FACULTY OF LAW
Lund University

Gesine Åström

The Marketing of Traditional Vegetable Seeds -

How the EU legislation affects the conservation and sustainable use of plant genetic resources

JURM02 Graduate Thesis

Graduate Thesis, Master of Laws program
30 higher education credits

Supervisor: Britta Sjöstedt

Semester of graduation: Period 1 Fall semester 2019

Contents

Summary

The main purpose of this essay is to investigate how the European Union's (EU) vegetable seed marketing legislation affects the diversity of plant genetic resources and to examine possible improvement to further this diversity. The EU seed legislation consists of directive 2002/55[1] which provides that only certified seeds from registered varieties may be sold in the EU, and of directive 2009/145[2]. The latter directive offers some derogations from the former to preserve plant genetic diversity.

Besides the EU seed legislation, the essay also analyses the concepts of *conservation* and *sustainable use* in the International Treaty on Plant Genetic Resources for Food and Agriculture[3] (ITPGR). In the essay, the obligations and recommendations in the ITPGR, to which the EU is a contracting party, are used as the standard for preserving plant genetic diversity that the EU should strive for.

The essay's first research question is if the derogations provided by directive 2009/145 sufficiently contribute to the conservation and sustainable use of plant genetic resources as defined by the ITPGR. My conclusion is that this is not the case. Several obstacles to the cultivation of traditional varieties and therethrough to the protection of EU's plant genetic diversity remain despite the aim of directive 2009/145 to further conservation.

The second research question concerns possible improvements to the current legislation. As a tool, a proposal[4] for a new seed marketing legislation presented by the European Commission in 2013 is used. In the essay this proposal is compared to the obstacles to the current legislation to see if these would be removed through the proposal. The second research question is thus if the changes proposed by the Commission could improve the conservation and sustainable use of plant genetic resources. My conclusion is that implementing the proposal has the potential to improve the EU seed

[1] Council Directive 2002/55/EC of 13 June 2002 on the marketing of vegetable seed.
[2] Commissions Directive 2009/145/EC 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.
[3] International Treaty on Plant Genetic Resources for Food and Agriculture, Rome 3 November 2001, UNTS vol. 2400, p. 303.
[4] European Commission (2013), *Proposal for a Regulation of the European Parliament and of the Council On the production and making available on the market of plant reproductive material (plant reproductive material law),* COM(2013) 262 final.

marketing legislation from a plant genetic diversity perspective. However, not all obstacles are removed by the proposal which means that there is still room for improvement.

Sammanfattning

Syftet med denna uppsats är att undersöka hur Europeiska Unionens (EU) lagstiftning avseende saluföring av utsäde av köksväxter påverkar mångfalden av växtgenetiska resurser samt att utreda potentiella förbättringsförslag till den nuvarande lagstiftningen. EU:s utsädeslagstiftning består främst av direktiv 2002/55[5] som anger att enbart certifierat utsäde från registrerade sorter får saluföras i EU samt direktiv 2009/145[6] som tillhandahåller vissa undantag från saluföringsföreskrifterna för att främja bevarandet av den växtgenetiska mångfalden.

Utöver EU-lagstiftningen behandlar uppsatsen även koncepten *bevarande* och *hållbar användning* reglerade i traktatet International Treaty on Plant Genetic Resources for Food and Agriculture[7] (ITPGR). EU är en fördragsslutande part till detta traktat och i uppsatsen används de skyldigheter och rekommendationer som ITPGR tillhandahåller som en måttstock för vad EU bör uppnå gällande bevarande av mångfald.

Den första frågeställningen som behandlas är huruvida de undantag som direktiv 2009/145 tillhandahåller är tillräckliga för att främja bevarandet och det hållbara användandet av växtgenetiska resurser så som dessa definieras i ITPGR? Min slutsats är att så inte är fallet. Flera barriärer mot saluföringen av traditionella växter och därigenom bevarandet av EU:s växtgenetiska mångfald kvarstår även efter införandet av direktiv 2009/145.

Uppsatsens andra frågeställning rör hur den nuvarande lagstiftningen skulle kunna förbättras. Som utgångspunkt för denna diskussion används ett lagförslag[8] som EU-kommissionen presenterade år 2013. Uppsatsen analyserar vilka av barriärerna i den nuvarande lagstiftningen som skulle kunna åtgärdas genom EU-kommissionens förslag. Den andra frågeställningen är följaktligen om lagförslaget skulle kunna förbättra bevarandet och den hållbara användningen av växtgenetiska resurser i EU.

[5] Rådets direktiv 2002/55/EG av den 13 juni 2002 om saluföring av utsäde av köksväxter.
[6] Kommissionens direktiv 2009/145/EG av den 26 november 2009 om vissa undantag för godkännande av lantsorter och andra sorter av köksväxter som traditionellt har odlats på vissa platser och i vissa regioner och som hotas av genetisk utarmning och av köksväxtsorter som saknar reellt värde för kommersiell odling men som har utvecklats för att odlas under särskilda omständigheter och om saluföring av utsäde av dessa lantsorter och andra sorter**.**
[7] International Treaty on Plant Genetic Resources for Food and Agriculture, Rome 3 November 2001, UNTS vol. 2400, p. 303.
[8] European Commission (2013), *Proposal for a Regulation of the European Parliament and of the Council On the production and making available on the market of plant reproductive material (plant reproductive material law),* COM(2013) 262 final.

Min slutsats är att Kommissionens förslag skulle kunna bidra till detta även om vissa problem kvarstår.

Behold, I have given you every plant yielding seed that is on the face of all the earth, and every tree with seed in its fruit: You shall have them for food.

- Genesis 1:29

Preface

There are some people that I would like to thank for helping me to complete this paper. Foremost, I want to thank my supervisor Britta Sjöstedt for her support, encouragement and engagement throughout the writing process. I also want to acknowledge my gratitude to my parents, friends and of course Philip, for helping me through law school and life.

Moreover, I want to thank Peter Gottschalk for giving me the inspiration for the topic of my essay. Others that have helped me are Christian Prip at the Fridtjof Nansens Institute, administrators at the Swedish Board of Agriculture and Thomas Weber at the European Commission's Directorate General for Health and Food Safety.

Finally, I would like to thank Nicole Chen and Alia Jenkins for giving me feedback on content and language.

Gesine Åström, Lund
December 2019

Abbreviations

CAP	Common Agricultural Policy (EU)
CGRFA	Commission on Genetic Resources for Food and Agriculture
DUS	Distinct, uniform and stable
ECJ	European Court of Justice
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GPA	Global Plan of Action
IPCC	Intergovernmental Panel on Climate Change
ITPGR	International Treaty on Plant Genetic Resources for Food and Agriculture
TEU	Treaty on European Union
TFEU	Treaty on the Functioning of the European Union
VCLT	Vienna Convention on the Law of Treaties

Introduction

1 Introduction

1.1 Background

For thousands of years, people have cultivated crops, and through farmers' selection and replantation of seeds and natural mutations, crops have slowly improved. This has resulted in higher yields, more resistant plants and an increasing quantity of locally adapted varieties.[9] These local varieties (henceforth called traditional varieties) contain a vast and valuable variation of plant genetic resources.[10] Plant genetic resources are the genetic material that plants contain with an actual or potential value for food production.[11]

A high diversity of plant genetic resources is very important to us humans. Plant genetic resources are the foundation on which today and tomorrow's food security rests.[12] Firstly, they are the raw materials for plant breeding. To improve and develop new crops, we depend on using the available plant genetic resources.[13] Secondly, a high diversity of plant genetic resources creates better resilience against new pests, harsher weather conditions and other stress factors that can affect agriculture. Plant genetic diversity thus creates security in our food production today and will be crucial for adapting future food production to climate change.[14]

However, during the last century, agriculture has become more industrialised which has affected the diversity of plant genetic resources. Traditional

[9] Dutfield, Graham (2008), 'Turning Plant Varieties into Intellectual Property: The UPOV Convention', in: Tansey, Geoff and Rajotte, Tasmin, *The Future Control of Food*. Earthscan, p. 27-47, p. 27.
[10] Hammer, K. and Teklu, Y. (2008), 'Plant Genetic Resources: Selected Issues from Genetic Erosion to Genetic Engineering'. *Journal of Agriculture and Rural Development in the Tropics and Subtropics*, vol. 109, no. 1, p. 15–50, p. 15f.
[11] International Treaty on Plant Genetic Resources for Food and Agriculture, Rome 3 November 2001, UNTS vol. 2400, p. 303, art. 2.
[12] Hammer and Teklu (2008), p. 15f.
[13] Hammer and Teklu (2008), p. 18f.
[14] Food and Agricultural Organization of the United Nations (FAO) (1997), *The State of the World's Plant Genetic Resources for Food and Agriculture*. Rome 1997, p. 24; Santilli, Juliana (2012), *Agrobiodiversity and the Law,* Earthscan, p. 23.

varieties have been replaced by modern varieties.[15] Modern varieties are developed through scientific plant breeding methods which makes them genetically uniform.[16] Since traditional varieties, on the other hand, are highly diverse, this has resulted in an erosion of the diversity of crops and many valuable plant genetic resources have been lost. In China, for example, almost 10 000 varieties of wheat where cultivated in 1949. Twenty years later, only 1 000 varieties remained in use.[17] A similar development towards monoculture and the replacement of traditional varieties has also taken place in Europe.[18] Because of traditional varieties' importance for food production, it is vital that we halt this erosion of plant genetic resources that it took thousands of years to develop.[19]

In the European Union (EU) one possible reason for the replacement of traditional varieties with modern crops and the erosion of plant genetic resources, is the EU seed marketing legislation. This legislation has been accused of hindering farmers from growing traditional varieties by making the selling of seeds from such varieties difficult or even prohibited.[20] This is problematic for the diversity of plant genetic resources since farmers cultivating their traditional varieties, called 'on-farm conservation', is important for the preservation of the plant genetic diversity.[21]

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[15] Hammer och Teklu (2008), p. 20.
[16] FAO (1997), p. 19.
[17] *Ibid*. p. 34.
[18] Bocci, Riccardo (2009), 'Seed Legislation and agrobiodiversity: conservation varieties'. *Journal of Agriculture and Environment for International Development,* vol 103, no. 1, p. 31-49, p. 31f.
[19] Santilli (2012), p. 18 and Hammer and Teklu (2008), p. 16.
[20] Bocci (2009), p. 32; Prip, Christian and Fauchald, Ole Kristian (2016), 'Securing Crop Genetic Diversity: Reconciling EU Seed Legislation and Biodiversity Treaties'. *Review of European Community and International Environmental Law,* vol. 25, no. 3, p. 363-377, p. 369f; Winge, Tone (2015), 'Seed Legislation in Europe and Crop Genetic Diversity', in: Lichtfouse, Eric. (ed.), *Sustainable Agriculture Reviews* vol. 15. Springer International Publishing p. 1-64, p. 2f; Andersen, Regine (2015), 'Stewardship or Ownership – How to realize farmers' rights?', in Hunter, Danny, Guarino, Luigi, Spillane, Charles and McKeown, Peter C. (ed.), *Routledge Handbook of Agricultural Biodiversity*. Earthscan p. 449-470, p. 465f; Santilli (2012), p. 59.
[21] Henry, Robert (2017), 'Plant Genetic Resources', in Hunter, Danny, Guarino, Luigi, Spillane, Charles and McKeown, Peter C. (ed.), *Routledge Handbook of Agricultural Biodiversity*. Earthscan p. 15-29, p. 15.

Internationally, many states, informed by research, have realised that action is needed to halt the ongoing genetic erosion. States have therefore agreed on a treaty for the conservation and sustainable use of plant genetic resources called the International Treaty on Plant Genetic Resources for Food and Agriculture[22] (ITPGR). The main goal of the ITPGR is to promote food security and agricultural sustainability through the conservation of plant genetic resources.[23] What conservation and sustainable use includes, according to the ITPGR, is regulated in article 5 and 6 of the ITPGR. The EU is a party to this treaty.[24]

In this essay, I will analyse the EU vegetable seed marketing legislation from a plant genetic diversity perspective. This will be done against the backdrop of the obligations and recommendations in the ITPGR. The main EU legal act regulating the marketing of vegetable seeds is directive 2002/55[25] (marketing directive) which restricts the marketing of seeds (referring to selling seeds) by prescribing that only certified seeds from registered varieties may be marketed in the EU. The objective of this directive is to increase the productivity in EU agriculture and to create a harmonised and transparent seed market.[26] However, directive 2009/145[27] (derogation directive) on the marketing of conservation varieties provides some derogations from the marketing restrictions contained in the marketing directive (2002/55). These derogations aim at promoting the conservation of traditional varieties.

[22] International Treaty on Plant Genetic Resources for Food and Agriculture, Rome 3 November 2001, UNTS vol. 2400, p. 303. Henceforth ITPGR.
[23] ITPGR, art. 1.1 and Tabaro, Edgar (2008), 'Food security and access to plant genetic resources: An analysis of the multilateral system of access and benefit sharing'. *eLaw Journal*, vol. 15, no. 2, p. 212-229, p. 217.
[24] Food and Agricultural Organization of the United Nations (FAO) (2019b), 'Membership'. Available at: <http://www.fao.org/plant-treaty/countries/membership/en/> (visited 12th of September 2019).
[25] Council Directive 2002/55/EC of 13 June 2002 on the marketing of vegetable seed. Henceforth marketing directive.
[26] Winge (2015), p. 3.
[27] Commissions Directive 2009/145/EC 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. Henceforth derogation directive.

1.2 Purpose and research question

The essay has two purposes. The main purpose is to examine how the EU legislation on the marketing of vegetable seeds in the marketing directive (2002/55) and the derogation directive (2009/145) affects the diversity of plant genetic resources in the EU. The second purpose is to suggest improvements to solve the problems with the current legislation. To narrow down the broad task of fulfilling the main purpose, I will focus on how the EU directives affect the conservation and sustainable use of plant genetic resources as defined in the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGR).

I will use the ITPGR as the standard which the EU should achieve to conserve and use their plant genetic resources sustainably. By analysing how the EU seed legislation complies with the obligations and recommendations of the ITPGR, I aim to find out if and how the two EU seed marketing directives may hinder the use of traditional varieties and therethrough the conservation and sustainable use of plant genetic diversity. To do this, the first research question that I will investigate is:

> *Do the derogations for conservation varieties in the derogation directive (2009/145) sufficiently contribute to the conservation and sustainable use of plant genetic resources in traditional varieties if the obligations and recommendations regarding conservation and sustainable use of plant genetic resources in article 5 and 6 of the ITPGR are used as the standards to be achieved?*

The second purpose of the essay is as mentioned to contribute with suggestions for how current EU legislation could be improved. In 2013, the European Commission presented a proposal[28] (the Proposed Regulation) for

[28] European Commission (2013b), *Proposal for a Regulation of the European Parliament and of the Council On the production and making available on the market of plant reproductive material (plant reproductive material law),* COM(2013) 262 final. Henceforth Proposed Regulation.

the improvement of the current EU legislation on the marketing of seeds with, amongst others, the conservation of plant genetic resources in mind. This proposal was however withdrawn in 2015, after being rejected by the European Parliament. The Proposed Regulation has thus not been implemented. Using this withdrawn proposal as a basis, the essay aims at contributing with some recommendations on how the EU legislation on the marketing of vegetable seeds could be improved in order to favour the conservation and sustainable use of plant genetic resources. To do this I will answer the following question:

> *Would the changes to the current EU legislation on the marketing of vegetable seeds proposed by the Commission in the Proposed Regulation, improve the conservation and sustainable use of plant genetic resources in accordance with the standards given by the ITPGR?*

1.3 Method, material and perspective

In this section, I present the method and material used to answer the research questions. The section begins with a brief introduction to the role that natural science plays to the topic of the essay. After that, the main sources of EU law and the sources of international law are presented to provide the legal context of the essay. Thereafter, the specific method and material used to answer each of the two research questions is described.

1.3.1 The role of natural science

Throughout the essay, natural science plays an important role. There is a close relationship between the legal issues regarding conservation and sustainable use and the very nature of plant genetic resources and diversity. Therefore, the essay begins with some background information on what plant genetic resources are and why they are important. However, since it is a juridical

essay, the information from a natural science perspective will be basic and only contain the information necessary to understand the seed legislation's effect on conservation and sustainable use of plant genetic resources and to answer the research questions.

1.3.2 The European Union's sources of law

The European Union's sources of law can be divided into primary and secondary law.[29] The primary sources are mainly the Treaty on the Functioning of the European Union (TFEU) and the Treaty on European Union (TEU). The secondary law mainly consists of directives and regulations.[30] While regulations are directly applicable in the member states, directives have to be implemented through national law.[31] Furthermore, in the EU's norm hierarchy, secondary law has to comply with primary law.[32]

The case law of the European Court of Justice (ECJ) is also an important source of EU law.[33] The ECJ has *inter alia* jurisdiction to give preliminary rulings upon reference from a national court of a member state regarding the interpretation of EU legislative acts.[34] Decisions of the ECJ are binding for the member states, and its interpretation of a directive or regulation thus influences its meaning.[35] In the EU norm hierarchy, case law from the ECJ comes under secondary law but plays a very important role in filling the gaps in the EU legislation.[36]

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[29] Bradley, Kieran St C (2014), 'Legislating in the European Union', in: Bernard, Catherine and Peers, Steve (ed.), *European Union Law*. Oxford University Press p. 97-139, p. 103.
[30] Bradley (2014), p. 103.
[31] Treaty on the Functioning of the European Union, art. 288, henceforth TFEU and Bradley (2014), p. 99f.
[32] de Witte, Bruno (2014), 'EU law: is it international law?', in: Bernard, Catherine and Peers, Steve (ed.), *European Union Law*. Oxford University Press p. 174-194, p. 192f.
[33] Bradley (2014), p. 103.
[34] TFEU, art. 267. Compare Treaty on European Union, art. 19.3 and Berry, Elspeth, Homewood, Mattew J, and Bogusz, Barbara (2019), *Compleate EU Law – Text, Cases and Materials.* 4th edition, Oxford University Press, p. 74.
[35] Compare Berry (2019), p. 114 and Bernitz, Ulf and Kjellgren, Anders (2018), *Europarättens grunder.* 6th edition, Nordstedts Juridik, p. 101.
[36] Papadopoulou, Frantzeska and Skarp, Björn (2017), *Juridkens nycklar – introduktion till rättsliga sammanhang, metoder och verktyg.* Nordstedts Juridik, p. 98.

International agreements, to which the EU is a party, also have a place in the EU norm hierarchy. They become a part of the EU legal order through their ratification and entry into force and are implemented through a Council's decision.[37] The ITPGR was implemented through Council Decision 2004/869/EC[38]. International agreements are according to the TFEU, binding upon the EU institutions and its member states.[39] This means that international agreements can affect the validity of an EU directive or regulation.[40] The requirements for this will be explained below in the section on the *Kokopelli Case.*[41]

1.3.3 The sources of international law

The sources of international law are stipulated in article 38 of the Statue of the International Court of Justice[42]. The sources can be divided into primary and secondary sources of law.[43] The primary sources are international conventions (treaties), customary international law and general principals. The secondary sources are judicial decisions and scholar's contributions.[44]

Of the listed sources above treaties are of primary relevance to this essay. The most important rules on the law of treaties are contained in the Vienna Convention on the Law of Treaties[45] (VCLT), of which parts are considered to be international customary law.[46] Treaties are according to the VCLT

[37] de Witte (2014), p. 194. Compare also TFEU, art. 218 and Bradley (2014), p. 101.
[38] Council Decision of 24 February 2004 concerning the conclusion, on behalf of the European Community, of the International Treaty on Plant Genetic Resources for Food and Agriculture, 2004/869/EC.
[39] TFEU, art. 216.2 and Bernitz och Kjellgren (2018), p. 271.
[40] de Baere, Geert (2014), 'EU external action', in: Bernard, Catherine and Peers, Steve (ed.), *European Union Law*. Oxford University Press p. 704-749, p. 725.
[41] See section 3.4.
[42] Statute of the International Court of Justice, San Francisco, 24th of October 1945, annex to the United Nations Charter. Henceforth ICJ Statue.
[43] Henriksen, Anders (2019), *International law.* 2nd edition, Oxford University Press, p. 23.
[44] ICJ Statue, art. 38 and Henriksen (2019), p. 23.
[45] Vienna Convention on the Law of Treaties, Vienna 23 of May 1969, UNTS vol. 1155, p. 331. Henceforth VCLT.
[46] Dixon, Marting (2013), *Textbook on International Law.* 7th edition, Oxford University Press, p. 55 and 62 and Henriksen (2019), p. 40.

binding upon their parties who have to perform according to the obligations in the treaty in good faith.[47] Even if treaties are legally binding, the actual obligations that they create for the contracting states depend on their formulation. If a provision is very vague or even explicitly optional, it is difficult to claim a breach of this part of the treaty, although the treaty is formally binding.[48] The ITPGR is a treaty according to the VCLT.

A special kind of treaties are international environmental treaties, to which category the ITPGR belongs. International environmental law is an area where states have decided to cooperate to achieve goals of common interest regarding the protection of the environment.[49] Due to this, and to countries different economical, technical and environmental preconditions, environmental treaties often focus on the overarching goals rather than giving its parties clear obligations on how to act. Environmental treaties usually put up *standards,* building on scientific knowledge about the environment.[50] The contracting parties should strive to reach these standards and can compare themselves to them but exactly how they do this is often left to their discretion.[51]

1.3.4 The first research question: describing the current legislation and its shortcomings

The first research question regards the current EU rules on the marketing of vegetable seeds and if they sufficiently contribute to the conservation and sustainable use of plant genetic recourse as defined in the ITPGR. To analyse this question, I use a legal dogmatic method to determine what is established

[47] VCLT, art. 26.
[48] Boyle, Allan (2010), 'Soft Law in International Law-making', in: Evans, Malcom D., *International Law*. 3de edition, Oxford University Press, p. 122-140, p. 130ff.
[49] Henriksen (2019), p. 190 and Dupuy, Pierre-Marie & Viñuales, Jorge E. (2018), *International environmental law*. *2nd* edition, Cambridge University Press, p. 3.
[50] Boisson de Chazournes, Laurence (2011), 'Features and trends in international environmental law', in: Kerbrat, Yanni and Maljean-Dubois, Sandrine (ed.), *The transformation of international environmental law.* Editions A and Hart Publishing p. 9-24, p. 10 and Henriksen (2019), p. 192.
[51] Boisson de Chazournes (2011), p. 10.

law. This is done through studying traditional sources of law.[52] I begin by describing the current EU seed marketing legislation through studying the directives, articles written by scholars on the topic and the Kokopelli case[53] from the ECJ.

An important aspect of the EU legal methods is to analyse the relationship between the EU legal order and the member states national legal orders.[54] This essay, however, only deals with the rules provided by the seed marketing directives as such and hence does not consider their implementation by the member states.[55] By only analysing the directives as such, it is possible to focus on the EU' effect on conservation and sustainable use without considering national differences. At the same time, since the directives are not meant to be applied directly, they sometimes contain provisions giving the national legislator different options. This creates an uncertainty in my analysis since the implementation of the member states will influence how the directives affect the conservation and sustainable use in the EU. However, since the directives set the standards for national law and therefore for the protection of plant genetic resources, analysing them is nevertheless relevant.

After studying the EU directives, I analyse the ITPGR. Besides the treaty text and articles written by scholars, I use the Explanatory Guide to the ITPGR[56] (Explanatory Guide). The Explanatory Guide is a document without formal legal significance. It rather has the characteristics of an extensive essay on the ITPGR, explaining and interpreting each article of the ITPGR. It was produced by the International Union for the Conservation of Nature[57] but was

[52] Kleineman, Jan (2013), 'Rättsdogmatisk metod', in: Korling, Fredric and Zamboni, Mauro (ed.), *Juridisk Metodlära*. Dimograf p. 21-45, p. 21.
[53] C-59/2011 *Association Kokopelli v Graines Baumaux SAS*, EU:C:2012:447. Henceforth Kokopelli case.
[54] Reichel, Jane (2013), 'Eurättslig metod' in: Korling, Fredric and Zamboni, Mauro (ed.), *Juridisk Metodlära*. Dimograf p. 109-140, p. 109f.
[55] Compare section 1.3.2.
[56] Moore, Gerald and Tymowski, Witold (2005) 'Explanatory Guide to the International Treaty on Plant Genetic Resources for Food and Agriculture', IUCN Environmental Policy and Law Essay no. 57.
[57] The International Union for the Conservation of Nature (IUCN) is a membership union consisting of both government institutions and civil society organisations from 170 different countries. For more information visit at https://www.iucn.org/about.

partly funded by the Food and Agricultural Organisation of the United Nations (FAO) under the auspices of which the ITPGR was concluded. The draft of the Explanatory Guide was circulated to over twenty scholars and experts in the field who have given feedback on the work. I will use the Explanatory Guide as a complement to the text of the ITPGR.

In my analysis of the ITPGR, I also use the Second Global Plan of Action for Plant Genetic Resources[58] (Second GPA). The Second GPA is a legally non-binding strategic framework for the conservation and sustainable use of plant genetic resources.[59] It was adopted at the FAO Council in 2011, with the mandate of the FAO Conference of member nations.[60] It was prepared under the participation of 131 countries, representatives of the international research community, private sector and civil society.[61] The Second GPA presents challenges in the field of conservation and sustainable use and provides goals and strategies that states should strive for to deal with these.[62]

There is a close relationship between the ITPGR and the Second GPA since strengthening the implementation of the ITPGR is one of the main goals of the Second GPA.[63] The ITPGR also refers to the Global Plan of Action[64] in several articles.[65] Due to this connection and considering that it was adopted by the FAO Council with the mandate of the FAO Conference, the Second GPA can be regarded as a supportive document to the ITPGR.[66] I therefore use it to interpret article 5 and 6 of the ITPGR. However, while doing this,

[58] Commission on Genetic Resources for Food and Agriculture (CGRFA), *Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture.* Rome 29 of November 2011. Henceforth Second GPA.
[59] Food and Agricultural Organization of the United Nations (FAO) (2019a), 'Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture'. Available at: <http://www.fao.org/agriculture/crops/thematic-sitemap/theme/seeds-pgr/gpa/en/> (visited 2nd of October 2019) and Moore and Tymowski (2005), p. 115.
[60] FAO (2011), Report of the Conference of FAO. 37th Session of the FAO Conference, Rome, 25th of June 2011.
[61] Second GPA, p. 3.
[62] Second GPA, paragraph. 21 and 22.
[63] Second GPA, paragraph. 18.
[64] It refers to the *rolling* Global Plan of Action which currently is the Second GPA.
[65] See ITPGR, art. 13, 14, 18 and the preamble.
[66] Moore and Tymowski (2005); p. 22, FAO (2011) and Food and Agricultural Organization of the United Nations (FAO) (2019a), 'Structure and Finance'. Available at: <http://www.fao.org/about/who-we-are/en/> (visited 25th of October 2019).

the legally non-binding nature of the Second Global Action Plan has to be kept in mind.

When answering the first research question, I do not only investigate the legal obligations provided by the ITPGR, but also its recommendations. The reason for this is, firstly, that the purpose of the essay is to see how EU legislation affects the conservation and sustainable use of plant genetic resources, not to analyse how the EU is complying with the ITPGR. The ITPGR is therefore merely used as a tool to reach this purpose. Secondly, in its Biodiversity Strategy for 2020[67], the EU has put up the target to *conserve Europe's agricultural genetic diversity.*[68] To do this it will not be enough to only strive for the minimum requirements of the ITPGR. This is also a reason to both consider obligations and provisions formulated as recommendations in the ITPGR.

To analyse the first research question, I critically examine the current EU legislation in the light of a natural science perspective on plant genetic resources. By this I mean that I analyse how different aspects of the EU seed marketing legislation constitute an obstacle to the preservation of plant genetic resources. Since I do not aim at giving an exhaustive picture of the EU's implementation of the ITPGR, I do not investigate any positive measures that the EU might have taken in other areas to further the conservation of plant genetic resources. This falls beyond the scope of the research question. The advantage of a critical examination is that it narrows down an otherwise broad research area. At the same time, it makes the essay less nuanced. However, considering the purpose of the essay, I find this critical approach and the formulation of the research question justified.

[67] European Commission (2011), *Biodiversity Strategy 2020*, COM (2011) 244 final.
[68] Biodiversity Strategy 2020, Target 3, Action 10 (p. 13).

1.3.5 The second research question: improvments on the current legilation

The second research question concerns how the current EU seed marketing legislation could change to improve the conservation and sustainable use of plant genetic resources in the EU. I thus investigate how the law should be (*de lege ferenda*). A discussion on how the law should be must be based on a specific perspective or on the finding that the current legislation (*de lege lata)* is suboptimal.[69] The outset used in this essay is the result from the first research question which identifies obstacles that the current legislation constitute to the conservation and sustainable use of plant genetic resources. Also, in this second research question a natural science perspective on plant genetic resources plays a role in the analysis.

As a tool to find suggestions on how to improve the current EU legislation, the Proposed Regulation that the European Commission presented in 2013 is used. Investigating if and how the Proposed Regulation could have improved the current legislation gives a good starting point for a broader discussion on how EU seed legislation can further conservation and sustainable use of plant genetic resources.

As mentioned, the Proposed Regulation never entered into force since it was rejected by the European Parliament in 2014. The main reason for the rejection was that it would have given the Commission too much power over the member states' seed markets.[70] Still, the Proposed Regulation is of interest for my analysis. Firstly, it was very thoroughly prepared and builds on an extensive impact assessment[71]. Secondly, it is likely that the Commission will

[69] Sandgren, Claes (2018), *Rättsvetenskap för uppsatsförfattare: ämne, material, metod och argumentation.* 4th edition, Nordstedts Juridik, p. 52.
[70] European Parliament (2014), *MEP reject draft seed regulation.* Available at: https://www.europarl.europa.eu/news/en/press-room/20140307IPR38202/meps-reject-draft-seed-regulation (visited 20th of November 2019).
[71] European Commission (2013a), *Commissions Staff Working Document: Impact Assessment: Accompanying the document: Proposal for a Regulation of the European Parliament and of the Council On the production and making available on the market of plant reproductive material (plant reproductive material law)*, SWD (2013) 162 final.

use it as a basis the next time it tries to change the seed marketing legislation. Thirdly, since the Proposed Regulation is formulated as text of law it is easier to analyse juridically compared to general aims. Therefore, the Proposed Regulation is the basis for my analysis on possible improvements to the current EU seed marketing legislation.

1.4 Previous research

Some research has previously been done both on the EU seed marketing legislation and on the ITPGR. Important contributors dealing with the connection between the EU legislation and the ITPGR are Winge[72], as well as Prips and Fauchald[73] from the Fridtjof Nansen Institute[74]. Also, Bocci[75] and Louwaars[76] have written articles specifically about the EU seed marketing legislation. However, regarding the EU legislation, most articles deal with the EU seed marketing legislation as a whole and there are no authors that have specifically analysed the marketing of vegetable seeds. Therefore, this essay can contribute with more detailed knowledge specifically on the EU legislation on vegetable seeds and give a deeper understanding for the issues of the current seed marketing legislation in relation to plant genetic diversity and the difficulties in solving these.

Regarding the ITPGR, rather extensive research has been done.[77] However, besides Moore and Tymowski's analysis in the Explanatory Guide, no deeper

[72] Winge (2015).
[73] Prips and Fauchald (2016).
[74] For more information visit https://www.fni.no.
[75] Bocci (2009) and Bocci, Riccardo (2014), 'Seeds between freedom and rights'. *Scienze del Territorio,* vol. 2, p. 115-122.
[76] Louwaars, Niels P. (2002a), 'Seed Policy, Legislation and the Law: Widening a Narrow Focus', in: Louwaars, Niels P. (ed.), *Seed Policy, Legislation and Law: Widening a Narrow Focus.* CRC Press p. 1-14; Louwaars, Niels P. (2002b), 'Variety Control', in: Louwaars, Niels P. (ed.), *Seed Policy, Legislation and Law: Widening a Narrow Focus.* CRC Press p. 131-142 and Louwaars, Niels P., Kik, Chris and Lammerts van Bueren, Edith (2009), *Matches and mismatches of the 2008/62/EC Directive text, practice, and positions*, Farm Seed Opportunities and French National Institute for Agricultural Research (INRA).
[77] See for example Cooper (2002), 'International Treaty on Plant Genetic Resources for Food and Agriculture'. *Review of European Community and International Environmental Law,* vol. 11, no. 1, p. 1-16; Andersen (2015); Lightbourne, Muriel (2009), *Food Security,*

research particularly on article 5 and 6 of the ITPGR has been done. Some papers that mainly focus on other aspects of the ITPGR, for example farmers' rights, do however briefly address article 5 and 6 of the ITPGR.[78] This essay can contribute with a deeper analysis of the meaning of conservation and sustainable use according to the ITPGR, especially in relation to on-farm conservation of traditional varieties. Considering the importance of traditional varieties for future food security in a changing climate due to global warming, this is an important field of research.

1.5 Delimitations

The topic of the essay is broad, and delimitations are necessary. Firstly, only the aspects of conservation of plant genetic resources through farmers using traditional varieties, so called on-farm or *in situ* conservation, will be covered. Other important means to conserve the diversity of plant genetic resources like saving seeds in seed banks (*ex situ* conservation) or preserving wild relatives to crops, will not be mentioned. These are not connected to the seed marketing legislation.

Secondly, an important field with close connection to the marketing of seeds are the rules on *plant variety rights.* These make it possible for plant breeders to obtain intellectual property right protection on new plant varieties. Plant variety rights affect the marketing of protected seeds.[79] However, since this essay mainly focuses on the use of traditional varieties, plant variety rights are not covered.

Biological Diversity and Intellectual Property Right. Ashgate; Santilli (2012) and Tansey, Geoff and Rajotte, Tasmin (ed.) (2008), *The Future Control of Food – A Guide to International Negotiations and Rules on Intellectual Property, Biodiversity and Food Security.* Earthscan.

[78] See for example Andersen (2015) and Cooper (2002).

[79] For more information see the *Convention for the Protection of New Varieties of Plants, adopted on 2nd December 1961, Paris* and *Council Regulation (EC) 2100/94 of 27 July 1994 on Community plant variety rights*.

In relation to the EU legislation I, as already mentioned, only focus on the obstacles that the seed marketing legislation constitutes. I do not investigate any positive measures that the EU has taken for plant genetic diversity.[80] Another delimitation, directly linked to the derogation directive (2009/145), is that the essay only deals with rules on so called *conservation varieties.* The derogations in the derogation directive, however, also apply to *vegetable varieties with no intrinsic value for commercial crop production but developed for growing under particular conditions.*[81] Due to limited space, these will however not be covered.

In relation to the ITPGR, the scope of the essay is limited in that I only focus on article 5 and 6 of the treaty. Other important parts of the ITPGR, for example the *Multilateral system of access and benefit sharing*[82] and *farmers' rights*[83] which also affect conservation of plant genetic resources are not covered. Including these would make the topic of the essay too broad.

Finally, it must be mentioned that besides the ITPGR, the Convention on Biological Diversity[84] and the Nagoya Protocol[85] are also international agreements in the field of biodiversity and plant genetic resources. However, since these two agreements do not specifically regulate agricultural diversity but biodiversity in general, they are not discussed in the essay.

1.6 Disposition

The essay is divided into two parts. In part I of the essay, the first research question regarding how the current EU legislation impacts the conservation

[80] See section 1.3.4.
[81] Derogation directive, art. 1.1.b.
[82] See ITPGR, art. 10-13.
[83] See ITPGR, art. 9.
[84] Convention on Biological Diversity, Rio de Janeiro 5 June 1992, UNTS vol. 1760, p. 79.
[85] Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity, Nagoya 12 October 2014.

and sustainable use of plant genetic resources is analysed. Part II concerns the second research question about how the EU seed marketing legislation could improve.

After this introduction chapter, part I of the essay begins with chapter 2 explaining the basic background to what plant genetic resources are from a natural science point of view. Chapter 3 describes the current EU legislation on the marketing of vegetable seeds. After that, the relevant parts of the ITPGR will be presented in chapter 4. In the last chapter of part I, chapter 5, the first research question is analysed to identify problems with the current legislation in relation to conservation and sustainable use.

In part II, the relevant parts of the Proposed Regulation by the European Commission are presented. After that, the proposed changes to the seed marketing legislation are compared to the shortcomings of the current legislation. This is followed by a discussion on if the current problems could be solved through this proposed regulation. Finally, chapter 7 contains a general discussion on how to improve the current EU seed marketing legislation from a plant genetic diversity perspective.

Part I

2 Plant genetic resources, diversity and agriculture

The aim of this chapter is to provide the reader with some basic information on the natural science aspects of plant genetic resources and diversity. This is important to understand the relevance of the essay and will be useful to the analysis of the first and second research questions. In the first section, I explain what plant genetic resources are and their link to traditional varieties. The second section briefly describes why plant genetic diversity is important. The third section is about how and why plant genetic diversity is decreasing in modern agriculture. The final section explains what on-farm conservation is and how it is linked to plant genetic diversity.

2.1 What are plant genetic resources and where can they be found?

As already mentioned, plant genetic resources for food and agriculture can be defined as *the genetic material that plants contain, with an actual or potential value for food production*.[86] This genetic material is found in the DNA of plants and is contained in their seeds[87].[88] Seeds can thus be said to be the carrier of the plant genetic material of a crop and are therefore the basis of agricultural diversity.[89]

Traditional varieties contain a large diversity of plant genetic resources.[90] There are two different kinds of plant genetic diversity. Firstly, there is a genetic diversity between different varieties. This is called *interspecific*

[86] ITPGR, art. 2.
[87] I will use the word *seed* in a broad sense so that it includes also other kinds of plant propagating material.
[88] Hammer and Teklu (2008), p. 17.
[89] Santilli (2012), p. 43 and Visser, Bert (2002), 'Agrobiodiversity Perspective on Seed Policies' in: Louwaars, Niels P. (ed.), *Seed Policy, Legislation and Law: Widening a Narrow Focus.* CRC Press p. 231-246, p. 234.
[90] Hammer and Teklu (2008), p. 15f.

diversity and means that, for example, there are different tomato varieties that have different features and different genes. Traditional varieties have a high interspecific diversity because they have been developed locally and are thus adapted to different environments.[91] For example, some tomato varieties can be more suited for growing in high altitudes while other varieties are accustomed to long and dry summers depending on where they come from.

Secondly, there is a genetic diversity within a variety between the different individual plants. This is called *intraspecific* diversity. Intraspecific diversity means that if, for example, 100 tomato plants from the same variety are cultivated, each of the 100 plants will not necessarily be genetically identical even if they belong to the same variety. This is called that they are heterogeneous.[92] It is important both to conserve the interspecific and intraspecific diversity of traditional varieties to maintain a high diversity of plant genetic resources. Seeds play an important part in this since the genetic diversity between and within varieties are contained in their seeds.[93]

Traditional varieties have been developed and improved by farmers through their cultivation, and traditionally farmers have used their own seeds for replantation.[94] However, during the end of the 19th century, plant breeding developed into a separate profession.[95] This has led to the emerging of seed companies producing seeds and selling them to farmers.[96]

The separation between plant breeding and farming has contributed to the replacement of traditional varieties with modern varieties, also called high yield crops.[97] These modern varieties are developed by professional plant

[91] Pingali, Prabhu L. (2017), *'The Green Revolution and Crop Biodiversity',* in*:* Hunter, Danny, Guarino, Luigi, Spillane, Charles and McKeown, Peter C. (ed.), Routledge Handbook of Agricultural Biodiversity. Earthscan p. 213-223, p. 217; Visser (2002), p. 236 and Santilli (2012), p. 1.
[92] Pingali, (2017), p. 217; Visser (2002), p. 236 and Santilli (2012), p. 1.
[93] Visser (2002), p. 234 and Santilli (2012), p. 43.
[94] Visser (2002), p. 235.
[95] Dutfield, (2008), p. 27.
[96] *Ibid*. p. 30f.
[97] Hammer and Teklu (2008), p. 20.

breeders using scientific breeding methods[98] Modern varieties have raised the yields and increased the global food production. In India, for instance, the total volume of grains that could be harvested per hectare increased from 2.5 to 12 metric tons over a few years after the introduction of modern high yield crops.[99] At the same time, such varieties are highly dependent on external inputs like fertilizers, pesticides and irrigation.[100]

Another important feature of modern varieties is that they are genetically uniform.[101] This means that they have a poor or no intraspecific diversity, they are homogenous.[102] Therefore the replacement of traditional varieties with modern varieties has decreased the diversity of plant genetic resources in agriculture.[103]

2.2 Why is a high diversity of plant genetic resources important?

Plant genetic diversity is important for several reasons. One is that a high diversity makes agriculture and the food production more resilient.[104] This means that the diversity makes the food cultivation more resistant against different biotic and abiotic stress factors such as new pests, fungus and diseases or against droughts, flooding and too high or low temperatures.[105]

Here follows an example that illustrates the advantage of diversity. Imagine a tomato farmer only cultivating one single variety. One summer the

[98] FAO (1997), p. 19.
[99] Lightbourne (2009), p. 22.
[100] Pellegrini, Pedro and Fernández, Roberto J. (2018), *'*Crop intensification, land use, and on-farm energy-use efficiency during the worldwide spread of the green revolution*'*. *Proceedings of the National Academy of Science*, vol. 115, no. 10, p. 2335-2340, p. 2335 and Lightbourne (2009), p. 23f.
[101] FAO (1997), p. 19.
[102] Hammer and Teklu (2008), p. 22.
[103] *Ibid.* p. 20.
[104] Sunderland, T.C.H. (2011), 'Food security: why is biodiversity important?'. *The International Forestry Review,* vol. 13, no. 3, Special Issue: Forests, Biodiversity and Food Security, p. 265-274, p. 267f.
[105] FAO (1997), p. 24.

temperature unexpectedly drops, and since the variety he grows is cold sensitive, his whole harvest is destroyed. However, his neighbour who is also a tomato farmer, cultivates five different tomato varieties. During the cold snap, three of his varieties also turn out to be sensitive to cold an die. However, his other two varieties could handle the cold and survive, which leaves this farmer with a small harvest despite the cold weather.

The example illustrates how interspecific diversity creates resilience in the food production system. Intraspecific diversity, that is the diversity within a variety, works in the same way. Different genes give plants slightly different traits which might make a few individuals within a variety more resistant to stress factors than others. There are many real-life examples of how big monocultures, lacking both interspecific and intraspecific diversity, have had devastating consequences for food production. Two famous examples are the *potato famine* in Ireland in 1845-1851, where one fourth of the Irish population died in the famine. Another is the *Southern corn leaf blight* which was a fungus that raged in the US in the 1970s and destroyed up to half of the corn harvests in some states.[106]

In addition to resilience, another advantage of plant genetic diversity is its importance for plant breeding.[107] The modern varieties we use today have been developed through using plant genetic material from traditional varieties and wild plants.[108] To improve and develop the existing varieties we need plant genetic material. A higher diversity of plant genetic resources therefore gives more possibilities for improving the crops we use to produce our food.[109] When plant genetic resources erode, the genetic material they contain is lost. This is problematic since it is possible that some of those genes contain traits that could have helped us solve future challenges in food production.[110]

[106] Santilli (2012), p.16.
[107] Hammer and Teklu (2008), p. 18.
[108] FAO (1997), p. 28.
[109] Gepts, Paul (2017), 'Genetic aspects of crop domestication', in*:* Hunter, Danny, Guarino, Luigi, Spillane, Charles and McKeown, Peter C. (ed.), *Routledge Handbook of Agricultural Biodiversity*. Earthscan p. 147-167*,* p. 14.
[110] Hammer and Teklu (2008), p. 18.

Such a future challenge is climate change. A high plant genetic diversity will play an important role in the adaptation of the national and international food production system to the changing climate. The resilience that a high plant genetic diversity provides can help agriculture to adapt to the new climatic conditions.[111] At the same time, climate change will also affect access to plant genetic resources.[112] Even the best case scenario for climate change anticipated by the Intergovernmental Panel on Climate Change (IPCC), predicts that climate change will have a great influence on the future agriculture regarding crop distribution, crop varieties and wild relatives to crops.[113]

2.3 Why is the diversity of plant genetic resources eroding?

The diversity of plant genetic resources is, as previously mentioned, rapidly decreasing.[114] Over the last 100 years, about three-quarters of the genetic diversity in agricultural varieties has been lost.[115] This loss of genetic diversity is called genetic erosion.[116] Genetic erosion both includes that less different varieties are grown today than before and that the varieties that are grown are less heterogeneous.[117] The varietal erosion is, above all, due to the loss of traditional varieties.[118] An illustrative example of this is that about 80 % of the maize varieties previously cultivated in Mexico are gone.[119] As a consequence of the loss of varieties, erosion is also taking place on a genetic

[111] Santilli (2012), p. 23.
[112] Commission on Genetic Resources for Food and Agriculture (CGRFA) (2010) *The Second Report on the State of the World's Plant Genetic Resources for Food and Agriculture*. Rome 2010, p. 43.
[113] CGRFA (2010), p. 43.
[114] FAO (1997), p. 34; CGRFA (2010), p. 17 and Sunderland (2011), p. 267.
[115] Sunderland (2011), p. 267.
[116] Hammer and Teklu (2008), p. 20.
[117] van de Wouw, Mark, Kik, Chris, van Hintum, Theo, van Treuren, Rob and Visser, Bert (2009), 'Genetic erosion in crops: concepts, research, results and challenges. *Plant Genetic Resources: Characterization and Utilization,* vol. 8, no. 1, p. 1-15, p. 4f.
[118] van de Wouw et al. (2009), p. 6 and Hammer and Teklu (2008), p. 16.
[119] FAO (1997), p. 34.

level. When varieties disappear, sometimes specific genes or combination of genes may be lost if these sets of genes cannot be found in other varieties.[120]

Other important factors causing genetic erosion are environmental degradation, overgrassing, land clearing, pests and disease, overexploitation, growing population, and inappropriate legislation and policy.[121]

2.4 What is on-farm conservation and how is it linked to plant genetic diversity?

On-farm conservation, or *in situ* conservation as it is also called, refers to the preservation of plant genetic resources through farmers' cultivation of the varieties that contain them.[122] This can be distinguished from *ex-situ* conservation which refers to the preservation of plant genetic resources outside the farming system, for example in seed banks.[123] Since traditional varieties contain a high genetic diversity, on-farm conservation of traditional varieties plays an important role for the preservation of the agricultural plant genetic diversity.[124]

An advantage with on-farm conservation, compared to *ex situ* conservation, is that, through on-farm conservation, the evolutionary process that has created the wide diversity of traditional varieties can continue and new varieties can develop. The plant genetic information contained in seed banks is on the other hand constant and does not adapt and change.[125]

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[120] Sonnino, Andrea (2017), 'International Instruments for Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture: An Historical Appraisal'. *Diversity,* vol. 9 no. 50, p. 2-19, p. 2.
[121] FAO (2010), p. 15.
[122] Hammer and Teklu (2008), p. 31.
[123] *Ibid.* p. 16.
[124] See section 2.1; Visser (2002), p. 235f and Henry (2017), p. 15.
[125] Hammer and Teklu (2008), p. 31 and Sthapit, Bhuwon, Rao, Ramanatha V., Lamers, Hugo and Sthapit, Sajal (2017), 'Uncovering the role of custodian farmers in the on-farm conservation of agricultural biodiversity', in: Hunter, Danny, Guarino, Luigi, Spillane, Charles and McKeown, Peter C. (ed.), *Routledge Handbook of Agricultural Biodiversity*. Earthscan p. 249-562, p. 549.

On-farm conservation is closely linked to the marketing of seeds and thus to the topic of this essay.[126] A precondition for on-farm conservation of traditional varieties is that farmers have access to seeds from the varieties that are to be conserved. Farmers can access seeds in different ways. Firstly, they can use *farm saved seeds.* These are seeds that farmers have saved from their own harvest to replant.[127] Secondly, they can access seeds externally through exchange with other farmers or by buying them from seed companies.[128] What the EU seed marketing rules comprise will be explained below in chapter 3. However, to better understand the topic of the essay, it can already here be mentioned that the EU seed marketing legislation regulates which seeds that may be marketed and which may not.[129] Hence the rules on the marketing of seeds also affect farmers access to seeds, and therethrough, the on-farm conservation of traditional varieties and the plant genetic diversity they contain.[130]

[126] Visser (2002), p. 240 and Santilli (2012), 43ff.
[127] This is part of what Louwaars, Niels P. (2017), 'Seed systems: managing, using and creating crop genetic resources', in: Hunter, Danny, Guarino, Luigi, Spillane, Charles and McKeown, Peter C. (ed.), *Routledge Handbook of Agricultural Biodiversity*. Earthscan p. 535-546, p. 536 calls the farmer's seed system.
[128] Buying seeds from specialised actors is according to Louwaars (2017), p. 536 part of the formal seed system.
[129] See chapter 3.
[130] This is further explained in section 4.4 and 5.1.

3 The EU legislation on the marketing of vegetable seeds

This chapter will focus on the EU legislation on the marketing of vegetable seeds which is a part of the EU common agricultural policy (CAP).[131] The EU's competence to legislate in the field of agriculture is shared with the member states.[132] This means that both the EU and its member states have the power to regulate the agriculture, but the power of the member states is limited to areas not regulated by the EU.[133]

Within the frame of the CAP, the EU has developed a rich seed marketing legislation.[134] Besides the marketing of vegetable seeds, numerous other kinds of seeds and plant propagating material are regulated, for example potatoes, fodder plants and cereal.[135] In total, the EU seed marketing legislation consists of 12 marketing directives, several derogation directives and about 90 other legal acts accompanying these.[136] Regarding the marketing of vegetable seeds, the two main acts are directive 2002/55 (the marketing directive) and directive 2009/145 (the derogation directive). The key principles for the marketing of seed in the EU are variety registration and seed certification,[137] which are explained below.

The aim of this chapter is to describe the relevant parts of the current EU legislation on the marketing of vegetable seed. The chapter begins with a short explanation to why states want to regulate the marketing of seeds, not only in the EU, but in most parts of the world. Following this, the main rules on the marketing of vegetable seed found in the marketing directive are explained.

[131] Harvey, David *(2015),* 'What does the history of the Common Agricultural Policy tell us', in*:* McMahon, Joseph A., Cardwell, Michael N. *(ed.)*, *Research Handbook on EU Agricultural Law.* Edward Elgar Publishing Limited p. 3-40, p. 7.
[132] TFEU, art. 4.2.d.
[133] TFEU, art. 2.2.
[134] Prip and Fauchald (2016), p. 368.
[135] Winge (2015), p. 5.
[136] Prip and Fauchald (2016), p. 368.
[137] Winge (2015), p. 5.

Thereafter the derogation directive, which provides some derogations from the main rules laid down in the marketing directive, is presented.

3.1 Why the marketing of seeds is regulated

Two main elements of the EU seed marketing legislation are, as mentioned, variety registration and seed certification.[138] Variety registration is a part of many national seed regulations, and in Europe it has been mandatory since the first half of the 20th century. The drive to require registration of plant varieties originates from the risk that the same variety, can otherwise be marketed by different companies under different denominations. Before variety registration was introduced, this often occurred and was problematic both for the farmers and the seed industry.[139] Besides this, state-controlled variety registration provides the state with an opportunity to examine e.g. the agronomic quality of a variety before it is allowed on the market and therethrough safeguard the national food productivity.[140]

In addition to variety registration, seed certification and other forms of seed control have developed in different parts of the world. For a farmer, the quality of the seed is fundamental for the harvest and hence the business. However, a farmer can usually not assess the quality of a seed lot just by looking at it. The potentially bad quality of seeds will first be discovered when the harvest has failed, and it is already too late.[141] Therefore, different systems that protect farmers from buying bad-quality seeds have developed. Through official certification of seeds, the buyer can be confident that the seeds bought are of good quality and come from the crop variety they are marketed as.[142]

[138] Winge (2015), p. 1.
[139] Louwaars (2002b), p. 132.
[140] Louwaars, Kik and Lammerts van Bueren (2009), p. 15.
[141] Louwaars (2002a), p. 6.
[142] *Ibid.* p. 7.

The above-mentioned reasons for variety and seed control also caused the development of the EU seed marketing legislation.[143] The main objectives of the marketing directive are to improve the productivity and create a harmonised and transparent seed market. By forbidding the marketing of unproductive varieties and low-quality seed, the EU aspires to ensure productivity and high quality of the EU vegetable cultivation.[144]

3.2 The marketing directive (2002/55)

3.2.1 The directive at a glance

The marketing directive provides the requirements which must be fulfilled to market vegetable seed in the EU. In short, it provides that seeds are only allowed to be marketed if they belong to a variety that has been accepted in one or more member states of the EU.[145] Besides this, marketing of seeds also requires that the seeds are certified.[146]

The term *marketing* is important for the essay and needs to be defined. Marketing in the marketing directive, refers to the selling, holding with a view to sell and offering for sale of seed.[147] This means that almost all disposals of seed are covered by the rules on marketing. It is irrelevant if the seed supplier is paid for the seed transfer or not.[148] Hence, also informal seed exchange between farmers or even offering seeds for free is considered as marketing under the marketing directive.[149] However, the use of farm saved seeds falls outside the scope of marketing.[150]

[143] Winge (2015), p. 3.
[144] Marketing directive, preamble 2-4, Kokopelli case, para. 43 and Winge (2015), p. 3.
[145] Marketing directive, art. 3.1. and art. 3.2.
[146] *Ibid*. art. 20.2.
[147] *Ibid*. art. 2.1.a.
[148] *Ibid*. art. 2.1.b. ('wheather or not for consideration').
[149] Kästler, Guy (2005), 'Europe's seed laws: locking out farmers'. *Seedling,* July 2005 p. 10-16, p. 12.
[150] *Ibid*. p. 12.

Another key definition is the term *vegetable.* Not all crops that in everyday language are referred to as vegetables, are covered by the marketing directive. Only plants belonging to one of the species listed in article 2.1.b of the marketing directive are comprised.[151] The list is long and includes, for example, onion, asparagus, cauliflower, watermelon, carrot, tomato and sweet corn.[152] Other agricultural products are regulated in other directives.[153]

3.2.2 Registration of varieties

Substantive registration requirements

There are substantive and procedural requirements for registration. The substantive requirements are that member states may only accept varieties that are *distinct, sufficiently uniform* and *stable*.[154] These three requirements are together often referred to as the *DUS-requirements.*[155] The purpose of the DUS-requirements is to ensure that the characteristics of each variety cultivated in the EU can be identified in a reliable way.[156] This is, according to the European Court of Justice, important for a reliable agricultural productivity with good yield quality.[157]

The meaning of the different parts of the DUS-requirements is defined in the marketing directive.[158]. In order to count as *distinct*, a variety has to be 'clearly distinguishable in one or more important characteristics from any

[151] Marketing directive, art. 2.1.b and derogation directive, art. 1.1.
[152] Marketing directive, art. 2.1.b.
[153] Winge (2015), p. 5.
[154] Marketing directive, art. 4.1.
[155] Winge (2015), p. 7.
[156] Kokopelli case, para. 45.
[157] *Ibid*. para. 54.
[158] Besides the definitions provided by the marketing directive the *Commissions Directive 2003/91/EC of 6 October 2003 setting out implementing measures for the purposes of Article 7 of Council Directive 2002/55/EC as regards the characteristics to be covered as a minimum by the examination and the minimum conditions for examining certain varieties of vegetable species* gives a more detailed explanation to what the DUS-requirements are. However, it is not necessary to go that deep into the genetics of plants to answer the research question of this essay, why I will not go into that.

other variety known in the Community'[159]. The variety must have at least one special trait or combination of traits that is not found in other varieties.[160]

A variety is *stable* if, after successive propagation or multiplication, the variety's essential characteristics stay true to the description of it.[161] This means that if a seed of a variety is replanted several times, the newest plant must also fit the description of the original plant.

Finally, to be regarded as sufficiently *uniform,* the individual plants of which the variety is composed, have to, apart from a very few aberrations, be genetically identical as regards the characteristics of them.[162] In other words, uniformity requires that if many seeds of the same variety are sown at the same time, the plants must all become identical.[163]

Procedural registration requirements

There are procedural requirements to verify that the DUS-requirements are complied with. When a seed producer applies for the registration of a variety, an *official examination* must be done by the responsible authority in the member state.[164] The official examination takes place through growing trials which means that the stableness and uniformity of the variety is tested in practice through cultivation. Also, growing trails of other varieties that are similar to the variety are conducted to establish distinctness.[165]

It is up to the member states to decide how the costs for the registration and official examination should be shared between the applicant and the authorities.[166] The costs therefore vary between different countries. The

[159] Marketing directive, art. 5.1.
[160] Lightbourne (2009), p. 43.
[161] Marketing directive, art. 5.2.
[162] *Ibid*. art. 5.3.
[163] Lightbourne (2009), p. 43.
[164] Marketing directive, art. 7.1 and art. 2.1.f.
[165] *Ibid.* art 7.1.
[166] Food Chain Evaluation Consortium (FCEC) (2008), *Evaluation of the Community acquis on the marketing of seed and plant propagating material (S&PM).* European Commission Directorate General for Health and Consumers, p. 67.

registration process, including growing trials, takes, on average, between three and four years.[167]

The national and common catalogue of varieties

Once accepted, a variety will be registered in a *national catalogue* that each member state has to establish.[168] The varieties listed in each member state's catalogue together form the basis for an EU *common catalogue of varieties of vegetable species* (the Common Catalogue).[169]

3.2.3 Certification of seeds

Besides registration, the marketing of vegetable seeds also requires that the quality of the seeds is approved through certification.[170] There are two different categories that seeds can be certified[171] as; *basic seeds* and *certified seeds.* Seeds can also be verified as *standard seeds.*[172] Basic seeds are seeds intended for producing certified seeds.[173] Certified seeds are seeds primarily intended for the cultivation of vegetables.[174] Standard seeds are just like certified seeds, primarily intended for vegetable production.[175]

Substantive certification requirements

The main substantive requirements for the certification of seeds as either basic or certified seeds, are found in Annexes I and II of the marketing directive.[176] These Annexes both provide requirements for the crops

[167] FCEC (2008), p. 80 and 82.
[168] Marketing directive, art. 3.2.
[169] Marketing directive, art. 3.3 and Winge (2015), p. 6f.
[170] Marketing directive, art. 20.2 and Winge (2015), p. 1.
[171] Confusion can easily emerge since the word *certification* both can be used as a verb (as it is here) and as an adjective in the specific term 'certified seed'. The *verb* describes the procedure that a seed lot has to go through to be classified and accepted by the state for marketing. The term certified seed refers to a specific category of seeds that can be marketed in the EU and will be described below.
[172] Winge (2015), p. 9.
[173] Marketing directive, art. 2.1.c.ii.
[174] *Ibid.* art. 2.1.d.ii.
[175] *Ibid.* art. 2.1.e.ii.
[176] *Ibid.* art. 2.1.c.iii and 2.1.d.iii.

producing the seeds and for the seeds produced for marketing.[177] The requirements include that the crops and the seeds have sufficient varietal identity and purity (uniformity) and that the level of diseases and harmful organisms that can affect the seed quality, is as low as possible.[178] There are also requirements for the minimum germination rate of a seed lot, specified separately for each vegetable crop regulated by the directive.[179]

Besides these general requirements, there are some specific requirements for the different categories of seeds. To be certified as basic seeds, the seeds must be produced in accordance with *accepted practices for the maintenance of the variety*.[180] To be certified as certified seeds, the seeds must be produced from basic seeds.[181] Standard seeds do not have to come from basic seeds. They are only required to have a sufficient varietal identity and purity.[182] For standard seeds it is enough to fulfil the requirements laid down in Annex II of the directive why it cannot be guaranteed that they have the same high quality as certified seeds.[183]

Procedural certification requirements

To ensure the compliance with the substantive requirements the marketing directive requires control measures from national authorities. For basic and certified seeds, the fulfilment of the requirements listed in Annex I and II has, as a main rule, to be controlled through official examination conducted by the national authorities.[184] Instead of an official examination done directly by the authorities, examination under official supervision is also allowed. This means that the examination is conducted by a private actor but under the

[177] Annex I is about the crops and Annex II is about the seeds.
[178] Marketing directive, Annex I and II.
[179] *Ibid.*Annex II.
[180] *Ibid.* art. 2.1.c.i.
[181] *Ibid.* art. 2.1.d.i.
[182] *Ibid*. art. 2.1.e.i.
[183] *Ibid.* art. 2.1.e.iii.
[184] *Ibid.* art. 2.1.c.iv, 2.1.d.iv and 2.1.f.

supervision of the authorities.[185] Such an examination must include both field inspections of the seed producing crops and laboratorial seed testing.[186]

For certified and standard seeds, also an *official post-control* is required. A post-control is conducted by national authorities after a seed lot has been certified and marketed to verify that the varietal identity and varietal purity is maintained.[187]

The costs for the required control measures for certification are in some member states fully transferred to the seed producer but in others shared with the authorities.[188]

3.2.4 The marketing of seeds

Seeds from varieties that are listed in the Common Catalogue may not be subject to any marketing restrictions within the EU.[189] However, seeds may only be marketed under the category they are certified or verified as.[190] The marketing directive also provides detailed labelling requirements for the seed lots.[191]

3.3 The derogation directive (2009/145)

The derogation directive provides for derogations from the requirements in the marketing directive for some traditional vegetable varieties.[192] The background to the adoption of this directive was that the strict rules for the marketing of seeds were accused of contributing to the loss of diversity in the

[185] Marketing directive, art. 2.1.c.iv and 2.1.d.iv.
[186] *Ibid.* art. 2.4.
[187] Marketing directive, art. 2.1.d and 2.1.f.
[188] FCEC (2008), p. 129f.
[189] Marketing directive, art. 17.1.
[190] *Ibid.* art. 20.2.
[191] *Ibid.* art. 20.2.
[192] Compare the full name of the derogation directive (2009/145).

EU agriculture.[193] Therefore, some derogations from the registration and certification requirements for a category of varieties called *conservation varieties* were introduced[194].[195] The objective of the derogation directive is to ensure *in situ* (on-farm) conservation and sustainable use of plant genetic resources.[196] The derogation directive only provides derogations from some of the requirements in the marketing directive and if not differently mentioned, the rules in the marketing directive apply also to conservation varieties.[197]

The implementation of several important parts of the derogation directive is optional for the member states. For example, article 3 on variety registration, states that 'Member States *may* [authors emphasis] accept conservation varieties subject to the requirements provided for in Articles 4 and 5'[198]. It is hence not mandatory to implement the derogations for conservation varieties. However, if a member state decides to allow conservation varieties, the standards provided by the directive have to be followed.[199]

3.3.1 Conservation varieties

The derogation directive regulates the same vegetable species as the marketing directive.[200] However, only varieties of these species that can be classified as *conservation varieties* are subject to the derogations provided by the derogation directive.[201] Conservation varieties are 'landraces and varieties which have been traditionally grown in particular localities and regions and

[193] Bocci (2009), p. 32.
[194] The concept of 'conservation varieties' was not first introduced through directive 2009/145 but was already used in directive 98/95/CE of 14 December 1998. As a specific derogation to the vegetable directive 2002/55 conservation varieties are implemented through directive 2009/145.
[195] Bocci (2009), p. 32.
[196] Derogation directive, preamble 2.
[197] *Ibid.* art. 1.2.
[198] *Ibid.* art. 3.1.
[199] Compare the formulation of the derogation directive, art. 4.2 were it is stated that if a member state implements the derogations from the registration requirement it *shall* ensure that the minimum standards provided by the derogation directive are followed.
[200] Marketing directive, art. 1.1.
[201] Derogation directive, art. 1.1.

[are] threatened by genetic erosion'[202] A landrace is a 'set of populations or clones of a plant species which are naturally adapted to the environmental conditions of their region'[203]. To be a conservation variety, it is therefore required that the variety is adapted to the local conditions of a particular area.[204] Moreover, the variety must have been traditionally grown in that area and hence have a historical connection to it.[205]

A conservation variety also has to be threatened by genetic erosion.[206] Genetic erosion is in the directive defined as the loss of genetic diversity between and within varieties of the same species over time, due to human intervention or environmental change.[207] To become a conservation variety, it must thus be shown that the variety and its plant genetic material is endangered.[208] In summary, a conservation variety is a locally adapted variety that traditionally has been grown in a specific area and is threatened by genetic erosion.

3.3.2 Registration of conservation varieties

Conservation varieties also have to be registered to be marketed.[209] Of the approximately 21500 registered vegetable varieties in the Common Catalogue, only 152 were registered as conservation varieties in December 2019.[210]

Substantive registration requirements

The first substantive requirement for the registration of a conservation variety is that the variety is of interest for the conservation of plant genetic

[202] Derogation directive, art. 1.1.a.
[203] *Ibid.* art. 2.c.
[204] Prips and Fauchald (2016), p. 369.
[205] Derogation directive, art. 1.1.a.
[206] Derogation directive, art. 1.1.a and Bocci (2009), p. 37.
[207] Derogation directive, art. 2.b.
[208] Bocci (2009), p. 37.
[209] Derogation directive, art. 3.2.a.
[210] See European Commission, 'EU Plant Variety Database', v.3.2. Available at <https://ec.europa.eu/food/plant/plant_propagation_material/plant_variety_catalogues_databases/search/public/index.cfm?event=SearchForm&ctl_type=H> (visited 12th of December 2019).

resources.[211] This can be linked to that a variety has to be threatened by genetic erosion to be defined as a conservation variety.[212] Only varieties that need protection should be registered as conservation varieties.[213]

The second requirement is that the variety is distinct, uniform and stable (DUS-requirements). As a derogation from the marketing directive, the derogation directive allows the member states to adopt their own DUS-requirements for conservation varieties which are lower than does required by the marketing directive.[214] There are, however, some minimum requirements regarding distinctness, uniformity and stability that conservation varieties have to fulfil.[215] The DUS-requirements for conservation varieties are hence lower than for varieties registered under the marketing directive.

Procedural registration requirements

For the registration of varieties under the marketing directive (regular varieties), an official examination is, as mentioned, necessary to make sure that the variety complies with the DUS-requirements.[216] For conservation varieties, such an official examination is not necessary if other information is available and sufficient to evaluate the fulfilment of the DUS-requirements.[217] This other information includes; a description of the variety and its denomination, results from unofficial tests, other information gained through cultivation of the crop and information from other authorities or recognised organisations about the variety and its characteristics.[218] However, if such information is not available or not sufficient to evaluate the fulfilment of the substantive registration requirements, also conservation varieties must be subject to official examination.[219]

[211] Derogation directive, art. 4.1.
[212] Compare section 3.3.1.
[213] Derogation directive, art. 4.1.
[214] Derogation directive, art. 4.2 and Winge (2015), p. 13.
[215] Derogation directive, art. 4.2.
[216] See section 3.2.2.
[217] Derogation directive, art. 5.
[218] Derogation directive, art. 5 and Bocci (2009), p. 39f.
[219] Derogation directive, art. 5.

The member states decide how the registration costs are to be divided between the authority and the applicant.[220]

3.3.3 Certification of conservation varieties

Regarding seed certification, the derogation directive once again allows the member states to implement derogations.[221]

Substantive certification requirements

Seed from conservation varieties can be certified or verified as certified or standard seeds of a conservation variety.[222] For this, essentially the same certification rules apply to seeds from conservation varieties as to seeds from regular varieties. Certified seeds from a conservation variety also have to fulfil the criteria listed in Annex I and II of the marketing directive.[223] However, since seeds from conservation varieties cannot be certified as basic seeds, they must not derive from basic seeds. Instead they should be produced through a *well-defined practice for the maintenance of the variety*.[224]

Procedural certification requirements

Regarding the seed quality control procedure, derogations from the marketing directive apply to conservation varieties. Seeds from conservation varieties do not have to comply with the requirements for official examination or examination under official supervision.[225] Instead, the derogation directive only requires that the member states make sure that the seeds are *tested in accordance with current international methods.*[226] However, official post-

[220] FCEC (2008), p. 67.
[221] Derogation directive, art. 10.
[222] *Ibid.* art. 3.2.a.
[223] *Ibid.* art. 10.b.
[224] *Ibid.* art. 10.a.
[225] *Ibid.* art. 10.b.
[226] *Ibid.* art. 12.

control should also be conducted on conservation varieties to check their varietal purity.[227]

In a report from 2008, stakeholders marketing traditional varieties testified that the certification costs for the marketing of traditional varieties were too high and not proportionate to their market size.[228]

3.3.4 The marketing of conservation varieties

The marketing of seeds from conservation varieties is restricted through quantitative and geographical restrictions.[229] These restrictions are there to ensure that the marketing of seeds takes place where the variety comes from and to avoid that too large areas are used for cultivating conservation varieties.[230]

Quantitative restrictions

The quantitative restrictions provide a cap for the quantity of seeds from each conservation variety that may be marketed within a member state per year.[231] For example, for a conservation variety of onion (*Allium cepa*), not more seed than needed to sow 40 hectares of onion are allowed to be marketed in each member state per year.[232]

To assure that the quantitative restrictions are not exceeded, the member states must know how much seeds of each conservation variety that will be produced within their territory each year. Seed producers must therefore annually report to national authorities the anticipated size and location of the area for the seed production.[233] If there is a risk that the allowed quantities

[227] Derogation directive, art. 10.b.
[228] FCEC (2008), p. 128.
[229] See derogation directive, art. 13, 14 and 15.
[230] Derogation directive, preamble 8 and 9 and Winge (2015), p. 41.
[231] Derogation directive, art. 15 referring to Annex 1.
[232] *Ibid.* art. 15 and Annex 1.
[233] *Ibid.* art. 16.1.

will be exceeded, the member states designate how much seed each producer may produce.[234]

Geographical restrictions

There are two kinds of geographical restrictions on conservation variety seeds. Firstly, seeds may only be produced and, secondly, only be marketed in their region of origin.[235] The *region of origin* is the geographical area (locality or region), where the variety has been historically cultivated in and to which it is adapted.[236]

If the seeds cannot be produced in their region of origin due to environmental problems, the member state may allow that they are produced in another region.[237] Member states may also give permission to the marketing in other regions with similar natural conditions as the region of origin.[238]

To summarise, the marketing directive requires variety registration and seed certification for the marketing of vegetable seeds. The derogation directive provides some derogation from these rules for conservation varieties. Quantitative and geographical restrictions, however, apply to the marketing of conservation varieties.

3.4 The Kokopelli case

An important case from the European Court of Justice concerning the marketing and the derogation directive, is the *Kokopelli case* from 2012. In this case, the ECJ had to decide on the legality of the EU seed directives in relation to, amongst others, article 5 and 6 of the ITPGR. The substantive provisions of article 5 and 6 of the ITPGR will be analysed below in chapter

[234] Derogation directive, art. 16.2.
[235] *Ibid.* art. 13 and 14.
[236] Derogation directive, art. 8.1 compare also the definition of a conservation variety above in section 3.3.1.
[237] Derogation directive, art. 13.1.
[238] *Ibid.* art. 14.2.

4 of the essay. However, no deeper knowledge about the ITPGR is needed to understand the ECJ's judgement in the Kokopelli case.

3.4.1 The circumstances of the Kokopelli Case

In the Kokopelli case, *Association Kokopelli* (Kokopelli), a non-profit organisation producing and selling seeds from old and unusual vegetable varieties in France, was sued. The plaintiff, a large seed company named *Graines Baumaux SAS* (Baumaux), accused Kokopelli for unfair competition.[239] The plaintiff claimed that Kokopelli had sold seeds from varieties not registered in the catalogue for vegetable varieties and was hence not complying with the French implementation of the EU seed marketing directives.[240] Since Baumaux and Kokopelli partly had the same customer base, the French court found that Kokopelli had committed an act of unfair competition by marketing unregistered seed.[241]

The question to the ECJ

Kokopelli appealed, and the French court of appeal turned to the ECJ requesting for a preliminary ruling.[242] The question to the ECJ was if the marketing directive and the derogation directive are valid in the light of proportionality, the free movement of goods, and EU's commitments arising from the ITPGR.[243] Of relevance here is mainly the last part of the referred question regarding the ITPGR.

3.4.2 The validity of the marketing and the derogation directive

The ECJ did not find that the validity of the marketing and the derogation directive was affected by the ITPGR.[244] According to case law of the ECJ,

[239] Kokopelli case, para. 21.
[240] *Ibid.* para. 23.
[241] *Ibid.* para. 22-23.
[242] *Ibid.* para. 24-25.
[243] *Ibid.* para. 25.
[244] *Ibid,* para. 86.

one of the requirements for declaring a directive invalid due to EU's commitments under an international treaty is that the content of the treaty appears to be unconditional and sufficiently precise.[245] In the Kokopelli case, the ECJ came to the conclusion that the relevant articles of the ITPGR, article 5 and 6, were not unconditional and precise enough to make the directives invalid.[246] According to the ECJ, the ITPGR leaves the implementation of article 5 and 6 to the discretion of its contracting parties, which is why it cannot be considered to be unconditional and sufficiently precise.[247]

In its statement of defence, Kokopelli had argued that the variety acceptance rules in the marketing and the derogation directives did not comply with the EU's obligations under the ITPGR.[248] However, since the Court came to the conclusion that the ITPGR does not fulfil the formal requirements to declare a EU legal act invalid, it never actually assessed how the content of the EU seed marketing directives affects the conservation and sustainable use of plant genetic resources.[249] This question will, however, be analysed in this essay.

In summary, the ECJ did not find that the ITPGR could affect the validity of the marketing and the derogation directive. In the next chapter, the content of article 5 and 6 of the ITPGR will be presented.

[245] Martines, Franceca (2014), 'Direct Effect of International Agreements of the European Union'. *European Journal of International Law*, vol. 25, no. 2, p. 129–147, p. 142 and Advocate General Kokott in C-59/2011 *Association Kokopelli v Graines Baumaux SAS*, EU:C:2012:447, paragraph 52 referring to previous case law.
[246] Kokopelli case, para 86.
[247] *Ibid.* para. 86 and 89.
[248] *Ibid.* para. 83.
[249] *Ibid.* para. 89 and 92f.

4 International Treaty on Plant Genetic Resources

The aim of this chapter is to see what standards regarding conservation and sustainable use that the EU, as a contracting party to ITPGR (or the Treaty), should strive for. The chapter describes the obligations and recommendations provided by the treaty linked to the on-farm conservation of traditional varieties.

The chapter begins with a short introduction to the ITPGR and a presentation of its objectives. Then follows one section analysing the standards for conservation provided by article 5 and one section on sustainable use found in article 6 of the Treaty.

4.1 Background

The ITPGR entered into force in 2004. It was adopted by the Thirty-first session of the Conference of the FAO in 2001.[250] By September 2019, it had 146 contracting parties.[251]

The instigating factor behind the negotiations of the ITPGR were concerns for the ongoing worldwide genetic erosion. This loss of diversity was not a new revelation, the issue had already been addressed by the FAO in 1967. However, an important proof of the problem was the 1997 Report on the State of the World's Plant Genetic Resources for Food and Agriculture, written on behalf of the FAO.[252] It presented a frightening picture of the agricultural genetic erosion taking place all over the world and emphasised the need for action for the sake of future food security.[253]

[250] Cooper (2002), p. 1.
[251] FAO (2019c).
[252] Sonnino (2017), p. 2.
[253] FAO (1997), p. 14 and 24ff.

These concerns are reflected in the preamble of the ITPGR where it is stated that the contracting parties are alarmed by the continuing erosion of plant genetic resources.[254] The parties also recognise that plant genetic resources are the 'raw material indispensable for crop genetic improvement' and are 'essential in adapting to unpredictable environmental changes and future human needs'.[255]

The objectives of the ITPGR, stated in its first article, can be divided into three parts, (a) the *conservation* of plant genetic resources, (b) the *sustainable use* of plant genetic resources and (c) the *fair and equitable sharing* of plant genetic resources. The idea is, that these three objectives together shall promote food security and sustainable agriculture which is the overall aim of the Treaty.[256] The objectives on conservation and sustainable use are substantivized in article 5 and 6 of the ITPGR. For both these objectives the on-farm conservation and management of plant genetic resources play an important role.[257]

4.2 Conservation of plant genetic resources

4.2.1 The contracting parties should promote conservation

The relevant parts of article 5 read as follows;

> *5.1 Each Contracting Party shall, subject to national legislation, and in cooperation with other Contracting Parties where appropriate, promote an integrated approach to the exploration, conservation and sustainable use of plant genetic resources for food and agriculture and shall in particular, as appropriate:*
>
> *[...]*
>
> *c) Promote or support, as appropriate, farmers and local communities' efforts to manage and conserve on-farm their plant genetic resources for food and agriculture;*

[254] ITPGR, preamble 2.
[255] *Ibid*, preamble 6.
[256] ITPGR, art. 1.1 and Tabaro (2008), p. 217.
[257] Andersen (2015), p. 455.

[…]

5.2 The Contracting Parties shall, as appropriate, take steps to minimize or, if possible, eliminate threats to plant genetic resources for food and agriculture.

According to the Treaty, each contracting party, shall promote an integrated approach to the exploration, conservation and sustainable use of plant genetic resources.[258] The requirement that states should promote an integrated approach can be interpreted as meaning that conservation and sustainable use are linked to each other and should thus be realised together.[259] Plant genetic resources are not limited resources like for example oil, but can constantly be reproduced. Therefore, it is possible both to conserve and use plant genetic resources at the same time.[260]

To fulfil the obligation to promote an integrated approach, the Treaty lists different measures that should be taken by the parties for this purpose.[261] Of importance to this essay is above all that states are asked to promote or support farmers' on-farm conservation of their plant genetic resources.[262] Through this formulation the ITPGR explicitly recognises the role that farmers play in the conservation of plant genetic resources.[263]

4.2.2 On-farm conservation of traditional varieties

The fact that states should *promote* or *support* on-farm conservation means that they should somehow further farmers' contribution to conservation through the cultivation of their crops. The provision requires active measures by the contracting parties but does not require any specific result.[264] The duty to promote on-farm conservation is thus an *obligation of conduct* rather than

[258] ITPGR, art. 5.1 and 5.1.c.
[259] Moore and Tymowski (2005), p. 41.
[260] *Ibid.* p. 51.
[261] ITPGR, art. 5.1.a-5.1.f.
[262] *Ibid.* art. 5.1.c.
[263] Moore and Tymowski (2005), p. 43.
[264] *Ibid.* p. 60.

an *obligation of result*.[265] The Treaty merely requires the states to strive for the goal of conservation and act accordingly.

Even if not explicitly mentioned in article 5, traditional varieties are important for on-farm conservation. In the Second Global Plan of Action (Second GPA) a connection is drawn between farmers use of traditional varieties and the conservation of plant genetic diversity.[266] Article 5 of the Treaty does not use the word traditional varieties but stipulates that it is 'their' plant genetic resources that should be conserved.[267] The 'their' refers to the farmers and their crops. Since traditional varieties are varieties grown traditionally by farmers, the farmers' plant genetic resources that the Treaty refers to are probably traditional varieties. This is also logical due to the high diversity of plant genetic resources that traditional varieties contain.[268] Conserving traditional varieties is hence important to fulfil the objective of the Treaty.[269]

How the contracting parties should promote on-farm conservation is left to the discretion of the parties.[270] This is underlined by the frequent use of the formulation 'as appropriate' in article 5 of the Treaty.[271] The promotion could for example take place through financial and technical support to farmers through different projects.[272] However, even if it is up to the member states to decide how to promote on-farm conservation, it is clear that the ITPGR recommends the parties to do so, which makes the provision important to the essay.

[265] Compare Mayer, Benoit (2018), 'Obligations of conduct in the international law on climate change: A defence'. *Review of European Community and International Environmental Law,* vol. 27, no. 2, p. 130-140, p. 130.
[266] Second GPA, para. 38, 40 and 41.
[267] ITPGR, art. 5.1.c.
[268] Compare section 2.1. Compare also Second GPA which often refers to traditional varieties as 'farmers' varieties'.
[269] Moore and Tymowski (2005), p. 60.
[270] Compare the formulation of art. 5 of the ITPGR with the formulation of art. 6 that explicitly refers to 'policy and legal measures' as the way that the contracting parties should promote sustainable use.
[271] ITPGR, art. 5.
[272] Moore and Tymowski (2005), p. 43.

4.3 Sustainable use of plant genetic resources

4.3.1 Policy and legal measures for sustainable use

The relevant parts of article 6 of the Treaty read as follows;

> *6.1 The Contracting Parties shall develop and maintain appropriate policy and legal measures that promote the sustainable use of plant genetic resources for food and agriculture.*
>
> *6.2 The sustainable use of plant genetic resources for food and agriculture may include such measures as:*
>
> *[…]*
>
> *e) promoting, as appropriate, the expanded use of local and locally adapted crops, varieties and underutilized species;*
>
> *[…]*
>
> *g) reviewing, and, as appropriate, adjusting breeding strategies and regulations concerning variety release and seed distribution.*

The ITPGR provides that the contracting parties shall promote a sustainable use of plant genetic resources through appropriate policy and legal measures.[273] The use of the word *shall* indicates that states must take policy and legal measures to promote sustainable use.[274] The word '*and'* between policy and legal measures means that it is not enough only to make policies but some kind of legal measures are also required.[275]

The contracting parties' obligation to promote a sustainable use is formulated as an obligation of conduct.[276] The word *promote* indicates that article 6.1 focuses on states' actions towards sustainable use and not whether they actually achieve this or not.[277]

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[273] ITPGR, art. 6.1.
[274] Compare Bodansky, D. (2015), 'Legally binding versus non-legally binding instruments', in: Barrett, Scott, Carraro, Carlo and de Melo, Jaime (ed.), *Towards a Workable and Effective Climate Regime.* CEPR Press p. 155-165, p. 158.
[275] Moore and Tymowski (2005), p. 51.
[276] ITPGR, art. 6.1 and Compare Mayer (2018), p. 130.
[277] Compare Mayer (2018), p. 131.

What sustainable use means according to the Treaty is clarified in article 6.2 through a non-exhaustive list of measures which gives some examples of what sustainable use *may include*.[278] The wording of article 6.2 raises the question on whether the listed measures are obligations or merely recommendations to the contracting parties. Due to the formulation of the research question, which both includes obligations and recommendations, this is not of significant relevance to this essay and will not be further analysed.

4.3.2 The different aspects of sustainable use

There are several different measures listed in the ITPGR defining sustainable use, but the focus of this essay are the ones connected to the cultivation of traditional varieties. According to the Treaty, sustainable use includes *promoting the expanded use of local and locally adapted varieties* (traditional varieties).[279] The word 'expanded' indicates that the use of traditional varieties should not only continue as before (*status quo*), but also be increased. This can be linked to the fact that many traditional varieties have already been replaced by modern varieties and therefore just freezing the picture, will not be enough.[280] In connection to this, it can be mentioned that one of the objectives of the Second GPA is to increase the demand for traditional varieties and their crops.[281]

Another example of sustainable use listed in article 6 of the ITPGR, is that the contracting parties are asked to review and adjust their regulations on *variety release* and *seed distribution*.[282] This provision is about the national systems on variety registration, seed certification and quality control.[283]

[278] ITPGR, art. 6.2.
[279] *Ibid.* art. 6.2.e. Compare the research question (section 1.2).
[280] See section 2.3; ITPGR, art. 6.1, and Moore and Tymowski (2005), p. 58.
[281] Second GPA, para. 191 and 192.
[282] ITPGR, art. 6.2.g.
[283] Moore and Tymowski, p. 59.

Suggested measures by the Explanatory Guide for the adjustment include making the variety registration process easier and the seed quality control system more flexible.[284] Another suggested measure is adjusting the seed system to make sure that it does not favour or limit the development of certain varieties.[285] According to the Second GPA states should take legislative measures to make traditional varieties and underutilized crops available.[286]

4.4 The ITPGR and the marketing of seeds

This section briefly explains the connection between the above described obligations and recommendations of the ITPGR and the marketing of seeds.

On-farm *conservation* of traditional varieties requires that farmers are able to access seeds from the varieties that are to be cultivated.[287] Considering the ongoing replacement of traditional varieties, simply letting farmers rely on farm saved seeds, will probably not be enough to halt the genetic erosion. Since only farmers that already cultivate a particular variety have access to farm saved seeds, conserving a broad diversity of traditional varieties and therethrough plant genetic resources will be difficult without giving farmers access to other seeds as well.[288] To fulfil the obligation of conduct provided by article 5 of the ITPGR, contracting parties like the EU should therefore, according to my interpretation, make it possible for farmers to access seeds from traditional varieties also from other sources.[289] Due to the broad definition of *marketing* in the marketing directive, this will require that seeds from traditional varieties are allowed to be marketed in the EU.[290]

[284] Moore and Tymowski, p. 59f.
[285] *Ibid*. p. 60.
[286] Second GPA, para. 209.d.
[287] See section 2.4.
[288] Compare section 2.3.
[289] Compare section 4.2.2.
[290] Compare section 3.2.1 and 2.4.

The standards for *sustainable use* include that the contracting parties promote an increased use of traditional varieties.[291] Additionally, this obligation requires more than simply allowing farmers to use farm saved seeds. Farm saved seed do not give other farmers access to seeds and the use of traditional varieties can therefore not expand.[292] Hence, contracting parties to the ITPGR must allow the marketing of seeds from traditional varieties. The fact that reviewing and adjusting the regulation on variety release and seed distribution is another measure of sustainable use explicitly mentioned in the Treaty supports this assumption.[293]

In summary, it can be argued that the EU should allow the marketing of vegetable seeds from traditional varieties to comply with the ITPGR. In the following chapter the EU marketing directives' influence on farmers access to seeds from traditional varieties will be discussed.

[291] See section 4.3.2.
[292] Compare section 2.4.
[293] See section 4.3.2.

5 Is the EU complying with the standards in the ITPGR?

The aim of this chapter is to analyse the first research question of the essay regarding if the current EU legislation on the marketing of seeds and especially the derogation directive (2009/145), is enough to reach the standard for conservation and sustainable use of plant genetic resources set out in the ITPGR.[294]

To do this, I discuss different aspects of the current EU legislation that could affect the conservation and sustainable use of plant genetic resources. Besides my own critical analysis, I also take help from the opinions of scholars. The conclusion from this first research question will then be the basis for the second part of the essay where the second research question will be examined.

5.1 The effects of the EU seed marketing legislation on conservation and sustainable use

5.1.1 The definition of conservation variety

One part of the EU legislation that could be an obstacle to the marketing of traditional varieties is the definition of *conservation varieties*. To be covered by the derogation directive, a variety must have been traditionally grown in a particular area and must be threatened by genetic erosion.[295]

Parts of this definition can make it difficult for some traditional varieties to be covered by the derogation directive. According to Bocci and Santilli, not all varieties have a clear historical connection to a specific locality.[296] There might be old varieties with a high genetic diversity that have not been grown

[294] See section 1.2.
[295] See section 3.3.1.
[296] Bocci (2009), p. 46. See also Santilli (2012), p. 63.

in a specific area but in many different places. It can also be difficult to find enough data on where a variety originally comes from.[297] There is therefore a risk that some traditional varieties cannot fall under the definition of a conservation variety because they lack an identifiable local and historical connection.

Moreover, that a variety must be threatened by genetic erosion can also be problematic. Bocci and Santilli address that it can be difficult to measure if and how 'threatened' a plant variety is. Firstly, it is hard to collect data on the inter- and intraspecific status of a certain traditional variety. Secondly, it can be difficult to determine where the threshold should be in order for a variety to count as threatened with genetic erosion.[298] It can therefore be hard to establish whether a traditional variety meets this part of the definition or not.

Traditional varieties that are not covered by the definition of a conservation variety cannot benefit from the facilitations provided by the derogation directive. Therefore, the definition indirectly affects EU's compliance with the ITPGR.[299] The requirement that a variety is threatened by genetic erosion also affects the conservation of plant genetic resources in a more direct way. Albeit the objective of the derogation directive, traditional varieties are first covered by the directive once they are already threatened by genetic erosion.[300] At the same time, the ITPGR provides that states should promote an increased cultivation of traditional varieties.[301] This is hard to fulfil if traditional varieties first are protected by the derogation directive once they are already threatened with genetic erosion.

In conclusion, the definition of a conservation variety could be an obstacle to the conservation and sustainable use of plant genetic resources if it excludes some traditional varieties from the scope of the derogation directive.

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[297] Bocci (2009), p. 38f.
[298] *Ibid.* p. 37f. See also Santilli (2012), p. 62.
[299] Compare section 3.3.1 and 4.4.
[300] See section 3.3.1.
[301] See section 4.3.2.

5.1.2 Variety registration

Another part of the EU legislation that could affect the marketing of traditional varieties are the DUS-requirements under the marketing directive.[302] Several scholars have pointed out that these requirements can be difficult for traditional varieties to fulfil.[303]

To be sufficiently uniform according to the marketing directive, a variety has to be homogeneous.[304] However, traditional varieties have a great intraspecific diversity which makes them genetically heterogenous.[305] As Visser explains, traditional varieties are due to their heterogeneousness usually not uniform.[306] It is therefore difficult for traditional varieties to fulfil the EU registration requirement of uniformity.

Another requirement that can be difficult for traditional varieties to fulfil is stableness. According to the marketing directive, stableness means that the essential characteristics of a plant stay the same over several generations.[307] However, a distinguishing feature of traditional varieties is that they are good at adapting to changed natural conditions. Because they easily adapt, they do not stay the same over generations and are therefore not stable.[308] It is consequently hard for traditional varieties to fulfil the DUS-requirement regarding stableness.

Traditional varieties adaptability can also be a hinder for them to achieve distinctness. According to Louwaars et al., a traditional variety will be slightly different depending on where it is cultivated and how the natural conditions

[302] See section 3.2.2.
[303] See amongst others Visser (2002); Louwaars, Kik and Lammerts van Bueren (2009); Bocci (2009); Prip and Fauchald (2016); Santilli (2012) and Winge (2015).
[304] See section 3.2.2.
[305] See section 2.1.
[306] Visser (2002), p. 236.
[307] See section 3.2.2.
[308] Visser (2002), p. 235.

are in the different localities. Therefore, a variety can be quite diverse which can rise problems with its distinctness.[309]

In the derogation directive, the DUS-requirements that apply to conservation varieties are lower than in the marketing directive.[310] However, considering the special nature of traditional varieties, the lower DUS-requirements provided by the derogation directive are according to amongst others Bocci and Winge, still too high to include all traditional varieties.[311] Moreover, the number of conservation varieties registered in the Common Catalogue are as mentioned still very low.[312] This implies that the derogation directive does not remove all of the above described obstacles to the registration of traditional varieties in the marketing directive.

However, even if not all traditional varieties can meet the lower DUS-requirements in the derogation directive, this directive does broaden the scope of varieties that may be marketed in the EU. There are traditional varieties that cannot meet the DUS-requirements in the marketing directive but can reach the lower DUS-requirements and therefore can be marketed because of the derogation directive. This is positive for the on-farm conservation and sustainable use of plant genetic resources as defined by the ITPGR.[313]

In connection to this, it must be addressed that the implementation of the lower DUS-requirements is voluntary.[314] Hence, in member states that chose not to implement the derogations, the difficulties to register traditional varieties under the marketing directive described above, remain the same.[315] This unfortunately removes some of the positive effects of the derogation directive.

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[309] Louwaars, Kik and Lammerts van Bueren (2009), p. 21.
[310] See section 3.3.2.
[311] Bocci (2009), p. 46 and Winge (2015), p. 20.
[312] See section 3.3.2.
[313] Bocci (2009), p. 46.
[314] See section 3.3.
[315] If and how the different EU member states have implemented any derogations from the DUS-requirements for vegetable conservation varieties needs to be further investigated and would be an interesting field for further research.

The objective of the ITPGR is to preserve the *diversity* of plant genetic resources,[316] and this diversity includes both intra- and interspecific diversity.[317] Since intraspecific diversity refers to the diversity within a species, especially the uniformity requirement seems to be problematic for the conservation of plant genetic resources. However, for the large-scale marketing of modern varieties, the uniformity requirement has a function to fulfil, for example in reducing crop damage in mechanised farming and to distinguish one variety from another.[318] For traditional farming on the other hand, uniformity does not play the same role since traditional farming-systems instead attain yield stableness through intraspecific diversity.[319] For the EU's commitments under the ITPGR and for the marketing of traditional varieties the role of the uniformity requirement in the derogation directive could therefore be questioned.

In conclusion, the derogation directive can have a positive effect for the cultivation of traditional varieties. However, obstacles remain firstly because even the lower DUS-requirements for conservation varieties are too high for some traditional varieties, and secondly because the implementation of the derogations is optional and any positive effects from the derogation directive depend on the decision of the member states.

[316] See section 4.1.
[317] See section 2.1.
[318] Louwaars, Kik and Lammerts van Bueren (2009), p. 15. Compare also the Court of Justice's statement in the Kokopelli case, para. 42 and 44f. However, this opinion has also been criticized by amongst others by Bocci (2014), p. 119 who argues that the Court of Justice in the Kokopelli case did not consider the advantages of agricultural diversity enough. Also Visser (2002), p. 242 expresses a different opinion. He argues that the DUS-requirements are much more far-reaching than necessary to ensure agronomic value of crops.
[319] Visser (2002), p. 233.

5.1.3 Seed certification and other costs

Another potentially problematic part of the EU seed legislation is that the obligatory seed certification process takes time and can be expensive.[320] This can affect the possibility to market seeds form traditional varieties and therefore EU's compliance with the standards for on-farm conservation provided by the ITPGR. Small seed companies can struggle to afford high certification costs. Winge, Bocci, and Prip and Fauchald address that the costs for seed certification therefore can exclude small seed companies from the seed market.[321] This is negative since seeds from traditional varieties usually are marketed by smaller companies.[322] Smaller seed companies often have local connections to the area and client base and are therefore more likely to market traditional varieties than large seed companies.[323] Seed certification can therefore be an obstacle to the marketing of traditional varieties.

The certification rules in the derogation directive partly mitigate this negative effect. For example, to market certified seeds for vegetable cultivation under the marketing directive, the seeds must derive from plants produced from basic seeds.[324] A company selling certified seeds hence both has to pay for the certification of the basic seeds and for the certification of the seeds that are to be sold to the costumers.[325] These double cost do not apply to seeds from conservation varieties since the derogation directive does not require that they come from basic seed.[326] This can contribute to a less time-consuming and expensive certification process for traditional varieties.

[320] See section 3.2.2, 3.2.3, 3.2.4 and Prip and Fauchald (2016), p. 369;Visser (2002), p. 240, and Winge (2015), p. 13.
[321] Visser (2002), p. 240; Prip and Fauchald (2016), p. 369; Bocci (2009), p. 32; Winge (2015), p. 13.
[322] Louwaars, Kik and Lammerts van Bueren (2009), p. 8.
[323] Visser (2002), p. 240; Prip and Fauchald (2016), p. 369; Bocci (2009), p. 32 and Winge (2015), p. 13.
[324] See section 3.2.3.
[325] See section 3.2.3.
[326] See section 3.3.3.

Another difference between the marketing and the derogation directive is the procedural requirements for the certification.[327] Certification under the marketing directive requires official examination or examination under official supervision.[328] This is not needed for conservation varieties which only have to be tested in accordance with current international methods.[329] Especially in countries that transfer the whole cost for the seed control to the applicant, these derogations could make the certification process for traditional varieties less expensive which is positive from a conservation perspective.[330]

Finally, not only the certification process can be expensive for the seed producer but also the variety registration.[331] Hence, the same analysis regarding the potentially negative effects of high costs for small seed companies can be made in relation to the registration requirements.[332] However, also for these the derogation directive provides lower standards than the marketing directive and the registration costs should therefore be lower for conservation varieties.[333] However, according to Louwaars et al. even if the derogation directive can lower the costs, they are not low enough for all small seed companies to afford them.[334]

In conclusion, the costs for certification and registration in the derogation directive are lower than under the marketing directive. This might make it easier for small companies to afford to market seeds from traditional varieties. However, according to Bocci and Louwaars et al. the costs for conservation varieties are still too high for some small seed companies.[335] This can be an obstacle to the marketing of traditional varieties.

[327] Compare section 3.2.3 and 3.3.3.
[328] See section 3.2.3.
[329] See section 3.3.3.
[330] Compare section 3.2.3.
[331] Compare section 3.2.2.
[332] Visser (2002), p. 240; Prip and Fauchald (2016), p. 369; Bocci (2009), p. 32; Winge (2015), p. 13.
[333] See section 3.2.2 and 3.3.2.
[334] Louwaars, Kik and Lammerts van Bueren (2009), p. 9.
[335] Bocci (2009), p. 47 and Louwaars, Kik and Lammerts van Bueren (2009), p. 8.

5.1.4 Quantitative restrictions

The quantitative restrictions that apply to conservation varieties can also be problematic for the marketing of traditional varieties. To begin with, companies marketing conservation varieties have to annually report to national authorities the amount of seed they intend to produce.[336] Winge addresses that this duty places extra administrative burden on the seed producer of conservation varieties which can make the marketing of traditional varieties more expensive.[337]

Secondly, since the quantitative restrictions apply per member state, the amount of seeds of a variety that a seed company may produce, depends on how many other seed companies that want to produce the same variety.[338] If the allowed quantity is exceeded one year, national authorities can designate the amount of seed that each seed company may produce.[339] This can create an uncertainty for companies marketing conservation varieties since they cannot decide and plan in advance the amount of seeds that they may produce.

In addition, the fact that only small quantities of seeds are allowed to be marketed could affect the profitability of the marketing of conservation varieties. The initial production costs that seed companies have, including costs for registration and certification, must be covered by the income from the marketing of the seeds. If the quantitates that are allowed to be marketed are too small, it can be difficult to cover these costs.[340] This could affect the marketing of traditional varieties.

In conclusion, the quantitative restrictions that apply to conservation varieties can affect profitability of the marketing of traditional varieties in different

[336] See section 3.3.4.
[337] Winge (2015), p. 17.
[338] See section 3.3.4.
[339] See section 3.3.4.
[340] Louwaars, Kik and Lammerts van Bueren (2009), p. 12.

ways. They could also make it difficult for seed companies to plan ahead since the cap for the allowed amount of seeds to be produced can be changed by the authorities. This can have a negative effect on the marketing of traditional varieties and hence for the on-farm conservation of plant genetic resources.

5.1.5 Geographical restrictions

The geographical restrictions in the derogation directive can be problematic for the marketing of traditional varieties.[341] For example, Louwaars et al. mention that due to the geographical restrictions, varieties that are no longer cultivated in their region of origin, but could be cultivated somewhere else, are threatened to erode because of the restrictions.[342] Considering that the ITPGR requires an expanded use of traditional varieties, the fact that each variety is limited to a small geographical area is problematic.[343]

Another potential problem with the geographical marketing restriction is that it could affect the profitability of the marketing of traditional varieties, since it limits the potential customer base for the seed company.[344]

On the other hand, geographical restrictions can, according to some, also have positive effects. Bocci implies that the role that the region of origin plays can be an incentive to transfer seed production to the historical locality of a conservation variety.[345] I interpret Bocci's opinion as meaning that the focus on the local connection of a variety can encourage both farmers and vegetable consumers in its region of origin, to use and demand this variety. Louwaars et al. also mention that the region of origin can help to support the regional identity linked to a certain variety. However, in addition to this, they state that this does not mean that geographical restrictions are the best way protect plant

[341] Winge (2015), p. 20; Prip and Fauchald (2016), p. 369; Louwaars, Kik and Lammerts van Bueren (2009), p. 8.
[342] Louwaars, Kik and Lammerts van Bueren (2009), p. 9.
[343] Compare section 4.3.2.
[344] Compare section 3.3.4.
[345] Bocci (2009), p. 45.

genetic resources. Supporting regional identity and tradition is not the objective of the derogation directive but is a social and cultural question.[346]

In the Kokopelli case, the ECJ also comments on the objective of the quantitative and geographical restrictions. It states that the marketing restrictions are there to prevent the emergence of a parallel market for conservation seeds.[347] This implies that, without the marketing restrictions, there would be a risk that seeds from conservation varieties become a competitive 'threat' to seeds marketed under the marketing directive. Recognising the meaning of sustainable use according to the ITPGR this view is problematic. The protection of the plant genetic diversity requires an increased use of traditional varieties and not only a minimum cultivation to avoid erosion.[348] Louwaards et al. question the attitude of the ECJ. According to them, there is currently no signs that conservation varieties compete with varieties registered under the marketing directive or that the derogation directive is misused by seed companies for competitive advantages.[349]

In conclusion, the geographical restrictions that apply to conservation varieties can make the conservation of traditional varieties more difficult and the marketing less profitable. At the same time, the focus on the region of origin could have a positive effect for the regional identity and encourage farmers to cultivate local varieties. It is therefore difficult to make any clear conclusions on how the geographical restrictions affect the use of traditional varieties.

5.2 Interim conclusion

To summarise, the EU directives on the marketing of vegetable seeds contain rules that could pose an obstacle to the marketing of traditional varieties. In

[346] Louwaars, Kik and Lammerts van Bueren (2009), p. 9f.
[347] Kokopelli case, p. 65.
[348] See section 4.3.2.
[349] Louwaars, Kik and Lammerts van Bueren (2009), p. 9.

this section I first summarise which these obstacles are and how they can affect the conservation and sustainable use of plant genetic resources. I then answer the first research question regarding if the derogations provided by the derogation directive are enough to promote conservation and sustainable use of plant genetic resources as defined by the ITPGR.

5.2.1 How do the EU directives affect the conservation and sustainable use of plant genetic resources?

The marketing and the derogation directive influence the possibility to market seeds from traditional varieties. On-farm conservation of traditional varieties, which is an important part of the conservation and sustainable use of plant genetic resources, relies on that seeds from traditional varieties can be marketed.[350] Obstacles to the marketing of traditional varieties can therefore affect the plant genetic diversity in the EU.

The obstacles that the EU directives constitute can be divided into two different categories depending on the way they hinder the marketing. Firstly, some of the rules prohibit the marketing of some traditional varieties. These rules thus completely stop the marketing of certain varieties. Secondly, some of the rules in the directives can be an obstacle to the marketing of traditional varieties without actually prohibiting the marketing of their seeds. For example, rules creating high costs for the seed producer can in practise make marketing difficult. I will now summarise the above discussed obstacles by dividing them into these two categories.

Rules that prohibit the marketing of some traditional varieties

One rule that can prohibit the marketing of certain varieties, is the variety registration requirement in the derogation directive. Some traditional varieties are too heterogeneous or adaptable to changes to even meet the lower DUS-

[350] See section 2.4 and 4.4.

requirements in the derogation directive. They cannot be accepted into the catalogue and hence may not be marketed in the EU.[351]

Also, the definition of a conservation variety can indirectly prohibit the marketing of some traditional varieties. Not all traditional varieties are covered by the definition, for example, because they lack a historical connection to a specific locality. This means that traditional varieties that cannot be registered under the marketing directive but could have been accepted under the derogation directive because they fulfil the lower DUS-requirements, are still excluded from the EU seed market because they are not regarded as conservation varieties under the derogation directive.[352]

Rules that can constitute an indirect obstacle to the marketing of seeds from traditional varieties

One example of rules that can constitute an obstacle to the marketing of traditional varieties without directly prohibiting it, are the certification and registration requirements that make seed production expensive. High costs risk to exclude small seed companies from the seed market. This can be an obstacle to the marketing of seeds from traditional varieties.[353]

The quantitative restrictions under the derogation directive could also be an obstacle to the marketing of seeds. The additional administrative costs that apply to such seeds and the small quantities allowed to be marketed can make it less profitable or even too expensive to market some traditional varieties.[354] They could therefore be an obstacle to the marketing of seeds from traditional varieties.

Regarding geographical restrictions, no clear conclusion can be made on how they affect the marketing of traditional varieties. Some aspects of them, for example, is that they limit the potential consumer basis can make it less

[351] See section 5.1.2.
[352] See section 5.1.1.
[353] See section 5.1.3.
[354] See section 5.1.4.

attractive to cultivate traditional varieties. At the same time, the local connection could also encourage farmers and consumers to demand traditional varieties. This could be positive for the aim of conservation and sustainable use.

5.2.2 Answering the first research question: Are the derogations in the derogation directive sufficiently contributing to the aims of conservation and sustainable use?

The first research question of this essay is if the derogations for conservation varieties in the derogation directive sufficiently contribute to the conservation and sustainable use of plant genetic resources in traditional varieties.[355] Considering my conclusions in section 5.2.1, my answer to the research question is negative.

Even with the derogations from the marketing directive, several obstacles to the marketing of traditional varieties remain. Moreover, the quantitative and geographical restrictions that the derogation directive contains also creates new obstacles.[356] This can create problems for the on-farm conservation and sustainable use of plant genetic resources as defined under the ITPGR. That obstacles to the marketing of traditional varieties remain in and are created through the derogation directive indicates that the EU is not sufficiently contributing to the conservation and sustainable use of plant genetic resources.

[355] See section 1.2.
[356] See section 5.1.4.

Part II

6 Improvements on the current EU seed marketing legislation

The aim of the second part of the essay is to discuss potential solutions to remove the obstacles in the current EU legislation on the marketing of traditional varieties to improve the conservation and sustainable use of plant genetic resources. To do this, I analyse if the suggestions given by the European Commission in their Proposed Regulation[357] could remove the current obstacles to the marketing of seeds from traditional varieties.

Firstly, the main content of the Proposed Regulation is presented. Thereafter, its derogations for traditional varieties are described. Finally, a discussion on if these derogations could solve the problems with the current legislation and an analysis of the second research question follows.

6.1 The Proposed Regulation

The main idea behind the Proposed Regulation is to replace the current 12 directives on the marketing of seeds with one regulation.[358, 359] Instead of regulating different kinds of crops in different directives, the Proposed Regulation thus covers all crops.[360] Since not all crops are seed-crops like vegetables, the Proposed Regulation covers all *plant reproductive material* and not only seeds. I will however continue to use the term seed since this is the focus of this essay. The Proposed Regulation is an extensive legislative act with 146 article and 14 annexes.

[357] Besides the proposed text of law, the above cited document also contains an 'Explanatory Memorandum' where the Commission gives some comments on the proposal. References to this memorandum will be marked with 'Explanatory Memorandum' followed by a page number. Henceforth references to the text of law of the Proposed Regulation will take place by reference to the article number.
[358] Explanatory Memorandum, p. 2.
[359] Regarding the current 12 directives see chapter 3.
[360] Proposed Regulation, art. 1 and Explanatory Memorandum p. 4.

6.1.1 Objectives

The Proposed Regulation has three objectives. Firstly, it aims at harmonising the legislation between different kind of seeds, which are currently regulated in different directives with slightly different rules. Secondly, the regulation intends to make the marketing rules between member states more harmonised. Today there is a discrepancy between the implementation of the directives between different member states which a regulation could remove.[361]

The third objective of the Proposed Regulation is to strengthen the *in situ* conservation of agricultural diversity.[362] In the preamble, it is mentioned that productivity, health, quality and diversity of plant reproductive material are very important for the EU agriculture, food security and the economy.[363]

6.1.2 Variety registration and seed certification

Like the current seed marketing legislation, registration and certification are the main pillars of the Proposed Regulation.[364] Only seeds from registered varieties may be marketed in the EU.[365] The registration of a variety requires an *official description* of the variety produced by national authorities.[366] The official description requires compliance with DUS-requirements.[367] The procedural requirements for the registration include a technical examination done by national authorities but can under certain circumstances also to be conducted by the applicant if specifically authorised.[368] The national and common catalogues are replaced by a national and a union variety register, but the content is similar to the current legislation.[369]

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[361] Explanatory Memorandum, p. 2 and Proposed Regulation, preamble 3.
[362] Explanatory Memorandum, p. 2.
[363] Proposed Regulation, preamble 2.
[364] Proposed Regulation, art. 13 and Explanatory Memorandum, p. 5.
[365] Proposed Regulation, art. 14.
[366] *Ibid.* art. 10.2.
[367] *Ibid.* art. 56.2.a.
[368] *Ibid.* art. 71.1 and 73.
[369] Proposed Regulation, art. 51 and 52 and Explanatory Memorandum, p. 7.

Also, seed certification is, as a rule, required for the marketing of seeds under the Proposed Regulation.[370] The categories that seeds can be certified as are almost the same as under the marketing directive.[371] Pre-basic[372], basic and certified seeds must be certified and identified through an official label that proves that they comply with the production and quality requirements of the regulation.[373] This certification is to be based on field inspections, seed and crop samples and tests.[374]

For traditional varieties some new derogations are introduced. These will be presented below in section 6.2.

6.2 The Proposed Regulation's rules on the marketing of traditional varieties

To promote on-farm conservation, the Proposed Regulation provides for derogations for certain varieties.[375] The current concept with conservation varieties is however removed and replaced with two other concepts.[376] These are *varieties with officially recognised descriptions*[377] and *niche market seeds*.[378]

[370] Proposed Regulation, art. 13.1.
[371] *Ibid.* art. 12.1.
[372] In the Proposed Regulation one new category called pre-basic seeds is introduced. These are used either to produce basic seeds or certified seeds. See art. 12.1 and 10.6.
[373] Proposed Regulation, art. 19.2.
[374] *Ibid.* art. 19.3.
[375] Explanatory Memorandum, p. 9.
[376] Sheil, Sarah (2013), *Seeds and other plant reproductive material Towards new EU rules*, Library briefing, Library of the European Parliament, 10th of June 2013, p. 4.
[377] European Commission, *Q&A on the Commission's Proposal for a New Plant Reproductive Material Law.* Available at: <https://ec.europa.eu/food/sites/food/files/plant/docs/ppm_legis_review_faq_regulation_proposal.pdf> (visited 31th of October 2019), paragraph 10 and Proposed Regulation, preamble 36 and Explanatory Memorandum, p. 8f.
[378] European Commission, *Q&A on the Commission's Proposal for a New Plant Reproductive Material Law*, para. 8 and 17; Proposed Regulation, art. 36.1 and Explanatory Memorandum, p. 6.

6.2.1 Varieties with officially recognised descriptions

A *variety with an officially recognised description* is a variety that is registered in the variety register without fulfilling the regular registration requirements. Instead of being based on the examination of the variety's distinctiveness, uniformity and stability (DUS) as is required for conservation varieties under the current legislation, it is enough if the variety can be identified through a description of the special characteristics which are typical for the variety.[379] This description is produced by the seed company itself but has to be recognised by the national authorities.[380] The description of the variety should, if accessible, be based on information from authorities or recognised organisations working with plant genetic resources, and be supported by results from previous official or unofficial examinations or data based on practical experience from cultivating the variety.[381]

The substantive requirements for the registration of a variety with an officially recognised description are firstly that the variety, before the entry into force of the Proposed Regulation, either was already registered in a national catalogue or that it had been made available on the market.[382] This means that only old varieties can be registered as varieties with an officially recognised description. According to the preamble of the Proposed Regulation, the aim of this specific registration procedure is to conserve plant genetic diversity in local varieties that cannot fulfil the DUS-requirements. Since the aim is conservation, only varieties that are already in use or have been collected in seed banks are to be covered.[383]

The second requirement for the registration of a variety with an officially recognised description is that it has to be produced in its region of origin.[384] Thirdly, varieties that have already been registered in a variety catalogue or

[379] Proposed Regulation, art. 57.4 and Explanatory Memorandum, p. 9.
[380] Proposed Regulation, art. 10.3.
[381] Proposed Regulation, art. 57.4 and Explanatory Memorandum, p. 9.
[382] Proposed Regulation, art. 57.1.
[383] Proposed Regulation, preamble 37.
[384] *Ibid.* art. 57.2.

are protected by a Union plant variety right[385] cannot be registered as a variety with an officially recognised description.[386] Vegetable varieties that have been registered as conservation varieties under the derogation directive shall become varieties with officially recognised descriptions.[387] According to the Explanatory Memorandum to the Proposed Regulation, the fees for the registration of varieties with officially recognised descriptions shall be lower than the normal registration fees.[388] Lastly, a variety may not be registered if it constitutes an unacceptable risk to human or animal health or the environment.[389]

Varieties that are registered based on an officially recognised description may only be marketed as *standard seeds* and can thus not become certified seeds.[390] Even if standard seeds also must fulfil production and quality standards listed in Annex II of the Proposed Regulation, the requirements are lower than for certified seeds.[391] This is because standard seeds are not subject to mandatory official inspection. Instead, it is the seed producer (professional operator) himself that has to test the seeds to assure that the quality is sufficient.[392] The seed lot is then to be marked with an *operator's label,* that confirms that the standards are met.[393]

A variety with an officially recognised description is already in the registration process linked to a specific region.[394] The variety may only be produced in this region but the authorities can approve additional regions after the registration.[395] A difference to the rules on conservation varieties in the derogation directive is that the Proposed Regulation only puts a geographical

[385] *Union plant variety right* is an intellectual property rights protection that plant breeders can obtain for new varieties through Council Regulation (EC) 2100/94 of 27 July 1994 on Community plant variety rights.
[386] Proposed Regulation, art. 57.2.b-c.
[387] *Ibid.* art. 80.2.
[388] Explanatory Memorandum, p. 8.
[389] Proposed Regulation, art. 56.1.b.
[390] *Ibid.* art. 12.4.
[391] *Ibid.* art. 19.5.
[392] Proposed Regulation, art. 28.
[393] *Ibid.* art. 19.4 and 28.
[394] *Ibid.* art. 57.2.
[395] *Ibid.* art. 57.3.

limitation to where the seeds may be produced but not to where they are allowed to be marketed.[396] Moreover, no quantitative restrictions apply to such varieties.[397]

6.2.2 Niche market seed

Niche market seed (niche market material) can be marketed without prior registration of the variety.[398] The definition of niche market seeds is that they are marketed in small quantities. Hence, both traditional and other varieties can be marketed as niche market seeds.[399] The idea is that seeds belonging to varieties of small commercial value should be exempted from the registration requirements to further the conservation of genetic diversity.[400] The allowed quantities that each producer may market are not specified in the Proposed Regulation but are to be decided by the Commission.[401]

In the Explanatory Memorandum to the Proposed Regulation, a third criteria for niche market seeds is mentioned. It is said that varieties *adapted to local conditions* sold in small quantities can be niche market material.[402] In the text of law of the Proposed Regulation however, no requirement of local adaption of the variety is mentioned in connection with niche market seeds.[403] It is thus unclear if there is such a criterion or not. However, since it is not mentioned in the actual text of the Proposed Regulation, I will not consider this to be the case.

Niche market varieties may only be marketed in small quantities by small companies with no more than 10 employees, so-called *micro enterprises*. These restrictions are there to prevent abuse of the derogations for niche

[396] Compare section 3.3.4.
[397] Explanatory Memorandum, p. 9.
[398] Proposed Regulation, art. 36.1.
[399] Proposed Regulation, art. 36.1 and European Commission, *Q&A on the Commission's Proposal for a New Plant Reproductive Material Law.*, para. 11.
[400] Proposed Regulation, preamble 27.
[401] *Ibid.* art. 36.3.
[402] Explanatory Memorandum, p. 6f.
[403] Compare Proposed Regulation, art. 36.

market seeds.[404] Niche market seeds can only be made available as standard seeds.[405] For this, the same rules as for varieties with official recognised description apply.[406] The Commission can make delegated acts with more specific rules on package size, labelling and other marketing conditions.[407] The producers of niche market seeds have to keep record of the amount of seeds produced and, upon request, make these available to the authorities.[408]

6.3 Could the Proposed Regulation improve the current seed marketing legislation?

I will now analyse the second research question which reads as follows; Would the Proposed Regulation improve the conservation and sustainable use of plant genetic material in accordance with the standards given by the ITPGR? To do this I separately address each of the identified problems with the current legislation and discuss if and how the changes in the Proposed Regulation could solve these.

6.3.1 The definition of varieties with an officially recognised description and niche market seeds

Varieties with officially recognised descriptions

A potential obstacle to the marketing of traditional varieties under the current legislation, is the definition of a conservation variety. Conservation varieties must have a local and historical connection and be threatened by genetic erosion.[409] Also, the definition of a variety with an officially recognised description includes that it has to have a region of origin.[410] This will sustain today's problem that traditional varieties lacking an identifiable region of

[404] Proposed Regulation, preamble 27.
[405] *Ibid.* art. 14.4.c.
[406] Compare section 6.2.1.
[407] Proposed Regulation, art. 36.3.
[408] *Ibid.* art. 36.2.
[409] See section 3.3.1.
[410] See section 6.2.1.

origin, fall outside the scope of the derogation.[411] On the other hand, the potential advantages of an explicit local connection of a variety will remain.[412]

A difference to the current definition of conservation varieties is that varieties with officially recognised descriptions do not have to be threatened by genetic erosion.[413] This is positive since it can avoid the catch 22 of the current legislation where varieties can only be covered by the directive meant to conserve them, once they are already threatened by genetic erosion.[414]

However, an important criterion for a variety to be become a variety with an officially recognised description, is that it was already registered or 'on the market' before the Proposed Regulation would have entered into force.[415] This could, depending on the interpretation of 'on the market', be problematic for the sustainable use of traditional varieties. If only varieties that are already registered as conservation varieties under the current legislation are intended by the formulation, the concept of varieties with officially recognised descriptions will not increase the diversity of traditional varieties allowed to be marketed but only keep *status quo*.

'On the market' could, however, also refer to all varieties that are currently used by farmers. This would mean that the Proposed Regulation refers to all varieties whose vegetable crops (the actual tomatoes or onions) are on the market. Under this interpretation, traditional varieties that are currently cultivated by farmers relying on farm saved seeds, are also covered by the definition. This could increase the number of traditional varieties whose seeds may be marketed. Varieties that cannot reach the DUS-requirements, but are already cultivated by some farmers, could then be registered as varieties with

[411] See section 5.1.1.
[412] See section 5.1.5.
[413] See section 6.2.1.
[414] See section 5.1.1.
[415] See section 6.2.1.

officially recognised descriptions. However, traditional varieties that are not currently used by farmers would still fall beyond the scope of the definition.

Niche market seeds

Niche market seeds are defined as seeds marketed in small quantities by small companies. The definition does not require that the seeds come from a variety with a specific region of origin or that is threatened by genetic erosion.[416] Therefore, the problems that the current definition of a conservation variety creates will not concern niche market seed since the definition does not include the problematic criteria.

6.3.2 Registration of varieties

Varieties with officially recognised descriptions

For varieties that fall under the definition of a variety with an officially recognised description, variety registration is required. Under the current legislation, an obstacle to the marketing of traditional varieties are the DUS-requirements which can be difficult for heterogeneous varieties to fulfil.[417] In the Proposed Regulation, varieties with an officially recognised description are exempted from the DUS-requirements.[418] This is positive for the marketing of traditional varieties and therethrough to the on-farm conservation of plant genetic resources, since heterogeneous plants containing a high genetic diversity may be registered.

Another change from the current rules is that the Proposed Regulation imposes lower registration fees for varieties with an officially recognised description.[419] This could further the use of traditional varieties since high fees can be an obstacle especially for small seed companies.[420] Lower fees

[416] See section 6.2.2.
[417] See section 5.1.2.
[418] Compare section 3.3.2 with 6.2.1.
[419] See section 6.2.1
[420] See section 5.1.3.

might therefore make it more affordable for small seed companies to market traditional varieties.

Niche market seeds

The concept of niche market seed allows small enterprises to market seeds in small quantities, without previous registration of the variety.[421] This takes away all potential obstacles that the current rules on variety registration may constitute, since no registration is necessary. Both the DUS-requirements and the other limitations discussed above in connection to varieties with an officially recognised description are avoided.[422] This could make it a strong tool to further the conservation and sustainable use of traditional varieties. Unfortunately, the heavy quantitative restrictions that apply may take away much of this positive effect which will be discussed below in section 6.3.4.

6.3.3 Seed certification

Varieties with officially recognised descriptions

The expensive seed certification process under the current directives can, as discussed, be an obstacle to marketing of traditional varieties.[423] Under the Proposed Regulation, seeds from varieties with officially recognised descriptions must be verified as standard seeds.[424] The requirements that the applicant has to meet to verify his seeds as standard seeds are lower than for both certification and verification under the current directives.[425] Standard seeds are identified by an operator's label based only on inspections conducted by the seed producer himself.[426] Even if this also puts an administrative burden on the producer, the certification costs will probably become lower because no fees to authorities have to be paid. Lower costs

[421] See section 6.2.2.
[422] See section 6.2.2 and 6.3.1.
[423] See section 5.1.3.
[424] See section 6.1.2 and 6.2.1.
[425] Compare section 3.3.3.
[426] See section 6.2.2 and 6.2.1.

have a potential to mitigate the obstacles to the marketing of traditional varieties that the certification rules under the current legislation constitute.

Niche market seeds

The same analysis can be made regarding niche market seeds that similarly only can be made available on the market as standard seed.[427]

6.3.4 Quantitative restrictions

Varieties with officially recognised descriptions

The quantitative restrictions that apply to the marketing of conservation varieties under the current legislation, constitute a potential obstacle to the marketing of traditional varieties, since they can affect the profitability of the marketing.[428] For varieties with officially recognised descriptions no quantitative restrictions apply.[429] This could further the use of traditional varieties since one of the current marketing obstacles disappear.

Niche market seeds

For niche market seeds strict quantitative restrictions apply.[430] As already mentioned, such restrictions can affect the profitability for seed companies marketing traditional varieties.[431] However, since no registration is required for niche market seeds and the certification costs are lower, the initiating costs for producing such seeds will be lower.[432] This implicates that the impact on the profitability for niche market seeds will be lower compared to the quantitative restrictions on conservation varieties under the current legislation.[433] Despite this, the fact remains that the quantitative restrictions can affect the marketing of traditional varieties which is problematic. Sustainable use as defined in the ITPGR includes increasing the use of

[427] See section 6.2.2.
[428] See section 5.1.4.
[429] See section 6.2.1.
[430] See section 6.2.2.
[431] See section 5.1.4.
[432] Compare section 6.2.2 and section 5.1.3.
[433] Compare section 6.2.2 with 5.1.3.

traditional varieties.[434] Simply allowing the marketing of very small quantities of seeds may not be enough to achieve this.

Another aspect of the rules on niche market seeds, is that they may only be marketed by micro enterprises.[435] This can be problematic since it limits the scope of which companies that can produce niche market varieties. For example, *Association Kokopelli* has about 20 seed multipliers in France, administrative and selling staff not included.[436] Depending on the interpretation of *employee* in the Proposed Regulation, they would probably not be covered by the derogation for niche market seeds. This is unfortunate for the conservation of plant genetic resources and the role that small companies and organisation can play to further this.

6.3.5 Geographical restrictions

Varieties with officially recognised descriptions

Conservation varieties may, under the current legislation, only be produced and marketed in their region of origin. This gives them a competitive disadvantage against modern varieties.[437] For varieties with officially recognised descriptions there is only a geographical restriction regarding the production of the seeds, not for where they may be marketed.[438] The Proposed Regulation therefore makes the potential customer base for companies that want to market traditional varieties broader than under the current legislation. This could remove one of the current obstacles to the conservation of traditional varieties by increasing the incentive for companies to market them.[439]

[434] See section 4.3.2.
[435] See section 6.2.2.
[436] Association Kokopelli, 'Notre Réseaus de producteurs multilicateurs'. Available at: <https://kokopelli-semences.fr/fr/> (visited 25th of December 2019).
[437] See section 5.1.5.
[438] See section 6.2.1.
[439] Compare section 5.1.5.

Even if no geographical restrictions regarding the marketing apply to varieties with officially recognised descriptions, the Proposed Regulation poses geographical restrictions on the production of them.[440] The potential disadvantages of this described above regarding conservation varieties, will therefore remain under the Proposed Regulation.[441]

Niche market seeds

No geographical restrictions apply to the marketing of niche market seed.[442] This will remove all obstacles that such restrictions create under the current legislation.[443]

6.4 Conclusion

With my findings from the discussion above in mind, I will now try to answer the second research question regarding if the Proposed Regulation could improve the conservation and sustainable use of plant genetic resources in accordance with the standards given by the ITPGR.[444]

Varieties with officially recognised descriptions

Beginning with varieties with officially recognised descriptions, my conclusion is that this concept has a potential to mitigate some of the obstacles present in the current seed marketing legislation, but not all of them. A positive for the marketing of traditional varieties is that some of the rules that today prohibit the marketing of some traditional varieties are removed. Varieties with officially recognised descriptions do for example not have to meet the DUS-requirements. This can facilitate the registration of heterogeneous varieties that cannot be marketed under the current legislation.[445] Also, the removal of the criterion that a variety must be

[440] See section 6.2.1.
[441] Compare section 5.1.5.
[442] See section 6.2.2.
[443] Compare section 5.1.5.
[444] See section 1.2.
[445] See section 6.3.2.

threatened by genetic erosion to be covered by the derogations can broaden the scope of traditional varieties that may be marketed.[446]

Furthermore, some of the rules that constitute an obstacle to the marketing of seeds from traditional varieties under the current regulation, are softened for varieties with officially recognised descriptions. For example, the high certification and registration costs that under the current legislation may exclude small seed companies who want to market traditional varieties, will probably be lower under the Proposed Regulation.[447] Additionally, the removal of the quantitative restrictions can enhance the profitability of the marketing of traditional varieties.[448]

However, a precondition for all these positive effects is that as many traditional varieties as possible are covered by the definition of a variety with an officially recognised description. As discussed above, only varieties that are already on the market, can become varieties with officially recognised descriptions under the Proposed Regulation.[449] This limits the scope of traditional varieties that can benefit from the positive effects of the derogations for varieties with officially recognised descriptions. Other obstacles that remain are geographical restrictions for the production of varieties with officially recognised description.[450]

Niche market seeds

The introduction of niche market seeds could also remove some of the current obstacles, but my conclusion is that this concept will not either be enough to make the EU seed marketing legislation meet the standards provided by the ITPGR. The main advantage of niche market seeds is that seeds from all traditional varieties can be marketed under this category, without previous registration being required.[451] This removes all obstacles related to variety

[446] See section 6.3.1.
[447] See section 6.3.3.
[448] See section 6.3.4.
[449] See section 6.3.1.
[450] See section 6.3.5.
[451] See section 6.2.2.

registration that traditional varieties struggle with today, both the DUS-requirements and the registration costs.[452] Moreover, the seed certification process for niche market seeds is easier compared to the process under the derogation directive which can lower the costs for such seeds and therethrough further the marketing of traditional varieties.[453]

However, due to heavy quantitative restrictions the possibility to market niche market seeds is very limited. The quantitative restrictions can both limit the profitability of marketing such seeds and hinder an increased use of traditional varieties.[454] Another problem is that only micro enterprises are allowed to market niche market seeds.[455] This means that medium sized companies or even non-profit organisations with over 10 employees cannot benefit from this derogation at all. This is negative since it limits the potential amount of companies allowed to market traditional varieties.

Final conclusion

Conservation and sustainable use of plant genetic resources according to the ITPGR includes furthering the on-farm conservation and an expanded use of traditional varieties.[456] This requires that seeds from traditional varieties may be marketed.[457] Under the Proposed Regulation, more traditional varieties may be marketed than under the current legislation. However, even if they are allowed to be marketed, practical and economical obstacles such as quantitative restrictions remain. My answer to the second research question is thus that the Proposed Regulation could improve the conservation and sustainable use of plant genetic resources. However, it would not remove all obstacles that the current EU vegetable seed marketing legislation puts on the marketing of traditional varieties.

[452] See section 6.3.2.
[453] See section 6.2.2.
[454] See section 6.3.4.
[455] See section 6.2.2.
[456] See section 4.2.2 and 4.3.2.
[457] See section 5.1.

Ways forward

7 Ways forward

My conclusions up to this point are that parts of the current EU seed marketing legislation constitute obstacles to the conservation and sustainable use of plant genetic resources. Moreover, the Commission's Proposed Regulation could remove some, but not all of them, and is therefore insufficient. This raises the question on how to go on from here – are there any ways forward? Here follows a short discussion on this with the Proposed Regulation as a starting point. My intention is not to give a full solution to all the identified problems, but rather to examine some possible directions and highlight a few general issues that I find of interest in the light of my previous conclusions.

Inspiration for possible ways forward can be found both in literature and in non-EU legislation. The ways forward can be divided into two different approaches. The first approach would be to maintain the current requirement of mandatory registration and certification for all varieties, but with expanded derogations for traditional varieties. The other approach would be to completely preclude traditional varieties from mandatory registration and certification. After a short comment on a third possible approach, I will briefly discuss these two approaches and conclude the chapter with a summary of the most preferable options I have identified from a plant genetic diversity perspective.

The abovementioned third (and rather extreme) option would be to make variety registration and seed certification voluntary, not only for traditional varieties, but for all varieties. Even though the current seed marketing legislation in the United States (US) goes in this direction,[458] this approach

[458] In the US, variety registration and official seed certification is not required. Instead the system requires seed producers to label their seeds. The label shows that the seed lot reaches the standards that are prescribed by the law. The state can then do spot checks to control that the labels are correct, and the seeds are of required quality. See Louwaars (2002a), p. 8; Armbruster, Walter J. and Knutson, Ronald D. (2013), *US Programs Affecting Food and Agricultural Marketing.* Springer and the Federal Seed Act, available at < https://www.ams.usda.gov/rules-regulations/fsa> [visited on the 10th of December 2019].

will not be further discussed here. Considering the long history of seed control in the EU and the importance it plays for the EU agriculture, I do not find this option a realistic way forward.[459]

7.1 The first approach: Lower registration and certification requirements for traditional varieties

The most moderate feasible amendment of the current EU seed marketing legislation would be to keep the current variety registration and seed certification requirements for all varieties, including traditional varieties, but with more extensive derogations for the latter. An example of this, mentioned by Visser, would be to also consider other aspects than the DUS-requirements in the registration process, such as considering traits of specific importance for organic farming.[460]

An approach similar to this is adopted in the Proposed Regulation. Varieties with an officially recognised description do not have to fulfil the DUS-requirements. Instead, the description of them can be based on other data, for example from practical cultivation experience, as long as it is sufficient to make the variety identifiable and distinguishable.[461] This is positive from a plant genetic diversity perspective since it increases the amount of traditional varieties that may be marketed.[462] The Proposed Regulation illustrates a potential legislative technique that makes it possible to also consider other information than the DUS-requirements in the registration of traditional varieties.

[459] Compare section 3 and 3.1.
[460] Visser (2002), p. 241.
[461] See section 6.2.1.
[462] See section 6.3.2.

However, despite the positive effects other problems remain. An important concern that has not been mentioned in this essay (since it falls outside the scope of the research questions), is that required registration *per se* can constitute a problem to plant genetic diversity. Through the registration a variety is 'locked' to a description and may not evolve beyond this description, since it is then considered to be a different variety. This can discourage farmers from improving their traditional varieties and therethrough halt the development of new plant genetic resources, since a separate registration is required for the improved variety.[463] Considering the importance of continued development of traditional varieties in adopting the future food production to climate change, this is an issue that needs to be addressed.[464]

A modification to the current system that could mitigate the problem that mandatory registration can constitute, would be to introduce a concept described by Louwaars et al. as 'umbrella varieties'. This concept builds on the idea that traditional varieties may be registered based on a more general description than required for other varieties. Similar variations of this generally described variety may then be marketed under the umbrella variety without requiring separate registration.[465] Such a solution would allow at least some development of a traditional variety without requiring reregistration and would thus be positive for the plant genetic diversity. The details for the implementation of umbrella varieties need to be closer determined. However, as a general direction, I do estimate this as a possible way forward to improve the on-farm conservation of traditional varieties in the EU.

Returning to the Proposed Regulation, only an *operator's label* is required for the seed certification of traditional varieties, instead of the current authority-conducted certification.[466] I believe that such a solution would be positive and feasible to implement in the EU. Through an *operator's label* the

[463] Louwaars, Kik and Lammerts van Bueren (2009), p. 18, section 2.1.
[464] Compare section 5.1.2 and 6.3.2.
[465] Louwaars, Kik and Lammerts van Bueren (2009), p. 21.
[466] See section 6.2.1.

administrative costs for the seed producer will be lower which can encourage small seed companies that want to market traditional varieties.[467] At the same time, the positive effect of seed certification, for example protecting farmers from buying low-quality seeds and therethrough jeopardising the food security, is remained.[468] In the US a similar concept is used, not only for traditional varieties, but for all seeds.[469]

7.2 The second approach: Exemption of traditional varieties from the registration and certification

Another feasible and more far-reaching possibility would be to completely exempt traditional varieties from the variety and seed control system.[470] Seeds from traditional varieties could be marketed without registration and certification. An advantage of such a system would be that it would allow the marketing of traditional varieties that currently cannot be marketed because they do not reach the marketing requirements. Also, the high costs for registration and certification would be removed which would be positive for small companies marketing traditional varieties.[471]

Such a solution can be found in Switzerland. In general, Swiss seed law[472] stipulates strict registration and certification requirements for the marketing of seeds, similar to the EU's. However, so-called niche varieties (*Nischensorten*) do not require registration in the Swiss national variety catalogue and their seeds do not have to be certified.[473] In small quantities,

[467] See section 6.3.3.
[468] Compare section 3.1.
[469] Armbruster and Knutson (2013), p. 89. Compare also footnote 458 above.
[470] A similar suggestion is made by Visser (2002), p. 241.
[471] Compare section 6.3.3.
[472] Verordnung des WBF über Saat- und Pflanzgut von Acker- und Futterpflanzen- sowie Gemüsearten, vom 7. Dezember 1998 (Stand am 1. Januar 2018). Available at <https://www.admin.ch/opc/de/classified-compilation/19983504/index.html#fn1>, hereafter 'Swiss seed law".
[473] Santilli (2012), p. 67 and Wirz, Johannes, Kunz, Peter and Hurter, Ueli (2017), *Saatgut – Gemeingut: Züchtung als Quelle von Realwirtschaft, Recht und Kultur*. Sektion für Landwirtschaft Goetheanum, p. 41 and Swiss seed law, art. 29.
p. 41 and Swiss seed law, art. 29.

'*Nischensorten'* may be marketed freely in Switzerland – no registration is needed.[474] The only requirement is that the seeds are clearly labelled with a warning stating that they are not certified and that they come from a '*Nischensorte'*.[475] For the marketing of '*Nischensorten'* in larger quantities, a simplified notification process applies. The seed producer has to notify the national authorities who examines if the variety may constitute any health or environmental issues and if not permits the marketing of such seeds.[476] Both according to Wirz et al. and Santilli, this has improved the agricultural diversity in Switzerland and contributed to on-farm conservation of traditional varieties.[477]

The Swiss arrangement could be compared with the concept of niche market seeds in the Proposed Regulation. Like in Switzerland such seeds do not require registration.[478] If traditional varieties are free from being locked to a description through registration, their potential for improvements and increased diversity of genetic resources is enhanced.[479] This could hence be a positive effect of both the concept of niche market seeds and the Swiss arrangement.

A difference between the Swiss seed law and niche market seeds is that only the latter requires seed certification. However, since certification under the Proposed Regulation only requires an operator's label produced by the seed producer himself, the difference between the two systems seems quite small even in this aspect.

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[474] ProSpecieRara, 'Saatgutsverkehrsregelung in der Schweiz und in Europa', available at <https://www.prospecierara.ch/pflanzen/saatgutpolitik/saatgutverkehrsregelung.html> (visited 20th November 2019) and Bundesamt für Landwirtschaft (2018), 'Nischensorten bereichern die Vielfalt auf Schweizer Äckern'. Available at: <*https://www.admin.ch/gov/de/start/dokumentation/medienmitteilungen.msg-id-33508.html*> (visited 3 of December 2019).
[475] Santilli (2012), p. 67 and Swiss seed law, art. 29.1.
[476] ProSpecieRara; Wirz, Kunz and Hurter (2017), p. 41 and Santilli (2012), p. 67.
[477] Wirz, Kunz and Hurter (2017), p. 41 and Santilli (2012), p. 67.
[478] Compare section 6.2.2.
[479] Compare section 7.1.

An issue with the suggested legislation on niche market seeds in the Proposed Regulation, are the strict quantitative restrictions which could affect the profitability of marketing such seeds. Also, the fact that only micro enterprises can be covered by the derogation is an obstacle.[480] Under the Swiss regulation there are also quantitative restrictions, however, by notifying the authorities these restrictions can be circumvented. This makes it possible for more large-scale and commercial use of traditional varieties and therethrough on-farm conservation as the ITPGR strives for.

7.3 The way forward

Comparing the two approaches presented above, I conclude that especially the second approach seems promising. The Swiss system, where traditional varieties are exempted from registration and certification, seems to have a potential to remove the current obstacles to the marketing of seeds from traditional varieties. Considering that the Swiss and the EU seed marketing legislation otherwise are very similar (besides the extensive derogations for traditional varieties), implementing such a derogation in the EU also seems plausible.

If the EU however would prefer less substantial modifications, also the first approach holds viable options. A suitable change to incentivise the use of traditional varieties could be to introduce the concept of varieties with officially recognised descriptions, as suggested in the Proposed Regulation, in combination with the concept of umbrella varieties as proposed by Louwaars et al.. Such a combination would broaden the scope of varieties that could be marketed through the removal of the DUS-requirements and by lowering the certification costs. Moreover, the use of umbrella varieties would make it possible for farmers to improve their traditional varieties without having to go through the registration process again and therethrough

[480] See section 6.3.4.

increase plant genetic diversity and adaptation of the food production system to changed climatic conditions.

To facilitate the on-farm conservation and sustainable use of plant genetic resources and to make the EU legislation more in harmony with the ITPGR, I recommend that the EU implements one of the above-mentioned approaches. Considering the vital importance of plant genetic diversity for our current and future food production and the on-going genetic erosion of them, we cannot afford not to act. Implementing the Proposed Regulation as a whole is also a possibility to facilitate the marketing of traditional varieties. However, the regulation would need a few amendments to better reach the standards for conservation and sustainable use as defined by the ITPGR. Important aspects would be to remove or at least mitigate the quantitative and geographical restrictions that currently apply to traditional varieties, and to broaden the scope of varieties that may be marketed as varieties with an officially recognised description.

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