

BOWMAN V. MONSANTO CASE: THE EUROPEAN PERSPECTIVE

Ruta Lazauskaite

Mykolas Romeris University
Lithuania Department of Business Law, Dr.

Abstract

The aim of this paper is to analyse the US Supreme Court's decision in the *Bowman v. Monsanto* case, examine the arguments of the parties and assess their validity under European legislation and compare it with the US legal regulation. This paper also discusses particularities of patent and plant variety rights systems' regulations, their historical origins and evolution, as well as interrelation between these two systems of biological material protection in the field of agriculture. With regard to the analysis of the US and European legislation it is concluded that despite some differences in the regulation of the patent protection in the field of biological matter, even if the *Bowman v. Monsanto* case had been examined in Europe, the final decision of the European court would not differ from the judgment of the US Supreme Court.

Keywords: Patent law, Self-replicating technologies, Exhaustion doctrine, Farmer's privilege

Introduction

Since the introduction of agriculture it is very common for a farmer to save some of the harvested crops as seeds for the replantation in the next year's growing season. Such practice was a long-term tradition that lasted through the centuries and ensured the well-being of farmers' families. However, developing technologies and inventions bring various changes to well-established habits, also in the field of agriculture. It also modifies the approach to what is allowed and what is not. Therefore, while the industry and business world adopt these changes normally, it is usually not a simple task for the farmers. One of the challenges farmers face nowadays is the cultivation of genetically modified plants and animals. Since genetically modified organisms did not come into being from the nature as a consequence of natural processes, but rather were the result of the scientific intervention, therefore the usual methods and rules of dealing with biological

material in these cases are not always valid. This raises the question of whether the farmers are allowed to deal with genetically modified organisms in the same way as with those that are not modified genetically; and if not, what are their rights in this field. One of the cases relating to the examination of the abovementioned issue is the *Bowman v. Monsanto* case, already called a landmark case for the farmers in the United States. This decision is also very important for the US patent law because it was the first case addressed to the US Supreme Court where it had to analyse and explain the applicability of patent exhaustion principle in the context of self-replicating technologies. Accordingly, the aim of this article is to analyse the decision of the US Supreme Court in the *Bowman v. Monsanto* case, as well as the legal regulation of the United States and the European Union, and discuss whether a European court would make same or similar decision under the same set of facts. In this context it should be also noted that in this article the term "European" in most cases will be used as a synonym for the EU.

Background of the *Bowman v. Monsanto* case

Facts of the case

On 13th of May, 2013 the Supreme Court of the United States decided against the defendant *Bowman* and confirmed the judgments of the United States Court of Appeals for the Federal Circuit and of the District Court for the Southern District of Indiana in case No. 11–796.

Monsanto Company (hereinafter referred to as “Monsanto”) is an enterprise that invented and patented seeds of soya beans (called “Roundup Ready” soya beans) containing a genetic alteration, which makes them resistant to the active ingredient of many herbicides - glyphosate. Two patents covering different aspects of Roundup Ready technology were issued to Monsanto. Patent No. 5,352,605 “covers a process by which Monsanto combined two different sequences of DNA to create a new gene called a chimeric gene”⁶, which can give a plant new traits, for instance resistance to weed killers. Patent No. RE39,247E deals with the process described in the abovementioned patent that aims to create chimeric genes in different plants (including soya beans) and make these plants resistant to herbicides.

Monsanto or its licensed seed producers retails these specially manufactured Roundup Ready soya bean seeds to farmers and licences the use of Roundup Ready seed technology. According to the terms and conditions of the license agreement (so called 'the Technology Agreement') Monsanto permits buyers to use the seed containing Monsanto gene technologies for planting a commercial crop to one, and only one, growing

⁶Caruvana D., Holton-Basaldua C. A. *Vernon Hugh Bowman v. Monsanto Company*. Retrieved 06.04.2014 from <<http://www.law.cornell.edu/supct/cert/11-796>>.

season. Moreover, Monsanto forbids keeping any of the crops harvested from the purchased seed for replanting or selling or otherwise supplying or transferring such saved seed to anyone for the purpose of planting. The growers of the Roundup Ready soya beans are only permitted to sell the crop resulted from these seeds to the grain elevators (i.e. these second generation seeds can be sold only as a commodity, for instance as human food or animal feedstuff), or to consume themselves. It should be noted in this context that "Monsanto authorizes [farmers] to sell second-generation seed to local grain elevators as a commodity, without requiring [farmers] to place restrictions on grain elevators' subsequent sales of that seed."⁷

Vernon Hugh Bowman (hereinafter referred to as "Mr Bowman") is a 76-year-old farmer from Indiana in the United States who is engaged in a farming business that involves the planting of crops, including soya beans. Mr Bowman purchased plaintiff's patented seeds for his every year first crop of the season since 1999. All the time he bought the seeds from Pioneer Hi-Bred (a company affiliated with Monsanto) and followed the conditions of the abovementioned licence agreement; i.e. he planted all the purchased seeds and sold his entire harvest to the local grain elevator that would usually resell it for human or animal consumption. Since the planting of the soya beans for the second crop of the season was more risky, Mr Bowman devised a new method how to purchase seed at a lower price. He decided to buy soya beans intended for consumption from the local grain elevator and then planted them. Mr Bowman supposed that the majority of purchased beans will contain the Roundup Ready trait, since the local farmers that used to sell their crop to the local grain elevator usually cultivated Roundup Ready soya beans. Mr Bowman's presumption was confirmed when he treated his plants with herbicides containing glyphosate and all sprouts without the herbicide resistant trait were killed. Then the farmer cropped the rest of the soya beans containing that quality and kept some of the seeds for the next season's second crop planting. Time to time Mr Bowman additionally purchased some soya bean seeds from the grain elevator in order to supplement his second crop planting supply. Accordingly, he harvested eight crops in this way. However, eventually Monsanto detected this activity, since it realized that Mr Bowman's soya bean harvest is considerably bigger than it could be generated from purchases from Pioneer Hi-Bred. Consequently Monsanto decided to bring an action against Mr Bowman for patent infringement.

⁷Petition for a writ certiorari.P. 4.Retrieved 06.04.2014
from<<http://sblog.s3.amazonaws.com/wp-content/uploads/2012/04/11-796-Bowman-v.-Monsanto-Petition.pdf>>.

Arguments of the parties and the decision of the US Supreme Court

The main arguments of the defendant were based on the exhaustion doctrine, “which gives the purchaser of a patented article, or any subsequent owner, the right to use or resell that article”⁸. Mr Bowman claimed that he was using purchased seeds in the same usual way as other farmers do, so the decision in favour of Monsanto, in opinion of the defendant, would create a broad exception for self-replicating technologies and thus negate patent exhaustion principle⁹. This would also prevent the farmers from making appropriate and effective use of the purchased seeds. In addition the defendant argued that soya beans naturally “self-replicate or ‘sprout’ unless stored in a controlled manner,” and thus “it was the planted soybean, not Bowman”, that made replicas of Monsanto’s patented invention¹⁰. Meanwhile Monsanto reasoned that the sale of a patented product does not grant the purchaser the right to make, use or sell the copies of that product and that it is the right of the patentee to license limited rights to licensees and purchasers.¹¹

The Supreme Court upheld the decisions of the lower courts. In its unanimous decision the Court stated that exhaustion doctrine is not applied for copies of the article, but only for the article itself. The Court emphasized that “the doctrine restricts a patentee’s rights only as to the “particular article” sold; it leaves untouched the patentee’s ability to prevent a buyer from making new copies of the patented item”¹². Thus the Supreme Court reaffirmed the opinion of the United States Court of Appeals for the Federal Circuit that the “fact that a patented technology can replicate itself does not give the purchaser the right to use replicated copies of the technology.”¹³ Regarding Mr Bowman’s argument on the broad and impermissible exception of exhaustion doctrine, the Supreme Court pointed out that it was Mr Bowman who was asking for an exception from exhaustion principle and that such exception would cause low value of the patent of the soya bean seeds. The Court also noted that the defendant “was not a passive observer of his soybeans’ multiplication; or put another way, the seeds he purchased (miraculous though they might be in other respects) did not spontaneously

⁸*Bowman v. Monsanto Co.*, 569 U. S. ____ (2013).P. 1.

⁹Reply brief of V. H. Bowman. P. 3.Retrieved 07.04.2014from <http://www.americanbar.org/content/dam/aba/publications/supreme_court_preview/briefs-v2/11-796_pet_reply.authcheckdam.pdf>.

¹⁰*Bowman v. Monsanto Co.*, 569 U. S. ____ (2013).P. 9.

¹¹Brief of respondents Monsanto Company, et al. Retrieved 07.04.2014 from<http://www.americanbar.org/content/dam/aba/publications/supreme_court_preview/briefs-v2/11-796_resp.authcheckdam.pdf>.

¹²*Bowman v. Monsanto Co.*, 569 U. S. ____ (2013). P. 6-7.

¹³Opinion of the United States Court of Appeals for the Federal Circuit, decided September 21, 2011. P.14.

create eight successive soybean crops”¹⁴. The Court also drew attention to the fact that Mr Bowman purchased seeds intended for consumption, therefore, in the Court’s view, he stood in a particularly poor position to convince that he could not use his soya beans effectively¹⁵.

Legal regulation of biological material protection in the field of agriculture

Before going deeper into analysis of arguments of the parties in the *Bowman v. Monsanto* case and their assessment from the European legal perspective the author of this article would like to shortly discuss relevant legal regulation, its historical origins and evolution. Although "intellectual property rights in plants may be of several kinds: patents, plant variety rights, trade marks, trade secrets, genetic resource rights"¹⁶, in this section the author will discuss only the legal regulation for protection of the new breeds of the plants in the United States and in Europe which is most relevant to the abovementioned *Bowman v. Monsanto* case.

When we talk about newly invented items it is generally understandable and usual that the inventor who spent his/her time and money for creating his/her invention seeks to be recognised and rewarded for the investment of the time and financial resources put into the research and production of the new item. In the context of agricultural inventions it should be noted that a person (be it a natural person or a legal entity) that invents any new type of plants and seeks to protect inventor's rights usually uses one of two ways: on the one hand the breeder can apply for a patent protection, on the other hand his/her rights can be protected using plant variety rights system. Although both systems have similar goal, i.e. to protect the rights of the breeder/inventor of the plant species and promote innovations, the conditions for obtaining such protection and the protection granted differ. Breeder's decision to choose one of these rights protection systems also depends on the national legislation of the particular country, because according to Art. 27 (3) (b) of the Agreement on Trade-Related Aspects of Intellectual Property Rights (hereinafter referred to as TRIPs) member countries of this Convention shall provide at least one legal remedy for the protection of plant varieties, i.e. "either by patents or by an effective sui generis system or by any combination thereof"¹⁷.

¹⁴*Bowman v. Monsanto Co.*, 569 U. S. ____ (2013).P. 9.

¹⁵*Ibid.* P. 8.

¹⁶Intellectual property protection for plants.Retrieved 17.04.2014 from<<http://www.cipa.org.uk/pages/info-papers-plants>>.

¹⁷ Art.27 (3) (b) of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs).

Plant variety rights system

The main international legal act regulating plant variety rights is the Convention for the Protection of New Plant Varieties (also called the "UPOV Convention"). The UPOV Convention came into force in 1968 and it has been revised in 1972, 1978 and 1991. According to Art. 5 of the latest version of the UPOV Convention for the breeder's right to be granted the new plant variety shall meet four criteria: it must be new, distinct, uniform and stable. Once breeder's right is granted the right holder has an exclusive right to authorize production or reproduction (multiplication), conditioning for the purpose of propagation, offering for sale, selling or other marketing, exporting, importing, stocking for any of the abovementioned purposes¹⁸. However, it should be noted that the rights of the breeder are not unlimited, because the UPOV Convention contains some exceptions from breeder's rights (for example, compulsory private and non-commercial use and research exceptions and optional farmer's privilege (Art. 15), as well as exhaustion principle (Art. 16)). Contracting countries of the UPOV Convention implemented the provisions of this Convention in their national legislation: the United States adopted its Plant Variety Protection Act (PVPA), European countries - national plant variety protection laws.¹⁹ Supplementary to the national breeder's rights protection systems at the EU level the Community Plant Variety Rights system was established by the Council Regulation (EC) No 2100/94 on Community plant variety rights in 1994. The aim of this Regulation is to provide the possibility to the breeders to protect their rights in all EU member states by submitting only one application (i.e. the Community Plant Variety Rights System functions similar as the Community Trade Mark System).

In the context of genetically modified plants it should be also noted that under the UPOV Convention, "genetically modified crops and the intellectual property rights granted to them are no different than the intellectual property rights granted for traditionally bred varieties".²⁰ This means that the exclusions established in the Convention (such as private and non-commercial use or research exceptions or farmer's privilege) can be also applied in case of genetically modified plants.

¹⁸ Art.14 of the Convention for the Protection of New Plant Varieties.

¹⁹ For more information about plants varieties protection legislation in particular countries see <<http://www.upov.int/upovlex/en/>>.

²⁰ Wikipedia on International Union of the Protection of New Varieties of Plants. Retrieved 17.04.2014

from<http://en.m.wikipedia.org/wiki/International_Union_for_the_Protection_of_New_Varieties_of_Plants>.

Patent protection on plants

Firstly, it should be noted that having regard to the option established in Art. 27 (3) of TRIPs many Contracting countries to the TRIPs excluded plants and inventions directed to plants and plant products from patentability. However, it was not the case in the United States which courts in their jurisprudence recognize that any biological material that is a result of human intervention is considered as a composition of matter and therefore is a patentable subject matter according to Art.101 of the US Patent Act (*Diamond v Chakrabarty*(1980) 447 US 303). Moreover, “the United States has extended patent protection to plants produced by either sexual or asexual reproduction and to plant parts including seeds and tissue cultures (*Ex parte Hibberd*(1985) 227 USPQ 433)”²¹. It should be also noted that the US Patent Act contains separate provisions for specific plant patents, stating that: “*whoever invents or discovers and asexually reproduces any distinct and new variety of plant, including cultivated sports, mutants, hybrids, and newly found seedlings, other than a tuber propagated plant or a plant found in an uncultivated state, may obtain a patent therefor, subject to the conditions and requirements of this title*” (Art. 161 of the US Patent Act).

Meanwhile the lawmakers of the European countries followed regulation provided in the Strasbourg Patent Convention, later in the European Patent Convention, and established provisions stating that patents shall not be granted in respect of plant varieties or essentially biological processes for the production of plants (Art. 53 (b) of the European Patent Convention). In 1998 the new legal instrument at the European Community level was proposed - the Directive 98/44/EC on the patenting of living material, which enabled patent protection for some inventions related to the plants (namely it recognizes that the inventions which concern plants are patentable provided that the application of the invention is not technically confined to a particular plant variety).

As it was mentioned above conditions for obtaining patent protection differ from the conditions established for plant variety rights system. For the patent to be granted the invention's "patent application must show: 1) novelty, 2) non-obviousness, or an inventive step, 3) usefulness (United States) or industrial applicability (Europe, Australia), 4) enablement, 5) claim clarity, 6) written description, 7) best mode (United States only)".²² As for the specific plant patent the requirements for patentability are the same as for usual patent (so called ‘utility patents), however, “the implementation of these requirements is less stringent”²³ for the plant patents. Moreover,

²¹ Can IP rights protect plants? Retrieved 17.04.2014 from<<http://www.patentlens.net/daisy/patentlens/1234.html>>.

²²*Ibid.*

²³*Ibid.*

according to the US law the same plant can be patented by both plant patent and utility patent provided that the application of the invention fulfils requirements for both kinds of patents.

Interrelation between patent and plant variety rights systems' regulation

Although both discussed inventor's right protection systems are independent, over time they made an impact to each other's provisions. Since the very adoption of the UPOV Convention it was thought that UPOV Convention (namely Art. 2 (1)) contains prohibition of dual protection of breeder's rights. According to Llewelyn, "this view was based on a misreading of the provision which was not intended to prevent member states from providing both patents and plant variety rights over plant varieties."²⁴ Having regard to the abovementioned provision the draftsmen of the Convention on the Unification of Certain Points of Substantive Law on Patents for Invention (also called 'the Strasbourg Patent Convention') included plants related inventions' exception from patentability (Art. 2 (b)). Later similar provision was transposed into the European Patent Convention (Art. 53 (b)).

In 1991 the dual protection prohibition was removed from the text of the UPOV Convention, "because it was recognised that there were misconceptions as to the interpretation and application of the prohibition"²⁵. However, the exclusion of plant varieties protection from patentability remained in the European patent legislation. Only in 1998 when the Directive 98/44/EC was proposed the strict prohibition on the patenting of biological material has been toned down. It should be also noted that (as we will see later in the section 3 of the article) the provisions of the UPOV Convention have influenced the establishment of exclusions and limitations from patent protection imposed for the biological material inventions (at least in the European Union and some other European countries).

Analysis of parties' arguments from the European perspective Patentability of the plants

Although Mr Bowman did not dispute the patentability of Monsanto inventions before US courts, it can be assumed that he would try to raise this question if the case was heard by the European court. In this respect he could argue that according to Art. 53 (b) of the European Patent Convention Monsanto's invention is not patentable. Nevertheless, such argument would

²⁴Llewelyn, M. *From 'outmoded impediment' to global player: the evolution of plant variety rights*. In *Intellectual Property in the New Millennium*. Essays in Honour of William R. Cornish. Cambridge University Press. Cambridge. 2004. P. 150.

²⁵*Ibid.*

be rejected by the European court with reference to the following reasons.

Firstly, as it was mentioned above the institutions of the European Union adopted directive which provides the possibility to patent some of the plants related inventions. Member states of the EU have accordingly changed and/or supplemented their national patent legislation. This means that the invention of Monsanto still could be patentable in the member states of the EU, because the application of the invention is not confined to a single plant variety.

Secondly, as about the European countries that are not members of the European Union, but are Contracting parties to the European Patent Convention (such as for example, Norway, Iceland or Switzerland), the decision of their courts on the issue of the patentability of Monsanto's invention would be still the same as of the courts of the EU members states. This conclusion is based on the analysis of the national laws of the abovementioned countries and the case law of the European Patent Office. For example, Sec. 1 of the Norwegian Patents Act contains the provision stating that: *“a patent cannot be granted in respect of plant or animal varieties. Inventions that concern plants or animals may, however, be patentable if usage of the patent is not technically limited to one particular plant or animal variety”*²⁶. Similar norms are incorporated into Art.1 of the Patent Act of Iceland (*“a patent shall not be granted for plant or animal varieties. It is however possible to grant patents for inventions pertaining to plants and animals if the implementation of the patent is not confined for technical reasons to a particular plant or animal variety”*²⁷) and Art. 2 (2) (b) of the Swiss Federal Act on Patents for Inventions (*“also excluded from patentability are: <...> b. plant varieties and animal varieties or essentially biological processes for the production of plants or animals; however, subject to the reservation of paragraph 1, microbiological or other technical processes and the products obtained thereby as well as inventions that concern plants or animals are patentable provided that their application is not technically confined to a single plant or animal variety”*²⁸).

On the other hand the patentability of some plants related inventions was examined by the European Patent Office. For example the Enlarged Board of Appeal in its decision in the case No. G 0001/98 indicated that Art. 53 (b) of the European Patent Convention should be interpreted as not

²⁶The Norwegian Patents Act.Retrieved 06.04.2014 from<<http://www.patentstyret.no/en/For-Experts/Patents-Expert/Legal-texts/The-Norwegian-Patents-Act/>>.

²⁷The Patent Act of Iceland.Retrieved06.04.2014 from<http://www.wipo.int/wipolex/en/text.jsp?file_id=190418>.

²⁸The Swiss Federal Act on Patents for Inventions.Retrieved 06.04.2014 from<<http://www.admin.ch/opc/de/classified-compilation/19540108/index.html>>.

excluding patent claims that embrace plant varieties, provided that specific plant varieties are not individually claimed in respective claims²⁹. Analogous arguments by the European Patent Office were also presented in subsequent cases (for example, in the case No. T 0149/98 (*Resistance development/BAYER*) of 15.1.2003³⁰ and the case No. T 0179/01 (*Herbicide resistant plants/MONSANTO*) of 6.4.2005³¹).

Exhaustion doctrine

As already mentioned above, the main arguments of the defendant in the *Bowman v. Monsanto* case were based on the patent exhaustion doctrine. Mr Bowman argued that patent exhaustion has been the law in the United States for more than 150 years. He also referred to the Supreme Court's decision in *United States v. Univis Lens Co.*, 316 U.S. 241 (1942) case and its predecessor cases where, according to Mr Bowman, the Court "articulated the clear rule that a sale authorized by the patent owner exhausts patent rights in the article sold."³²

The exhaustion doctrine (also called "first sale doctrine") is a concept in intellectual property law. The application of this doctrine implies that an authorized, unconditional sale of the individual article protected by intellectual property law terminates all right holder's rights to control the transfer of that particular item. Exhaustion of rights rule causes not only legal, but also economic consequences; therefore it is particularly important in the European Union that seeks to ensure the free movement of goods between the member states under normal conditions of competition.

First sale theory is relevant in various fields of intellectual property law, although in each of them it has its own particularities. Thus the main goal of the doctrine of exhaustion in patent law is to ensure an appropriate balance between the interest of the patent owner „in obtaining a reasonable reward for its invention on the one hand, and the interests of the general

²⁹Decision of the Enlarged Board of Appeal of the European Patent Office, No.G 0001/98 (*Transgenic plant/NOVARTIS II*) of 20.12.1999.Retrieved 06.04.2014 from<<http://www.epo.org/law-practice/case-law-appeals/recent/g980001ep1.html#q=>>.

³⁰Decision of the Board of Appeal of the European Patent Office, No. T 0149/98 (*Resistance development/BAYER*) of 15.1.2003. Retrieved 06.04.2014 from<[>](http://www.epo.org/law-practice/case-law-appeals/recent/t980149eu1.html).

³¹Decision of the Board of Appeal of the European Patent Office, No. T 0179/01 (*Herbicide resistant plants/MONSANTO*) of 6.4.2005. Retrieved 06.04.2014 from<[>](http://www.epo.org/law-practice/case-law-appeals/recent/t010179eu1.html).

³²Petition for a writ certiorari.P. 10.Retrieved 06.04.2014 from<[>](http://sblog.s3.amazonaws.com/wp-content/uploads/2012/04/11-796-Bowman-v.-Monsanto-Petition.pdf).

public in the free movement of goods and legal certainty on the other“³³. It is argued that the term ‘exhaustion’ itself is derived from old German case law: in *Guajakol-Karbonat* case in 1902 the *Reichsgericht* pointed out: "the effect of a patent (for a process) is that no-one, except the proprietor (or the persons whom he has authorized) may manufacture a product by the said process and put it on the domestic market. By this act, however, the effect of the protection conferred by the patent is exhausted. The proprietor who has manufactured the product and has put it on the market under this protection which excludes competition from other parties, has enjoyed advantages which the patent confers upon him and has thus exhausted his right."³⁴

So the patent exhaustion doctrine means that a person who legally purchased patented product may use it freely – he may use it for his own needs, he may resell it to others, etc. However, it should be noted that „the exhaustion of the right does not apply to the patented object as an abstract category, family or group, but concerns only the specific object, individually and concretely sold“³⁵. In this respect Mr Bowman could also argue that it was not the product itself, but the method that was patented by Monsanto. Furthermore, Mr Bowman did not use this patented method for the production of soya bean seeds. He rather used the purchased seeds “in a normal way farmers do”³⁶ and as a result of this “normal use” he got new seeds. The contra arguments for this contention could be found in the legal acts and the case law of the European countries. Firstly, the provisions of national legislation of the EU member states stipulate that where the object of the invention is a method, patent protection shall also be granted with respect to a product made by such method³⁷. This means that not only the process of creating herbicides resistant chimeric genes in soya beans is protected under patent law, but also the plant of genetically modified soya bean itself. Secondly, “according to the case law of the German Federal Supreme Court, rights resulting from method patents cannot be exhausted“³⁸.

³³Von Meibom W., Meyer M. *Licensing and patent exhaustion: a comparison of German and US case law*. Retrieved 09.04.2014 from<<http://www.iam-magazine.com/issues/article.ashx?g=639fb4a3-2012-4d8b-af20-2f4260497129>>.

³⁴Stothers, C. *Parallel Trade in Europe. Intellectual Property, Competition and Regulatory Law*. Hart Publishing. Portland. 2007. P. 41.

³⁵Germinario C. *A Comparative Look at Bowman vs. Monsanto in the European Context*. World Intellectual Property Report, 19 June 2013. Retrieved 07.04.2014 from<http://www.sib.it/images/stories/allegati/articoli/bowman_monsanto_eu_context.pdf>.

³⁶*Bowman v. Monsanto Co.*, 569 U. S. ____ (2013).P. 2.

³⁷Art. 5 (4) of the Lithuanian Patent Law; Sec. 9 (3) of the German Patent Act; Art.L613-3 (c) of the French Intellectual Property Code.

³⁸Von Meibom W., Meyer M. *Licensing and patent exhaustion: a comparison of German and US case law*. Retrieved 09.11.2013 from<<http://www.iam-magazine.com/issues/article.ashx?g=639fb4a3-2012-4d8b-af20-2f4260497129>>.

In this respect it could be concluded that a European court would reject Mr Bowman's argument based on exhaustion doctrine.

A need for special regulation of biological material

Another argument of Mr Bowman was based on the particularity of the object-in-question (as a biological self-replicating material) itself. In its decision the US Supreme Court made references and analysed two different legal acts that deal with the legal protection of newly invented seeds or plants: the US Plant Variety Protection Act³⁹ and the Patent Act⁴⁰. The Plant Variety Protection Act establishes a procedure for obtaining a Plant variety protection certificate enabling its holder, “*during the term of the plant variety protection, to exclude others from selling the variety, or offering it for sale, or reproducing it, or importing it, or exporting it, or using it in producing (as distinguished from developing) a hybrid or different variety therefrom*”⁴¹. Meanwhile the Patent Act is a general legal act for the protection of inventions regardless of the subject intended to be patented (be it living matter or not), however, also having some specific provisions for plant patents. Seeing that the Roundup Ready soya bean seeds were covered by the patent, the defendant tried to convince the Court that the Patent Act lacks any specific treatment for seeds and therefore the “broad exhaustion doctrine, unlimited in the types of uses permitted following an authorized sale”⁴², should be applied.

If the Bowman v. Monsanto case was heard before European court defendant's argument about the need of specific regulation for biological material could be contested by the fact that the legal acts of the member states of the European Union contain provisions establishing special regulation for patented biological material. For example, Art.L613-2-3 of the French Intellectual Property Code⁴³, Sec. 9 (a) of the German Patent Act⁴⁴ and Art. 39 of the Lithuanian Patent Law⁴⁵ provide that where a patent concerns biological material possessing specific characteristics as a result of an invention, the protection conferred by the patent shall extend to any biological material derived from said biological matter through

³⁹Plant Variety Protection Act, 7 U. S. C. §§ 2321 *et seq.*

⁴⁰U.S. Patents Act, 35 U. S. C. §§1 *et seq.*

⁴¹Sec. 83 (a) (1) of the Plant Variety Protection Act.

⁴²Brief for petitioner.P. 54.Retrieved 07.04.2014 from<http://www.americanbar.org/content/dam/aba/publications/supreme_court_preview/briefs/11-796_pet.authcheckdam.pdf>.

⁴³French Intellectual Property Code.Retrieved 07.04.2014 from<<http://www.legifrance.gouv.fr/affichCode.do?cidTexte=LEGITEXT000006069414>>.

⁴⁴German Patent Act.Retrieved 07.04.2014 from<<http://www.gesetze-im-internet.de/patg/>>.

⁴⁵Lithuanian Patent Law.Retrieved 07.04.2014 from<http://www3.lrs.lt/pls/inter3/dokpaieska.showdoc_l?p_id=416694>.

multiplication or propagation in an identical or diverging form and possessing those corresponding characteristics. It should be also noted that similar provisions are incorporated into Norwegian⁴⁶, Icelandic⁴⁷ and Swiss⁴⁸ patent legal acts. This special regulation means that European countries have explicit rule stating that the patent covers not only the patented plant, but also the seeds or sprouts gathered from that plant by way of propagation or multiplication. Moreover, the national laws of the EU member states⁴⁹ implementing the EU Directive 98/44/EC on the legal protection of biotechnological inventions provide that the protection conferred by the patent „shall not extend to biological material obtained from the propagation or multiplication of biological material placed on the market in the territory of a Member State by the holder of the patent or with his consent, where the multiplication or propagation necessarily results from the application for which the biological material was marketed, provided that the material obtained is not subsequently used for other propagation or multiplication“⁵⁰. This clause, according to Germinario, exactly corresponds the terms of the license agreement imposed by Monsanto to the purchasers of Roundup Ready soya bean seeds⁵¹. This means that there is no need for the abovementioned license agreements in Europe, since the rights of the patent owner in this case would be protected under statutory law. Supporting position of the US Supreme Court Germinario also points out that „the prohibition against reproducing the object of the patent is completely independent from the fact that such an object is endowed with autonomous reproductive capacity, since this capability, to be expressed, still needs human intervention“⁵².

It is obvious from the judgment of the US Supreme Court that it aims to protect the inventor of self-replicating invention, where the matter otherwise, the patent of this kind of invention would provide inadequate benefit⁵³. It can be assumed that the draftsmen of the EU Directive 98/44/EC had the same opinion seeing that in the recital 46 of the abovementioned Directive they recognize the right for the patent owner to „prohibit the use of

⁴⁶Sec. 3 (a) of the Norwegian Patents Act.

⁴⁷ Art.3 (a) of the Patents Act of Iceland.

⁴⁸ Art.8 (a) of the Swiss Federal Act on Patents for Inventions.

⁴⁹Art. L613-2-4 of the French Intellectual Property Code; Sec. 9 (b) of the German Patent Act; Art.39 of the Lithuanian Patent Law.

⁵⁰Art.10 of the Directive 98/44/EC of the European Parliament and of the Council of 6 July 1998 on the legal protection of biotechnological inventions. OJ L 213, 30.7.1998, p. 13–21.

⁵¹Germinario C. *A Comperative Look at Bowman vs. Monsanto in the European Context*. World Intellectual Property Report, 19 June 2013. Retrieved 07.04.2014 from<http://www.sib.it/images/stories/allegati/articoli/bowman_monsanto_eu_context.pdf>.

⁵²*Ibid.*

⁵³*Bowman v. Monsanto Co.*, 569 U. S. ____ (2013).P. 6.

patented self-reproducing material in situations analogous to those where it would be permitted to prohibit the use of patented, non-self-reproducing products, that is to say the production of the patented product itself⁵⁴. The need for such right is based on the patent function „to reward the inventor for his creative efforts by granting an exclusive but time-bound right, and thereby encourage inventive activities“⁵⁵.

Farmer’s privilege

The rights of the right holder in the field of intellectual property law are not unlimited, for example, the use of a copyrighted work will not be considered as an infringement if this work was used for purposes of private study, scientific research or teaching, criticism or review, reporting, for the benefit of people with a disability, etc.⁵⁶; meanwhile the purchaser of the software has the right to make a back-up copy⁵⁷. There are also certain limitations and exceptions to the protection of plants related inventions, however, these exceptions vary depending on different legal acts. For instance, the US Plant Variety Protection Act contains: Crop exemption (also called „Farmer’s privilege“) allowing the farmer to save the protected seeds and to use such saved seeds in the production of a crop for the use on his farm, or for sale as provided in the PVPA⁵⁸; also a Research exemption allowing the use and reproduction of a protected variety for plant breeding or other bona fide research⁵⁹; etc.

It should be noted that although the farmer’s privilege is included into the US Plant Variety Protection Act, it is not a part of the US Patent Act. Therefore the arguments of the defendant that were based on this exemption were rejected by the US Supreme Court, seeing that the rights of Monsanto were protected under the US Patent Act and not under the PVPA. Meanwhile in Europe farmer’s privilege is incorporated into Art. 11 (1) of the Directive 98/44/EC stating that:

„By way of derogation from Articles 8 and 9, the sale or other form of commercialisation of plant propagating material to a farmer by the holder of the patent or with his consent for agricultural use implies authorisation for the farmer to use the product of his harvest for propagation or

⁵⁴Directive 98/44/EC of the European Parliament and of the Council of 6 July 1998 on the legal protection of biotechnological inventions. OJ L 213, 30.7.1998, P. 13–21.

⁵⁵*Ibid.*

⁵⁶Art.5 of the Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society. OJ L 167, 22/06/2001, P. 0010 – 0019.

⁵⁷Art.5 of the Directive 2009/24/EC of the European Parliament and of the Council of 23 April 2009 on the legal protection of computer programs. OJ L 111, 23/04/2009, P. 16-22.

⁵⁸Art.113 of the Plant Variety Protection Act, 7 U. S. C. §§ 2321 *et seq.*

⁵⁹Art.114 of the Plant Variety Protection Act, 7 U. S. C. §§ 2321 *et seq.*

*multiplication by him on his own farm, the extent and conditions of this derogation corresponding to those under Article 14 of Regulation (EC) No 2100/94*⁶⁰.

and Art. 14 of the EU Regulation No. 2100/1994 on Community plant variety rights⁶¹ providing that:

„Notwithstanding Article 13 (2), and for the purposes of safeguarding agricultural production, farmers are authorized to use for propagating purposes in the field, on their own holding the product of the harvest which they have obtained by planting, on their own holding, propagating material of a variety other than a hybrid or synthetic variety, which is covered by a Community plant variety right“.

The incorporation of the farmer's privilege into the EU Directive 98/44/EC and later into the national patent legislation of the EU member states is another example of interrelation between patent and plant variety rights systems' regulation. Such incorporation was determined by the prevailing opinion expressed in the discussions before the adoption of this Directive. It was assumed that the patent protection could have negative effect on traditional farming practices. "In particular, it was feared that patent protection would mean that farmers would not be able to use the seeds that they harvested from their crops to resow crops, nor would they be able to breed patented animals"⁶². Following the EU legislation some European non-EU countries also included farmer's privilege into their national legal acts⁶³.

It would seem that the provisions of the EU legislation cited above lead to the conclusion that the decision of a European court in the *Bowman v. Monsanto* case would be different than that which was made by the US Supreme Court. However, such a conclusion would be rash and superficial, since the exception from the patent protection in favour of the farmers in the EU is quite narrow and is a subject to certain conditions.

Firstly, there is a limitation related to the species of the plants cultivated by the farmers. It means that the farmer's privilege can be applied only if the farmer grows the plants expressly indicated in the list provided in

⁶⁰The equivalent of this provision can be found in national legal acts of EU member states, for example, Art. L613-5-1 of the French Intellectual Property Code; Sec. 9 (c) (1) of the German Patent Law; Art.35 (5) of the Lithuanian Patent Law.

⁶¹Council Regulation (EC) No 2100/94 of 27 July 1994 on Community plant variety rights. OJ L 227, 1.9.1994, p. 1-47.

⁶²Barbosa D. B., Grau-Kuntz K. *Exclusions from Patentable Subject Matter and Exceptions and Limitations to the Rights*. Annex III to Exclusions from Patentability and Exceptions and Limitations to Patentees' Rights. WIPO Standing Committee on the Law of Patents.P. 64.

⁶³See Sec. 3 (b) of the Norwegian Patents Act, Art.3 (b) of the Patents Act of Iceland and Art.35 (a) of the Swiss Federal Act on Patents for Invention.

the EU Regulation No. 2100/1994 (certain types of fodder plants, cereals, potatoes, oil and fibre plants). It should be noted that it is a *numerusclausus* list, therefore neither national authorities of the EU member states, nor the courts may extend this list by adding any other types of plant varieties such as, for example, soya beans. But what was the rationale of this exhaustive list and why other types of the plants are not included in it? It can be assumed that the legislator intended to protect only those farmers who grow most popular types of plants in Europe. Since, for example, soya beans are cultivated among European farmers quite rarely (Italy being the biggest producer of soya beans in the EU ranks only 15th worldwide⁶⁴), they are not included in the abovementioned list.

Secondly, the farmers who want to apply the farmer's privilege are obliged „to pay an equitable remuneration to the holder, which shall be sensibly lower than the amount charged for the licensed production of propagating material of the same variety in the same area“⁶⁵. The exception of this obligation to pay remuneration is provided only to small farmers, growing plants on limited area of land. Since Mr Bowman grows plants on the area of about 300 acres, according to Germinario, he could not be qualified as a small farmer within the meaning of the EU legislation⁶⁶.

As for the legislation of the European non-EU countries it should be noted that Swiss patent laws does not provide any forms of payments for biological material that is reproduced on farm, because the parliament of Switzerland by adopting the revised patent act has expressly “rejected the introduction of any forms of payment by farmers to holders of patents <...> for farm-saved seeds”⁶⁷.

Economic considerations regarding biological material protection in the field of agriculture

In the *Bowman v. Monsanto* case the Supreme Court of the United States held that by planting and harvesting Monsanto's patented soya bean

⁶⁴Baseline information on agricultural practices in the EU Soybean (*Glycine max* (L.)Merr.). May 2012. Retrieved 07.04.2014 from<http://www.europabio.org/sites/default/files/report/120526_report_eu_farming_practices_soybean.pdf>.

⁶⁵Art. 14 of the Council Regulation (EC) No 2100/94 of 27 July 1994 on Community plant variety rights. OJ L 227, 1.9.1994, p. 1-47.

⁶⁶Germinario C. *A Comperative Look at Bowman vs. Monsanto in the European Context*. World Intellectual Property Report, 19 June 2013. Retrieved 07.14.2014 from <http://www.sib.it/images/stories/allegati/articoli/bowman_monsanto_eu_context.pdf>.

⁶⁷Submission on the Implementation of Farmers' Rights in Switzerland by the Berne Declaration (Switzerland).Retrieved 25.04.2014 from<http://www.evb.ch/cm_data/submission_on_the_implementation_of_farmers_rights.pdf>.

seeds Mr Bowman "made additional copies of Monsanto's patented invention, and his conduct thus falls outside the protection of patent exhaustion."⁶⁸ As it was already mentioned above, the Court also pointed out that if plain making⁶⁹ of copies was an admissible and rightful use, "a patent would plummet in value after the first sale of the first item containing the invention."⁷⁰ Although the US Supreme Court did not make a detailed economic analysis it would be useful to look into this dispute from economic perspective and examine whether the decision of the Court and current European and US legal regulation concerning plants patent protection in general can be also justified from a functional point of view.

The aim of the patent system is to foster innovations "by awarding inventors a temporary period of market exclusivity"⁷¹, because in the absence of such "award" some inventions requiring costly investments would not be made⁷². However, it should be admitted that not all newly invented products or processes are patented, because their creators rather try to protect their inventions using other intellectual rights protection systems, such as, for example, trade secrets, then apply for patent protection. Sometimes it is because the invention is excluded from patentability under the laws of particular country, but sometimes - because the inventors do not think that "the cost of obtaining a patent is justified by the potential returns on the patent monopoly"⁷³. The reasons for choosing particular inventions' protection system when considering between patents and other intellectual property rights protection can be illustrated using inventions' categorization developed by Professor Strandburg who classifies them into "self-disclosing" and "non-self-disclosing" inventions.⁷⁴ Self-disclosing inventions, according to Professor Strandburg, can be easily copied from their commercial embodiments, and in being so they are fully opposites of non-self-disclosing inventions. In case of the latter group of inventions the creator will usually choose between patents and trade secret protection. He or she will then

⁶⁸*Bowman v. Monsanto Co.*, 569 U. S. ____ (2013).P. 2.

⁶⁹It should be noted that some US scholars argue that the term "make" should be interpreted narrowly as involving "an active agent operating to transform a material from one state to another state, by which an artificial product results – in other words, to manufacture". For more see. Stern, R. H. *Bowman v Monsanto: Exhaustion versus Making*. European Intellectual Property Review, Vol. 36. Issue 4. P. 258-259.

⁷⁰*Bowman v. Monsanto Co.*, 569 U. S. ____ (2013).P. 8.

⁷¹Budish, E., Roin, B.N., Williams, H.*Do fixed patent terms distort innovation? Evidence from cancer clinical trials*.P. 1.Retrieved 05.04.2014 from<<http://economics.mit.edu/files/8651>>.

⁷²Sheff, J. N. *Self-Replicating Technologies*. Stan. Tech. L. Rev. 229(2013).P. 241.

⁷³*Ibid.*

⁷⁴Strandburg, K. J. *What Does the Public Get? Experimental Use and the Patent Bargain*.P. 3.Retrieved 05.04.2014 from<http://works.bepress.com/katherine_strandburg/4>.

calculate the costs of each option (likely the costs for patent application and potential costs for litigation in case of patent infringement in comparison to the costs for keeping inventions related information in secret) and the potential earnings assessed while taking into account the patent protection period and the "expected length of time the secret can be maintained"⁷⁵. Given the fact that self-disclosing inventions cannot be kept in secret due to their very nature, the creator of such invention has no other option as to apply for the patent protection in order to be able to regain the resources invested into the creation of the invention.

Self-replicating technologies (such as plants), according to Professor Sheff, are the inventions featuring a characteristic of an extreme form of self-disclosing⁷⁶. Thus the application of the exhaustion principle for the second and subsequent generation of the seeds could lead to some changes in inventors' activity. Firstly, the creator of the patented plants could decide to sell the first generation seeds at a high price in order to have possibility to retain his/her invested financial resources. However, in this case there is a risk that the patent owner will not find a buyer who would accept this price knowing that at some later time he/she can also "face the same threat of follow-on competition"⁷⁷. Secondly, the inventor may lose his/her willingness to invest and create new self-replicating technologies in general. Finally, instead of selling self-replicating items the inventor may decide only to sell products manufactured from these inventions and intended for human or animal consumption (for example, soya milk, soya flour, soya bean animal feed, etc.). All these potential changes of investors' activity might be justifiable from the business point of view. Nevertheless, it might be harmful for the general public and the state, because high prices of first generation seeds could cause an increase in food prices, while the lack of willingness to invest into the creation of new self-replicating technologies could impede innovation. Lastly, the decision of the inventors to sell only the end products could restrict the public's freedom of choice, because the inventor would be then interested in selling only those products which could not disclose their technologies⁷⁸. Thus it can be concluded that the application of exhaustion principle to some kinds of self-replicating technologies could be harmful not only to the inventors of these technologies, but also to the society.

However, the establishment and application of certain limitations and exclusions from the patentees' rights is necessary in order to protect the interests of other social groups. The critics of current plant protection systems argue that the absoluteness of the patent protection could lead to the

⁷⁵Sheff, J. N. *Self-Replicating Technologies*. Stan. Tech. L. Rev. 229(2013).P. 241.

⁷⁶*Ibid.* P. 242.

⁷⁷*Ibid.* P. 243.

⁷⁸*Ibid.* P. 244.

monopolies and to the increases of the food prices. This also would not help in solving food shortage problems in some regions of the world; on the contrary it could lead to even greater isolation between different social groups. According to Meienberg, the “states should only introduce monopolies if the anticipated benefit – innovation – is greater than the damage caused”⁷⁹. That means that the lawmakers should take into account not only the interests of the business, but also the views and needs of other stakeholders. The list of important objectives to which special attention should be made, according to Meienberg, contains “compliance with human rights (in particular the right to food), promotion of the domestic economy, promotion of national research, protection and promotion of biodiversity”, etc. Professor De Schutter has similar opinion; he argues that “the oligopolistic structure of the input providers’ market may result in poor farmers being deprived of access to seeds productive resources essential for their livelihoods, and it could raise the price of food, thus making food less affordable for the poorest”⁸⁰. This example perfectly illustrates how improperly regulated plant protection systems can infringe the right to food. Another issue that is important in this context, especially when analysing the *Bowman v. Monsanto* from the European perspective, is legislator’s failure to take into account national characteristics of agricultural field and the needs of particular country. In the context of Professor’s De Schutter assertion that “states should prepare right-to-food impact assessments in order to ensure that the IPRs which will be chosen will correspond to their development needs”⁸¹, it should be noted that current regulation of plants patent protection in the European Union cannot be considered as corresponding the needs of individual EU member states. This conclusion is based on the fact that the exhaustive list indicating the types of plant varieties the growing of which may justify the application of the farmer’s privilege was made without taking into account the information that the farmers of different member states of the EU grow different crops (for example, grapes are widely grown in southern Europe, but this is not the case in the northern part of Europe.).

⁷⁹Meienberg, F. *Infringement of farmers’ rights*. D+C, 2010/04, Focus. P. 156.

⁸⁰ De Schutter, O. “*The right to food – Seed policies and the right to food: enhancing agrobiodiversity and encouraging innovation*”. Report to the UN General Assembly. (October 2009). P.10. Retrieved 05.04.2014

from <http://www.srfood.org/images/stories/pdf/officialreports/20091021_report-ga64_seed-policies-and-the-right-to-food_en.pdf>.

⁸¹Ibid. P. 7.

Conclusion

With regard to the analysis of abovementioned legislation of the United States and the European Union, it can be concluded, that despite some differences in the regulation of the patent protection in the field of biological matter, even if the *Bowman v. Monsanto* case had been examined in Europe, the final decision of the European court would not differ from the judgment of the US Supreme Court. Although the European patent laws (unlike the US Patent Act) contain provisions establishing farmer's privilege, Mr Bowman still would lose the case before the European court because the application of this farmer's privilege is a subject to certain conditions. The European court would decide in favour of the patent owner, because Mr Bowman cannot be considered as small farmer and because the crops that are a matter of the dispute in the *Bowman v. Monsanto* case (i.e. soya beans) are not included into the list provided in the EU legislation.

Since one of the strategic activities of the European Union is a Common Agricultural Policy which has always been and still is a very important element of the European integration, the European legislator established specific exclusion to the patent protection in the field of biotechnological inventions. However, since the European Union also stimulates the development of scientific research and innovations that promotes economic growth and competitiveness in Europe, the application of the abovementioned exclusion is a subject to several conditions. Such regulation aims to harmonize the different interests of the representatives of technology and agricultural fields. Nevertheless, the author of this article believes that such European regulation of the patent protection on biological matter does not sufficiently take into account the interests of all stakeholders and farming particularities in the individual EU member states and therefore this regulation should be improved.

References:

Barbosa D. B., Grau-Kuntz K. *Exclusions from Patentable Subject Matter and Exceptions and Limitations to the Rights*. Annex III to Exclusions from Patentability and Exceptions and Limitations to Patentees' Rights. WIPO Standing Committee on the Law of Patents.

Baseline information on agricultural practices in the EU Soybean (*Glycine max* (L.) Merr.). May 2012. Retrieved from <http://www.europabio.org/sites/default/files/report/120526_report_eu_farming_practices_soybean.pdf>.

Bowman v. Monsanto Co., 569 U. S. ____ (2013).

Brief for petitioner. Retrieved from <http://www.americanbar.org/content/dam/aba/publications/supreme_court_preview/briefs/11-796_pet.authcheckdam.pdf>.

Brief of respondents Monsanto Company, et al. Retrieved from<http://www.americanbar.org/content/dam/aba/publications/supreme_court_preview/briefs-v2/11-796_resp.authcheckdam.pdf>.

Budish, E., Roin, B.N., Williams, H. *Do fixed patent terms distort innovation? Evidence from cancer clinical trials*. Retrieved from<<http://economics.mit.edu/files/8651>>.

Can IP rights protect plants? Retrieved from<<http://www.patentlens.net/daisy/patentlens/1234.html>>.

Caruvana D., Holton-Basaldua C. A. *Vernon Hugh Bowman v. Monsanto Company*. Retrieved from<<http://www.law.cornell.edu/supct/cert/11-796>>.

Convention for the Protection of New Plant Varieties (UPOV).

Council Regulation (EC) No 2100/94 of 27 July 1994 on Community plant variety rights. OJ L 227, 1.9.1994, p. 1-47.

Decision of the Enlarged Board of Appeal of the European Patent Office, No.G 0001/98 (*Transgenic plant/NOVARTIS II*) of 20.12.1999. Retrieved from<<http://www.epo.org/law-practice/case-law-appeals/recent/g980001ep1.html#q=>>>.

Decision of the Board of Appeal of the European Patent Office, No. T 0149/98 (*Resistance development/BAYER*) of 15.1.2003. Retrieved from<<http://www.epo.org/law-practice/case-law-appeals/recent/t980149eu1.html>>.

Decision of the Board of Appeal of the European Patent Office, No. T 0179/01 (*Herbicide resistant plants/MONSANTO*) of 6.4.2005. Retrieved from<<http://www.epo.org/law-practice/case-law-appeals/recent/t010179eu1.html>>.

De Schutter, O. “*The right to food – Seed policies and the right to food: enhancing agrobiodiversity and encouraging innovation*”. Report to the UN General Assembly. (October 2009). Retrieved from<http://www.srfood.org/images/stories/pdf/officialreports/20091021_report-ga64_seed-policies-and-the-right-to-food_en.pdf>.

Directive 98/44/EC of the European Parliament and of the Council of 6 July 1998 on the legal protection of biotechnological inventions. OJ L 213, 30.7.1998, p. 13–21.

Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society. OJ L 167, 22/06/2001, P. 0010 – 0019.

Directive 2009/24/EC of the European Parliament and of the Council of 23 April 2009 on the legal protection of computer programs. OJ L 111, 23/04/2009, P. 16-22.

French Intellectual Property Code. Retrieved from<<http://www.legifrance.gouv.fr/affichCode.do?cidTexte=LEGITEXT00006069414>>.

German Patent Act.Retrieved from<<http://www.gesetze-im-internet.de/patg/>>.

Germinario C. *A Comperative Look at Bowman vs. Monsanto in the European Context*. World Intellectual Property Report, 19 June 2013. Retrieved from<http://www.sib.it/images/stories/allegati/articoli/bowman_monsanto_eu_context.pdf>.

Intellectual property protection for plants.Retrieved from<<http://www.cipa.org.uk/pages/info-papers-plants>>.

Lithuanian Patent Law.Retrieved from <http://www3.lrs.lt/pls/inter3/dokpaieska.showdoc_1?p_id=416694>.

Llewelyn, M. *From 'outmoded impediment' to global player: the evolution of plant variety rights*. In *Intellectual Property in the New Millennium*.Essays in Honour of William R. Cornish.Cambridge University Press. Cambridge. 2004.

Meienberg, F. *Infringement of farmers' rights*. D+C, 2010/04, Focus.

Norwegian Patents Act.Retrieved from<<http://www.patentstyret.no/en/For-Experts/Patents-Expert/Legal-texts/The-Norwegian-Patents-Act/>>.

Opinion of the United States Court of Appeals for the Federal Circuit, decided September 21, 2011.

Patent Act of Iceland.Retrieved from<http://www.wipo.int/wipolex/en/text.jsp?file_id=190418>.

Petition for a writ certiorari.Retrieved from<<http://sblog.s3.amazonaws.com/wp-content/uploads/2012/04/11-796-Bowman-v.-Monsanto-Petition.pdf>>.

Plant Variety Protection Act, 7 U. S. C. §§ 2321 *et seq.*

Reply brief of V. H. Bowman. Retrieved from<http://www.americanbar.org/content/dam/aba/publications/supreme_court_preview/briefs-v2/11-796_pet_reply.authcheckdam.pdf>.

Sheff, J. N. *Self-Replicating Technologies*. Stan. Tech. L. Rev. 229(2013).

Stern, R. H. *Bowman v Monsanto: Exhaustion versus Making*. European Intellectual Property Review, Vol. 36. Issue 4. P. 255-261.

Stothers, C. *Parallel Trade in Europe. Intellectual Property, Competition and Regulatory Law*.Hart Publishing. Portland. 2007.

Strandburg, K. J. *What Does the Public Get? Experimental Use and the Patent Bargain*.Retrieved from<http://works.bepress.com/katherine_strandburg/4>.

Submission on the Implementation of Farmers' Rights in Switzerland by the Berne Declaration (Switzerland).Retrieved from<http://www.evb.ch/cm_data/submission_on_the_implementation_of_farmers_rights.pdf>.

Swiss Federal Act on Patents for Inventions. Retrieved from<<http://www.admin.ch/opc/de/classified-compilation/19540108/index.html>>.

The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).

U.S. Patents Act, 35 U. S. C. §§1 *et seq.*

Von Meibom W., Meyer M. *Licensing and patent exhaustion: a comparison of German and US case law.* Retrieved from<<http://www.iam-magazine.com/issues/article.ashx?g=639fb4a3-2012-4d8b-af20-2f4260497129>>.

Wikipedia on International Union of the Protection of New Varieties of Plants. Retrieved

from<http://en.m.wikipedia.org/wiki/International_Union_for_the_Protection_of_New_Varieties_of_Plants>.