operators shall apply.
47	Title III Production and making available on the market of plant reproductive material belonging to non-listed genera or species
48	Plant reproductive material not belonging to the listed genera and species shall also be subject to a few basic requirements with regard to its health status, fitness for purpose, appropriate reference to varieties, where applicable, and identification of the respective material and imports.
49	Title IV Registration of varieties in national and Union registers
50	Variety registers
51	The varieties, in order to be made available on the market throughout the Union, shall be included in a national register or in the Union register via direct application procedure to the CVPO. CPVO will keep the updated information on all plant varieties that can be made available on the market in the Union, including the varieties registered in national registers (Union plant variety database).
52	For new improved varieties the basic requirement of DUS (distinct, uniform and stable) will be maintained. The uniformity examination should take into account the type of variety and type of reproduction. In addition, by secondary act it can be decided for which plant species additional requirements on value for cultivation and use (VCU) can be laid down. The Member States shall adopt more detailed criteria for the VCU examination of these plant species as regards their yield, quality characteristics, resilience and suitability for low

	input production systems including organic production. Thus, given the specific characteristics required for organic farming, the methodology and requirements established for variety examination should take due account of the specific needs.
53	Rules on a sustainable value for cultivation will be laid down and harmonised in the EU by adopting specific requirements concerning resistance to specific pests, reduced need for input of resources, decreased content of undesirable substances or increased adaptation to divergent agro-climatic environment. This is an important tool to guide the breeding process to a more sustainable direction.
54	If a variety has been granted a Union Plant Variety Right pursuant to Regulation (EC) No 2100/1994, or pursuant to national rules, that variety should be deemed to be distinct, uniform and stable and to have a suitable denomination for the purposes of variety registration under this Regulation.
55	The basic principle of the use of a single denomination throughout the Union for one variety is kept. In certain specific cases synonyms will be allowed. The CPVO is best made available to have an overview of applicable denominations of varieties throughout the Union. Therefore, and in order to ensure coherence regarding the assignment of denominations throughout the Union, the competent authorities should consult CPVO to check a denomination, before the respective variety is registered in a national variety register.
56	The Regulation establishes the detailed requirements for the variety registration procedure regarding conditions for registration, submission and content of applications, formal and technical examinations, examination reports, decisions on registration, period of validity and its renewal, revocation/deletion of registration and maintenance of varieties. For coherence, the same rules shall also apply to direct variety applications to the CPVO for registration in the Union variety register.
57	Specific provisions are set out on the registration in the Union variety register and with regard to the possibility for the applicant to launch an appeal against a CPVO decision. Such provisions are not laid down for the registration in the national variety registers, because they are subject to national administrative procedures.
58	A new obligation for each national variety examination centre to be audited by the CPVO will be introduced with the aim to ensure the quality and harmonisation of the variety registration process in the Union. The examination centre of the professional operators will be audited and approved by the national competent authorities. In case of direct application to the CPVO it will audit and approve the examination centres it uses for variety examination.
59	The competent authorities and the CPVO should charge fees for the processing of applications, the formal and technical examinations including audits, variety denomination, and the maintenance of the varieties for each year for the duration of the registration. Therefore, harmonised rules for those fees should be set out in this Regulation. The general principle of cost recovery shall prevail. However, the micro-enterprises shall be exempted from fees to fulfil the Commission's commitment to lower the burden on very small businesses, in line with its new policy on minimizing regulatory burden for SMEs and adapting EU regulation to the needs of micro-enterprises. Moreover, the fee for

	registration of varieties with officially recognised description and heterogeneous material shall be reduced in a manner to ensure that the fee does not constitute a barrier to the registration of the variety or material concerned.
60	Old traditional varieties
61	Concerning old varieties, such as conservation varieties (including landraces), or so called 'amateur varieties', less stringent requirements should continue to be laid down in view of promoting their on farm conservation and use as currently regulated under the Directives 2008/62/EC and 2009/145/EC. The varieties will continue to be registered, however, on the basis of an 'officially recognised description' which shall be recognised– but not produced– by the competent authorities. For that description DUS examination is no longer obligatory. The officially recognised description shall only describe the specific characteristics of the plants and parts of plants which are representative for the variety concerned and make the variety identifiable, including the region of origin. This description can be based on an old official description of the variety, description produced at the time by e.g. a scientific, academic body or organisation. The accuracy of its content could be supported by previous official inspections, unofficial examinations or knowledge gained from practical experience during cultivation, reproduction and use. The current quantitative restrictions are abolished. The users are informed about the material by a label indicating that this variety is identified by an officially recognised description and the region of origin. Plant reproductive material belonging to those varieties should only be made available on the market as standard material.
62	3.4.
63	Part IV– Production and making available on the market of forest reproductive material
64	The EU legislation sets a specific approach including specific terminology on forest reproductive material. Therefore, for this area a separate part is laid down in which the current basic approach is kept. The requirements for forest reproductive material concern approval of basic material, inclusion in national register and Union list, master certificate, marketing categories, lots, mixtures, labelling, packaging and establishment of the conditions of EU equivalence for imports. In addition, the following derogatory rules need to be set: authorisation of more stringent national requirements, prohibition to make available to end user specified forest reproductive material, rules concerning temporary difficulties in supply and rules concerning temporary experiments.
65	3.5.
66	Part V– Procedural provisions
67	Rules for delegated acts and the committee procedure are laid down.
68	3.6.
69	Part VI– Final provisions
70	The Regulation (EC) NO 2100/94 on Community Variety Rights is amended as regards the name and role of CPVO. The name of the agency is amended to follow the recommendations of the EU inter-institutional working group to 'European Agency on Plant Varieties' (EAPV). The mission of CPVO is extended to the area of variety registration, in particular the management of

	Union variety register and the registration of plant varieties via direct application procedure to the CPVO. In addition, a number of tasks are attributed to the CPVO within its new mission on offering recommendations on variety denominations, database on reference collections of varieties, harmonisation of technical examination of varieties, audits of technical examination centres, advisory tasks, training and technical support.
71	The necessary rules on penalties are laid down.
72	3.7.
73	Part VII– Union competence, subsidiarity and legal form
74	The plant reproductive material legislative framework is based on the Treaty on the Functioning of the European Union (TFEU) Article 43 implementing the Common Agricultural Policy (CAP). The objectives of that policy are to increase agricultural productivity, to ensure a fair standard of living for the agricultural community, to stabilise markets, to assure the availability of supplies and to ensure that supplies reach consumers at reasonable prices. Requirements with regard to the sustainability of agriculture have been integrated through the successive revisions of the CAP. The Lisbon Treaty qualifies agriculture as shared competence between the EU and its Member States. It is obvious, however, that to a very large extent all fields of agricultural activity as well as ancillary activities upstream and downstream have been regulated at the EU level. This means that legislation is predominantly a role for the institutions of the European Union.
75	The proposal takes the form of a Regulation of the European Parliament and of the Council. Other means would not be appropriate because the objectives of the measure can be achieved most efficiently by fully harmonised requirements throughout the Union, ensuring free movement of plant reproductive material.
76	4.
77	BUDGETARY IMPLICATION
78	The financial appropriations for implementing the Regulation up to 31 December 2020 are being presented in the Regulation on laying down provisions for the management of expenditure relating to the food chain, animal health and animal welfare, and relating to plant health and plant reproductive material.
79	5.
80	OPTIONAL ELEMENTS
81	2013/0137 (COD)
82	Proposal for a
83	REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
84	On the production and making available on the market of plant reproductive material (plant reproductive material law)
85	(Text with EEA relevance)
86	THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

87	Having regard to the Treaty on the Functioning of the European Union, and in particular Article 43(2) thereof,
88	Having regard to the proposal from the European Commission,
89	After transmission of the draft legislative act to the national Parliaments,
90	Having regard to the opinion of the European Economic and Social Committee,
91	Having regard to the opinion of the Committee of the Regions,
92	Acting in accordance with the ordinary legislative procedure ,
93	Whereas:
94	(1)
95	The following Directives set out rules for the production and marketing of seeds and propagating material of agricultural crops, vegetables, vine, fruit plants, forest reproductive material and ornamental plants:
96	(a)
97	Council Directive 66/401/EEC of 14 June 1966 on the marketing of fodder plant seed ;
98	(b)
99	Council Directive 66/402/EEC OF 14 June 1966 on the marketing of cereal seed ;
100	(c)
101	Council Directive 68/193/EEC of 9 April 1968 on the marketing of material for the vegetative propagation of the vine ;
102	(d)
103	Council Directive 98/56/EC of 20 July 1998 on the marketing of propagating material of ornamental plants ;
104	(e)
105	Council Directive 1999/105/EC of 22 December 1999 on the marketing of forest reproductive material ;
106	(f)
107	Council Directive 2002/53/EC of 13 June 2002 on the common catalogue of varieties of agricultural plant species ;
108	(g)
109	Council Directive 2002/54/EC of 13 June 2002 on the marketing of beet seed ;
110	(h)
111	Council Directive 2002/55/EC of 13 June 2002 on the marketing of vegetable seed ;
112	(i)
113	Council Directive 2002/56/EC of 13 June 2002 on the marketing of seed potatoes ;

114	(j)
115	Council Directive 2002/57/EC of 13 June 2002 on the marketing of seed of oil and fibre plants ;
116	(k)
117	Council Directive 2008/72/EC of 15 July 2008 on the marketing of vegetable propagating and planting material, other than seed ;
118	(l)
119	Council Directive 2008/90/EC of 29 September 2008 on the marketing of fruit propagating material and fruit plants intended for fruit production .
120	(2)
121	The basic objective of the above Directives is sustainable agricultural, horticultural and forestry production. In order to ensure productivity, the health, quality and diversity of plant reproductive material is of outmost importance for agriculture, horticulture, food and feed security, and the economy in general. Moreover, to ensure sustainability, legislation should take account of the need to meet consumers' expectations, to ensure the adaptability of production to manifold agricultural, horticultural and environmental conditions, to face the challenges of climate change and to foster the protection of agro-biodiversity.
122	(3)
123	Evolution in the areas of agriculture, horticulture, forestry, plant breeding and making available on the market of plant reproductive material has shown that the legislation needs to be simplified and further adapted to the developments of the sector. Therefore, the above Directives should be replaced by a single Regulation on the production, with a view to making available on the market, and the making available on the market, of plant reproductive material within the Union.
124	(4)
125	Plant reproductive material, should be defined in a comprehensive manner, including all plants capable of, and intended for, producing (including reproducing at any further stage of production) entire plants. This Regulation should, therefore, cover seeds, as well as all other forms of plant at any growth stage, intended for and capable of producing entire plants.
126	(5)
127	This Regulation should also cover plant reproductive material used for the production of agricultural raw materials intended for industrial purposes, since that material represents a major part of several sectors and should fulfil certain quality standards.
128	(6)
129	In order to determine the scope of the several provisions of this Regulation it is necessary to define the concepts of “professional operator” and “making available on the market”. In particular, in view of the marketing developments of the sector, the definition of 'making available on the market' should be as wide as possible to ensure all forms of transactions of plant reproductive material. That definition should include inter alia persons concluding sales

	through distance contracts (e.g. electronically) and persons who collect basic forest material.
130	(7)
131	Given the needs of producers and the requirements for flexibility and proportionality, this Regulation should not apply to reproductive material intended solely for testing, scientific and breeding purposes, to gene banks, organisations and networks devoted to the exchange and conservation of genetic resources (including on-farm conservation), or to reproductive material exchanged in kind between persons other than professional operators.
132	(8)
133	Directive 94/62/EC of 20 December 1994 on packaging and packaging waste ,
134	Regulation (EC) No 338/97/EC of 9 December 1996 on the protection of species of wild fauna and flora by regulating trade therein ,
135	Directive 2001/18/EC of the European Parliament and of the Council of 12 March 2001 on the deliberate release into the environment of genetically modified organisms and repealing Council Directive 90/220/EEC ,
136	Regulation (EC) No 1829/2003 of the European Parliament and of the Council of 22 September 2003 on genetically modified food and feed ,
137	Regulation (EC) No 1830/2003 of the European Parliament and of the Council of 22 September 2003 concerning the traceability and labelling of genetically modified organisms and the traceability of food and feed products produced from genetically modified organisms and amending Directive 2001/18/EC
138	and Regulation (EU) No .../... [Office of publications, please add number of Regulation on protective measures against pests of plants], should also apply for the production and making available on the market of plant reproductive material.
139	(9)
140	In order to ensure transparency and more effective controls on the production and making available on the market of plant reproductive material, professional operators should be registered. However, in order to reduce the administrative burden for professional operators, by allowing them to register only once in a single register, it is appropriate that they register in the public registers established by the Member States pursuant to Regulation (EU) No .../... (Office of Publication, please insert number of Regulation on protective measures against pests of plants).
141	(10)
142	Basic obligations should be introduced for professional operators active in the production and making available on the market of plant reproductive material area to ensure the proper application of this Regulation.
143	(11)
144	Experience has shown that the reliability and quality of reproductive material made available on the market can be jeopardised where it is impossible to trace reproductive material not complying with applicable standards. It is therefore necessary to establish a comprehensive system of traceability allowing withdrawals to be undertaken or information to be given to consumers or

	competent authorities. For that reason, the keeping of the necessary information and records on transfers from and to professional users should be mandatory. On the basis of the principle of proportionality, that rule should not apply in case that supply is part of making available on the market in retail.
145	(12)
146	Certain genera and species of plant reproductive material should be subject to enhanced requirements concerning their production and making available on the market due to their increased economic, health or environmental importance. That importance should be determined through the area or value of production of those genera or species, the number of professional operators or the content of substances which present a potential risk for health or the environment. The majority of those genera and species is currently regulated by the above Directives. Those genera and species should be inserted in a specific list (hereinafter: 'listed genera and species').
147	(13)
148	In order to ensure transparency and enable informed choices by consumers, plant reproductive material belonging to listed genera and species should only be produced or made available on the market under predefined categories. Those categories should reflect different quality levels and production stages and be named “pre-basic”, “basic”, “certified” and “standard”,
149	(14)
150	In order to ensure the widest possible availability of plant reproductive material and choices by its users, professional operators should, in principle, be able to make available on the market plant reproductive material belonging to listed genera or species under any of the categories. However, in order to ensure food and feed security, and to achieve a high level of identity, quality and health of plant reproductive material, plant reproductive material should not be made available on the market as standard material if the certification costs are proportionate to those objectives.
151	(15)
152	Plant reproductive material belonging to varieties with officially recognised description, as well as heterogeneous material and niche market material, should be subject to minimum requirements. Therefore, such material should in all cases be produced and made available on the market only as standard material.
153	(16)
154	In order to allow for informed choices by users concerning its identity and characteristics, plant reproductive material belonging to listed genera and species should only be produced and made available on the market if it belongs to varieties registered in national variety registers or in the Union variety register.
155	(17)
156	In order to facilitate adaptation to developments in plant breeding, and to possible new techniques, heterogeneous plant reproductive material, which does not fulfil the definition of a variety in the meaning of this Regulation, should be allowed to be produced or made available on the market, under

	certain conditions, without belonging to a registered variety, and even if it does not comply with the requirements concerning registration of varieties, namely distinctiveness, uniformity or stability, or the requirements concerning the satisfactory value for cultivation or those concerning the sustainable value for cultivation. The registration of such material should take into account its contribution to increase the genetic variability of agricultural crops, the genetic resource basis and biodiversity in the Union, as well as to the sustainability of agriculture and thus to the adaptation to climate change. The methodology for the registration should particularly take into account those specific characteristics and it should be based on the minimum possible burden for operators who wish to register such material. It would also be appropriate and proportionate to exempt from the same requirement rootstocks, as they have a significant commercial and practical value for the sectors where they are used, but they frequently do not fulfil the definition of a variety.
157	(18)
158	Rules should be set out for the certification of plant reproductive material, as well as for the activities aiming at verifying the reliability of certification at the post-certification stage, to ensure the fulfilment of the applicable quality requirements. Those rules should be adapted to the technical and scientific developments.
159	(19)
160	The quality requirements and certification schemes should take into account international recommendations, such as the Seed Scheme Rules and Regulations of the Organisation for Economic Co-operation and Development (OECD), the seed potato standards of the United Nations Economic Commission for Europe (UNECE) and the rules on sampling and testing of the International seed testing association (ISTA).
161	(20)
162	Given the thresholds established for the presence of quality pests by Regulation (EU) No .../... (Office of Publication, please insert number of Regulation on protective measures against pests of plants) on protective measures against pests of plants ,
163	it is appropriate to establish detailed inspection and examination procedures leading to a single certification as regards compliance with the requirements adopted pursuant to this Regulation and to Regulation (EU) No. .../... (Office of Publication, please insert number of Regulation on protective measures against pests of plants).
164	(21)
165	In order to ensure the maximum possible purity of the material and the homogeneity of production, plant reproductive material belonging to listed genera or species should be kept in separate lots.
166	(22)
167	In view of the diversity of plant reproductive material, professional operators should have the option to produce and make available on the market plant reproductive material in the form of individual plants, packages, containers or bundles.

168	(23)
169	Rules should be adopted for the labelling of plant reproductive material of listed genera or species to ensure the appropriate identification of that material. In the case of material of the categories subject to certification, the label (hereinafter: 'official label') should be produced and affixed by authorised professional operators and under the official supervision of the competent authorities. However, and since certain professional operators may not have the resources to carry out the certification activities and issue official labels, it should be provided that official labels may be issued by competent authorities upon request of professional operators.
170	(24)
171	For the preservation of the natural environment in the context of the conservation of genetic resources, it is desirable to allow the mixture of plant reproductive material belonging to listed genera or species with non-listed genera or species. Those mixtures should be permitted only if their composition is naturally linked to a certain region. In order to ensure transparency and better control concerning the quality of the mixtures concerned, the production and making available on the market of those mixtures should be subject to the authorisation by the competent authorities.
172	(25)
173	Rules should be adopted for the import of plant reproductive material of listed genera or species into the Union, only allowing the import of plant reproductive material fulfilling the same production and quality requirements as for material produced and made available on the market in the Union.
174	(26)
175	To ensure flexibility, and facilitate adaptation of the professional operators and the markets to specific circumstances, or in cases of temporary supply difficulties, it is appropriate to provide for certain derogations from the general rules of this Regulation. Those derogations should be granted under specific conditions to avoid abuses and to ensure that the overall purposes of this Regulation are respected. They should concern plant reproductive material belonging to varieties, the registration of which is pending, plant reproductive material which is not finally certified or not certified as complying with applicable germination requirements. The possibility should also exist to adopt emergency measures to address risks for human, animal and plant health, and the environment.
176	(27)
177	Plant reproductive material which is made available on the market only in limited quantities by small producers (“niche market plant reproductive material”) should be exempted from the requirement of belonging to a registered variety. That derogation is necessary to prevent undue constraints to the making available on the market of plant reproductive material, which is of lesser commercial interest, but is important for the maintenance of genetic diversity. However, it should be ensured that that derogation is not regularly used by a wide range of professional operators and it is only used by professional operators which cannot afford the costs and administrative burden of variety registration. This is important to avoid abuses of that derogation and to ensure the application of the rules of this Regulation. Therefore, niche

	market material should only be made available on the market by professional operators employing a small number of persons and with a small annual turnover.
178	(28)
179	It is desirable to organise temporary experiments for the purpose of seeking improved alternatives to any measures adopted for listed genera or species. In the organisation of those experiments the evolution of techniques relating to the production and control of plant reproductive material should be taken into account.
180	(29)
181	Exported plant reproductive material of listed genera or species to third countries should comply with the rules on plant reproductive material produced and made available on the market in the Union, unless the material concerned is subject to bilateral or multilateral agreements or rules of third countries.
182	(30)
183	Basic requirements should be set for plant reproductive material not belonging to listed genera or species, to ensure minimum quality and identification standards for their production and making available on the market.
184	(31)
185	In order to ensure that all varieties have access to registration and are subject to common rules and conditions rules should be established for the registration of varieties and should apply to varieties of listed genera or species as well as to varieties of non-listed species.
186	(32)
187	Experience so far has shown that some breeders are interested in making available on the market their varieties in the entire Union market, or in the bigger part of it. It is therefore appropriate to offer the breeders the option of registering their varieties either in a national variety register or in a Union variety register. The task of establishing, publishing and updating the Union variety register should be assigned to the European Agency on Plant Varieties (hereinafter: 'the Agency'), previously titled 'Community Plant Variety Office' as established pursuant to Article 4 of Regulation (EC) No 2100/1994 of the Council, which is currently in charge of granting plant variety rights. The activities of the Agency should thus cover all aspects of plant variety management.
188	(33)
189	Varieties should, in principle, be registered on the basis of an official description produced by a competent authority or the Agency. However, in order to reduce the burden for the competent authorities and the Agency and ensure flexibility, it is appropriate to provide for the possibility that the examinations necessary to produce the official description may also be carried out by the applicants.
190	(34)
191	Further to the basic registration requirements, varieties belonging to species with particular importance for the development of agriculture and horticulture

	in the Union should be subject to the additional requirements ensuring satisfactory and sustainable value for cultivation or use.
192	(35)
193	The requirements ensuring sustainable value for cultivation should be established at Union level in order to support sustainable development, direct plant breeding and meet breeders', producer and consumer demands concerning that type of development. The requirements ensuring satisfactory value for cultivation and use may be only developed by Member States according to their agro-climatic and agricultural conditions. Therefore, the respective varieties should only be registered in the national variety registers. The requirements ensuring satisfactory value for cultivation and use should concern yields and quality characteristics. When Member States develop and apply such requirements, they should consider the constraints characterising specific agricultural management practices. In particular, they should duly take into account the specific needs of organic farming as regards resilience and low input conditions.
194	(36)
195	In the context of the Convention on Biological Diversity to which the Union is a party, the Union has committed to maintain the genetic diversity of cultivated plants, and of wild relatives, and to minimise genetic erosion. That commitment complements the objective of the Union to halt biodiversity loss by 2020. In that context, certain varieties should be allowed to be produced and made available on the market even if they do not comply with the requirements concerning distinctiveness, uniformity or stability, to ensure their conservation and sustainable use and thus contribute to the sustainability of agriculture and the adaptation to climate change. Therefore, those varieties should only be registered on the basis of an officially recognised description.
196	(37)
197	However, the varieties registered on the basis of an officially recognised description should be produced in the region where they have been historically grown and adapted, to ensure their authenticity and their added value for the conservation of genetic diversity and the protection of the environment. Therefore, they should only be included in national variety registers. For the same reason, those varieties should have been available on the market and/or collected e.g. in gene banks before the entry into force of this Regulation, or, should have been deleted for more than five years from the national variety register or Union variety register, in case they have been registered there on the basis of a technical examination concerning their distinctness, uniformity and stability.
198	(38)
199	Rules should be established concerning the procedures for the registration of varieties and clones in the national variety registers to ensure uniform conditions for all applications and a transparent framework for all interested parties.
200	(39)
201	Certain varieties which are naturally adapted to the local and regional conditions and threatened by genetic erosion, or which have no intrinsic value

	for commercial crop production but have been developed for growing under particular conditions, are already accepted in national catalogues, lists or registers of varieties pursuant to Article 3 of Directive 2008/62/EC of the Commission of 20 June 2008 providing for certain derogations for acceptance of agricultural landraces and varieties which are naturally adapted to the local and regional conditions and threatened by genetic erosion and for marketing of seed and seed potatoes of those landraces and varieties ,
202	and pursuant to Article 3(1) of Directive 2009/145/EC of the Commission of 26 November 2009 providing for certain derogations, for acceptance of vegetable landraces and varieties which have been traditionally grown in particular localities and regions and are threatened by genetic erosion and of vegetable varieties with no intrinsic value for commercial crop production but developed for growing under particular conditions and for marketing of seed of those landraces and varieties .
203	Those varieties have not been subject to complete technical examination concerning their distinctiveness, uniformity or stability. It is therefore appropriate that those varieties be registered directly in the national variety registers without any further proceedings as varieties with an officially recognised description.
204	(40)
205	The Union variety register should also include all varieties that are registered in the national variety registers. In this way, it will be ensured that the Union variety register offers a transparent overview of all varieties registered in the Union.
206	(41)
207	Rules should be adopted for the registration of varieties and clones in the Union variety register. For the purposes of consistency, those rules should be similar to the rules on registration in national variety registers.
208	(42)
209	The competent national authorities and the Agency should charge fees for the processing of applications, the formal and technical examinations and for each year of the registration period. This would be necessary to ensure the necessary resources for the overall system of registration of varieties, and that the main beneficiaries of that registration bear the costs for the functioning of that system. Rules concerning the fixing of those fees should be set out in this Regulation.
210	(43)
211	In order to facilitate the registration of varieties which serve at combating genetic erosion in the Union, Member States should apply a reduced fee for varieties with officially recognised description and for heterogeneous material. Such reduced fees should be sufficiently low as not to constitute a deterrent or a barrier to the making available on the market of those varieties. In order to provide support to micro-enterprises, they should be fully exempted from the payment of fees.
212	(44)
213	In order to protect the commercial interests and intellectual property of

	professional operators, the results of the examination and the description of the genealogical components should be treated as confidential, if the breeder so requests. For the sake of transparency, all descriptions of varieties listed in the national variety registers or in the Union variety register should be made publicly available.
214	(45)
215	Forests cover a large area of the Union and fulfil social, economic, environmental, ecological and cultural functions. There is, therefore, a need for specific approaches and actions for the different types of forests, considering the wide range of conditions characterising the forests in the Union.
216	(46)
217	Forest reproductive material of tree species and artificial hybrids which are important for forestry purposes should be genetically suited to local conditions and of high quality. The conservation and enhancement of biodiversity of forests, including the genetic diversity of the trees, are essential to sustainable forest management.
218	(47)
219	Requirements should be set for forest reproductive material as regards basic material, categories under which the material may be made available on the market, lots, labelling, small packages, to ensure the appropriate quality and marketing standards, and to adapt to the technical and scientific developments of the sector.
220	(48)
221	In order to ensure flexibility and adaptation to particular circumstances, derogations should be provided, under conditions, for the production and making available on the market of forest reproductive material. Those derogations should concern the possibility for Member States to adopt more stringent requirements, the case of temporary difficulties of supply, the need of making seed rapidly available on the market, the conduct of temporary experiments and the adoption of emergency measures.
222	(49)
223	In order to serve the interest of conservation and sustainable use of forestry plant genetic resources, Member States should be allowed to adopt less stringent requirements on forest reproductive material which is naturally adapted to the local and regional conditions and threatened by genetic erosion.
224	(50)
225	The competent authorities should charge fees for the registration/approval of basic forest material and the issuance of master certificates for the forest material derived from registered/approved basic forest material. This would be necessary to ensure the necessary resources for the certification of forest reproductive material, and that the main beneficiaries of that certification bear the respective costs. In order to provide support to micro-enterprises, they should be fully exempted from the payment of fees. The rules concerning those fees should be set out in this Regulation, as they concern the effective production, registration and making available on the market of forest reproductive material.

226	(51)
227	Regulation (EC) No 2100/1994 needs to be amended to include variety registration in the mission of the Agency and to amend its former title 'Community Plant Variety Office'.
228	(52)
229	In order to ensure that the Annexes of this Regulation are adapted to the technical and scientific developments, the power to adopt acts in accordance with Article 290 TFEU should be delegated to the Commission in respect of amending the Annexes of this Regulation.
230	(53)
231	In order to follow the technical and economic developments of the sector, the power to adopt acts in accordance with Article 290 TFEU should be delegated to the Commission in respect of listing the genera or species whose plant reproductive material may not be placed on the market as standard material.
232	(54)
233	In order to follow the technical and economic developments of the sector, the power to adopt acts in accordance with Article 290 TFEU should be delegated to the Commission in respect of setting out the plant reproductive material which may be produced and made available on the market without belonging to a registered variety, and the requirements for its production and making available on the market.
234	(55)
235	In order to ensure that plant reproductive material of listed genera or species, and certain types of forest reproductive material, fulfils the highest possible identity, quality and health requirements, as appropriate for the characteristics of the genera, species or categories concerned, the power to adopt acts in accordance with Article 290 TFEU should be delegated to the Commission in respect of adopting production and quality requirements, and certification schemes, for those genera or species, and in respect of adopting quality requirements for making available on the market specific parts of plants and planting stock of species and artificial hybrids of forest reproductive material.
236	(56)
237	In order to ensure that plant reproductive material is made available on the market under conditions adapted to the specific characteristics of particular genera or species to which it belongs, the power to adopt acts in accordance with Article 290 TFEU should be delegated to the Commission in respect of the maximum size, composition and identification of lots, and the requirements concerning small packages, of plant reproductive material belonging to particular genera or species.
238	(57)
239	In order to adapt the rules concerning the official labels and operators' labels to the characteristics of certain types of plant reproductive material, the power to adopt acts in accordance with Article 290 TFEU should be delegated to the Commission in respect of setting out additional rules concerning the label for specific categories and other groups of plant reproductive material, indications concerning a label number, indications of generations of pre-basic, basic,

	certified and standard material, the indication of variety types including intraspecific or interspecific hybrids, the indication of subdivisions of categories satisfying different conditions, in case of mixtures, the indication of the percentage by weight of the various components by species and, where appropriate, by variety, and indications concerning the intended use of the material.
240	(58)
241	In order to ensure the ability of the professional operators to properly carry out a reliable certification of the plant reproductive material concerned, the power to adopt acts in accordance with Article 290 TFEU should be delegated to the Commission in respect of setting out more detailed requirements concerning the qualification of professional operators and of the inspectors which may be entrusted with certification activities, suitability of premises and availability of particular equipment to be used by the professional operators and laboratories.
242	(59)
243	In order to ensure updated standards for the official supervision of certification carried out by operators as appropriate for the characteristics of particular genera or species, the power to adopt acts in accordance with Article 290 TFEU should be delegated to the Commission in respect of setting out more detailed requirements concerning the way competent authorities must supervise the certification.
244	(60)
245	In order to ensure updated standards for post-certification as appropriate for the characteristics of particular genera or species, the power to adopt acts in accordance with Article 290 TFEU should be delegated to the Commission in respect of setting out requirements concerning proportion of samples to be submitted to tests and concerning testing procedures.
246	(61)
247	In order to ensure that mixtures of plant reproductive material are produced and made available on the market pursuant to the appropriate quality requirements per genera and species, and in order to ensure informed choices for their users, the power to adopt acts in accordance with Article 290 TFEU should be delegated to the Commission in respect of adopting rules concerning the production and making available on the market of mixtures of plant reproductive material belonging to different genera or species listed in Annex I, or different varieties of those genera or species, and in respect of adopting rules concerning mixture of plant reproductive material belonging to genera or species listed in Annex I, with plant reproductive material belonging to genera or species not listed in Annex I.
248	(62)
249	In order to ensure that plant reproductive material belonging to varieties, registration of which is pending, is made available on the market in a transparent manner and to a limited extent only, the power to adopt acts in accordance with Article 290 TFEU should be delegated to the Commission in respect of setting out requirements concerning labelling of packages and the maximum authorised quantities which may be made available on the market for specific genera or species.

250	(63)
251	In order to ensure that niche market material is made available on the market in a limited and transparent manner, the power to adopt acts in accordance with Article 290 TFEU should be delegated to the Commission in respect of setting out the maximum size of packages, containers or bundles, and requirements concerning traceability, lots, and labelling of the niche market material concerned.
252	(64)
253	It is important to ensure that plant reproductive material not finally certified, and seed not confirmed as complying with germination requirements, can be produced and made available on the market under particular conditions. Therefore, the power to adopt acts in accordance with Article 290 TFEU should be delegated to the Commission in respect of setting out specific rules for plant reproductive material concerning the packages, containers and bundles, rules on small packages and containers, the labelling of that material, the duration of period in which such seed may be made available on the market, and the content of the provisional analytical reports concerning germination.
254	(65)
255	It is important to ensure that plant reproductive material imported from third countries fulfils the requirements of this Regulation. Therefore, the power to adopt acts in accordance with Article 290 TFEU should be delegated to the Commission, in respect of deciding whether plant reproductive material of specific genera, species or categories produced in a third country, or particular areas of a third country, fulfils requirements equivalent with those applicable to plant reproductive material produced and made available on the market in the Union.
256	(66)
257	It is important to ensure that the production and making available on the market of plant reproductive material of particular genera or species responds to increased requirements of the society concerning their agricultural performance and quality characteristics for processing. In order to follow the technical and economic developments of the sector, the power to adopt acts in accordance with Article 290 TFEU should be delegated to the Commission in respect of listing the genera or species with particular importance for the satisfactory and sustainable development of agriculture in the Union.
258	(67)
259	In order to ensure updated standards for the registration of varieties as appropriate for the characteristics of genera or species with particular importance for the sustainable development of agriculture in the Union, the power to adopt acts in accordance with Article 290 TFEU should be delegated to the Commission in respect of setting out rules for the registration of varieties of those genera or species concerning resistance to pests, reduced need for input of specific resources, decreased content of undesirable substances and increased adaptation to divergent agro-climatic environment.
260	(68)

261	In order to ensure updated conditions for the suitability of variety denominations in particular cases, the power to adopt acts in accordance with Article 290 TFEU should be delegated to the Commission in respect of setting out rules concerning the relation of denominations to trade marks, their relation to geographical indications or designations of origin for agricultural products, written consents of holders of prior rights to remove impediments to the suitability of a denomination, specific criteria to determine whether a denomination is misleading or confusing, and the use of a denomination in the form of a code.
262	(69)
263	It is important to ensure that plant reproductive material belonging to clones may only be produced and placed on the market if it fulfils particular quality and health requirements, and also belongs to genera or species which have a particular value for particular market sectors. Therefore, the power to adopt acts in accordance with Article 290 TFEU should be delegated to the Commission in respect of adopting quality and health requirements for clones of particular genera or species, and in respect of listing the genera or species, to which the clones must belong in order to be made available on the market.
264	(70)
265	In order to ensure that the information provided in the applications for registration of varieties remain up to date to the developments of the sector, and is relevant to the particular features of the varieties belonging to those genera or species, the power to adopt acts in accordance with Article 290 TFEU should be delegated to the Commission in respect of setting out additional items to be included in the application for particular genera or species.
266	(71)
267	In order to ensure updated standards for the audits by the Agency and the competent authorities of premises of technical examinations and of the organisation of those examinations, the power to adopt acts in accordance with Article 290 TFEU should be delegated to the Commission in respect of setting out rules concerning those audits.
268	(72)
269	In order to ensure updated standards for the technical examinations of varieties, the power to adopt acts in accordance with Article 290 TFEU should be delegated to the Commission in respect of setting out rules concerning obligations for the qualification and training of the staff of competent authorities or the applicants, the equipment necessary to carry out the technical examination, the establishment of variety reference collections, the establishment of quality management systems, and the conduct of growing trials and laboratory tests for particular genera or species.
270	(73)
271	In order to ensure proportionate, fair and updated amounts for the fees to be paid by the applicants for the registration of a variety in the Union variety register, the power to adopt acts in accordance with Article 290 TFEU should be delegated to the Commission in respect of setting out the amount of the fees to be paid by the applicant.

272	(74)
273	In order to ensure a comprehensive submission of information for particular categories or species of forest reproductive material, the power to adopt acts in accordance with Article 290 TFEU should be delegated to the Commission in respect of setting out conditions under which the operator's label be supplemented by another document produced by the professional operator.
274	(75)
275	In order to avoid risks in relation to quality and health of the forest reproductive material concerned, the power to adopt acts in accordance with Article 290 TFEU should be delegated to the Commission in respect of supplementing the requirements set out in this Regulation concerning clones and clonal mixtures, by determining the maximum number of years or the maximum number of ramets to which the approval of clones or clonal mixtures should be restricted.
276	(76)
277	In order to ensure that the exemption of small quantities of seeds of forest reproductive material, from the information requirements concerning germination or viability, is applied in a proportionate manner, the power to adopt acts in accordance with Article 290 TFEU should be delegated to the Commission in respect of setting out the maximum quantities of those small quantities for particular types of forest reproductive material.
278	(77)
279	In order to ensure that the cost items for the fees charged by the competent authorities on the registration of approved basic forest material and the issuance of master certificates are appropriate to the conducted work and updated, the power to adopt acts in accordance with Article 290 TFEU should be delegated to the Commission in respect of setting out those items.
280	(78)
281	It is of particular importance that the Commission carry out appropriate consultations during its preparatory work for the adoption of delegated acts, including at expert level. The Commission, when preparing and drawing-up delegated acts, should ensure a simultaneous, timely and appropriate transmission of relevant documents to the European Parliament and to the Council.
282	(79)
283	Implementing powers should be conferred on the Commission in order to ensure uniform conditions for the implementation of the provisions of this Regulation concerning the following:
284	(a) authorisation of Member States to adopt more stringent requirements than those adopted pursuant to this Regulation concerning plant reproductive material of listed genera or species and forest reproductive material of listed species and artificial hybrids,
285	(b) adoption of emergency measures,
286	(c) authorisation of Member States to permit, for a maximum period of one year, the production and making available on the market of plant reproductive

	material belonging to a variety of listed genera or species not yet included in a national variety register or in the Union register,
287	(d) authorisation of Member States to permit, for a maximum period of one year, the making available on the market of plant reproductive material of listed genera or species complying with lower requirements than those adopted pursuant to this Regulation,
288	(e) the organisation of temporary experiments,
289	(f) the format of the national variety registers and the Union variety register,
290	(g) the format for the application for the registration of varieties,
291	(h) modalities concerning the submission of notifications concerning the registration of varieties,
292	(i) the form of national lists concerning forest reproductive material,
293	(j) the format of the notification of inclusion of forest reproductive material in the national list, and
294	(k) the format of master certificates for forest reproductive material.
295	(80)
296	Those implementing powers should be exercised in accordance with Regulation (EU) No 182/2011 of the European Parliament and of the Council of 16 February 2011 laying down the rules and general principles concerning mechanisms for control by Member States of the Commission's exercise of implementing powers.
297	(81)
298	This Regulation respects the fundamental rights and observes the principles recognised in particular by the Charter of Fundamental Rights of the European Union and notably respect for private and family life, the right to property, the protection of personal data, freedom to conduct business and the freedom of art and science. This Regulation should be applied by the Member States in accordance with those rights and principles.
299	(82)
300	Since the objective of this Regulation, namely to establish the rules concerning production and making available on the market of plant reproductive material to ensure quality of the material and informed choices for the users, cannot be sufficiently achieved by the Member States and can therefore, by reason of its effect, complexity, trans-border and international character, be better achieved at Union level, the Union may adopt measures, in accordance with the principle of subsidiarity as set out in Article 5 of the Treaty on European Union. In accordance with the principle of proportionality, as set out in that Article, this Regulation does not exceed what is necessary in order to achieve that objective,
301	HAVE ADOPTED THIS REGULATION:
302	PART I
303	GENERAL PROVISIONS
304	Article 1

305	Scope
306	This Regulation lays down rules on:
307	(a)
308	the production, with a view to making available on the market, of plant reproductive material; and
309	(b)
310	the making available on the market of plant reproductive material.
311	Article 2
312	Exclusions
313	This Regulation shall not apply to plant reproductive material:
314	(a)
315	intended solely for testing or scientific purposes;
316	(b)
317	intended solely for breeding purposes;
318	(c)
319	intended solely for, and maintained by, gene banks, organisations and networks of conservation of genetic resources, or persons belonging to those organisations or networks;
320	(d)
321	exchanged in kind between persons other than professional operators.
322	Article 3
323	Definitions
324	For the purposes of this Regulation, the following definitions shall apply:
325	(1)
326	'plants' means plants as defined in Article 2(1) of Regulation (EU) No .../... (Office of Publications, please insert number of Regulation on protective measures against pests of plants) on protective measures against pests of plants;
327	(2)
328	'plant reproductive material' means plant(s) capable of, and intended for, producing entire plants;
329	(3)
330	'mother plant' means an identified plant from which plant reproductive material is taken for reproduction of new plants;
331	(4)
332	'generation' means a group of plants constituting a single step in the line of descent of plants;
333	(5)

334	'making available on the market' means the holding for the purpose of sale within the Union, including offering for sale or for any other form of transfer, and the sale, distribution, import into, and export out of, the Union and other forms of transfer, whether free of charge or not;
335	(6)
336	'professional operator' means any natural or legal person carrying out, as a profession, at least one of the following activities with regard to plant reproductive material:
337	(a)
338	producing;
339	(b)
340	breeding;
341	(c)
342	maintaining;
343	(d)
344	providing services;
345	(e)
346	preserving, including storing; and
347	(f)
348	making available on the market.
349	(7)
350	'competent authorities' means competent authorities as defined in accordance with Article 2(5) of Regulation (EU) No .../.... [Office of Publication, please insert number of Regulation on Official Controls];
351	(8)
352	'genetically modified organism' means a genetically modified organism as defined in Article 2(2) of Directive 2001/18/EC;
353	(9)
354	'forest reproductive material' means plant reproductive material intended for forestry purposes;
355	(10)
356	'lot' means a unit of plant reproductive material, identifiable by its homogeneity of composition and origin.
357	Article 4
358	Free circulation
359	Plant reproductive material shall be subject to no restrictions concerning its production and making available on the market, other than those laid down in this Regulation, in Directive 94/62/EC, Regulation (EC) No 338/97, Directive 2001/18/EC, Regulation (EC) No 1829/2003, Regulation (EC) No 1830/2003,

	Regulation (EU) No .../... [Office of Publication, please insert number of Regulation on protective measures against pests of plants] and in Union legislation restricting the production or making available on the market of invasive alien species.
360	PART II
361	PROFESSIONAL OPERATORS
362	Article 5
363	Registers of professional operators
364	Professional operators shall be registered in the registers referred to in Article 61 of Regulation (EC) No .../... (Office of Publication, please insert number of Regulation on protective measures against pests of plants) in accordance with the provisions of Article 62 of that Regulation.
365	Article 6
366	General responsibilities of professional operators
367	Professional operators shall ensure that plant reproductive material produced and made available on the market under their control fulfils the requirements of this Regulation.
368	Article 7
369	Specific responsibilities of professional operators producing plant reproductive material
370	Professional operators producing plant reproductive material shall:
371	(a)
372	be available personally, or designate a person, to liaise with the competent authorities for the purpose of facilitating the official controls;
373	(b)
374	identify and monitor the critical points of the production process, or of the making available on the market, which may influence the quality of the plant reproductive material;
375	(c)
376	keep records of the monitoring of the critical points referred to in point (b), which shall be available for examination when requested by the competent authorities;
377	(d)
378	ensure that lots remain separately identifiable;
379	(e)
380	keep updated information on the premises and other locations used for the production of plant reproductive material;
381	(f)
382	make sure that competent authorities have access to the premises of production, including premises and fields of third contracting parties, and to

	the records of the monitoring and all related documents;
383	(g)
384	take measures, where appropriate, for the maintenance of the identity of the plant reproductive material in accordance with the applicable requirements of this Regulation;
385	(h)
386	make available to the competent authorities, on request, any contracts with third parties.
387	Article 8
388	Traceability
389	1.
390	Professional operators shall ensure that plant reproductive material is traceable at all stages of production and making available on the market.
391	2.
392	For the purpose of paragraph 1, professional operators shall keep information allowing them to identify the professional operators, which have supplied them with plant reproductive material, and the material concerned.
393	On request, they shall make such information available to the competent authorities.
394	3.
395	For the purpose of paragraph 1, professional operators shall keep information allowing them to identify the persons to whom they have supplied plant reproductive material and the material concerned, unless that material has been supplied in retail.
396	On request, they shall make such information available to the competent authorities.
397	4.
398	In the case of plant reproductive material, other than forest reproductive material, professional operators shall keep records of the plant reproductive material referred to in paragraphs 2 and 3 for three years after that material has been respectively supplied to or by them.
399	In the case of forest reproductive material, the respective period shall be ten years.
400	PART III
401	PLANT REPRODUCTIVE MATERIAL OTHER THAN FOREST REPRODUCTIVE MATERIAL
402	TITLE I
403	General Provisions
404	Article 9
405	Scope

406	This Part shall apply to the production, with a view to making available on the market, and to the making available on the market of plant reproductive material other than forest reproductive material.
407	Article 10
408	Definitions
409	For the purposes of this Part, the following definitions shall apply:
410	(1)
411	'variety' means a plant grouping within a single botanical taxon of the lowest known rank, which fulfils all of the following requirements:
412	(a)
413	it is defined by the expression of the characteristics that results from a given genotype or combination of genotypes;
414	(b)
415	it is distinguished from any other plant grouping by the expression of at least one of the characteristics referred to in point (a); and
416	(c)
417	it is considered as a unit with regard to its suitability for being reproduced unchanged;
418	(2)
419	'official description' means a variety description that has been produced by a competent authority, includes the specific characteristics of the variety and makes the variety identifiable by examination of its distinctiveness, uniformity and stability;
420	(3)
421	'officially recognised description' means a description of a variety, which has been recognised by a competent authority, includes the specific characteristics of the variety, makes it identifiable and has been obtained by means other than examination of the variety's distinctiveness, uniformity and stability pursuant to the rules applicable at the time of registration of that variety in accordance with Article 79;
422	(4)
423	'clone' means an individual progeny, originally derived from another plant by vegetative reproduction, which remains genetically identical to the latter;
424	(5)
425	'variety maintenance' means the actions to ensure that a variety remains consistent with its description;
426	(6)
427	'pre-basic material' means plant reproductive material which is at the first step of production and is intended for the production of other categories of plant reproductive material;
428	(7)

429	'basic material' means plant reproductive material which has been produced from pre-basic material, and is intended for the production of certified material;
430	(8)
431	'certified material' means plant reproductive material which has been produced from pre-basic or basic material;
432	(9)
433	'standard material' means plant reproductive material other than pre-basic, basic or certified material;
434	(10)
435	'category' means pre-basic material, basic material, certified material or standard material.
436	TITLE II
437	Production and making available on the market of plant reproductive material belonging to genera and species listed in Annex I
438	CHAPTER I
439	Introductory Provisions
440	Article 11
441	Scope
442	1.
443	This Title shall apply to the production and making available on the market of plant reproductive material belonging to genera and species which comply with one or more of the following criteria:
444	(a)
445	they represent a significant area of production;
446	(b)
447	they represent a significant value of production;
448	(c)
449	they are produced or made available on the market by a significant number of professional operators in the Union;
450	(d)
451	they contain substances which, for all or particular uses, must be subject to particular rules concerning the protection of human and animal health, and the environment.
452	2.
453	The genera and species referred to in paragraph 1 are listed in Annex I. 3.
454	The Commission shall be empowered to adopt delegated acts, in accordance with Article 140, amending Annex I in order to adapt it to the developments of technical knowledge, scientific knowledge and economic data.

455	4.
456	This Title shall also apply to rootstocks and other parts of plants (hereinafter jointly referred to as "rootstocks"), which belong to genera and species not listed in Annex I, if material of one of the genera or species listed in Annex I, or their hybrids, is grafted on them.
457	Article 12
458	Categories of plant reproductive material
459	1.
460	Plant reproductive material may only be produced and made available on the market, under one of the following categories:
461	(a)
462	pre-basic material,
463	(b)
464	basic material,
465	(c)
466	certified material,
467	(d)
468	standard material.
469	2.
470	Plant reproductive material may not be produced and made available on the market as standard material, if it belongs to genera or species for which the costs and certification activities necessary to produce and make available on the market plant reproductive material as pre-basic, basic and certified material are proportionate:
471	(a)
472	to the purpose of ensuring food and feed security; and
473	(b)
474	to the higher level of identity, health and quality of the plant reproductive material which result from the fulfilment of the requirements for pre-basic, basic and certified material compared to those for standard material.
475	3.
476	The Commission shall be empowered to adopt delegated acts, in accordance with Article 140, listing the genera or species whose plant reproductive material may not be placed on the market as standard material, as referred to in paragraph 2.
477	4.
478	By way of derogation to paragraph 2 and 3, plant reproductive material shall only be produced and made available on the market as standard material if one or more of the following cases apply:
479	(a)

480	it belongs to a variety provided with an officially recognised description;
481	(b)
482	it is heterogeneous material in the meaning of Article 14(3);
483	(c)
484	it is niche market material in the meaning of Article 36(1).
485	CHAPTER II
486	Requirements for the production and making available on the market
487	Section 1
488	List of requirements
489	Article 13
490	Production and making available on the market of pre-basic, basic, certified and standard material
491	1.
492	Plant reproductive material produced and made available on the market shall comply with:
493	(a)
494	the registration requirements set out in Section 2;
495	(b)
496	the production and quality requirements set out in Section 3 for the relevant category;
497	(c)
498	the handling requirements set out in Section 4;
499	(d)
500	the identification, and, where applicable, certification requirements set out in Section 5.
501	2.
502	Paragraph 1(b) shall not apply to production requirements of plant reproductive material referred to in Article 14(3) and Article 36.
503	Article 14
504	Requirement to belong to registered varieties
505	1.
506	Plant reproductive material may be produced and made available on the market only if it belongs to a variety registered in a national variety register referred to in Article 51 or in the Union variety register referred to in Article 52.
507	2.
508	By way of derogation to paragraph 1 of this Article, rootstocks may be produced and made available on the market without belonging to a variety registered in a national variety register or in the Union variety register.

509	3.
510	The Commission shall be empowered to adopt delegated acts, in accordance with Article 140, setting out that, by way of derogation to paragraph 1 of this Article, plant reproductive material may be produced and made available on the market without belonging to a variety in the meaning of point (1) of Article 10 (hereafter 'heterogeneous material') and not fulfilling the requirements on distinctiveness, uniformity and stability as set out in articles 60, 61 and 62 and satisfactory value for cultivation and/or use or sustainable value for cultivation and/or use as set out in articles 58 and 59.
511	Those delegated acts may set out one or more of the following for heterogeneous material:
512	(a)
513	rules on labelling and packaging;
514	(b)
515	rules concerning description of the material, including the breeding methods and parental material used, description of the production scheme for the plant reproductive material and availability of standard samples;
516	(c)
517	rules relating to information and samples of production to be kept by the professional operators and the maintenance of the material;
518	(d)
519	establishment by the competent authorities of registers for heterogeneous material, modalities for registration and content of those registers;
520	(e)
521	establishment of fees, and cost items for the calculation of those fees, concerning the registration of heterogeneous material referred to in point (d) in a manner ensuring that the fee does not constitute a barrier to the registration of the heterogeneous material concerned.
522	Those delegated acts shall be adopted by [Office of Publications, please insert date of application of this Regulation...]. They may be adopted per particular genera or species.
523	Article 15
524	Requirement to belong to registered clones
525	Plant reproductive material belonging to a clone may be produced and made available on the market only if that clone is registered in a national variety register referred to in Article 51 or in the Union variety register referred to in Article 52.
526	Section 2
527	Production and quality requirements
528	Article 16
529	Production and quality requirements for plant reproductive material

530	1.
531	Plant reproductive material shall be produced in accordance with the production requirements set out in Part A of Annex II and shall be made available on the market only if it fulfils the quality requirements set out in Part B of Annex II.
532	2.
533	The Commission shall be empowered to adopt delegated acts, in accordance with Article 140, supplementing the requirements referred to in paragraph 1. Where appropriate, those delegated acts may specify those requirements set out in Part D of Annex II.
534	3.
535	Those delegated acts shall take into account the relevant international technical and scientific standard recommendations:
536	(a)
537	the Seed Scheme Rules and Regulations of the Organisation for Economic Co-operation and Development (hereinafter: 'OECD');
538	(b)
539	the seed potato standards of the United Nations Economic Commission for Europe (hereinafter: 'UNECE');
540	(c)
541	the rules on sampling and testing of the International Seed Testing Association (hereinafter 'ISTA'); and
542	(d)
543	the rules of the European and Mediterranean Plant Protection Organisation (EPPO).
544	4.
545	The Commission shall be empowered to adopt delegated acts, in accordance with Article 140, amending Part A and Part B of Annex II to adapt them to the technical and scientific developments.
546	Section 3
547	Handling requirements
548	Article 17
549	Lots
550	1.
551	Plant reproductive material shall be made available on the market in lots. Those lots shall be sufficiently homogeneous and identified as distinct from other lots of plant reproductive material.
552	2.
553	During processing, packaging, storage, transport or at delivery, lots of plant reproductive material of different origins may be merged into a new lot. In that

	case the professional operator shall keep records including data about the origin of the individual components of the new lot.
554	3.
555	During processing, packaging, storage, transport or at delivery, lots of plant reproductive material may be split into two or more lots. In that case the professional operator shall keep records concerning the origin of the new lots.
556	4.
557	The Commission shall be empowered to adopt delegated acts, in accordance with Article 140, establishing additional rules for particular genera or species in relation to one or more of the following elements:
558	(a)
559	maximum size of lots to ensure homogeneity of the plant reproductive material concerned;
560	(b)
561	composition of lots to ensure the maintenance of the identity of the plant reproductive material concerned;
562	(c)
563	identification of lots to ensure the traceability of the plant reproductive material concerned.
564	Article 18
565	Packages, containers and bundles, and rules on small packages and containers
566	1.
567	Plant reproductive material shall be made available on the market as individual plants, or in packages, containers or bundles.
568	2.
569	Packages and containers shall be closed in such a way that they cannot be opened without damaging the closure and, in the case of packaging, without the packaging showing signs of tampering.
570	3.
571	Bundles shall be tied up in such a way that the material forming parts of the bundles cannot be separated without damaging the tie or ties.
572	4.
573	The Commission shall be empowered to adopt delegated acts, in accordance with Article 140, setting out rules for specific genera or species one or more of the following elements:
574	(a)
575	the closure, including sealing or resealing, of packages, containers or bundles to ensure the identity of the plant reproductive material concerned and to avoid uncontrolled mixtures of lots;
576	(b)

577	the establishment of a requirement that plant reproductive material is to be made available on the market only in packages, containers or bundles in order to facilitate the traceability of the lots concerned.
578	5.
579	The Commission shall be empowered to adopt delegated acts, in accordance with Article 140, setting out specific rules for the production and making available on the market of particular genera or species in small packages, containers or bundles. Those rules may concern one or more of the following elements:
580	(a)
581	maximum size and volume of the small packages, containers or bundles;
582	(b)
583	colour and content of labels, and methods of labelling, of the small packages, containers or bundles;
584	(c)
585	examination of the small packages, containers or bundles and the contained plant reproductive material;
586	(d)
587	closure of the small packages.
588	Section 4
589	Certification, identification and labelling requirements
590	Article 19
591	Certification and identification of pre-basic, basic or certified material, and identification of standard material
592	1.
593	Pre-basic, basic or certified material shall be certified and identified through an official label ('official label').
594	2.
595	Official labels shall certify that pre-basic, basic or certified material complies with the relevant production and quality requirements as referred to in Article 16.
596	3.
597	The certification referred to in paragraphs 1 and 2 shall be based on field inspections, sampling and testing carried out in accordance with the rules referred to in Article 20 (hereinafter: 'certification schemes') and with the provisions of Articles 22 to 26.
598	4.
599	Standard material shall be identified through an operator's label ('operator's label').
600	5.

601	Operators' labels shall attest that standard material complies with the relevant quality requirements as referred to in Article 16.
602	Article 20
603	Certification schemes
604	1.
605	The certification schemes for pre-basic, basic or certified material are set out in Part C of Annex II.
606	2.
607	The Commission shall be empowered to adopt delegated acts, in accordance with Article 140, supplementing the certification schemes. Where appropriate, those delegated acts may specify those schemes, as set out in Part D of Annex II.
608	3.
609	Those delegated acts shall take into account the applicable international technical and scientific standard recommendations such as:
610	(a)
611	the Seed Scheme Rules and Regulations of OECD;
612	(b)
613	the seed potato standards of UNECE;
614	(c)
615	the rules on sampling and testing of ISTA; and
616	(d)
617	the rules of EPPO.
618	3.
619	The Commission shall be empowered to adopt delegated acts, in accordance with Article 140, amending Part C and Part D of Annex II to adapt them to the technical and scientific developments.
620	Article 21
621	Content of the official label and operator's label
622	1.
623	The official label and the operator's label shall contain the information set out in Part A of Annex III.
624	2.
625	The official label and the operator's label shall be written in one of the official Union languages. They shall be legible, indelible, printed on one side, not previously been used and easily visible.
626	3.
627	The official label shall have a distinct colour per category of plant reproductive material.

628	4.
629	In case the issuance of a plant passport is required pursuant to Article 74(1) and Article 75(1) of Regulation (EU) No .../... [Office of Publication, please insert number of Regulation on protective measures against pests of plants], the official label shall include the plant passport as set out in Article 78(3) of that Regulation.
630	5.
631	The Commission shall be empowered to adopt delegated acts, in accordance with Article 140, setting out requirements, further to the requirements referred to in paragraphs 1 and 2, for official labels and operators' labels. Those requirements shall concern one or more of the following elements:
632	(a)
633	the colours of the label for specific categories and other groups of plant reproductive material;
634	(b)
635	indications concerning a label number;
636	(c)
637	indications of generations of pre-basic, basic, certified and standard material;
638	(d)
639	the indication of variety types including intraspecific or interspecific hybrids;
640	(e)
641	the indication of subdivisions of categories satisfying different conditions;
642	(f)
643	in case of mixtures, the indication of the percentage by weight of the various components by species and, where appropriate, by variety;
644	(g)
645	indications concerning the intended use of the material.
646	6.
647	This Article shall apply without prejudice to Article 49(4) of Regulation (EC) No 1107/2009 concerning the label and the documents accompanying treated seeds in the meaning of that Regulation.
648	7.
649	The Commission shall, by means of implementing acts, adopt the format(s) of the official label and operator's label. Those formats may be adopted per genera or species. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 141(3).
650	Article 22
651	Responsibility to produce and affix official labels
652	The official labels shall be produced and affixed by:

653	(a)
654	the professional operator, under the official supervision of the competent authority; or
655	(b)
656	the competent authority, if requested so by the professional operator, or if the professional operator concerned is not authorised pursuant to Article 23.
657	Article 23
658	Authorisation of professional operators to carry out certification and produce official labels
659	1.
660	Professional operators may be authorised by the competent authority to carry out the certification and produce the official labels under official supervision, as referred to in point (a) of Article 22, only if they fulfil all of the following conditions:
661	(a)
662	they possess the necessary knowledge to fulfil the production and quality requirements and comply with the certification schemes adopted pursuant to Articles 16(2) and 20(2), and, where applicable, fulfil the requirements adopted pursuant to point (a) of paragraph 3 of this Article;
663	(b)
664	they possess, or have access to, adequate equipment and laboratories to apply correctly and efficiently the requirements referred to in Articles 16(2) and 20(2), in particular equipment and laboratories complying with the requirements adopted pursuant to point (b) and (c) of paragraph 3;
665	(c)
666	they have identified, and have the capability to monitor, the critical points of the production process which may influence the quality and identity of the plant reproductive material, and keep records of the results of that monitoring;
667	(d)
668	they are capable to ensure that lots remain identifiable as referred to in Article 7;
669	(e)
670	they have in place systems and provisions to ensure the fulfilment of the traceability requirements set out in Article 8;
671	(f)
672	they use appropriately qualified inspection and laboratory staff, in particular inspection and laboratory staff, complying with the requirements adopted pursuant to point (c) of paragraph 3.
673	2.
674	The authorisation referred to in paragraph 1 may be granted for particular or all genera or species.

675	3.
676	The Commission shall be empowered to adopt delegated acts, in accordance with Article 140, supplementing the provisions of paragraph 1, to ensure the ability of the professional operators to properly carry out a reliable certification of the plant reproductive material concerned. Those delegated acts may concern one or more of the following elements:
677	(a)
678	qualification, training and activities of professional operators, and of other persons which may be entrusted, by the professional operators, with field inspections, sampling and testing;
679	(b)
680	suitability of premises and availability of particular equipment to be used by the professional operators concerned;
681	(c)
682	requirements for laboratories which may be entrusted with testing by the professional operators.
683	Article 24
684	Official supervision by the competent authorities
685	1.
686	For the purposes of the official supervision referred to in point (a) of Article 22, competent authorities shall, at least once per year, conduct audits to ensure that the professional operator fulfils the requirements referred to in Article 23.
687	2.
688	For the purposes of the official supervision referred to in point (a) of Article 22, competent authorities shall furthermore carry out official inspection, sampling and testing on a proportion of the crops in the fields and the lots of plant reproductive material, to confirm compliance of that material with the production and quality requirements referred to in Article 16(2). That proportion shall be determined on the basis of the potential risk of non-compliance with those requirements.
689	3.
690	In addition to the inspection, sampling and testing referred to in paragraph 2, the competent authorities may carry out further field inspections, sampling or testing, if requested so by the professional operator.
691	4.
692	The Commission shall be empowered to adopt delegated acts, in accordance with Article 140, supplementing the provisions of paragraphs 1, 2 and 3. Those delegated acts may concern one or more of the following elements:
693	(a)
694	the proportion of the crops in the fields to be subject to inspections, sampling and testing, as referred to in paragraph 2, for particular genera or species;
695	(b)

696	monitoring activities to be carried out by the competent authorities.
697	Article 25
698	Official labels produced by the competent authorities
699	Where the official labels are produced by the competent authorities, as referred to in point (b) of Article 22, the competent authorities shall carry out all necessary field inspections, sampling and testing in accordance with the certification schemes, adopted pursuant to Article 20(2), to confirm compliance with the production and quality requirements adopted pursuant to Article 16(2).
700	Article 26
701	Withdrawal or modification of the authorisation
702	1.
703	Where a competent authority finds, after granting the authorisation referred to in Article 23(1), that a professional operator does not fulfil the requirements referred to in that Article, it shall request the professional operator to take corrective actions within a specified period of time.
704	2.
705	The competent authority shall without delay withdraw, or modify as appropriate, the authorisation if the professional operator does not apply the corrective measures referred to in paragraph 1 of this Article within the specified period of time.
706	Article 27
707	Notification of the intended production and certification of pre-basic, basic and certified material
708	Professional operators shall inform the competent authorities in due time about their intention to produce pre-basic, basic and certified material plant reproductive material, and to carry out the certification referred to in Article 19(1). That notification shall state the plant species and categories concerned.
709	Article 28
710	Production of operator's label for standard material
711	Operators' labels shall be produced and affixed by the professional operator after verifying through its own inspections, sampling and testing, that the plant reproductive material complies with the production and quality requirements as referred to in Article 16.
712	Article 29
713	Reference to lots
714	1.
715	The official label and the operator's label shall be produced with reference to a lot. They shall be affixed, where applicable, to individual plants or on the outside of packages, containers and bundles.
716	2.

717	If a lot is split into more lots, a new official label or operator's label shall be issued for each lot. If several lots are merged into a new lot, a new official label or operator's label shall be issued for that new lot.
718	CHAPTER III
719	Tests
720	Article 30
721	Post certification tests for pre-basic, basic and certified material
722	1.
723	After the certification referred to in Article 19(1), the competent authorities may carry out tests on the plant reproductive material (hereinafter 'post certification tests') to confirm that it complies with the quality requirements as referred to in Article 16(2) and the certification schemes adopted pursuant to Article 20(2).
724	2.
725	Competent authorities shall design and plan the post certification tests on the basis of a risk analysis concerning possible non-compliance of the respective plant reproductive material with those requirements.
726	3.
727	Post certification tests shall be carried out through samples taken by the competent authority. They shall assess the identity and purity of the plant reproductive material concerned.
728	4.
729	The Commission shall be empowered to adopt delegated acts, in accordance with Article 140, setting out rules for the post certification tests of plant reproductive material belonging to particular genera or species. Those rules shall take into account the development of scientific and technical knowledge. They may concern the following:
730	(a)
731	the proportion of samples per genera and species and categories submitted to tests;
732	(b)
733	the testing procedure.
734	Article 31
735	Non-compliance of professional operators with quality requirements and certification schemes
736	1.
737	Where the post certification tests show that pre-basic, basic or certified material has not been produced or made available on the market in compliance with the production and quality requirements referred to in Article 16(2), and with the certification schemes referred to in Article 20(2), the competent authorities shall ensure that the professional operator concerned takes the necessary corrective actions. Those actions shall ensure that the material

	concerned either complies with those requirements or is withdrawn from the market.
738	2.
739	If it is repeatedly found, during the post certification tests, that a professional operator produces or makes available on the market plant reproductive material which does not comply with the quality requirements referred to in Article 16(2), or with the certification schemes referred to in Article 20, the provisions of Article 26(2) shall apply.
740	CHAPTER IV
741	Mixtures
742	Article 32
743	Mixtures of genera and species listed in Annex I
744	1.
745	The Commission shall be empowered to adopt delegated acts, in accordance with Article 140, adopting rules concerning the production and making available on the market of mixtures of plant reproductive material belonging to different genera or species listed in Annex I, or different varieties of those genera or species. Those rules may derogate from the following provisions:
746	(a)
747	the production and quality requirements adopted pursuant to Article 16(2);
748	(b)
749	the provisions of Article 17 concerning lots;
750	(c)
751	the provisions of Article 18 concerning packages, containers and bundles, and rules on small packages and containers; and
752	(d)
753	the provisions of Article 21, concerning the content and format of the official label and operator's label.
754	2.
755	The rules referred to in paragraph 1 shall concern one or more of the following elements:
756	(a)
757	maximum size and volume of lots, packages, containers or bundles;
758	(b)
759	colour and content of labels;
760	(c)
761	denomination of the mixture and description of the composition of the mixture;
762	(d)
763	closure of packages, containers or bundles;

764	(e)
765	requirements for the production and inspections of those mixtures;
766	(f)
767	requirements facilitating the traceability of the percentage by weight of the various components shown by species and, where appropriate, by variety.
768	Article 33
769	Preservation mixtures
770	1.
771	Competent authorities may authorise the production and making available on the market of a mixture of plant reproductive material belonging to genera or species listed in Annex I, with plant reproductive material belonging to genera or species not listed in Annex I, if that mixture fulfils both of the following conditions:
772	(a)
773	it contributes to the conservation of genetic resources and the preservation of the natural environment;
774	(b)
775	it is naturally associated with a particular region (hereinafter: 'region of origin'). Hereinafter, such mixture is referred to as 'preservation mixture'.
776	2.
777	When a competent authority authorises the production and making available on the market of a preservation mixture, it shall identify the region of origin taking into account information from plant genetic resource authorities or organisations.
778	3.
779	The Commission shall be empowered to adopt delegated acts, in accordance with Article 140, setting out, with regard to all or particular genera or species, the following:
780	(a)
781	a procedure for the authorisation referred to in paragraph 1;
782	(b)
783	requirements for the authorisation referred to in paragraph 1, further to the requirements set out in that paragraph;
784	(c)
785	requirements for the packages and containers of a preservation mixture;
786	(d)
787	labelling requirements for preservation mixtures;
788	(e)
789	rules on the identification of region of origin;

790	(f)
791	the obligation for professional operators to report on the production and making available on the market of preservation mixtures;
792	(g)
793	the obligation for Member States to report to the Commission on the application of the provisions of this Article.
794	CHAPTER V
795	Derogations
796	Section 1
797	Derogations from registration requirements
798	Article 34
799	Plant reproductive material of varieties whose registration is pending
800	1.
801	By way of derogation from Article 14(1), competent authorities may authorise professional operators, for a specified period of time, to make available on the market for tests and trials, on farms or other production premises, maximum quantities of plant reproductive material belonging to a variety not registered in a national variety register pursuant to Article 79 or the Union variety register pursuant to Article 94(1).
802	2.
803	The authorisation referred to in paragraph 1 may only be granted if the plant reproductive material belongs to a variety for which an application has been submitted for registration in a national variety register pursuant to Article 66 or for registration in the Union variety register pursuant to Article 94.
804	3.
805	In order to obtain the authorisation referred to in paragraph 1, the professional operator shall submit to the competent authorities of the Member States, where the relevant tests and trials are to take place, a request with the following information:
806	(a)
807	a description of the proposed tests and trials;
808	(b)
809	the objectives pursued by those proposed tests and trials;
810	(c)
811	the locations in which those tests and trials are to be carried out;
812	(d)
813	the provisional denomination of the variety indicated in the application for registration;
814	(e)

815	the procedure for the maintenance of the variety;
816	(f)
817	information about the authority before which the application for the registration of the variety is pending, and the reference assigned to that application;
818	(g)
819	the duration of the authorisation requested;
820	(h)
821	the quantities of the material to be made available on the market.
822	4.
823	The Member States whose competent authorities have granted the authorisation referred to in paragraph 1 shall inform thereof the other Member States, the Commission and the European Agency for Plant Varieties (hereinafter: "the Agency").
824	5.
825	By 31 March of each year, the Agency shall report to the Commission and the Member States on the authorisations granted pursuant to paragraph 1 and the information submitted pursuant to paragraph 3 during the preceding year.
826	6.
827	The Commission shall be empowered to adopt delegated acts, in accordance with Article 140, supplementing paragraphs 1, 2 and 3 by setting out requirements concerning the following elements:
828	(a)
829	labelling of packages; and
830	(b)
831	the maximum quantities which may be made available on the market for specific genera or species pursuant to paragraph 1.
832	Article 35
833	Derogations from registration requirements in the case of temporary difficulties in supply
834	1.
835	By way of derogation from Article 14(1), and in order to remove temporary difficulties in the general supply of plant reproductive material that may occur in the Union, the Commission may, by means of implementing acts, authorise Member States to permit, for a maximum period of one year, the production and making available on the market of plant reproductive material belonging to a variety not included in a national variety register or in the Union variety register. Those implementing acts may set out the maximum quantities which may be made available on the market per genera or species.
836	2.
837	The implementing acts referred to in paragraph 1 shall be adopted in

	accordance with the examination procedure referred to in accordance with Article 141(3).
838	3.
839	The authorisations referred to in paragraph 1 shall be granted on the basis of a reasoned request submitted by the Member State concerned.
840	4.
841	Those authorisations shall only be granted if the derogation referred to in paragraph 1 is necessary and proportionate to the objective of removing the temporary difficulties in the general supply of the plant reproductive material concerned.
842	5.
843	The label of the plant reproductive material made available on the market pursuant to paragraph 1 shall be brown. It shall state that the reproductive material in question belongs to a non-registered variety.
844	Article 36
845	Derogations from registration requirements in the case of niche market plant reproductive material
846	1.
847	Article 14(1) shall not apply to plant reproductive material where all of the following conditions are fulfilled:
848	(a)
849	it is made available on the market in small quantities by persons other than professional operators, or by professional operators employing no more than ten persons and whose annual turnover or balance sheet total does not exceed EUR 2 million;
850	(b)
851	it is labelled with the indication 'niche market material'.
852	That plant reproductive material is hereinafter referred to as 'niche market material'.
853	2.
854	The persons who produce niche market material shall keep records of the quantities of the material produced and made available on the market, per genera, species or type of material. On request, they shall make those records available to the competent authorities.
855	3.
856	The Commission shall be empowered to adopt delegated acts, in accordance with Article 140, setting out, with regard to the production and making available on the market of niche material belonging to particular genera or species, one or more of the following:
857	(a)
858	the maximum size of packages, containers or bundles;

859	(b)
860	requirements concerning traceability, lots and labelling of the niche market material concerned.
861	(c)
862	modalities of making available on the market.
863	Section 2
864	Derogation from production and quality requirements
865	Article 37
866	Reduced germination requirements, and other reduced quality requirements, in case of temporary difficulties in supply
867	1.
868	In order to remove temporary difficulties in the general supply of plant reproductive material that may occur in a Member State, the competent authority of the Member State concerned may authorise the making available on the market of seed with a reduced germination rate, provided that such rate is reduced by less than 5% compared to the germination rate required pursuant to Article 16(2).
869	That authorisation shall be granted, on the basis of a reasoned request submitted by the professional operator concerned, for a specific period of time which shall not exceed four months.
870	The label of the seed referred to in paragraph 1 shall indicate the actual lower germination rate.
871	2.
872	In order to remove temporary difficulties in the general supply of plant reproductive material that may occur in a Member State, the competent authority of the Member State concerned may authorise the making available on the market of plant reproductive material with reduced quality requirements, other than the reduced germination requirements as referred to in paragraph 1, compared to the quality requirements applicable pursuant to Article 16(2).
873	That authorisation shall be granted, on the basis of a reasoned request submitted by the professional operator concerned, for a specific period of time which shall not exceed four months.
874	The label of the plant reproductive material made available on the market pursuant to this paragraph shall be brown. It shall state that the reproductive material in question complies with lower quality requirements than those referred to in Article 16(2).
875	3.
876	Member States shall notify the Commission and the other Member States of each authorisation granted pursuant to paragraphs 1 and 2.
877	4.
878	The Commission may decide, by means of implementing acts, that the authorisations referred to in paragraphs 1 or 2 are to be repealed or amended,

	in case those measures are not in compliance with the conditions of those paragraphs, or are deemed inappropriate or disproportionate to achieve the objectives of those paragraphs. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 141(3).
879	Section 3
880	Derogations from labelling, certification and identification requirements
881	Article 38
882	Plant reproductive material which is not finally certified
883	1.
884	Plant reproductive material, other than the seeds referred to in Article 39, which has been harvested in one Member State, but has not yet been finally certified as pre-basic, basic or certified material pursuant to Article 19(1), may be made available on the market by reference to those categories if:
885	(a)
886	prior to the harvesting, a field inspection has been carried out by the competent authority and has confirmed compliance of that material with the production and quality requirements referred to in Article 16(2);
887	(b)
888	the plant reproductive material is identified as not finally certified material pursuant to Article 19; and
889	(c)
890	the requirements set out in paragraphs 2 to 6 are fulfilled.
891	2.
892	Plant reproductive material referred to in paragraph 1 may be made available on the market only once from one professional operator to another, without being further transferred to any other person.
893	3.
894	The professional operator shall inform in advance the competent authority concerned of its intention to make available on the market plant reproductive material referred to in paragraph 1.
895	4.
896	If the Member State, where the plant reproductive material has been harvested (hereinafter: 'Member State of production'), and the Member State where the plant reproductive material is certified pursuant to Article 19(1) (hereinafter: 'Member State of certification') are different, the competent authorities of the Member States concerned shall exchange the relevant information concerning the making available on the market of that material.
897	5.
898	On request, the Member State of production shall supply all relevant production information to the Member State of certification. The Member State of certification shall supply information on the quantities certified to the Member State of production.

899	6.
900	The Commission shall be empowered to adopt, in accordance with Article 140, delegated acts setting out specific rules for plant reproductive material referred to in paragraph 1, concerning the following elements:
901	(a)
902	packages, containers and bundles, and rules on small packages and containers;
903	(b)
904	the labelling of that material.
905	7.
906	Plant reproductive material, other than the seeds referred to in Article 39, which has been harvested in a third country, but has not yet been finally certified as pre-basic, basic or certified material pursuant to Article 19(1), may be made available on the market by reference to those categories if:
907	(a)
908	a decision on equivalence has been adopted pursuant to Article 44 concerning that third country,
909	(b)
910	the requirements set out in paragraphs 1(a) and (b), 2 and 3 and adopted pursuant to paragraph 6 are fulfilled,
911	(c)
912	the competent authorities of the Member State and third country concerned exchange the relevant information concerning the making available on the market of that material, and
913	(d)
914	on request, the competent authorities of third country concerned supplies all relevant production information to the Member State of certification.
915	8.
916	For that purpose references made in those paragraphs to the Member States of production shall be construed as references made to the third country concerned, and references made in those paragraphs to the requirements set out pursuant to Article 16(2) shall be construed as references made to equivalent requirements.
917	Article 39
918	Seeds not certified as complying with applicable germination requirements
919	1.
920	Competent authorities may authorise the making available on the market of seeds for a specific period of time, as pre-basic, basic or certified material, without the germination requirements established pursuant to Article 16(2) having been yet confirmed, if this is considered necessary to make seed rapidly available on the market.
921	2.

922	Seed referred to in paragraph 1 may be made available on the market only once, from one professional operator to another, without being further transferred to any other person, on the basis of a provisional analytical report concerning germination.
923	3.
924	The Commission shall be empowered, in accordance with Article 140, to adopt delegated acts setting out the conditions under which seed of particular genera or species may be made available on the market as pre-basic, basic material or certified material pursuant to paragraphs 1 and 2. Those conditions may concern the following:
925	(a)
926	labelling requirements;
927	(b)
928	the duration of period in which such seed may be made available on the market; and
929	(c)
930	the content of the provisional analytical reports concerning germination.
931	Section 4
932	Derogations from miscellaneous requirements
933	Article 40
934	More stringent quality requirements
935	1.
936	The Commission may authorise Member States, by means of implementing acts, to adopt more stringent production and quality requirements than those referred to in Article 16(2), or more stringent certification rules than those referred to in Article 20(1).
937	Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 141(3).
938	2.
939	In order to obtain the authorisation referred to in paragraph 1, Member States shall submit to the Commission a request setting out:
940	(a)
941	the draft provisions containing the proposed requirements;
942	(b)
943	a justification on the necessity and proportionality of such requirements; and
944	(c)
945	whether the proposed requirements would be permanent or for a specified period.
946	3.

947	The authorisation referred to in paragraph 1 shall be granted only if the following conditions are fulfilled:
948	(a)
949	the implementation of the draft provisions, as referred to in point (a) of paragraph 2, ensures improvement of the quality of the plant reproductive material concerned, protection of the environment or sustainability of agricultural development; and
950	(b)
951	the draft provisions are necessary and proportionate to their objective.
952	Article 41
953	Emergency measures
954	1.
955	Where plant reproductive material is likely to constitute a serious risk to human, animal and plant health and environment, and such risk cannot be contained satisfactorily by means of measures taken by the Member State concerned, the Commission shall take without delay, by means of implementing acts, any appropriate interim emergency measures. Those measures may include provisions restricting or prohibiting the making available on the market of the plant reproductive material concerned, depending on the gravity of the situation.
956	2.
957	The measures referred to in paragraph 1 may be taken on the Commission's own initiative or at the request of a Member State. They shall be adopted in accordance with the examination procedure referred to in Article 141(3).
958	3.
959	On duly justified imperative grounds of urgency to address a serious risk to human health, the Commission shall adopt immediately applicable implementing acts in accordance with the procedure referred to in Article 141(4).
960	4.
961	Where a Member State officially informs the Commission of the need to take emergency measures and the Commission has not acted in accordance with paragraph 1, that Member State may adopt any appropriate interim emergency measures. Those measures may include provisions restricting or prohibiting within the territory of that Member State the making available on the market of the plant reproductive material concerned, depending on the gravity of the situation. The Member State concerned shall immediately inform the other Member States and the Commission of the measures adopted, stating the grounds for its decision.
962	5.
963	The Commission may decide, by means of implementing acts, that the national interim emergency measures referred to in paragraph 4 are to be repealed or amended. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 141(3). The Member State

	concerned may maintain its national interim emergency measures until the date of application of the implementing acts referred to in this paragraph.
964	6.
965	This Article shall apply without prejudice to any measures adopted pursuant to Article 23(2) of Directive 2001/18/EC or Article 34 of Regulation (EC) No 1829/2003 which prohibits or restricts the cultivation of genetically modified organisms.
966	Article 42
967	Temporary experiments
968	1.
969	The Commission may, by means of implementing acts, decide the organisation of temporary experiments to identify improved alternatives to any measures set out in, or adopted under, this Part. Those implementing acts may provide for derogations from the provisions of this Part. They shall be adopted in accordance with the examination procedure referred to in Article 141(3).
970	2.
971	The implementing acts referred to in paragraph 1 shall specify the genera or species concerned, the conditions of the experiments per genera or species, the duration of the experiments, and the monitoring and reporting obligations of the participating Member States. They shall take into account the evolution of techniques for reproduction, production and control of the plant reproductive material concerned.
972	3.
973	The duration of an experiment shall not exceed seven growing cycles of the plant reproductive material concerned, and shall in any case, not exceed seven years.
974	CHAPTER VI
975	Imports from and exports to third countries
976	Section 1
977	Imports
978	Article 43
979	Imports on the basis of Union equivalence
980	Plant reproductive material may be imported from third countries only if it is established, pursuant to Article 44, that it fulfils requirements equivalent to those applicable to plant reproductive material produced and made available on the market in the Union.
981	Article 44
982	Commission Decision on equivalence
983	1.
984	The Commission may decide, by means of implementing acts, whether plant reproductive material of specific genera, species or categories produced in a third country, or particular areas of a third country, fulfils requirements

	equivalent with those applicable to plant reproductive material produced and made available on the market in the Union, on the basis of:
985	(a)
986	a thorough examination of information and data provided by the third country concerned pursuant to Article 124(1) of Regulation (EU) No .../... [Office of Publications, please insert the number of the Regulation on official controls]; and
987	(b)
988	the satisfactory outcome of a control performed in accordance with Article 119(1) of Regulation (EU) No .../... [Office of Publications, please insert the number of the Regulation on official controls].
989	Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 141(3).
990	2.
991	When adopting the decisions referred to in paragraph 1, the Commission shall consider whether:
992	(a)
993	the controls on variety maintenance carried out in the third country afford the same assurances as those provided for in Article 86, if varieties registered in a national variety register or in the Union variety register are to be maintained in the third country concerned; and
994	(b)
995	the requirements in the third country concerning the production and making available on the market of plant reproductive material:
996	(i)
997	afford the same assurances as the production requirements set out in Part A to Annex II, and the requirements adopted pursuant to Article 16(2);
998	(ii)
999	afford the same assurances as the quality requirements set out in Part B to Annex II, and the requirements adopted pursuant to Article 16(2);
1000	(iii)
1001	afford the same assurances as the certification schemes of Part C to Annex II, and the requirements adopted pursuant to Article 20(1);
1002	(iv)
1003	afford the same assurance as the controls carried out according to Regulation (EU) No .../... [Office of Publications, please insert number of Regulation on Official Controls].
1004	3.
1005	For the purpose of adopting the decisions referred to in paragraph 1, the Commission may apply the provisions of Article 71 of Regulation (EU) No .../... [Office of Publication, please insert number of Regulation on Official Controls] concerning the approval of pre-export controls carried out by third

	countries.
1006	Article 45
1007	Information to be provided in the case of imports
1008	1.
1009	Plant reproductive material imported from third countries shall be made available on the market with the following information:
1010	(a)
1011	an indication that the plant reproductive material concerned 'meets EU rules and standards';
1012	(b)
1013	the species, variety, category and lot number of the plant reproductive material concerned;
1014	(c)
1015	the date of official closure, in case of making available on the market in containers, packages or bundles;
1016	(d)
1017	the third country of production and the respective competent authority;
1018	(e)
1019	where applicable, the last third country where the plant reproductive material is imported from;
1020	(f)
1021	the declared net or gross weight of the imported plant reproductive material or declared number of imported lots of plant reproductive material;
1022	(g)
1023	the person importing the plant reproductive material.
1024	2.
1025	The information referred to in paragraph 1 shall be provided:
1026	(a)
1027	in the case of pre-basic, basic or certified material, on an official document or on an additional official label;
1028	(b)
1029	in the case of standard material, on the operator's label.
1030	Section 2
1031	Exports
1032	Article 46
1033	Exports from the Union
1034	1.

1035	Where the export of plant reproductive material to a third country is governed by an agreement with that third country, that export shall comply with that agreement.
1036	2.
1037	Where the export of plant reproductive material to a third country is not governed by an agreement with that country, that export shall take place in accordance with the rules of the third country into which that plant reproductive material is to be exported.
1038	3.
1039	Where the export of plant reproductive material to a third country is neither governed by an agreement with a third country nor by the rules of the third country into which that plant reproductive material is to be exported, the requirements for production and making available on the market of plant reproductive material within the Union territory, as set out in Articles 13 to 42, shall apply.
1040	TITLE III
1041	Production and making available on the market of plant reproductive material not belonging to genera or species listed in Annex I
1042	Article 47
1043	Scope
1044	This Title shall apply to the production and making available on the market of plant reproductive material belonging to genera and species other than the ones listed in Annex I.
1045	Article 48
1046	Basic requirements
1047	1.
1048	Plant reproductive material shall be made available on the market in accordance with the following requirements:
1049	(a)
1050	it shall be visually free from any defects likely to impair its usefulness for the purposes it is intended;
1051	(b)
1052	it shall have good vigour and appropriate dimensions, as appropriate for the genera and species concerned, to ensure its usefulness for the purposes it is intended;
1053	(c)
1054	in the case of seeds, it shall have satisfactory germination, as appropriate for the genera and species concerned, to allow an appropriate number of plants per area after sowing, and to ensure the maximum yield and quality of the production;
1055	(d)

1056	if made available on the market with reference to a variety, it shall have sufficient varietal identity and purity, as appropriate for the genera and species concerned, to ensure informed choices by its users;
1057	(e)
1058	it shall at least on visual inspection, be substantially free from any pests impairing quality, or any signs or symptoms thereof, which reduce its usefulness.
1059	2.
1060	Compliance with the requirements of points (a), (b), (c), (d) and (e) of paragraph 1 shall be assessed in light of the applicable international standard recommendations:
1061	(a)
1062	the Seed Scheme Rules and Regulations of OECD;
1063	(b)
1064	the seed potato standards of UNECE;
1065	(c)
1066	the rules on sampling and testing of the International seed testing association ISTA for the genera or species concerned;
1067	(d)
1068	and the rules of EPPO.
1069	3.
1070	Where no international standard recommendations exist for genera or species concerned, compliance with the requirements of points (a), (b), (c), (d) and (e) of paragraph 1 shall be assessed in the light of, the relevant national standards of the Member State, where the plant reproductive material is for first time made available on the market
1071	4.
1072	Plant reproductive material shall be made available on the market in lots. Where lots of plant reproductive material of different origins are merged into a new lot during packaging, storage, transport or at delivery, the professional operator shall keep records including data about composition and the origin of the individual components of the new lots.
1073	If a lot is split into more lots, the professional operator shall keep records for each new lot and its origin.
1074	Article 49
1075	Labelling
1076	1.
1077	Plant reproductive material, when made available on the market, shall be accompanied by a label, containing the information set out in Part B to Annex III.
1078	2.

1079	The label referred to in paragraph 1 shall be produced by the professional operator and shall be clear and indelible. It shall be affixed on the outside of the package, the container or the bundle of plant reproductive material. It shall be printed in at least one of the official languages of the Union.
1080	3.
1081	Where reproductive material is made available on the market with a reference to genera or species rather than a variety, the professional operator shall indicate on the label referred to in paragraph 1 the species or group of species in such a way as to avoid confusion with any varietal denomination.
1082	4.
1083	The colour and form of the label shall be substantially distinct from the colour and the form of the official labels referred to in Articles 19(1).
1084	5.
1085	This Article shall apply without prejudice to Article 49(4) of Regulation (EC) No 1107/2009 concerning the label and documents accompanying treated seeds in the meaning of that Regulation.
1086	Article 50
1087	Making available on the market with reference to varieties
1088	1.
1089	Plant reproductive material shall be made available on the market with reference to a variety only in one or more of the following cases:
1090	(a)
1091	the variety is legally protected by a plant variety right in accordance with the provisions of Regulation (EC) No 2100/94 or in accordance with national provisions;
1092	(b)
1093	the variety is registered in a national variety register as referred to in Article 51 or in the Union variety register as referred to in Article 52;
1094	(c)
1095	the variety has been entered in any other public or private list with an official or officially recognised description and a denomination.
1096	2.
1097	Plant reproductive material made available on the market pursuant to points (a) and (b) of paragraph 1 shall bear the same variety denomination in all Member States.
1098	Where the variety is not protected by a plant variety right or registered pursuant to Title IV, as referred to in points (a) and (b) of paragraph 1, but has been entered in a public or private list with an official or officially recognised description and a denomination as referred to in points (b) and (c) of that paragraph, the professional operator may request the advice of the Agency concerning the suitability of the denomination pursuant to the provisions of Article 64. Following that request, the Agency shall submit to the applicant a recommendation on the suitability of the variety denomination, as requested by

	the applicant, taking into account the requirements set out in Article 64.
1099	TITLE IV
1100	Registration of varieties in national and Union variety registers
1101	CHAPTER I
1102	Establishment of national and Union variety registers
1103	Article 51
1104	Establishment of national variety registers
1105	1.
1106	Each Member State shall establish, publish and update a single national register of varieties and clones (hereinafter 'national variety register').
1107	2.
1108	The Commission shall adopt, by means of implementing acts, the format of the national variety registers. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 141(3).
1109	Article 52
1110	Establishment of a Union variety register
1111	1.
1112	The Agency shall establish, publish and update a single register of varieties and clones (hereinafter "Union variety register").
1113	The Union variety register shall include the following:
1114	(a)
1115	varieties and clones directly registered in the Union variety register in accordance with Chapter V; and
1116	(b)
1117	varieties and clones registered in national variety registers in accordance with Chapter IV, as notified by the Member States to the Agency in accordance with Chapter VI.
1118	2.
1119	The Commission shall adopt, by means of implementing acts, the format of the Union variety register. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 141(3).
1120	CHAPTER II
1121	Content of the national and Union variety registers
1122	Article 53
1123	Data concerning varieties
1124	1.
1125	For varieties, the national and Union variety registers shall include at least:
1126	(a)

1127	the name of the genus or species to which the variety belongs;
1128	(b)
1129	the denomination of the variety and, for varieties made available on the market before the entry into force of this Regulation, where applicable, its synonyms;
1130	(c)
1131	the name, and, where applicable, the reference number, of the applicant;
1132	(d)
1133	the date of the registration of the variety and, where applicable, of the renewal of the registration;
1134	(e)
1135	the date of the end of validity of registration;
1136	(f)
1137	the official description of the variety, or, where, applicable, the officially recognised description of the variety with an indication of the region(s) where the variety has historically been grown and to which it is naturally adapted ("region(s) of origin");
1138	(g)
1139	the name of the professional operator responsible for the maintenance of a variety;
1140	(h)
1141	where applicable, the indication that the variety contains a genetically modified organism;
1142	(i)
1143	where applicable, the indication that the variety is a component variety of another registered variety;
1144	(j)
1145	where applicable, the indication that plant reproductive material belonging to the variety is only produced and made available on the market in rootstocks;
1146	(k)
1147	where applicable, a summary of the results of the examinations for satisfactory value for cultivation and/or use as referred to in Article 58, or sustainable value for cultivation and/or use as referred to in Article 59.
1148	2.
1149	Notwithstanding point (g) of paragraph 1, the names of the professional operators need not be indicated in the register when several professional operators are responsible for the maintenance of the variety. In that case, the national variety registers and the Union variety register shall indicate the competent authority holding the list of names of professional operators responsible for the maintenance of the variety.
1150	Article 54

1151	Data concerning clones
1152	For clones, the national and Union variety registers shall include at least:
1153	(a)
1154	the name of the genus or species to which the clone belongs;
1155	(b)
1156	the reference under which the variety, to which the clone belongs, is registered in the national variety register or Union variety register;
1157	(c)
1158	the denomination of the variety to which the clone belongs and, for varieties made available on the market before the entry into force of this Regulation, where applicable its synonyms;
1159	(d)
1160	the date of the registration of the clone and, where applicable, of the renewal of the registration;
1161	(e)
1162	the end of validity of the registration;
1163	(f)
1164	where applicable, the indication that the variety to which the clone belongs has been registered with an officially recognised description, including the region of origin of that variety;
1165	(g)
1166	where applicable, the indication that the clone contains, or consists of, a genetically modified organism.
1167	Article 55
1168	Additional data to be included in the Union variety register
1169	In the case of a variety or clone, notified by a Member State to the Agency in accordance with Chapter VI, the Union variety register shall include, in addition to the data required pursuant to Articles 53 and 54:
1170	(a)
1171	the name of the Member States having established the relevant national variety register(s); and
1172	(b)
1173	the reference under which the variety or clone has been registered in the national variety register(s).
1174	CHAPTER III
1175	Requirements for registration in the national and Union variety registers
1176	Section 1
1177	Varieties

1178	Article 56
1179	Registration requirements for varieties
1180	1.
1181	Varieties may be registered in a national variety register pursuant to Chapter IV, or in the Union variety register pursuant to Chapter V, only if they fulfil the following requirements:
1182	(a)
1183	they bear a denomination deemed suitable pursuant to Article 64;
1184	(b)
1185	they do not pose an unacceptable risk for human, animal and plant health, or the environment;
1186	(c)
1187	in case of varieties belonging to a genetically modified organism, that organism is authorised for cultivation pursuant to Directive 2001/18/EC or Regulation (EC) 1829/2003.
1188	2.
1189	In order to be registered in a national variety register pursuant to Chapter IV, varieties shall fulfil, in addition to the requirements set out in paragraph 1, the following requirements:
1190	(a)
1191	they have an official description showing compliance with the requirements of distinctiveness, uniformity and stability set out in Articles 60, 61 and 62, or are provided with an officially recognised description pursuant to Article 57;
1192	(b)
1193	in case they belong to genera or species with particular importance for the satisfactory development of agriculture in the Union, as referred to in paragraph 5, they have a satisfactory value for cultivation and/or use pursuant to Article 58;
1194	(c)
1195	in case they belong to genera or species with particular importance for the sustainable development of agriculture in the Union, as referred to in paragraph 6, they have a sustainable value for cultivation and/or use pursuant to Article 59.
1196	3.
1197	The requirements set out in paragraph 2(b) and (c) shall not apply to the following varieties:
1198	(a)
1199	varieties provided only with an officially recognised description;
1200	(b)
1201	varieties used only as components for the creation or production of other

	varieties.
1202	4.
1203	In order to be registered in the Union variety register pursuant to Chapter V, varieties shall fulfil, in addition to requirements set out in paragraph 1, the following requirements:
1204	(a)
1205	they have an official description showing compliance with the requirements of distinctiveness, uniformity and stability set out in Articles 60, 61 and 62;
1206	(b)
1207	they do not belong to genera or species with particular importance for the satisfactory development of agriculture in the Union, as referred to in paragraph 5;
1208	(c)
1209	in case they belong to genera or species with particular importance for the sustainable development of agriculture in the Union, as referred to in paragraph 6, they have a sustainable value for cultivation and/or use pursuant to Article 59;
1210	(d)
1211	they are not used as mere components for the creation or production of other varieties.
1212	5.
1213	The Commission shall be empowered to adopt delegated acts, in accordance with Article 140, listing the genera or species with particular importance for the satisfactory development of agriculture in the Union. Those genera or species shall be listed in accordance with the criteria set out in Part A of Annex IV.
1214	6.
1215	The Commission shall be empowered to adopt delegated acts, in accordance with Article 140, listing the genera or species with particular importance for the sustainable development of agriculture in the Union. Those genera or species shall be listed in accordance with the criteria set out in Part B of Annex IV.
1216	Article 57
1217	Registration of varieties provided with an officially recognised description
1218	1.
1219	A variety may be registered in a national variety register on the basis of an officially recognised description if one of the following conditions are complied with:
1220	(a)
1221	in case the variety had been previously not registered in a national variety register or in the Union variety register and plant reproductive material belonging to that variety has been made available on the market before the

	entry into force of this Regulation;
1222	(b)
1223	in case the variety had been previously registered in any national variety register or in the Union variety register on the basis of a technical examination pursuant to Article 71, but has been deleted from those registers more than five years before the submission of the current application and would not fulfil the requirements laid down in Articles 60, 61 and 62 and, where applicable, Article 58(1) and Article 59(1).
1224	2.
1225	In order to be registered on the basis of an officially recognised description, a variety shall comply, in addition to paragraph 1, with the following conditions:
1226	(a)
1227	it is produced in the region(s) of origin;
1228	(b)
1229	it is not included in a national variety register or in the Union variety register, as a variety with an official description;
1230	(c)
1231	it is not protected by a Union plant variety right as provided for in Article 62 of Council Regulation (EC) No 2100/94, or by a national plant variety right, and it is not the subject of a pending application for such a right.
1232	3.
1233	After the registration of a variety in a national variety register pursuant to paragraph 2(a), competent authorities may approve additional region(s) of origin for that variety.
1234	4.
1235	The officially recognised description shall comply with the following requirements:
1236	(a)
1237	it is based, where available, on information from plant genetic resources authorities or from organisations recognised for that purpose by the Member States; and
1238	(b)
1239	its accuracy is supported by the results of previous official inspections or unofficial examinations or knowledge gained from practical experience during cultivation, reproduction and use.
1240	Article 58
1241	Satisfactory value for cultivation and/or use
1242	1.
1243	For the purpose of paragraph 2(b) of Article 56, varieties shall be deemed to have a satisfactory value for cultivation and/or use if, compared to other varieties examined under similar agro-climatic conditions and similar

	production systems, their characteristics, taken as a whole, offer, at least as far as production in any region is concerned, a clear improvement either for cultivation in general or for the specific uses which can be made of the crops or the products derived therefrom.
1244	2.
1245	Member States shall adopt rules concerning the examinations to determine the satisfactory value for cultivation and/or use of the varieties to be registered in their national variety register. Those rules shall concern the characteristics of the varieties in one or more of the following areas:
1246	(a)
1247	quality and agronomic characteristics, including yields;
1248	(b)
1249	suitability for cultivation in resilience and low input production systems, including for organic agricultural production.
1250	Each Member State shall publish those rules and notify them to the Agency, the Commission and the other Member States.
1251	Article 59
1252	Sustainable value for cultivation and/or use
1253	1.
1254	For the purpose of paragraph 2(c) and paragraph 3(c) of Article 56, varieties shall be deemed to have a sustainable value for cultivation and/or use if, compared to other varieties examined under similar agro-climatic conditions and similar production systems, their characteristics, taken as a whole, offer, at least as far as susceptibility to pests, input of resources, susceptibility to undesirable substances or adaptation to divergent agro-climatic conditions are concerned, a clear improvement either for cultivation in general or for the specific uses which can be made of the crops or the products derived there from.
1255	2.
1256	The Commission shall be empowered to adopt delegated acts, in accordance with Article 140, setting out rules concerning the examinations to determine the sustainable value for cultivation and/or use of the varieties. Those rules shall concern the characteristics of the varieties in one or more of the following areas:
1257	(a)
1258	resistance to pests;
1259	(b)
1260	reduced need for input of specific resources;
1261	(c)
1262	decreased content of undesirable substances; or
1263	(d)
1264	increased adaptation to divergent agro-climatic environment.

1265	Those rules shall take into account, where applicable, the available technical protocols.
1266	Article 60
1267	Distinctness
1268	1.
1269	For the purposes of the official description, referred to in point (a) of Article 56(2) and (3), a variety shall be deemed to be distinct, if it is clearly distinguishable, by reference to the expression of the characteristics that results from a particular genotype or combination of genotypes, from any other variety whose existence is commonly known on the date of the application determined pursuant to Article 70.
1270	2.
1271	The existence of another variety, as referred to in paragraph 1, shall be deemed to be commonly known, if on the date of the application determined pursuant to Article 70 one or more of the following conditions are complied with:
1272	(a)
1273	that variety is included in a national variety register or in a Union variety register;
1274	(b)
1275	an application has been filed for registration of that variety in a national variety register pursuant to Article 66, or in the Union variety register pursuant to Article 95(1), or for the granting of a plant variety right in respect of that variety in the Union;
1276	(c)
1277	an official description of that variety has been produced in the Union, and the technical examination has been conducted pursuant to the provisions of Article 69, Article 71 and, where applicable, Article 73.
1278	3.
1279	Where point (c) of paragraph 2 applies, the person(s) responsible for the technical examinations shall make available to the competent authorities and the Agency the official description of the variety examined by them.
1280	Article 61
1281	Uniformity
1282	For the purposes of the official description, referred to in point (a) of Article 56(2) and (3), a variety shall be deemed to be uniform if, subject to the variation that may be expected from the particular features of its reproduction and type, it is sufficiently uniform in the expression of those characteristics which are included in the examination for distinctness, as well as in the expression of any other characteristics used for its official description.
1283	Article 62
1284	Stability
1285	For the purposes of the official description referred to in point (a) of Article

	56(2) and (3), a variety shall be deemed to be stable if the expression of those characteristics which are included in the examination for distinctness, as well as any other characteristics used for the variety description, remains unchanged after repeated reproduction or, in the case of cycles of reproduction, at the end of each such cycle.
1286	Article 63
1287	Granted plant variety rights
1288	If a variety has been granted a plant variety right pursuant to Article 62 of Regulation (EC) No 2100/1994, or pursuant to the legislation of a Member State, that variety shall be deemed to be distinct, uniform and stable, for the purpose of the official description as referred to in point (a) of Article 56(2) and (3) and to have a suitable denomination for the purposes of point (a) of Article 56(1).
1289	Article 64
1290	Denomination of varieties
1291	1.
1292	For the purposes of point (a) of Article 56(1), the denomination of a variety shall not be deemed suitable if:
1293	(a)
1294	its use in the territory of the Union is precluded by the prior right of a third party;
1295	(b)
1296	it may commonly cause its users difficulties as regards recognition or reproduction;
1297	(c)
1298	it is identical to, or may be confused with, a variety denomination under which another variety of the same or of a closely related species is entered in a national variety register or in the Union variety register, or under which material of another variety has been made available on the market in a Member State or in a Member of the International Union for the Protection of New Varieties of Plants, unless that other variety no longer remains in existence and its denomination has acquired no special significance;
1299	(d)
1300	it is identical to, or may be confused with, other designations which are commonly used for the making available on the market of goods or which have to be kept free pursuant to other Union legislation;
1301	(e)
1302	it is liable to give offence in one of the Member States or is contrary to public order;
1303	(f)
1304	it is liable to mislead or to cause confusion concerning the characteristics, the value or the identity of the variety, or the identity of the breeder.

1305	2.
1306	Without prejudice to paragraph 1, if a variety is already registered in other national variety registers, or in the Union variety register, the denomination shall only be deemed suitable if it is identical to that appearing in those registrations.
1307	3.
1308	Paragraph 2 shall not apply if:
1309	(a)
1310	the denomination is likely to mislead or cause confusion concerning the relevant variety in one or more Member States; or
1311	(b)
1312	the rights of third parties impede the free use of that denomination in connection with the variety in question.
1313	4.
1314	The Commission shall be empowered to adopt delegated acts, in accordance with Article 140, setting out specific rules concerning the suitability of variety denominations. Those rules may concern:
1315	(a)
1316	their relation to denominations of trade marks;
1317	(b)
1318	their relation to geographical indications or designations of origin for agricultural products;
1319	(c)
1320	written consents of holders of prior rights to remove impediments to the suitability of a denomination;
1321	(d)
1322	specific criteria to determine whether a denomination is misleading or confusing as referred to in paragraph 1(f); and
1323	(e)
1324	the use of a denomination in the form of a code.
1325	Section 2
1326	Clones
1327	Article 65
1328	Registration requirements for clones
1329	1.
1330	A clone may be included in the national variety register, or in the Union variety register, only if it complies with the following requirements:
1331	(a)

1332	it belongs to genera or species which have a particular value for particular market sectors and listed pursuant to paragraph 3;
1333	(b)
1334	it belongs to a variety registered in a national variety register pursuant to Chapter IV or in the Union variety register pursuant to Chapter V;
1335	(c)
1336	it has been subject to genetic selection;
1337	(d)
1338	it bears a suitable denomination.
1339	2.
1340	For the purpose of establishing whether a denomination is suitable as referred to in paragraph 1(d) of this Article, the provisions of Article 64 shall apply with the necessary modifications. References made in Article 64 to varieties shall be construed as references to clones.
1341	3.
1342	The Commission shall be empowered to adopt delegated acts, in accordance with Article 140, listing the genera or species, the clones of which have a particular value for particular market sectors.
1343	4.
1344	The Commission shall be empowered to adopt delegated acts, in accordance with Article 140, setting out the following:
1345	(a)
1346	that clones belonging to particular genera or species shall be subject to sanitary selection for the purpose of inclusion in a national variety register or in the Union variety register; and
1347	(b)
1348	the requirements for the sanitary selection referred to in point (a);
1349	CHAPTER IV
1350	National variety register procedures
1351	Section 1
1352	Variety registration procedure
1353	Article 66
1354	Submission of applications
1355	1.
1356	Any person may submit to the competent authority an application for registration of a variety in the national variety register.
1357	2.
1358	The application referred to in paragraph 1 shall be submitted in writing. That submission may take place electronically.

1359	Article 67
1360	Content of applications
1361	1.
1362	The application for registration of a variety in a national variety register shall contain the following items:
1363	(a)
1364	a request for registration;
1365	(b)
1366	the identification of the botanical taxon (genus or species) to which the variety belongs;
1367	(c)
1368	the reference number of the applicant, where applicable, and its name and address, or, where appropriate, the names and addresses of the joint applicants, and the credentials of any procedural representative;
1369	(d)
1370	a provisional denomination;
1371	(e)
1372	the name and address of the person responsible for the maintenance of the variety, and, where applicable, the reference number of that person;
1373	(f)
1374	a description of the main characteristics of the variety and, if available, a completed technical questionnaire;
1375	(g)
1376	a description of the procedure of variety maintenance;
1377	(h)
1378	the geographic origin of the variety;
1379	(i)
1380	information on whether the variety is registered in another national variety register, or the Union variety register, and on whether it is known to the applicant that an application for registration in one of those registers is pending;
1381	(j)
1382	where the variety contains or consists of a genetically modified organism, evidence that the genetically modified organism in question is authorised for cultivation pursuant to Directive 2001/18/EC or Regulation (EC) No 1829/2003;
1383	(k)
1384	where the application is based on an officially recognised description of the variety, a file containing that description and any document or publication

	supporting it;
1385	(l)
1386	in the case of an application concerning varieties granted a plant variety right as referred to in Article 63, the proof that the variety is protected by such right, with the corresponding official description;
1387	(m)
1388	where applicable, a declaration that the variety has satisfactory value for cultivation and/or a use as referred to in Article 58(1) and/or sustainable value for cultivation and/or use as referred to in Article 59(1).
1389	2.
1390	The application for registration of a variety in a national variety register shall be accompanied by the submission of a sample of sufficient quality and quantity of the variety, as specified by the competent authority.
1391	3.
1392	The Commission shall be empowered to adopt delegated acts, in accordance with Article 140, setting out additional items to be included in the application for particular genera or species, in relation with the particular features of the varieties belonging to those genera or species.
1393	Article 68
1394	Application format
1395	The Commission shall adopt, by means of implementing acts, the format of the application referred to in Article 66. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 141(3).
1396	Article 69
1397	Formal examination of application
1398	1.
1399	The competent authority shall register each application for registration in the national variety register it receives, and shall carry out the formal examination of that application. The formal examination of the application shall examine whether the application complies with:
1400	(a)
1401	the content requirements laid down in Article 67; and
1402	(b)
1403	the format adopted pursuant to Article 68.
1404	2.
1405	If the application does not comply with the requirements laid down in Article 67 or the format adopted pursuant to Article 68, the competent authority shall give the applicant the possibility to make its application compliant within a given time.
1406	Article 70

1407	Date of application
1408	The date of application for registration shall be the date on which an application complying with the content requirements laid down in Article 67 and the format adopted pursuant to Article 68 was submitted to the competent authority.
1409	Article 71
1410	Technical examination
1411	1.
1412	Where, as a result of the formal examination, the application is found to comply with the content requirements referred to in Article 67 and the format adopted pursuant to Article 68, a technical examination of the variety shall be carried out for the purpose of establishing an official description.
1413	2.
1414	The technical examination referred to in paragraph 1 shall verify:
1415	(a)
1416	the compliance with the requirements for distinctiveness, uniformity and stability of the variety, as laid down in Articles 60, 61 and 62;
1417	(b)
1418	where applicable, that the variety has a satisfactory value for cultivation and/or use, according to Article 58(1) and a sustainable value for cultivation and/or use according to Article 59(1).
1419	3.
1420	The technical examination referred to in paragraph 1 shall be carried out by the competent authorities in accordance with the requirements referred to in Article 74.
1421	On request submitted by the applicant to the competent authority, the technical examination, or part of it, may be carried out by the applicant, in accordance with the provisions of Article 73 and the requirements referred to in Article 74.
1422	4.
1423	In case an official description of the variety, produced by the Agency or a competent authority, is already available, the competent authority shall decide that the technical examination referred to in paragraph 1 is not necessary.
1424	5.
1425	By way of derogation from paragraph 4, the competent authority may decide that the technical examination referred to in paragraph 1 is necessary in the case of a variety the registration of which is requested pursuant to point (b) Article 57(1).
1426	Article 72
1427	Audit of the competent authority's premises and organisation
1428	1.
1429	The competent authority may carry out the technical examination referred to in

	Article 71(1) only if its premises, which must be dedicated to this purpose, and its organisation have been audited by the Agency.
1430	That audit shall verify whether the premises and the organisation of the competent authority are suitable for carrying out the technical examination as regards:
1431	(a)
1432	compliance with the requirements for distinctiveness, uniformity and stability referred to in Articles 60, 61 and 62; and
1433	(b)
1434	compliance with the requirements of a sustainable value for cultivation and/or use referred to in Article 59(1).
1435	2.
1436	The Commission shall be empowered to adopt delegated acts, in accordance with Article 140, setting out the rules concerning the audit referred to in paragraph 1.
1437	3.
1438	On the basis of the audit referred to in paragraph 1, the Agency may recommend to the competent authority, if appropriate, actions to ensure the suitability of the premises and organisation of the competent authorities. Further to the audit referred to in paragraph 1, the Agency may carry out additional audits and, where applicable, recommend to the competent authorities corrective actions to ensure the suitability of their premises and organisation.
1439	Article 73
1440	Technical examination by the applicant
1441	1.
1442	The applicant may carry out the technical examination referred to in Article 71(1), or part of it, only if it has been authorised thereto by the competent authority. Technical examination by the applicant shall be carried out in particular premises, which are dedicated to this purpose.
1443	2.
1444	Prior to granting the authorisation to carry out the technical examination, the competent authority shall audit the premises and the organisation of the applicant. That audit shall verify whether the premises and organisation are suitable for carrying out the technical examination as regards:
1445	(a)
1446	compliance with the requirements for distinctiveness, uniformity and stability referred to in Articles 60, 61 and 62; and
1447	(b)
1448	compliance with the requirements of a satisfactory value for cultivation and/or use referred to in Article 58(1);
1449	(c)

1450	compliance with the requirements of a sustainable value for cultivation and/or use referred to in Article 59(1).
1451	3.
1452	The Commission shall be empowered to adopt delegated acts, in accordance with Article 140, setting out the rules concerning the audit referred to in paragraph 2.
1453	4.
1454	On the basis of the audit referred to in paragraph 1, the competent authority may recommend to the applicant, if appropriate, actions to ensure the suitability of the applicant's premises and organisation.
1455	5.
1456	Further to the authorisation and audit referred to in paragraph 1, the competent authority may carry out additional audits and, where applicable, recommend to the applicant, within a specific period of time, corrective actions concerning the applicant's premises and the organisation.
1457	In case the competent authority concludes that the applicant's premises and organisation are not suitable, it may revoke or modify the authorisation referred to in paragraph 1.
1458	Article 74
1459	Additional rules on technical examination
1460	1.
1461	The Commission shall be empowered to adopt delegated acts, in accordance with Article 140, supplementing the requirements on the technical examination laid down in Articles 71, 72 and 73. Those delegated acts may concern:
1462	(a)
1463	qualification, training and activities of staff of the competent authority, or of the applicant, for the purposes of the technical examination referred to in Article 71(1);
1464	(b)
1465	the necessary equipment, including laboratories for disease resistance characteristics, necessary to carry out the technical examination;
1466	(c)
1467	the establishment of a variety reference collection to assess distinctness, and the storage management of such reference collection;
1468	(d)
1469	the establishment of quality management systems, including record of activities and protocols or guidelines, to be used for the technical examination;
1470	(e)
1471	the conduct of growing trials and laboratory tests for particular genera or species.
1472	Those delegated acts shall take into account the available technical and

	scientific protocols.
1473	2.
1474	Where no requirements have been adopted pursuant to paragraph 1, technical examinations shall be carried out in accordance with national protocols as regards the elements referred in points (a) to (e) of paragraph 1.
1475	Article 75
1476	Confidentiality
1477	1.
1478	Where, in the framework of the technical examination referred to in Article 71(1), an examination of the genealogical components is necessary, the results of that examination and the description of the genealogical components shall be treated as confidential, if the applicant so requests.
1479	2.
1480	In the case of varieties of plant reproductive material intended exclusively for the production of agricultural raw materials for industrial purposes, and if so requested by the applicant, the results of the technical examination referred to in Article 71(1) and the intended uses of those varieties shall be treated as confidential.
1481	Article 76
1482	Provisional examination report and provisional official description
1483	1.
1484	Following the technical examination referred to in Article 71(1), the competent authority shall produce a provisional examination report and, where it considers that the distinctiveness, uniformity and stability requirements, as referred to in Articles 60, 61 and 62, are complied with, a provisional official description of the variety on the basis of that report.
1485	2.
1486	The provisional examination report may refer to findings of other examination reports, produced on the relevant variety, by the competent authority concerned, other competent authorities or the Agency.
1487	3.
1488	The competent authority shall communicate the provisional examination report and the provisional official description of the variety to the applicant.
1489	4.
1490	Where the competent authority does not consider the examination report to constitute a sufficient basis for a decision on the registration of the variety, it shall provide a complementary examination of its own motion, after consulting the applicant, or on request of the applicant. Any complementary examination carried out until a decision is taken pursuant to Article 79(1) shall be considered to be part of the technical examination referred to in Article 71(1).
1491	Article 77
1492	Examination report and official description

1493	1.
1494	After having given the applicant an opportunity to comment on the provisional examination report and the provisional official description, the competent authority shall establish a final examination report and a final official description.
1495	2.
1496	Competent authorities shall, on reasoned request, make available the examination reports to third parties, subject to national or Union provisions on data protection and applicable rules on confidentiality.
1497	Article 78
1498	Examination of the denomination
1499	1.
1500	After the formal examination of the application referred to in Article 69, and prior to the registration of a variety in a national variety register pursuant to Article 79, the competent authority shall consult the Agency on the variety denomination proposed by the applicant.
1501	2.
1502	The Agency shall submit to the competent authority a recommendation on the suitability of the variety denomination proposed by the applicant, in accordance with the requirements set out in Article 64. The competent authority shall inform the applicant on that recommendation.
1503	Article 79
1504	Decision on registration
1505	1.
1506	If, on the basis of the procedure set out in Articles 66 to 78, it is concluded that the variety complies with the applicable requirements set out in Article 56, the competent authority shall decide to register the variety in the national variety register.
1507	2.
1508	The competent authority shall adopt a decision refusing registration in the national variety register if:
1509	(a)
1510	it establishes that the applicable requirements set out in Article 56, are not fulfilled; or
1511	(b)
1512	the applicant has failed to comply with any obligations set out for it in Articles 66 to 74.
1513	3.
1514	Decisions refusing the registration shall state the reasons justifying the refusal.
1515	4.

1516	The competent authority shall communicate to the applicant a copy of the decision referred to in paragraphs 1 and 2.
1517	Article 80
1518	Already registered varieties and clones
1519	1.
1520	By way of derogation from Articles 66 to 79, the competent authorities shall register in their national variety registers all varieties officially accepted or registered, before the entry into force of this Regulation, in the catalogues, lists or registers established by their Member States pursuant to Article 3 of Directive 2002/53/EC, Article 3(2) of Directive 2002/55/EC, Article 7(4) of Directive 2008/90/EC and Article 5 of Directive 68/193/EEC and all clones registered pursuant to Article 5 of Directive 68/193/EEC, Article 7(4) of Directive 2008/90/EC, Chapter II of Directive 2008/62/EC and Section I of Chapter II and Section I of Chapter III of Directive 2009/145/EC.
1521	2.
1522	Varieties accepted in accordance with Article 3 of Directive 2008/62/EC and Article 3(1) of Directive 2009/145/EC shall be registered in the national variety registers as varieties provided with an officially recognised description.
1523	Article 81
1524	New denomination after registration
1525	Where, after the registration of a variety, it is established by the competent authority that at the time of the registration the denomination of the variety was not suitable within the meaning of Article 64, the applicant shall submit an application for a new denomination. The competent authority shall decide on that application upon consultation with the Agency. The competent authority may permit the previous denomination to be used temporarily.
1526	Section 2
1527	Registration period and variety maintenance
1528	Article 82
1529	Validity period of the registration
1530	1.
1531	The validity period of the registration of a variety in a national variety register shall be 30 years.
1532	2.
1533	In the case of varieties consisting of, or containing, a genetically modified organism, the validity of the registration shall be limited to the period for which that genetically modified organism is authorised for cultivation pursuant to Directive 2001/18/EC or Regulation (EC) No 1829/2003.
1534	Article 83
1535	Duration of the renewal period
1536	1.

1537	The registration of a variety in a national variety register may be renewed for further periods of 30 years, in accordance with the procedure and the conditions laid down in Article 84.
1538	2.
1539	In the case of a variety consisting of or containing a genetically modified organism, the renewal shall be limited to the period for which that genetically modified organism is authorised for cultivation pursuant to Directive 2001/18/EC or Regulation (EC) No 1829/2003.
1540	Article 84
1541	Procedure and conditions for registration renewal
1542	1.
1543	Any person intending to renew the registration of a variety shall submit an application, no earlier than 12 months, and no later than six months, before the expiration of the validity period as referred to in Article 82.
1544	2.
1545	The application shall be submitted in writing. That submission may take place electronically. It shall be accompanied by evidence showing that the conditions set out in paragraphs 3 and 4 are fulfilled.
1546	3.
1547	The renewal of the registration of a variety in a national variety register shall only be granted if the following conditions are met:
1548	(a)
1549	the variety continues complying with the requirements of Article 56, and, where applicable of Article 57;
1550	(b)
1551	the competent authority determines that a person is responsible for maintaining the variety in accordance with the provisions of Article 86.
1552	4.
1553	The competent authority may renew the registration of a variety in a national variety register, without an application for renewal being submitted pursuant to paragraphs 1 and 2, where it considers that the renewal of that registration serves sustainable agricultural production and the preservation of genetic diversity, and that the conditions of paragraph 3 are fulfilled.
1554	Article 85
1555	Deletion from national variety registers
1556	1.
1557	The competent authority shall decide to delete a variety from the national variety register, in the following cases:
1558	(a)
1559	if the competent authority concludes, on the basis of any new evidence, that the requirements for registration, as set out in Article 56 are no longer fulfilled;

1560	(b)
1561	if a request to delete the variety from the national variety register has been submitted by the applicant;
1562	(c)
1563	if the applicant does not pay the annual fee pursuant to point (d) of Article 87(1)(e);
1564	(d)
1565	if the person responsible for the maintenance of the variety, as referred to in Article 86(1), so requests, unless maintenance of the variety is assured by another person;
1566	(e)
1567	if the variety is no longer maintained pursuant to requirements of Article 86;
1568	(f)
1569	if the variety is maintained in a third country, that third country has not provided assistance on the controls of that maintenance pursuant to Article 86(8);
1570	(g)
1571	if at the time of the application, false or fraudulent data were supplied concerning the facts on the basis of which the registration was decided;
1572	(h)
1573	if, by the deadline to submit an application for renewal referred to in Article 84(1), the applicant has not submitted such an application and the validity period referred to in Article 82(1) has expired.
1574	2.
1575	On request by the applicant, the competent authority may allow a variety deleted from the national variety register in accordance to paragraph 1(b) to continue to be made available on the market until 30 June of the third year following the deletion from the register.
1576	That request shall be submitted no later than the date of the expiration of the registration period.
1577	3.
1578	After a variety is deleted from the national variety register, the competent authority shall submit a sample of that variety, and its description, to a gene bank dedicated to the conservation of genetic resources.
1579	Article 86
1580	Variety maintenance
1581	1.
1582	Varieties registered in a national variety register shall be maintained by the applicant or by any other person acting in mutual agreement with the applicant. That other person shall be notified by the applicant to the competent authority.

1583	2.
1584	Variety maintenance shall take place in accordance with accepted practices concerning, as appropriate, genera, species or types of varieties.
1585	3.
1586	The persons referred to in paragraph 1 shall keep records concerning the maintenance of the variety. It shall at all times be possible for the competent authority to check the maintenance of the variety from those records. Those records shall also cover the production of pre-basic, basic, certified and standard material, and the stages of production prior to pre-basic material.
1587	4.
1588	Varieties provided with an officially recognised description shall be maintained in their region(s) of origin.
1589	5.
1590	The competent authority shall carry out controls on the manner in which variety maintenance is carried out and may, to this purpose, take samples of the varieties concerned.
1591	6.
1592	Where a competent authority finds that the person responsible for variety maintenance does not comply with paragraphs 1 to 4, it shall give that person the opportunity to take corrective action.
1593	7.
1594	Where variety maintenance takes place in a Member State other than the Member State in whose national variety register the variety has been registered, the competent authorities of the two Member States concerned shall assist each other in the controls on variety maintenance.
1595	8.
1596	Where variety maintenance takes place in a third country, the competent authorities of the Member State in whose national variety register the variety has been registered concerned shall request the third country's authorities assistance in the controls on variety maintenance.
1597	Section 3
1598	Registration fees
1599	Article 87
1600	Registration fees
1601	1.
1602	The competent authorities shall charge fees to recover the necessary costs incurred for the following actions:
1603	(a)
1604	the formal examination of the application referred to in Article 69;
1605	(b)

1606	the technical examination and the audits referred to in Article 71 and Article 73(1);
1607	(c)
1608	the examination of the variety denomination referred to in Article 78;
1609	(d)
1610	the decision on registration referred to in Article 79, and any administrative appeal lodged pursuant to national rules against that decision;
1611	(e)
1612	the inclusion of the variety, or where applicable the clone, in the national variety register for each year of the duration of the registration;
1613	(f)
1614	controls on the maintenance as referred to in Article 86(5).
1615	2.
1616	The actions referred to in paragraph 1 shall only be carried out on demand submitted by the applicant to the competent authority, and after the respective fees have been paid. The demand shall be deemed not to have been made, if the fees have not been paid within one month from the date on which the competent authority requested payment of the fees and indicated in that request the consequences of the failure to pay.
1617	3.
1618	The Commission shall be empowered to adopt delegated acts, in accordance with the procedure referred to in Article 140, setting out the specific cost items to be covered pursuant to paragraph 1(a) to) f.
1619	Article 88
1620	Fees for varieties provided with an officially recognised description
1621	1.
1622	In the case of varieties provided with an officially recognised description, no fees shall be charged for the actions referred to in point (e) of Article 87(1).
1623	2.
1624	In the case of varieties provided with an officially recognised description, the competent authorities shall reduce the amount of the fee for the actions referred to in of points (a), (c), (d), and (f) of Article 87(1). That reduction shall take place in a manner to ensure that the fee does not constitute a barrier to the registration of the variety concerned.
1625	Article 89
1626	Exemptions from the payment of registration fees
1627	1.
1628	Fees provided for in Article 87 and 88 shall not directly or indirectly be refunded, unless unduly collected.
1629	2.

1630	Applicants employing fewer than 10 persons and whose annual turnover or annual balance sheet total does not exceed EUR 2 million shall be exempted from the payment of the fees provided for in Article 87 and Article 88.
1631	3.
1632	The costs referred to in Articles 87 and 88 shall not include those incurred for the performance of official controls on the applicants referred to in paragraph 2.
1633	Section 4
1634	Registration of clones
1635	Article 90
1636	Applicable provisions
1637	1.
1638	For the registration of a clone in a national variety register, Sections 1, 2 and 3 shall apply with the necessary modifications, excluding the following provisions:
1639	(a)
1640	the provisions on the content of applications as set out in Article 67;
1641	(b)
1642	the provisions referring to varieties provided with officially recognised descriptions;
1643	(c)
1644	the provisions referring to varieties with sustainable or satisfactory value for cultivation and/or use.
1645	2.
1646	As regards the content of applications, Article 92 shall apply instead of Article 67.
1647	Article 91
1648	References
1649	When applying Sections 1, 2 and 3 for the registration of a clone in a national variety register, references shall be construed as follows:
1650	(a)
1651	references to varieties shall be construed as references to clones;
1652	(b)
1653	references to Article 56 shall be construed as references to Article 65;
1654	(c)
1655	references to the requirements set out in Articles 60, 61 and 62 shall be construed as references to requirements set out in Article 65(1)(b) and (3);
1656	(d)

1657	references to Article 67, concerning the content of applications, shall be construed as references to Article 92.
1658	Article 92
1659	Content of applications
1660	1.
1661	The application for registration of a clone in a national variety register shall contain the following items:
1662	(a)
1663	a request for registration;
1664	(b)
1665	the identification of the variety to which the clone belongs;
1666	(c)
1667	the name and address of the applicant, or, where appropriate, the joint applicants, and the credentials of any procedural representative;
1668	(d)
1669	a provisional denomination;
1670	(e)
1671	the name and address of the person responsible for the maintenance of the clone, and, where applicable, the reference number of that person;
1672	(f)
1673	a description of the main characteristics of the clone and, if available, a completed technical questionnaire;
1674	(g)
1675	the geographic origin of the clone;
1676	(h)
1677	information on whether the clone is registered in another national variety register or Union variety register, and on whether it is known to the applicant that an application for registration of the clone in those registers is pending;
1678	(i)
1679	in the case of a clone containing or consisting of a genetically modified organism, evidence that the genetically modified organism in question is authorised for cultivation pursuant to Directive 2001/18/EC or Regulation (EC) No 1829/2003.
1680	2.
1681	The application for the registration of a clone in a national variety register shall be accompanied by the submission of a sample of sufficient quality and quantity of the clone.
1682	CHAPTER V
1683	Procedures concerning the Union variety register

1684	Section 1
1685	Scope of the chapter
1686	Article 93
1687	Relevant varieties and clones
1688	This Chapter shall apply to varieties and clones not registered in any national variety register pursuant to Article 79.
1689	Section 2
1690	Registration procedure
1691	Article 94
1692	Applicable provisions
1693	1.
1694	For the registration of a variety or clone in the Union variety register, Chapter IV shall apply with the necessary modifications, excluding the following provisions:
1695	(a)
1696	the provisions on the examination of denominations set out in Article 78;
1697	(b)
1698	the provisions on variety maintenance set out in Article 86;
1699	(c)
1700	the provisions referring to varieties provided with an officially recognised description;
1701	(d)
1702	the provisions on exemptions from the payment of registration fees, set out in Article 89(2) and (3).
1703	2.
1704	For the examination of denominations, for variety and clone maintenance and for exemptions from the payment of registration fees, Articles 95, 96 and 97 shall apply instead of the provisions referred to in paragraph 1(a), (b) and) d. 3.
1705	When applying Chapter IV for the registration of a variety or clone in the Union variety register, references shall be construed as follows:
1706	(a)
1707	references to the competent authority shall be construed as references to the Agency;
1708	(b)
1709	references to national variety registers shall be construed as references to the Union variety register;
1710	(c)

1711	references to Article 78 shall be construed as references to Article 95;
1712	(d)
1713	references to Article 86 shall be construed as references to Article 96;
1714	(e)
1715	references to administrative appeal lodged pursuant to national rules against the respective decision shall be construed as references to the appeal referred to in Article 98.
1716	Article 95
1717	Examination of the denomination
1718	1.
1719	After the formal examination of the application referred to in Article 69, as applied pursuant to Article 94, and before a variety or clone is registered in the Union variety register, the Agency shall examine the denomination of the variety or clone proposed by the applicant.
1720	2.
1721	The Agency shall decide on the suitability of the variety or clone denomination, in accordance with the requirements set out in Article 64.
1722	Article 96
1723	Maintenance of varieties and clones
1724	1.
1725	Varieties and clones registered in the Union variety register shall be maintained by the applicant, or by any other person acting in mutual agreement with the applicant. The other person shall be notified to the Agency.
1726	2.
1727	The maintenance shall take place in accordance with accepted practices, as appropriate per genera, species or types of varieties.
1728	3.
1729	The person referred to in paragraph 1 shall keep records concerning the maintenance of the variety or the clone. It shall at all times be possible for the Agency to check the maintenance of the variety or the clone from those records. Those records shall also cover the production of pre-basic, basic, certified and standard material, and stages of production prior to pre-basic material.
1730	4.
1731	The Agency shall check the way the maintenance is carried out and may, to this purpose, take samples of the varieties and the clones.
1732	5.
1733	The competent authorities of the Member State where the maintenance of the variety or the clone concerned takes place, shall assist the Agency as regards controls on maintenance.

1734	6.
1735	In case the Agency finds that the person responsible for the maintenance does not comply with the provisions of paragraphs 1, 2 and 3, it shall give that person the opportunity to take corrective action.
1736	Article 97
1737	Amount of fees
1738	1.
1739	The Commission shall be empowered to adopt delegated acts, in accordance with the procedure referred to in Article 140, setting out the amount of the fees referred to in Article 87(1) as applied pursuant to Article 94.
1740	2.
1741	The level at which the fees are set pursuant to paragraph 1 shall reflect the principle of sound financial management to allow the Agency to maintain a balanced budget.
1742	Section 3
1743	Appeals
1744	Article 98
1745	Right of appeal
1746	An appeal shall lie from decisions of the Agency which have been taken pursuant to Section 2. It shall be examined by the Board of Appeal of the Agency referred to in Article 46 of Regulation (EC) No 2100/1994.
1747	Article 99
1748	Provisions applicable to appeals
1749	1.
1750	Chapters V and VI of Part Four of Regulation (EC) No 2100/1994 shall apply, with the necessary modifications, to appeals referred to in Article 98.
1751	2.
1752	Notwithstanding paragraph 1 of this Article, the following provisions of Chapters V and VI of Part Four of Regulation (EC) No 2100/1994 shall not apply to appeals referred to in Article 98:
1753	(a)
1754	Article 67 (1) and (3);
1755	(b)
1756	Article 74;
1757	(c)
1758	Article 80(5).
1759	Article 100
1760	References

1761	For the purposes of Article 99(1), references contained in Chapters V and VI of Part Four of Regulation (EC) No 2100/1994 shall be construed as follows:
1762	(a)
1763	the reference made in Article 68 to Article 82 shall be omitted;
1764	(b)
1765	the reference made in Article 70(1) to "the body of the Office which has prepared the decision" shall be construed as a reference made to the Agency;
1766	(c)
1767	the reference made in Article 76 to the "examination made pursuant to Articles 54 and 55" shall be construed as a reference made to the technical examination of the application for registration carried out by the Agency pursuant to this Regulation;
1768	(d)
1769	the reference made in Article 78(3) and (4) to Article 90(2) shall be omitted;
1770	(e)
1771	the reference made in Article 79 to the "competent offices" shall be construed as a reference made to the competent authorities;
1772	(f)
1773	the reference made in Article 80(1) to the "applicant for a Community plant variety right or the holder" shall be construed as a reference made to the applicant for registration;
1774	(g)
1775	the reference made in Article 80(3) to the "time limits specified in Article 52 (2), (4) and (5) shall be omitted;
1776	(h)
1777	the reference made in Article 81 to the "staff of the Examination Offices" shall be omitted.
1778	CHAPTER VI
1779	Notification of varieties to the Union variety register
1780	Article 101
1781	Notification procedure
1782	1.
1783	Each competent authority shall notify within five working days the Agency of the application for registration of a variety, the adoption of the decision referred to in Article 79, the new denomination after registration pursuant to Article 81, the renewal of the registration pursuant to Article 83, and the deletion of a variety pursuant to Article 85.
1784	2.
1785	Each competent authority shall notify the Agency of the person responsible for the maintenance of the variety pursuant to Article 86. That notification shall

	take place within five working days from the date on which the competent authority has become aware of that person.
1786	3.
1787	The Commission shall establish, by means of implementing acts, procedures for submission of the notifications referred to in paragraph 1. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 141(3).
1788	CHAPTER VII
1789	Keeping and handling of information
1790	Article 102
1791	Documentation on the national variety registers and on the Union variety register
1792	1.
1793	The competent authority shall keep a file on each variety registered in the national variety register, containing the official description, the examination report and any complementary examination report pursuant to Article 76. Where applicable, the file shall only contain the officially recognised description of the variety, and the documents supporting that description.
1794	2.
1795	The Agency shall keep a file on each variety registered in the Union variety register, containing the official description and the examination report issued pursuant to Article 94(1).
1796	Article 103
1797	Access to information of the national variety registers
1798	1.
1799	Each Member State shall inform the other Member States, the Agency and the Commission on the access to its national variety register.
1800	2.
1801	By 31 March of each year, each competent authority shall notify to the other competent authorities and the Commission any amendments of the respective national variety registers which took place during the preceding year.
1802	3.
1803	Each competent authority shall, on request, make available to another competent authority, the Agency or the Commission:
1804	(a)
1805	where applicable, the examination reports of varieties registered in the respective national variety register, as referred to in Article 77(1);
1806	(b)
1807	where applicable, the results of technical examinations referred to in Article 71(1);

1808	(c)
1809	the list of varieties for which an application for registration is pending;
1810	(d)
1811	any other information available in respect of registered or deleted varieties.
1812	4.
1813	The competent authority shall take appropriate measures to make available the information contained in the files of the national variety register to any person requesting access to this information. This provision shall not apply where the information must be treated as confidential pursuant to Article 75.
1814	Article 104
1815	Access to information of the Union variety register
1816	1.
1817	The Agency shall notify the competent authorities and the Commission of the information required to access the Union variety register.
1818	2.
1819	By 31 March of each year, the Agency shall notify the competent authorities and the Commission of any amendments of the Union variety register made during the preceding year with regard to the varieties registered pursuant to Article 94(1).
1820	3.
1821	The Agency shall, on request, and with regard to varieties registered in the Union variety register pursuant to Article 94(1), make available to a competent authority or the Commission:
1822	(a)
1823	the examination reports or the official description of the registered varieties;
1824	(b)
1825	the results of technical examinations;
1826	(c)
1827	the list of varieties for which applications for registration are pending;
1828	(d)
1829	any other information available in respect of registered or deleted varieties.
1830	4.
1831	The Agency shall take appropriate measures to make available the information contained in the files of the Union variety register to any person requesting access to that information. This provision shall not apply where the information must be treated as confidential under Article 75.
1832	PART IV
1833	PRODUCTION AND MAKING AVAILABLE ON THE MARKET OF FOREST REPRODUCTIVE MATERIAL

1834	TITLE I
1835	General provisions
1836	Article 105
1837	Scope
1838	This Part shall apply to the production and making available on the market, of forest reproductive material.
1839	Article 106
1840	Definitions
1841	1.
1842	For the purposes of this Part, the following definitions shall apply:
1843	(a)
1844	"basic forest material" means seed source, stand, seed orchard, parents of family, clone or clonal mixture;
1845	(b)
1846	"seed source" means trees within a delimited area from which seed is collected;
1847	(c)
1848	"stand" means a delineated population of trees possessing sufficient uniformity in composition;
1849	(d)
1850	"seed orchard" means a plantation of selected clones or families, which is isolated or managed so as to avoid or reduce pollination from outside sources, and managed to produce frequent, abundant and easily harvested crops of seed;
1851	(e)
1852	"parents of family" means trees used to obtain progeny by controlled or open pollination of one identified parent used as a female, with the pollen of one parent (full-sibling) or a number of identified or unidentified parents (half sibling);
1853	(f)
1854	"clone" means group of individuals (ramets) derived originally from a single individual (ortet) by vegetative reproduction, including by cuttings, micro-propagation, grafts, layers or divisions;
1855	(g)
1856	"clonal mixture" means a mixture of identified clones in known proportions;
1857	(h)
1858	"Autochthonous stand" or "autochthonous seed source" means a stand or seed source which:
1859	(i)
1860	has been continuously regenerated by natural regeneration; or

1861	(ii)
1862	has been regenerated artificially from reproductive material collected in the same stand or seed source; or
1863	(iii)
1864	has been regenerated artificially from reproductive material collected in stands or seed sources, within the close proximity, meeting the description in points (i) and (ii);
1865	(i)
1866	"Indigenous stand" or 'indigenous seed source' means a stand or seed source raised artificially from seed, the origin of which is situated in the same region of provenance;
1867	(j)
1868	"origin" means:
1869	(i)
1870	for an autochthonous stand or seed source– the place in which the trees are growing;
1871	(ii)
1872	for a non-autochthonous stand or seed source– the place from which the seed or plants were originally introduced;
1873	(k)
1874	"provenance" means the place in which any stand is growing;
1875	(l)
1876	"region of provenance" means, for a species or sub-species, the area or group of areas subject to sufficiently uniform ecological conditions in which stands or seed sources showing similar phenotypic or genetic characters are found, and is delimited, where appropriate, by altitudinal boundaries;
1877	(m)
1878	"category" means any of the following groupings of derived forest reproductive material: source-identified, selected, qualified or tested reproductive material;
1879	(n)
1880	"source-identified": means derived from basic forest material which may be either a seed source or stand located within a single region of provenance;
1881	(o)
1882	"selected": means derived from basic forest material consisting of a stand located within a single region of provenance and which has been phenotypically selected at the population level;
1883	(p)
1884	"qualified": means derived from basic forest material consisting of seed orchards, parents of families, clones or clonal mixtures, the components of

	which have been phenotypically selected at the individual level;
1885	(q)
1886	"tested": means derived from basic forest material consisting of stands, seed orchards, parents of families, clones or clonal mixtures of superior quality;
1887	(r)
1888	"planting stock" means one of the following:
1889	(i)
1890	plants raised from seed units;
1891	(ii)
1892	plants raised from parts of plants; or
1893	(iii)
1894	plants raised from natural regeneration(s);
1895	(s)
1896	"seed unit" means cones, infructescences, fruits and seeds intended for the production of planting stock;
1897	(t)
1898	"parts of plants" means stem cuttings, leaf cuttings and root cuttings, explants or embryos for micro-propagation, buds, layers, roots, scions, sets and any parts of a plant intended for the production of planting stock;
1899	(u)
1900	"area of utilisation" means the area where the forest reproductive material is used for a specified purpose.
1901	TITLE II
1902	Basic forest material
1903	Article 107
1904	Approval of basic forest material
1905	1.
1906	Basic forest material shall be approved by the competent authority for the production of the relevant categories of forest reproductive material if it meets the requirements set out in Annexes V, VI, VII or VIII.
1907	2.
1908	Each unit of approved basic forest material (hereinafter: 'unit of approval') shall be identified by a unique reference to the register referred to in Article 112(1).
1909	3.
1910	The approval shall be withdrawn, if the requirements referred to in paragraph 1 are no longer met.
1911	4.

1912	The Commission shall be empowered to adopt delegated acts, in accordance with Article 140, supplementing the requirements set out in point 3 of Annex VII concerning clones, and point 4 of Annex VII concerning clonal mixtures, by determining the maximum number of years or the maximum number of ramets to which the approval of clones or clonal mixtures shall be restricted
1913	Article 108
1914	Provisional approval of basic forest material intended for the production of tested material
1915	1.
1916	Basic forest material intended for the production of forest reproductive material under the 'tested' category, whose compliance with the requirements referred to in Article 107(1) has not been established, may provisionally be approved by the competent authorities for a maximum period of ten years, provided that it can be assumed that the basic forest material will, when tests have been completed, satisfy the requirements for approval. That assumption shall be based on the provisional results of the genetic evaluation or comparative tests referred to in Annex VIII.
1917	2.
1918	The provisional approval referred to in paragraph 1 may cover all or part of the territory of the Member State concerned.
1919	Article 109
1920	Post approval inspections
1921	After the approval referred to in Articles 107 and 108, basic forest material intended for the production of forest reproductive material under the selected, qualified and tested categories shall be re-inspected by the competent authority at regular intervals to confirm compliance with those Articles.
1922	Article 110
1923	Demarcation of regions of provenance
1924	1.
1925	The Member States shall demarcate the regions of provenance of basic forest material consisting of stands or seed sources and intended for the production of forest reproductive material under the 'source-identified' and 'selected' categories.
1926	2.
1927	Member States shall draw up and publish maps showing the demarcations of the regions of provenance. Those maps shall be communicated to the Commission and other Member States.
1928	Article 111
1929	Notification of the intention to collect approved basic forest material
1930	The professional operators shall inform the competent authorities in due time about their intention to collect material from approved basic forest material.
1931	Article 112

1932	National register and national list of approved basic forest material
1933	1.
1934	Member States shall establish a national register of basic forest material approved on their territory pursuant to Article 107 and Article 108. That register shall contain information concerning the unit of approval together with its unique register reference.
1935	2.
1936	Each Member State shall establish, publish and update a summary of the national register in the form of a national list.
1937	3.
1938	The national list referred to in paragraph 2 shall be drawn up in a common form. It shall enumerate each unit of approval. However, for basic forest material intended for the categories 'source-identified-' and 'selected', a further summarisation based on regions of provenance shall be permitted.
1939	4.
1940	The national list referred to in paragraph 2 shall contain the following details:
1941	(a)
1942	botanical name;
1943	(b)
1944	category for the production of which the basic forest material is intended;
1945	(c)
1946	purpose of the forest reproductive material which will derive from the basic forest material;
1947	(d)
1948	type of basic forest material (seed source, stand, seed orchard, parents of family, clone or clonal mixture);
1949	(e)
1950	register reference to the unit of approval or, where appropriate, summary thereof or identity code of the region of provenance;
1951	(f)
1952	location: a short name, if appropriate, and any of the following sets of particulars:
1953	(i)
1954	for basic forest material intended for production of the 'source-identified' category, region of provenance and geographical position defined by the latitudinal and longitudinal range;
1955	(ii)
1956	for basic forest material intended for production of the 'selected' category, the region of provenance and the geographical position defined by latitude and longitude or the latitudinal and longitudinal range;

1957	(iii)
1958	for basic forest material intended for production of the ‘qualified’ category, the exact geographical position(s) where the basic material is maintained;
1959	(iv)
1960	for basic forest material intended for production of the ‘tested’ category, the exact geographical position(s) where the basic material is maintained;
1961	(g)
1962	altitude or altitudinal range;
1963	(h)
1964	area: the size of a seed source(s), stand(s) or seed orchard(s);
1965	(i)
1966	origin: whether the basic material is autochthonous/indigenous, non autochthonous/non-indigenous or if the origin is unknown. For non-autochthonous/non-indigenous basic material, the origin shall be stated if known;
1967	(j)
1968	in the case of basic forest material intended for the ‘tested’ category, whether it is genetically modified.
1969	5.
1970	The Commission shall, by means of implementing acts, adopt the common form in which national lists shall be established, as referred to in paragraph 3. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 141(3).
1971	Article 113
1972	Union List of Approved Basic Forest Material
1973	1.
1974	Member States shall notify to the Agency, the Commission and the other Member States the national list referred to in Article 112(2) and any of its updates within five working days.
1975	2.
1976	On the basis of the national lists notified by each Member State, the Agency shall establish, publish and update a register entitled ‘Union List of Approved Basic Forest Material for the Production of Forest Reproductive Material’.
1977	The Agency shall include in that register all elements of the Community List of Approved Basic Material for the Production of Forest Reproductive Material published pursuant to Article 11(1) of Directive 1999/105/EC.
1978	3.
1979	That Union list shall reflect the details contained in the national lists referred to in Article 112 and indicate the area of utilisation, and any authorisations granted pursuant to Article 128.

1980	4.
1981	The Commission shall adopt, by means of implementing acts, the format of the notification referred to in paragraph 1 and of the register referred to in paragraph 2. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 141(3).
1982	TITLE III
1983	Making available on the market of material derived from basic forest material
1984	Article 114
1985	Scope
1986	This title shall apply to the making available on the market of forest reproductive material derived from basic forest material.
1987	CHAPTER I
1988	List of requirements
1989	Article 115
1990	Requirements for making available on the market of forest reproductive material
1991	Forest reproductive material may only be made available on the market if it complies with:
1992	(a)
1993	the registration requirements set out in Chapter II;
1994	(b)
1995	the quality requirements set out in Chapter III for the relevant category;
1996	(c)
1997	the handling requirements set out in Chapter IV;
1998	(d)
1999	the certification and identification requirements set out in Chapter V.
2000	CHAPTER II
2001	Registration requirements
2002	Article 116
2003	Forest reproductive material derived from basic forest material registered in a national register
2004	Forest reproductive material may be made available on the market only if it is derived from approved basic forest material registered in a national register pursuant to Article 112(1) and approved for the relevant category pursuant to Title II.
2005	CHAPTER III
2006	Quality requirements
2007	Article 117

2008	Quality requirements
2009	1.
2010	Forest reproductive material shall be made available on the market under the categories ‘source-identified’, ‘selected’, ‘qualified’ or ‘tested’.
2011	2.
2012	Forest reproductive material belonging to the species and artificial hybrids listed in Annex IX may not be made available on the market under the source identified category if it has been obtained from vegetative reproduction of other forest reproductive material.
2013	3.
2014	Forest reproductive material belonging to the artificial hybrids listed in Annex IX shall only be made available under the categories ‘selected’, ‘qualified’ or ‘tested’.
2015	4.
2016	Forest reproductive material belonging to the species and artificial hybrids listed in Annex IX may only be made available on the market under ‘selected’ category if it has been mass propagated from seeds
2017	5.
2018	Notwithstanding paragraphs 1 and 2, forest reproductive material belonging to the species and artificial hybrids listed in Annex IX, which consists wholly or partly of genetically modified organisms may only be made available on the market under the ‘tested’ category.
2019	6.
2020	The types of basic forest material which shall be used for the production of the various categories of forest reproductive material belonging to the species and artificial hybrids listed in Annex IX are set out in Annex X. Article 118
2021	Additional requirements for certain forms of forest reproductive material
2022	Forest reproductive material belonging to the species and artificial hybrids listed in Annex IX and referred to in Annex XI may only be made available on the market if it meets the quality requirements set out in Annex XI, in addition to those applicable pursuant to Article 117.
2023	Article 119
2024	Additional requirements for certain parts of plants and planting stock
2025	The Commission shall be empowered to adopt delegated acts, in accordance with Article 140, setting out quality requirements for making available on the market specific parts of plants and planting stock of species and artificial hybrids listed in Annex IX, supplementing the requirements referred to in Articles 117 and 118. Those requirements shall take into account the development of scientific and technical knowledge.
2026	CHAPTER IV
2027	Handling requirements
2028	Article 120

2029	Lots
2030	1.
2031	Forest reproductive material shall, during all stages of production, be kept in separated lots by reference to individual units of approval from which it derives.
2032	2.
2033	Forest reproductive material shall be made available on the market in lots.
2034	Article 121
2035	Packaging of seed units
2036	Seed units shall be made available on the market only in sealed packages. The sealing device shall be such that it will become unserviceable when the package is opened.
2037	CHAPTER V
2038	Certification and identification requirements
2039	Article 122
2040	Master certificate
2041	1.
2042	After harvesting, a master certificate showing the reference of the register referred to in point (e) of Article 112(4) shall be issued by the competent authority for all forest reproductive material derived from approved forest basic material.
2043	2.
2044	The master certificate shall contain the relevant information set out, as applicable, in Part A, Part B and Part C of Annex XII.
2045	3.
2046	For subsequent vegetative reproduction in accordance with Article 117(2), a new master certificate shall be issued.
2047	4.
2048	Where mixing takes place in accordance with Article 126(1), (2), (3) or (5), a new master certificate, or other document, identifying the previous master certificates of the material composing the mixture shall be issued.
2049	5.
2050	The Commission shall determine, by means of implementing acts, the model of the format of the master certificate as referred to in paragraph 1. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 141(3).
2051	Article 123
2052	Identification of lots
2053	1.

2054	Each lot shall remain clearly identifiable through the entire process from collection to delivery to the end user.
2055	2.
2056	Each lot of forest reproductive material shall be identified by the following information:
2057	(a)
2058	the master certificate code and number;
2059	(b)
2060	the botanical name;
2061	(c)
2062	the category of forest reproductive material;
2063	(d)
2064	the purpose;
2065	(e)
2066	the type of basic forest material from which the forest reproductive material derives (seed source, stand, seed orchard, parents or family, clone or clonal mixture);
2067	(f)
2068	the register reference of the basic forest material or identity code of the region of provenance of the basic forest material;
2069	(g)
2070	whether the basic forest material, from which the forest reproductive material derives, is autochthonous or indigenous, non-autochthonous or non-indigenous, or whether its origin is unknown;
2071	(h)
2072	in the case of seed units, the year of ripening;
2073	(i)
2074	the age of planting stock, of seedlings or of cuttings;
2075	(j)
2076	the type of planting stock (whether undercuts, transplants or containerised);
2077	(k)
2078	where applicable, the fact that it is genetically modified;
2079	(l)
2080	where applicable, the fact that it has been vegetatively reproduced.
2081	Article 124
2082	Labelling
2083	1.

2084	Each lot shall be accompanied by a label produced by the professional operator (hereinafter 'operator's label'). The operator's label shall contain, in addition to the information required under Article 123, the following information:
2085	(a)
2086	the master certificate number(s) issued under Article 122(1) or the reference to the other document available according to Article 122(4);
2087	(b)
2088	the reference number, where applicable, and the name of professional operator;
2089	(c)
2090	the quantity supplied;
2091	(d)
2092	in the case of forest reproductive material of the 'tested' category derived from basic forest material which is provisionally approved under Article 108(1), the words 'provisionally approved'.
2093	2.
2094	In the case of seeds, the operator's label shall also include the following information:
2095	(a)
2096	the percentage by weight of pure seed, other seed and inert matter;
2097	(b)
2098	the germination rate of the pure seed, or, where germination rate is impossible or impractical to assess, the viability percentage assessed by reference to a specified method;
2099	(c)
2100	the weight of 1 000 pure seeds;
2101	(d)
2102	the number of germinable seeds per kilogram of product made available on the market as seed, or, where the number of germinable seeds is impossible or impractical to assess, the number of viable seeds per kilogram.
2103	3.
2104	The colour of the operator's label shall be yellow in the case of 'source-identified' reproductive material, green in the case of 'selected' reproductive material, pink in the case of 'qualified' reproductive material and blue in the case of 'tested' reproductive material.
2105	4.
2106	The Commission shall be empowered to adopt delegated acts, in accordance with Article 140, setting out the conditions under which the operator's label shall be supplemented by another document produced by the professional operator. Those delegated acts shall determine the information items to be included in that document.

2107	Article 125
2108	Labelling of forest reproductive material belonging to <i>Populus</i> spp. species
2109	In the case of <i>Populus</i> spp., parts of plants shall only be made available on the market if the Union classification number according to point 2(b) of Annex XI, Part C is given on the operator's label.
2110	Article 126
2111	Mixtures of forest reproductive material
2112	1.
2113	Mixtures of forest reproductive material shall be produced and made available on the market in accordance with the provisions of this Article.
2114	2.
2115	Mixing of forest reproductive material derived from two or more units of approval within the 'source-identified' category or within the 'selected' category may take place if the units of approval are located in the same region of provenance.
2116	3.
2117	When forest reproductive material derived from different seed sources and stands is mixed pursuant to paragraph 2 within the 'source-identified' category, the new combined lot shall be certified as 'reproductive material derived from a seed source'.
2118	4.
2119	When forest reproductive material derived from non-autochthonous or non-indigenous basic forest material is mixed pursuant to paragraph 2 with forest reproductive material derived from basic forest material of unknown origin, the new combined lot shall be certified as being 'of unknown origin'.
2120	5.
2121	When mixing takes place in accordance with paragraph 4, the identity code of the region of provenance may not be substituted for the register reference as provided for in Article 123(f).
2122	6.
2123	Mixing of forest reproductive material derived from a single unit of approval from different years of ripening may take place provided that the actual years of ripening and proportion of material from each year are recorded by the professional operator.
2124	Article 127
2125	Amendments to Annexes V to XII
2126	The Commission shall be empowered to adopt delegated acts, in accordance with Article 140, amending Annexes V to XII. Those amendments shall take into account the development of scientific or technical knowledge and economic data.
2127	TITLE IV

2128	Derogations
2129	Article 128
2130	More stringent requirements and prohibitions
2131	1.
2132	The Commission may, by means of implementing acts, authorise Member States:
2133	(a)
2134	to adopt more stringent quality requirements than those referred to in Article 117 and 118; and
2135	(b)
2136	to prohibit the making available on the market with a view to seeding or planting in all or part of its territory of specified forest reproductive material.
2137	The prohibition referred to in point(b) may be restricted to making available on the market to the end users only.
2138	Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 141(3).
2139	2.
2140	In order to obtain the authorisation referred to in paragraph 1(a) and (b), Member States shall submit to the Commission a request setting out:
2141	(a)
2142	draft provisions concerning the proposed requirements or prohibitions;
2143	(b)
2144	a justification on the necessity and proportionality of such requirements or prohibitions;
2145	(c)
2146	whether the proposed requirements or prohibitions would be permanent or for a specified period.
2147	3.
2148	The authorisation referred to in paragraph 1 shall be granted if the following conditions are fulfilled:
2149	(a)
2150	the implementation of the restrictions or prohibitions referred to in paragraph 1, ensures improvement of the quality of the forest reproductive material concerned, protection of the environment or conservation of genetic resources; and
2151	(b)
2152	the restrictions or prohibitions referred to in paragraph 1 are necessary and proportionate to their objective.
2153	4.

2154	The authorisation referred to in paragraph 1 shall be granted on the basis of:
2155	(a)
2156	evidence relating to the region of provenance or the origin of the material, and documentation showing the differences in the respective climatic and ecological data; or
2157	(b)
2158	known results of trials, scientific research, or the results obtained from forestry practice concerning survival and development of planting stock, including growth, in relation to morphological and physiological characteristics.
2159	Article 129
2160	Temporary difficulties in supply
2161	1.
2162	In order to remove temporary difficulties in the general supply of forest reproductive material that may occur in a Member State, the competent authority of the Member State concerned may authorise the making available on the market of forest reproductive material belonging to the species and artificial hybrids listed in Annex IX with reduced requirements, compared to the requirements of Articles 117 and, where applicable, Article 118 and Article 119.
2163	That authorisation shall be granted, on the basis of a reasoned request submitted by the professional operator concerned, for a specific period of time.
2164	The label of the forest reproductive material made available on the market pursuant to this paragraph shall be brown. It shall state that the forest reproductive material complies with lower quality requirements than those referred to in Articles 117 and, where applicable, Article 118 and Article 119.
2165	Member States shall notify the Commission and the other Member States of each authorisation granted pursuant to this paragraph.
2166	2.
2167	The Commission may, by means of implementing acts, require a Member State to repeal or amend an authorisation granted pursuant to paragraph 1, if it concludes that that authorisation is unnecessary or not proportionate to the objective of removing the temporary difficulties in the general supply of forest reproductive material. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 141(3).
2168	Article 130
2169	Seed made rapidly available on the market
2170	In order to make seed of the current season's crop rapidly available, forest reproductive material may be made available on the market as far as to the first buyer, without the information on germination or viability being included on the operator's label pursuant to Article 124(2)(b) and)d. The information referred to in Article 124(2)(b) and (d) shall be provided by the professional operator as soon as possible.
2171	Article 131

2172	Exemption for small quantities
2173	1.
2174	In the case of seed made available on the market in small quantities, the information requirements concerning germination or viability as laid down in Article 124(2)(b) and (d) shall not apply.
2175	2.
2176	The Commission shall be empowered to adopt delegated acts, in accordance with the Article 140, setting out the maximum size of the small quantities referred to in paragraph 1 for particular categories or species of forest reproductive material to ensure that the exemption of paragraph 1 is applied in a proportionate manner.
2177	Article 132
2178	Emergency measures
2179	1.
2180	Where it is evident that forest reproductive material is likely to constitute a serious risk to human, animal and plant health or the environment, and that such risk cannot be contained satisfactorily by means of measures taken by the Member State(s) concerned, the Commission on its own initiative or at the request of a Member State, shall without delay take any appropriate interim emergency measures, including measures restricting or prohibiting the making available on the market of the plant reproductive material concerned, depending on the gravity of the situation. Those measures shall be adopted by means of implementing acts in accordance with the examination procedure referred to in Article 141(3).
2181	2.
2182	On duly justified imperative grounds of urgency to address a serious risk to human health, the Commission shall adopt immediately applicable implementing acts in accordance with the procedure referred to in Article 141(4).
2183	3.
2184	Where a Member State officially informed the Commission of the need to take emergency measures and the Commission has not acted in accordance with paragraph 1, the Member State concerned may adopt any appropriate interim emergency measures, restricting or prohibiting, within its territory, the making available on the market of the forest reproductive material concerned, depending on the gravity of the situation. It shall immediately inform the other Member States and the Commission thereof, stating the grounds for its decision. The Commission may adopt implementing acts requiring the Member State to amend or repeal the national interim emergency measures. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 141(3). The Member State may maintain its national interim emergency measures until the date of application of the implementing acts referred to in this paragraph.
2185	4.
2186	This Article shall apply without prejudice to any measures adopted pursuant to

	Article 23(2) of Directive 2001/18/EC or Article 34 of Regulation (EC) No 1829/2003 prohibiting or restricting the cultivation of genetically modified organisms.
2187	Article 133
2188	Temporary experiments
2189	1.
2190	The Commission may decide, by means of implementing acts, to organise temporary experiments in order to identify improved alternatives to any provisions set out in Articles 107, 117 and, where applicable, Article 118 and Article 119. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 141(3).
2191	2.
2192	The implementing acts referred to in paragraph 1 shall identify the genera or species concerned, the conditions of the experiment per genera or species, the duration of the experiments, and the monitoring and reporting obligations of the participating Member States. They shall take into account the evolution of techniques for reproduction, production and control of the concerned material.
2193	The duration of an experiment shall not exceed seven years.
2194	Article 134
2195	Less stringent requirements to conserve genetic resources
2196	1.
2197	Member States may adopt requirements less stringent than those set out in Articles 107, 117 and, where applicable, Article 118 and Article 119, in the interest of conservation and sustainable use of forest genetic resources. In doing so, they shall consider the need of producing and making available on the market forest reproductive material which is naturally adapted to the local and regional conditions and threatened by genetic erosion.
2198	Member States shall submit to the Commission and the other Member States a reasoned notification of those measures.
2199	2.
2200	The Commission may, by means of implementing acts, require a Member State to repeal or amend the measures referred to in paragraph 1, if it concludes that those measures are not necessary or not proportionate to the objective of conservation and sustainable use of forest genetic resources. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 141(3).
2201	TITLE V
2202	Fees
2203	Article 135
2204	Registration and certification fees
2205	1.
2206	Competent authorities shall charge fees for the following actions:

2207	(a)
2208	registration of approved basic forest material pursuant to Article 112; and
2209	(b)
2210	issuance of a master certificate pursuant to Article 122.
2211	2.
2212	The actions referred to in paragraph 1 shall only be carried out on demand submitted by the professional operator to the competent authority. The demand shall be deemed not to have been made if the fees have not been paid within one month from the date on which the competent authority requested payment of the fees and indicated in that request the consequences of the failure to pay.
2213	3.
2214	The Commission shall be empowered to adopt delegated acts, in accordance with the procedure referred to in Article 140, setting out the specific cost items to be covered pursuant to paragraph 1(a) and) b.
2215	Article 136
2216	Exemptions from the payment of registration fees
2217	1.
2218	Fees provided for in Article 135(1) shall not directly or indirectly be refunded, unless unduly collected.
2219	2.
2220	Applicants employing fewer than 10 persons and whose annual turnover or annual balance sheet total does not exceed EUR 2 million shall be exempted from the payment of the fees provided for in Article 135(1).
2221	3.
2222	The costs referred to in Article 135(3) shall not include those incurred for the registration of approved basic forest material and the issuance of a master certificate referred to in paragraph 2.
2223	TITLE VI
2224	Imports from and exports of forest reproductive material to third countries
2225	Article 137
2226	Imports on the basis of Union equivalence
2227	1.
2228	Forest reproductive material may be imported from third countries only if it is established, pursuant to Article 138, that it fulfils requirements equivalent to those applicable to forest reproductive material produced, and made available on the market in the Union.
2229	2.
2230	Where seed and planting stock are imported into the Union, the professional operator importing that forest reproductive material shall inform the respective competent authority in advance of the import.

2231	3.
2232	Imported forest reproductive material shall be accompanied by a master certificate, or an official certificate, issued by the third country of origin, and records containing details of that material provided by the professional operator in that third country.
2233	Article 138
2234	Commission Decision on equivalence
2235	1.
2236	The Commission may decide, by means of implementing acts, whether forest reproductive material of specific genera, species or categories produced in a third country, or particular areas of a third country, fulfils requirements equivalent to those applicable to forest reproductive material produced and made available on the market in the Union, on the basis of:
2237	(a)
2238	a thorough examination of information and data provided by the third country concerned pursuant to Article 124(1) of Regulation (EU) No .../... [Office of Publications, please insert number of Regulation on Official Controls]; and
2239	(b)
2240	where appropriate, the satisfactory outcome of a control performed in accordance with Article 119(1) of Regulation (EU) No .../... [Office of Publications, please insert number of Regulation on Official Controls];
2241	Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 141(3).
2242	2.
2243	When adopting the decisions referred to in paragraph 1, the Commission shall consider whether the systems for approval and registration of basic forest material and subsequent production of forest reproductive material from that basic forest material applied in the third country concerned afford the same assurance as those provided for in Articles 107 and 117, and, where applicable, Article 118 and Article 119, for the 'source identified', 'selected', 'qualified' and 'tested' categories.
2244	3.
2245	For the purpose of adopting the decisions referred to in paragraph 1, the Commission may apply the provisions of Article 71 of Regulation (EU) No .../... [Office of Publication, please insert number of Regulation on Official Controls] concerning the approval of pre-export controls carried out by third countries.
2246	Article 139
2247	Export from the Union
2248	1.
2249	Where the export of forest reproductive material to a third country is governed by an agreement with that third country, that export shall comply with that agreement.

2250	2.
2251	Where the export of forest reproductive material to a third country is not governed by an agreement with that country, that export shall take place in accordance with the rules of the third country into which that forest reproductive material is to be exported.
2252	3.
2253	Where the export of forest reproductive material to a third country is neither governed by an agreement with a third country nor by the rules of the third country into which that forest reproductive material is to be exported, the requirements for production and making available on the market of forest reproductive within the Union territory, as set out in Articles 105 to 134, shall apply.
2254	PART V
2255	PROCEDURAL PROVISIONS
2256	Article 140
2257	Delegated acts
2258	1.
2259	The power to adopt delegated acts is conferred on the Commission subject to the conditions laid down in this Article.
2260	2.
2261	The delegation of power referred to in Articles 11(3), 13(3), 14(3), 15(5), 16(2), 17(4), 18(4), 18(6), 20(4), 21(5), 23(3), 30(4), 32(1), 33(3), 34(6), 36(4), 38(4), 39(3), 44(1), 56(5), 56(6), 59(2), 64(4), 65(3), 67(2), 72(2), 74(1), 119, 124(4), 127, 131(2) and 135(4) and 138(1) shall be conferred on the Commission for an indeterminate period of time from the date of the entry into force of this Regulation.
2262	3.
2263	The delegation of power referred to in Articles 11(3), 13(3), 14(3), 15(5), 16(2), 17(4), 18(4), 18(6), 20(4), 21(5), 23(3), 30(4), 32(1), 33(3), 34(6), 36(4), 38(4), 39(3), 44(1), 56(5), 56(6), 59(2), 64(4), 65(3), 67(2), 72(2), 74(1), 119, 124(4), 127, 131(2), 135(4) and 138(1) may be revoked at any time by the European Parliament or by the Council. A decision of revocation shall put an end to the delegation of the power specified in that decision. It shall take effect the day following the publication of the decision in the official Journal of the European Union or at a later date specified therein. It shall not affect the validity of any delegated acts already in force.
2264	4.
2265	As soon as it adopts a delegated act, the Commission shall notify it simultaneously to the European Parliament and to the Council.
2266	5.
2267	A delegated act adopted pursuant to Articles 11(3), 13(3), 14(3), 15(5), 16(2), 17(4), 18(4), 18(6), 20(4), 21(5), 23(3), 30(4), 32(1), 33(3), 34(6), 36(4), 38(4), 39(3), 44(1), 56(5), 56(6), 59(2), 64(4), 65(3), 67(2), 72(2), 74(1), 119, 124(4), 127, 131(2) 135(4) and 138(1) shall enter into force only if no objection has

	been expressed either by the European Parliament or the Council within a period of two months of notification of that act to the European Parliament and the Council or if, before the expiry of that period, the European Parliament and the Council have both informed the Commission that they will not object. That period shall be extended by two months at the initiative of the European Parliament or the Council.
2268	Article 141
2269	Committee procedure
2270	1.
2271	The Commission shall be assisted by the Standing Committee on Plants, Animals, Food and Feed established by Article 58(1) of Regulation (EC) No 178/2002 of the European Parliament and of the Council. That committee shall be a committee within the meaning of Regulation (EU) No 182/2011.
2272	2.
2273	Where reference is made to this paragraph, Article 4 of Regulation (EU) No 182/2011 shall apply.
2274	Where the opinion of the committee is to be obtained by written procedure, that procedure shall be terminated without result when, within the time-limit for delivery of the opinion, the chair of the committee so decides or a simple majority of committee members so request.
2275	3.
2276	Where reference is made to this paragraph, Article 5 of Regulation (EU) No 182/2011 shall apply.
2277	Where the opinion of the committee is to be obtained by written procedure, that procedure shall be terminated without result when, within the time-limit for delivery of the opinion, the chair of the committee so decides or a simple majority of committee members so request.
2278	4.
2279	Where reference is made to this paragraph, Article 8 of Regulation (EU) No 182/2011, in conjunction with Article 5 thereof shall apply.
2280	PART VI
2281	FINAL PROVISIONS
2282	Article 142
2283	Amendment of Regulation (EC) No 2100/94
2284	Regulation (EC) No 2100/94 is amended as follows:
2285	(1)
2286	Article 4 is replaced by the following:
2287	'Article 4
2288	Union Agency
2289	1.

2290	For purposes of the implementation of this Regulation, a European Agency on Plant Varieties, hereinafter referred to as 'Agency', is hereby established.
2291	2.
2292	The Agency shall carry out the following tasks:
2293	(a)
2294	to offer recommendations on variety denominations, where requested so pursuant to Article 50(2) and 78(2) of Regulation (EU) No .../... [Office of Publications, please insert number of this Regulation];
2295	(b)
2296	to promote and coordinate development of uniform technical examination of varieties, including development of protocols, carried out pursuant to Article 71 and, where applicable, the acts adopted pursuant to Article 74 of Regulation (EU) No .../... [Office of Publications, please insert number of this Regulation]
2297	(c)
2298	to carry out audits of competent authorities, including their premises and organisation of work, carrying out technical examinations, as referred to in Article 72 of the PRM Regulation;
2299	(d)
2300	to offer, and participate in offering, training in its area of mission;
2301	(e)
2302	to provide technical support to the Commission in the areas within its mission;
2303	(f)
2304	to commission studies necessary for the accomplishment of its mission;
2305	(g)
2306	to search for, collect, collate, analyse and summarise technical data in the fields within its mission;
2307	(h)
2308	to ensure that the public and interested parties receive rapid, reliable, objective and comprehensible information in the fields within its mission;
2309	(i)
2310	to provide technical assistance, when requested to do so by the Commission, with a view to improving cooperation between the Union, applicant countries, international organisations and third countries, in the fields within its mission;
2311	(j)
2312	to establish, publish and update a database on reference collections of varieties.'
2313	3.
2314	The Agency shall also manage and support the Union variety register, established in accordance with Article 52 of Regulation (EU) No .../... [Office

2337	amend those measures to comply with the applicable Union legislation on the plant reproductive material concerned.
2338	2.
2339	Member States shall notify to the Commission and the other Member States:
2340	(a)
2341	all measures adopted pursuant to the Directives referred to in paragraph 1 by [Office of Publications, please insert date of application of this Regulation]; and
2342	(b)
2343	any action taken pursuant to points (a) or (b) of paragraph (1).
2344	Article 146
2345	Entry into force
2346	This Regulation shall enter into force on the twentieth day following that of its publication in the Official Journal of the European Union.
2347	It shall apply from [Office of Publications please insert date counting 36 months from the entry into force].
2348	This Regulation shall be binding in its entirety and directly applicable in all Member States.
2349	Done at Brussels,
2350	For the European Parliament
2351	For the Council
2352	The President
2353	The President
2354	Position of the European Parliament of... and position of the Council at first reading of... Position of the European Parliament of... and decision of the Council of...
2355	OJ L 125, 11.7.1966, p. 2298.
2356	OJ L 125, 11.7.1966, p. 2309.
2357	OJ L 93, 17.4.1968, p. 15.
2358	OJ L 226, 13.8.1998, p. 16.
2359	OJ L 11, 15.1.2000, p. 17.
2360	OJ L 193, 20.7.2002, p. 1.
2361	OJ L 193, 20.7.2002, p. 12.
2362	OJ L 193, 20.7.2002, p. 33.
2363	OJ L 193, 20.7.2002, p. 60.
2364	OJ L 193, 20.7.2002, p. 74.
2365	OJ L 205, 1.8.2008, p. 28.

2366	OJ L 267, 8.10.2008, p. 8.
2367	OJ L 365, 31.12.1994, p. 10–23
2368	OJ L 61, 3.3.1997, p. 1–69
2369	OJ L 106, 17.4.2001, p. 1–39
2370	OJ L 268, 18.10.2003, p. 1–23
2371	OJ L 268, 18.10.2003, p. 24–28
2372	(Office of Publication, please insert OJ reference number of Regulation on protective measures against pest of plants).
2373	OJ L 162, 21.6.2008, p. 13–19.
2374	OJ L 312, 27.11.2009, p. 44–54.