

Intellectual Property and Agriculture: The Case on Soybeans and Monsanto

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Abstract

This article analyzes different strategies of an agricultural Company (Monsanto) to enforce Intellectual Property Rights (IPR) on soybeans in South America, primarily in Brazil, during the last ten years. A court decision in April 2011 condemned Monsanto to pay up to 3 billion U.S. dollars in compensations. This is probably one of the most important cases regarding the discussion on intellectual property rights and Agriculture today. On the one hand, there is a complex Company strategy to create IPR through patents, plant variety protections, import market controls, and thousands of direct agreements with actors of the production chain, as well extensions of those rights through different lawsuits: all of which make a very interesting case study on intellectual property rights and the control of emerging markets. The Company complemented its strategy by the acquisition of major seed companies and through agreements with different agents of the soy production chain: as seeders, traders, importers, exporters, farm cooperatives, and individual farmers. On the other hand, there was a reaction from farmers resulting in different lawsuits, creating a legal battle. After ten years in the courts, in Europe and in Brazil, farmers succeeded in recovering retroactively the entire paid amount, plus significant interest rates. The matter is of particular economic and technical importance. It is economically important because of the amount of money involved. It is technically important because it reveals important Intellectual Property techniques to dominate key markets.

Keywords: Intellectual Property Law, Agriculture, Governance, Contracts, Dispute settlement, Monsanto.

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1. Introduction

Developing countries had to implement Intellectual Property Rights on Agriculture after the creation of the World Trade Organization (WTO), in 1995. The Trade Related Aspects of Intellectual Property Rights agreement (TRIPS agreement), one of the WTO treaties, requires members to adopt an *effective mechanism to protect plants, either by patents or a sui generis system*.² I intend to show that developing countries have institutional weaknesses that make it possible for multinational companies to dominate their markets, using Intellectual Property Rights, even when these countries do not accept their patents. The complexity of patent law, mainly in new legal areas, such as Agriculture; the lack of knowledge among actors within the production chain and/or of judges deciding hard cases; and the long timeline to conclude court cases in developing countries increase the legal possibilities of companies to extend their market share through legal strategies.

I outline, as well, how IPR applied to seeds, conceived to stimulate innovation in some cases,³ results in controlling the international market by some of the seed companies. This observation is true, whatever legal system is chosen to ensure the protection – patent or protection of varieties of plants (UPOV) – although the latter is less extensive.

Indeed, in some cases, the control exerted by IPR is sufficient to dominate the national exportation market; and, therefore, affects the world market.⁴ This is clear, particularly in some markets such as genetically modified (GM) soybeans, characterized by the existence of an international debate on consumers' rights to choose their food.⁵ In this case, the domination of productive markets results in considerably restraining the production and, therefore, the export of soybeans that are not genetically modified, thus, eliminating the possibility of choice for consumers and agents of the importing countries.⁶

² Art. 27 (3). Members may also exclude from patentability: (...)

(b) plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. *However, Members shall provide for the protection of plant varieties either by patents or by an effective sui generis system or by any combination thereof.* (...).

³ Anatole Krattiger (Ed), *Intellectual Property Management in Health and Agricultural Innovation. A Handbook for Best Practices* (New York: MIHR, 2007), at. 10

⁴ The control over the biggest exports have a direct impact on the control over the global market.

⁵ Thomas Bernauer & Philipp Aerni, *Trade Conflict Over Genetically Modified Organisms in Handbook on trade and the environment* (Kevin Gallaghe ed 2008), at 183, <http://ssrn.com/abstract=1321054>

⁶ Michel Fok & Marcelo Dias Varella, *Evolution des règles d'utilisation du soja transgénique au Brésil: une analyse par un approche systémique de la gouvernance*, 27 (2) *Politiques et Management Public* (2010), <http://pmp.revues.org/2172>

I intend to demonstrate these assertions through a case study. I demonstrate how one enterprise (Monsanto) could increase its market share of the Brazilian production of soybeans, and then dominate it for more than ten years, using arguments of Intellectual Property Rights in national Courts. The enterprise filed patents on genes related to soya beans. The Brazilian National Institute of Intellectual Property (INPI) denied these patents or other companies contested them in the Courts. Since most national courts do not dominate Intellectual Property Law, the lawsuit took many years to finish.

During this period, it was possible to create a complex network of contracts, based on legally disputed patents and the protection of varieties of plants. Since the national Judiciary and actors within the production chain in developing countries (Brazil) do not dominate the technicalities of Intellectual Property Law, this prolonged the domination of the national market.⁷

However, as we shall see in some cases, it has backfired. I intend to criticize this strategy and show its limitations over time. After ten years and many legal decisions, Monsanto could lose the case. This is probably the most important case in Intellectual Property Rights today. The case between Apple and Samsung, ruled in 2012, for example, resulted in compensations of US \$1.05 billion. Here compensations could reach US \$3.5 billion^{8,9}. Since Brazil is the one of the biggest exporters of soybeans in the world,¹⁰ it is also an important market to study Intellectual Property Rights on seeds.

The article is divided in various parts: First, a summary of the international legal framework related to intellectual property and seeds. Second, the main legal and economic differences between the State's two main legal possibilities: plant variety protection and patents. Third, a presentation of the Brazilian legal framework, to demonstrate an outcome even if Brazil did not accept patents on seeds or patents on genes, but only plant variety protection. Fourth, the Monsanto legal strategy making Brazil accept patents on plants and

⁷ Brazil. State Court of Rio Grande do Sul. *Cooperativa Triticola de Campo Novo (Cotricampo) et alii v. Monsanto*. Lawsuit Contestation 088/1.04.001125-7, before the County of Campo Novo, RS, at 127

⁸ <http://www.reuters.com/article/2012/09/20/us-samsung-apple-idUSBRE88J0H520120920>

⁹ Brazil. Court decision. *Cooperativa Triticola de Campo Novo (Cotricampo) et alii v. Monsanto*. Lawsuit Contestation 088/1.04.001125-7, before the County of Campo Novo, RS, at 127. There are different figures for the amount of indemnification. First, there were a strong variation on the change rate between the US Dollar and the Brazilian Real. Second, there is 1% per month interest rate plus inflation, which could add more than 20 % per year. Third, only Monsanto has the precise numbers of whom and how much was paid in the last years.

¹⁰ Justino De La Cruz & David Riker, *Product Space Analysis of the Exports of Brazil*, Office of Economic Working Paper 2012-06-A of U.S. Trade Commission, at. 18

genes. Fifth, the top-to-bottom agreements with traders based on Intellectual Property Rights. Sixth, the agreements with competent seed companies. Seventh, the agreements with warehouses, cooperatives, and individual farmers based on the creation of an effective database and the presumption of the validity of those Intellectual Property Rights. Eighth, the farmers' reactions on European and Brazilian Courts, which demonstrated how fragile this strategy could be, based on the decision that resulted in billions of dollars in compensations against Monsanto.

2. Intellectual property rights and seeds in international law

Brazil edited a law on Intellectual Property Rights on biotechnological innovations just after the creation of the World Trade Organization (WTO), as a consequence of the Trade-Related Aspects of Intellectual Property Rights agreement (TRIPS).¹¹ In regard to the Intellectual Property Rights on plant varieties, TRIPS grants the Member States the possibility to choose their own IPR system: UPOV or patents.¹² The developing countries have chosen, in its majority, the UPOV system, considered as being the most favorable to farmers and national seed companies.¹³ At the time, it was believed that the impact of adopting one type of intellectual property on seeds would not be significant, due to the diversity in seed companies and the numbers, even more significant, of farmers acting on their right to sow the product of their harvest and the rights of the smaller seed companies¹⁴. Following this logic, the legislators approved a rule of intellectual property that hinders the protection through patents, giving the intellectual property holders the minimum of rights compatible with TRIPS.¹⁵

The Intellectual Property Rights is a branch of Law distinguished by the high level of legal techniques required, as well as the high economic interests involved. Among the major countries who are creators of technology, the impetus is frequently given by the United

¹¹ Law 9.279, of 05.14.1996. The TRIPS agreement entered in *force* in 01.01.1995. Another law create a *sui generis* protection for plant varieties, Law n. 9.456, of 04.25.1997.

¹² See above n. 2

¹³ <http://www.upov.int/members/en/pdf/pub423.pdf>

¹⁴ Jeremy F. DeBeer, *Reconciling Property Rights in Plants*, 8 (1) *Journal of World Intellectual Property* 5 (2005), at 6, <http://ssrn.com/abstract=603961>.

¹⁵ Marcelo Dias Varella, *Propriedade intelectual de setores emergentes: biotecnologia, fármacos e informática* (1996)

States, whether because of its jurisprudence development or by its analyses guidelines.¹⁶ European and Japanese law tend to follow the North-American legal framework.¹⁷ The innovating countries stimulate the development of the fields of patent rights due to the evolution of technology, as demonstrated by the introduction of the patentability of living organisms with the proliferation of biotechnologies.¹⁸ In this process, the United States, Japan, and Europe decided the patentability of plants, genes, and, for the United States, the plant varieties. Moreover, the approaches are different since the Companies make American farmers pay rates, every year, for the usage of patented genes. On the other hand, Europe forbids the patentability of vegetable varieties and has a legal system more favorable to the farmers who benefit from the right to plant, paying a much lower contribution to the holder.¹⁹

At the international negotiation at the WTO, the innovating countries, therefore, succeeded in approving a common basis about the patentability of the beginning of every invention in all technological areas. In relation to living organisms, there is the obligation to patent the genetically modified microorganism, but the States remain free to not accept the patent on plants and animals. However, there is the necessity to envisage, for the vegetable varieties, an intellectual property right that can be *sui generis*, but that needs to be “efficient.”²⁰

As there is nothing mentioning the obligation of patentability of the genes, two interpretations are possible. The innovating countries in biotechnology consider genes as being a chemical molecule, independently of the plant or animal it affects and, therefore, patentable as such. Other countries consider the genes *solely* to be a part of the plant.²¹ Being part of plant, they would not be, therefore, patentable. Plants are nothing else but a combination of the DNA sequence. Seeing from this perspective, it is not possible to avoid the plant patentability without excluding, as well, gene patentability, since this patent represents, indeed, an indirect patent on plants²².

¹⁶ Eileen Kane, *Patenting Genes and Genetic Methods: What's at Stake?* 6 *Journal of Business & Technology Law*, (2010) 1 ; The Pennsylvania State University Legal Studies Research Paper No. 4-2011, <http://ssrn.com/abstract=1747191>

¹⁷ Marcelo Dias Varella, *Propriedade intelectual e desenvolvimento* (São Paulo: Aduaneiras, 2004)

¹⁸ See above n. 13.

¹⁹ Peter K. Yu, *A Tale of Two Development Agendas*, 34 *Ohio Northern University Law Review* 465 (2009) at 534, available at SSRN: <http://ssrn.com/abstract=1349967>,

²⁰ See above n. 2.

²¹ Marie-Angèle Hermitte, *Les Ressources génétiques végétales et le droit dans les rapports Nord – Sud* (2004)

²² See above n. 17

Genes patent is a model of intellectual protection more sophisticated than the plants patent.²³ In the United States, plants are actually patentable as one object.²⁴ In order to allow different holders to have patents on the same plant, one for each functional characteristic, the United States Patent and Trademark Office, after discussing the matter in Courts, authorizes the patent of gene plants.²⁵ Thus, every different genetic sequence gives the right to a new patent, like in a machine that has different parts: a plant can have a patent on the DNA sequence to resist the cold, another one on faster growth, and a third one for the resistance to a herbicide, for instance. In other words, the genes patentability allows not only the plant patentability, but also the addition of several patents on the same plant, each new genetic sequence having the possibility of being patented if it corresponds to the patentability conditions.²⁶

The exclusion of patentability is, in this case, according to TRIPS, the obligation of accepting the patent on genes, which would be a threat to the absolute freedom of excluding the patentability of plants and animals.²⁷ This interpretation is the only one which is faithful to the terms of TRIPS and which grants the sovereign right to exclude plant patents. The choice to genes patentability is not, therefore, a technical choice, mandatory according to TRIPS, but a political choice of each country.

Besides, this multilateral treaty contains an important number of subjective expressions. It leaves room for different interpretations within the judicial hermeneutic of the member countries of the WTO, according to their interests.

This national discretion is the result of arduous negotiation during the treaty making process. The countries that are not or are minimal innovators can then choose, to some extent, to adapt their legal framework to their interests. There is, for instance, little convergence of interests between biggest worldwide agricultural producers and innovators. The biggest agricultural producers such as Brazil, Argentina, Australia, China, New Zealand, and India, still very timid innovators, are interested in the absence of hard rules on intellectual property on their products because they can use genetically modified plants

²³ See above n. 16.

²⁴ Jim Ming Chen, *The Parable of the Seeds: Interpreting the Plant Variety Protection Act in Furtherance of Innovation Policy*, 81 (4) Notre Dame Law Review (2006); Minnesota Legal Studies Research Paper. Available at SSRN: <http://ssrn.com/abstract=784189>

²⁵ Jeremy F. DeBeer, *The Rights & Responsibilities of Biotech Patent Owners*, 40 UBC Law Review 343 (2007) at 340.

²⁶ Andrew W. Torrance, *Intellectual Property as the Third Dimension of GMO Regulation*, 16 (3) Kansas Journal of Law & Public Policy, 257 (2007), at 279. Available at SSRN: <http://ssrn.com/abstract=1274264>,

²⁷ See note 2, above.

without paying excessive rates. Mainly, they are interested in not using patented technologies, this way avoiding a transfer of important currencies, linked to the payment of rates for the licenses used²⁸.

Thus, international law gave to countries the possibility to choose between two systems of intellectual property on plants: patents and variety protection. It is important to understand the difference between the patent on seeds and genes from the plant varieties protection to comprehend national legal and political choices.

3. The main differences between patents and plant varieties protection for farmers

There is a specific intellectual property system protection for plants. It allows the rights holder to control it, with total control of its commercialization, however, not as wide as the protection of plants and DNA sequences patents would be. The majority of countries use this specific (*sui generis*) system, as determined by TRIPS.²⁹ European countries accept protection by plant patents not set in the vegetal variety mode, unlike the United States that admits a double protection by both systems for a same vegetable variety.³⁰

Seeds sector earned a specific system due to the characteristics of the protected objects. Unlike other inventions, such as machines and computer software, living beings reproduce themselves naturally. The International Union for the Protection of New Varieties of Plants (UPOV) is an international organization that manages intellectual property rights of plant varieties. It is an organization linked to the World Intellectual Property Organization. They both work in the same building.³¹ The UPOV system has as a principle that farmers do not have to pay for each proliferation of protected plants, like in the patents, but in a specific way, less expensive, each country having implemented a different system of equitable reward in favor of the right holder.³²

²⁸ Jeffrey Sachs, *The new map of the world* in *The Economist*, July 22th, 2000, <http://www.economist.com/node/80730>

²⁹ Stephen R. Munzer, 'Plants, Torts, and Intellectual Property' in: Timothy Endicott, Joshua Getzler, Edwin Peel (Eds), *Properties of law: essays in honour of Jim Harris*, (Oxford: OUP, 2006); UCLA School of Law Research Paper No. 06-11. Available at SSRN: <http://ssrn.com/abstract=886838>

³⁰ The case was rediscussed in the U.S. after *J.E.M. v. Pioneer*. See: Jay P. Kesan & Mark D. Janis, *Intellectual Property Protection for Plant Innovation: Unresolved Issues After J.E.M. v. Pioneer*, Illinois Public Law Research Paper No. 03-01, <http://ssrn.com/abstract=378820>.

³¹ See: UPOV. *International Union for the Protection of Plants. What it is, what it does*, <http://www.upov.int/export/sites/upov/about/en/pdf/pub437.pdf>

³² See UPOV Convention 1978, art. 5.

The systems differ also in the criteria and time of protection. In the protection by patents, every scientific research on the patented object will often be allowed to take place with the authorization of the right holder. In the UPOV protection, not only is the research possible without authorization of the right holder, but also the new plant varieties are allowed, as long as the plant variety obtained is different from the previous one. In the patent protection, the period of protection is 20 years; meanwhile, in the UPOV, it can vary according to the species. The criteria to grant the rights are also distinct: while in the patent protection, the object must be new, have inventive activity, and be likely to be inserted in an industrial process; the plants, in order to be protected by the UPOV, must be homogeneous, stable, and different from other known plants.³³

Gains on investments are also not the same; it is easier to have them from patent protection. In fact, in the agricultural field, farmers buy their seeds; and in some countries, they produce their own seeds without having to pay for them again. In Europe, a farmer can do this; however, he needs to pay an “equitable contribution” to the rights holder. Nevertheless, if there is a seed patent, at each new crop farmers have to pay royalties according to the amount harvested; that is, the return on one patented seed occurs multiple times, despite the fact that the farmer returned or not to the seed market.³⁴

In the UPOV system, the acquirement of new seeds by farmers is free, except in some regions, as well as some countries in Europe, in which a mandatory equitable contribution is charged. Moreover, farmers can use the seed that they planted, but they cannot sell it. At last, an important characteristic of the protective system of vegetable variety is that there is no possibility of charging for the selling of grains. The exception is when the grain was obtained by evading the breeder’s rights, that is, a) without having paid for the seed when first acquired, or b) the subsequent annual contributions (as indicated by the system), or c) more commonly with the sales of seeds³⁵. Thus, in the case of selling the plant as a grain to be processed or consumed by the target market and not as a reproductive

³³ The criteria for protection under UPOV norms are different from patents. Plants must be distinct of other plants, stable in different generations and homogenous. There are different UPOV Conventions. Most of countries adopt the 1978 Convention, while some others follow the 1991 Convention, which accept also a cumulative protection with patents.

³⁴ Jim Chen, *The Parable of the Seeds: Interpreting the Plant Variety Protection Act in Furtherance of Innovation Policy*, 81(4) Notre Dame Law Review, 1 (2006), at 22; Minnesota Legal Studies Research Paper. <http://ssrn.com/abstract=784189>

³⁵ Max Stul Oppenheimer, *The 'Reasonable Plant' Test: When Progress Outruns the Constitution*, 9 Minnesota Journal of Law, Science & Technology 417 (2008) at 417; University of Baltimore School of Law Legal Studies Research Paper No. 2008-15. Available at SSRN: <http://ssrn.com/abstract=1269578>

material, the breeder is unable to interfere in the commercialization or to demand payments due to intellectual property rights. When regarding patent of genetic sequences, the rights of the patent holders are even more meaningful. For the same plant, you can find more than one patent, for each genetic sequence patented. The system also allows in the case of loss of original variety characteristic, for instance, in the case of other varieties crossing; if the genetic sequence is present in the new plant, the holder will have the rights on the crossed plant, since the genetic sequence patented continues in this new plant.³⁶

On this matter, the example of RR soybean from Monsanto is interesting. In the United States, the resistant gene of the herbicide *Roundup Ready*, manufactured by Monsanto, and the variety in which it is inserted were patented. In Brazil, the situation is different. It is not the variety produced by Monsanto that is commercialized, but another one, which is the result of the natural crossing between the Monsanto variety and the Brazilian soybean varieties (ironically called Maradona seeds by Brazilian farmers³⁷). However, in the final variety planted in Brazil, there is the genetic sequence responsible for the resistance to the herbicide, a patented sequence in the United States. When applying the model of relative patentability, solely on vegetable varieties, Monsanto's rights could be guaranteed on the variety used in Argentina, for example, but not on the one used in Brazil. On the other hand, when applying the model of DNA sequence patentability, Monsanto's rights would be guaranteed, including on Brazilian varieties.

Thus, most innovators adopt patents because they seek to make more profits with patents. The patent system is most common in all other countries, since they must have some intellectual property law, as a consequence of their international commitments.

4. The Brazilian legal framework

Brazil is one of the largest agricultural exporters. It adopts plant variety protection. In Brazil, the Law n. 9.279 of 1996 regulates biotechnological inventions, in articles 10 and 18. The Law establishes, a priori, the patentability of all inventions.³⁸ Later, it defines what it considers an invention, consequently excluding from the patentability everything not considered as an invention. Article 10 stipulates, therefore:

³⁶ See Jim Chen, above n. 24, at 23;

³⁷ <http://revistagloborural.globo.com/GloboRural/0,6993,EEC517911-1484-5,00.html>, access on 10.17.2012

³⁸ Law n. 9279, art. 8º.

“Art. 10 – Does not consider as invention or utility model:

I – discoveries, scientific theories and mathematical methods;

X – all or part of natural living beings and biological material found in nature, or isolated therefrom, including the genome or germplasm of any natural living being and the natural biological processes.”

Line I above is important since it excludes discoveries from patentability. The concept of discovery is interpreted in the United States in a very different manner. In the United States, for instance, the simple isolation of chemical properties of a plant is enough to consider it as no longer being pre-existent in nature, granting, therefore, patent rights to those responsible for the isolation.³⁹

Line X is clearer concerning living beings. Living beings found in nature are not considered inventions in their whole or in parts. Article 18 defines the non-patentable matter. The legislator made a political choice, allowed by the TRIPS agreement. Living beings, or parts of living beings, are not patentable, with the exception of transgenic microorganisms. Here, the expression “natural living being” was abandoned, leading to believe that every gene, from natural living being or not, is not patentable. To avoid inaccuracy in relation to what would be a transgenic microorganism, the sole paragraph, greatly discussed during the legislative process, brought an agreed solution excluding from the patentability all or part of plants or animals. Thus, one would want to exclude the possibility to patent cells or plant genes, genetically modified or not, presented in the shape of a microorganism⁴⁰.

According to the article 18 of the Brazilian law:

“Art. 18. Are not patentable:

III – all or part of living beings, except for transgenic microorganisms which meet the three requirements of patentability – novelty, inventive activity and industrial relevance – foreseen in art. 8° and which is not a simple discovery.

³⁹ Jay P. Kesan & Mark D. Janis, *U.S. Plant Variety Protection: Sound and Fury...?* (39) *Houston Law Review* 727 (2002), at 730, Available at SSRN: <http://ssrn.com/abstract=384140>

⁴⁰ See above n. 2.

Sole Paragraph. For the purposes of this Law, transgenic microorganisms are organisms that, except the whole or part of plants or animals, express through direct human interference in its genetic structure, a feature that is normally not attained by the species under natural conditions.”

Article 18 complements Article 10, since the legal text does not allow partial interpretation. A systemic interpretation shows clearly that the law does not allow patents on genes, even when a human being performs a genetic modification on living beings, plants, animals, or part of them (plant stems, animal and human being organs, cell tissue, or genes) are not patent objects, even resulting from genetic engineering.

One year after the patent law, in 1997, Brazil published the law n. 9.456, on plant varieties protection. Article 2o is crystal clear:

“Article 2 The protection of intellectual property rights related to plants varieties is carried out by awarding Certificate of Plant Variety Protection, considered a commodity for all legal purposes **and it is the only form of protection of plant varieties that by law can inhibit the free use or reproduction of plants, parts of plants or vegetative propagation, in Brazil.**”

Even though Brazil chose to protect plants through plant varieties protection, Monsanto was able to enforce patents of plants and genes, through an interesting legal strategy, involving national and international actors.

5. Patents rights on genes and plants through lawsuits and unionist privilege

The firm Monsanto initiated its activities in Brazil in 1930; however, for the last 15 years, it has been increasing its investments to expand its regional market dominance. In Brazil, the holding controls the firms Monsanto Participações, Monsoy, and Monsanto Nordeste⁴¹. Having soybean as their main exportation product, an important growth in their benefits seems logical. The soybean cultivated in other countries is the result of public and private investments in technology for the last 50 years, creating dozens of different varieties, adapted to the different regional conditions of production of each country.

⁴¹ Monsanto of Brazil. Information given to SEAE by the firm and available at Parecer sobre o Ato de Concentração n.º 08012.003997/2003-83, p. 2.

It is in this panorama that Monsanto increased, gradually, its influence. First, they developed a control policy on the Brazilian production of seeds acquiring Brazilian firms that produce seeds. A few years ago, Monsanto acquired the firm Agroceres, the biggest seed producer in the country, restructuring the firm and creating Monsoy of Brazil. Many other firms were acquired and incorporated into the holding. By buying competitors, who had the particularity of being local firms, Monsanto was able to acquire, at the same time, their germplasm; therefore, the genetic basis adapted to the climate and adverse technologies, thus dominating the production and evolution of soybeans in the Mercosul countries.

Therefore, is it important to understand Monsanto's strategy in establishing its economic power in this legal context, being a priori an unfavorable one. In order to register its invention, Monsanto made three requests to INPI in 1996 and 1997, just after TRIPS and the Brazilian law, using pipeline system⁴². The three patents are explicitly gene patents of plants; the first is of chimerical⁴³ genes; the second, a DNA sequence to intensify the efficiency of the transcription⁴⁴; and the third, a DNA construction to also enhance the transcription⁴⁵ efficiency. The patent request presented genes as a protein and not as part of a living being. Therefore, it was a patentable chemical substance. This is a clear case of a distortion of the request's content. It goes against Brazilian laws that forbid the concession of patents on genes.⁴⁶

Monsanto continued, however, to demand patents for plants, seeds, and genes at the Brazilian National Institute for Intellectual Property (INPI), the national institution equivalent to the United States Patent and Trademark Office. INPI continuously denied these patents, because of the regulatory prohibition. Notwithstanding, the strategy changed. Monsanto (as other companies) filed patents in the United States, where those patents are accepted and then asked for the unionist priority in Brazil.⁴⁷ Unionist priority guarantees the validity of the patent around the world. Thus, even if the patent is not granted where it was originally ordered, it does not restrain other countries to accept it. The first solicitant's

⁴² Cynthia M. Ho, *An Overview of 'TRIPS-Plus' Standards*, in *Access to medicine in the global economy: international agreements on patents and related rights* (Cynthia Ho Ed, 2111), at 225; Loyola University Chicago School of Law Research Paper No. 2011-033. Available at SSRN: <http://ssrn.com/abstract=1933252>

⁴³ PI 1100007-4, 06/08/1998.

⁴⁴ PI 1101067-3, 14/05/1997.

⁴⁵ PI 1101045-2, 14/05/1997.

⁴⁶ Maria Theresa Wolff, *Patenteamento de pesquisas*, *Jornal do Comércio*, 07.10.2003, available at <http://www.dannemann.com.br/site.cfm?app=show&dsp=mtw6&pos=5.7&lng=pt>, access on 27.06.2012.

⁴⁷ As seen in the invention orders PI1101069-0; PI1101070-3; PI1101050-9

priority guarantees its right during a reasonable amount of time, which protects them from competitors. This way, even if the country of origin does not grant the plant patent, competitors are prohibited to have patents on the same object in other locations, for the time necessary for other patent offices to analyze it. In developing countries, this period could take much longer.⁴⁸

It is noteworthy that companies could use the institutional weaknesses of developing countries to improve their rights, even when no rights existed. In Brazil, the INPI needs an important period to analyze a biotech patent. Sometimes, it takes many years. As we will analyze below, during this time of analysis, the patent must be respected. Monsanto could enforce in Brazil its rights granted in the U.S. Monsanto could also improve its legal rights through a series of agreements with farmers. Farmers only signed those agreements because they believed there was a patent right that obliged them to do it. When these patents were finally denied by INPI, Monsanto started lawsuits in courts, contesting the INPI decision or asking for patent extensions. Since the Courts took five to ten years to judge, the seed Company could enforce their rights for a period longer than usual for a patent, as we will see on the next item.

However, contradicting the evidence, the firm argued in the instruction of the order of invention that the genes from the first patent were not genes, but part of a non-natural biological process, which would be susceptible to a patent, according to the Brazilian Law 9.279/1996. The reasoning, inspired by the North-American doctrine, went against the Brazilian legislation.

The first invention request, from 1996, was granted on 08.06.1998. INPI's decision was clearly in opposition to the Brazilian legislation on patents because it accepted the genes patent, by recognizing the insufficient rhetorical argumentation of the firm, distinctly contrary to the law. Nevertheless, a week later, competing companies Zeneca and Nortox appealed through an administrative action, claiming INPI's decision was not grounded. The administrative process was put on hold, and the other companies started a lawsuit battle on the Judiciary⁴⁹ realm, a situation that has been going on for more than 10 years. During the lawsuit, the firm Monsanto kept its intellectual property rights. In other words, the firm was

⁴⁸ Robert Sherwood *et al.*, *Promotion of Inventiveness in Developing Countries Through a More Advanced Patent Administration*. 39 (4) *Journal of Law and Technology*, 473 (1999), <http://ssrn.com/abstract=206528>

⁴⁹ Brazil. 14th Federal Court of Rio de Janeiro, Case 990063442-0.

able to keep, for more than 10 years, almost half the length of a patent, commercial exclusivity on a plant that should not be patented in Brazil. The lack of efficiency of INPI and of Brazil's Judiciary engenders, therefore, important economic consequences for the costs of agricultural production.

Some farmers' associations filed lawsuits against Monsanto. However, Monsanto presented different patents and the provisional measures of INPI that supported them. Normally, judges accepted those patents as valid, without a deep analysis and enforced Monsanto's rights, mainly because most of these farmers' associations did not present the real scope of these patents, or judges did not require an expertise to understand its legality and validity.

Thus, Monsanto was able to create patent rights in a legal scenario that forbade them and assured them through different lawsuits with legal injunctions that took more than a decade to be finally judged.

6. The agreements with international traders based on intellectual property rights

If TRIPS offers the countries that belong to the World Trade Organization the freedom to not cover with patents some inventions in the field of the living, this freedom is limited to the territory of these countries. From the moment the producers decide to export to countries where the patentability of these inventions is recognized, it is this second option that will prevail. It will be possible to see, through the strategies developed by Monsanto in Brazil, how the firm extended patents due to its commercial power and the control on strategic markets.

The World Trade Organization guarantees to the countries the sovereign freedom to grant more or less rights to the holders of intellectual property rights. However, embracing patents granted in Europe and in the United States on plants, companies can control importation in territories where these patents are recognized. In other words, the choice made by countries such as Brazil, to restrict protection through patent of several biotechnological inventions as allowed by the agreement on TRIPS, is valid in Brazilian territory. However, when Brazil decides to export this soybean to another country, the

company can block imports based on its rights guaranteed in the importer⁵⁰. Since most of the soybeans are exported, there is an important extraterritorial effect of the importer legal norms on Brazil.

In fact, the agreement on TRIPS allows countries to give patent holders the right to prohibit a patented product to enter their territory.⁵¹ Thus, it is the principle of rights exhaustion in which content varies according to the different countries. There is an exhaustion of rights of the patent holder after the commercialization in a country where royalties were paid. The product can circulate freely. If the importing country accepts the principle of rights exhaustion, intellectual property rights holder in that country, will not be able to forbid imports. Many countries follow the principle; Europe accepted it in its Unionist space.⁵²

The situation of plant patent is different. At no time, grain exporters (cooperatives or firms) are obliged to pay intellectual property rights derivative of patents by the use of genetic material patented in Europe. Nevertheless, the rights holder will have to act if the product is imported to a country that recognizes plant patents or genes patents. In this case, there was no exhaustion of the patent holder rights, because the product – i.e., soybean – was set in the Brazilian market without patent protection and without the authorization and consent of the patent holder. The holder will act, therefore, in the local of the importation⁵³. Many of those decisions were the object of discussion at the European level⁵⁴.

Since Brazil exports a large quantity of soybeans to Europe, it became necessary to make an agreement between Monsanto, the importers, and the exporters. They tried to compensate losses of intellectual property rights. In other words, a country may not foresee the patentability of a product as long as it does not export to a country that does foresee it. Considering the destination of most parts of soy production, we can conclude that the

⁵⁰ Jay Erstling & Isabelle Boutillon, *The Patent Cooperation Treaty: At the Center of the International Patent System*, 32 (4) William Mitchell Law Review 1583 (2006) at 1588, <http://ssrn.com/abstract=1619523>

⁵¹ This happens if there is no agreement from the rights holder and that the country of origin gives the same intellectual property rights as the country of destination.

⁵² Niels Louwaars *et alii*, 'The Future of Plant Breeding in the Light of Developments in Patent Rights and Plant Breeder's Rights' *Nature and Food Quality (LNV)* (Netherlands Ministry of Agriculture, Centre for Genetic Resources, 2009), at 34, <http://ssrn.com/abstract=1720088>.

⁵³ Spain. Corte Comercial de Madrid, *Monsanto Technology LLC v. Sesostri S.A.E.* – “Roundup Ready Spain”, decision of 07.27.2007 (case 488/07). UK. High Court, *Monsanto Technology LLC v. Cargill International*, Decision of 10.10.2007. European Court of Justice. *Monsanto Technology LLC c. Cefetra BV* (CE –C-428/08).

⁵⁴ Marcelo D. Varela & Maria Edelvacy Marinho. Propriedade intelectual e exportação de soja: reflexões a partir da experiência Argentina e Brasileira, face aos julgados pelas Cortes Europeia, in *Propriedade intelectual e agricultura* (Charlene D'Avila *et alii* eds, 2011), at 223.

Brazilian freedom to legally choose, when regarding the concession of patent rights on agricultural products, is extremely limited.⁵⁵

We saw that Monsanto could enforce their patents rights in Brazil, using the Judiciary system and the possibilities of TRIPS regarding the extension of rights in the case of global markets. In the first case, it was possible to create a higher level of intellectual property rights protection at the institutional level. In the second case, it was possible to control exports, normally other multinational companies (traders) acting in Brazil.

7. Agreements with competent seed companies

The commercial contract is signed between Monsanto and Brazilian seed companies that use the gene of resistance in the varieties they offer on the market. As set by the contract, the licensed company can use the Monsanto gene and incorporate it into their varieties. In exchange, they compromise by establishing an agreement with farmers who buy seeds with the protected gene, and the deal states they should transfer to Monsanto a fee, referring to “rate of use of technology.” In turn, Monsanto will gather these fees and pass on 12.5% of the total gathered to the licensed firm. The agreement could be made because other companies believed they should pay by the patent on genes, even if these patents were object of a legal dispute, as we saw above.

At last, the agreement makes sure the licensed seed firms do not have the right to insert, in a variety with the Monsanto gene, other genes which rights belong to competing firms, even if these genes would provide different interesting characteristics. The standard agreement determines that licensed firms cannot establish contracts with other firms, simultaneously using the protected Monsanto gene. Therefore, there cannot be two or more distinct technologies in the same plant. The firm must, therefore, choose between the Monsanto gene and the other gene. Seeing the commercial success of the gene resistant to glyphosate, competitors do not show an interest in adding other genes, and consequently, Monsanto’s monopoly is strengthened with the commercialization of a great part of the country’s soybeans.

Contracts like this one were established with the firms FMT, Unisoja, Coodetec, and also Embrapa (Empresa pública de pesquisa agrícola – Public Firm of Agricultural

⁵⁵ Bernard Remiche & Vincent Cassier, *Lutte anti-contrefaçon et transfert de technologie Nord-Sud: un véritable enjeu*. XXVIII (3) *Revue Internationale de Droit Economique* 3 (2009), at. 9

Research). These deals enable Monsanto to control 82.7% of the national soybean production. Even though only a part of this soybean contains the glyphosate resistant gene, it is thought that, in a short period, almost all cultivated plants will contain the technology, ensuring a significant control on the entire seed production.⁵⁶

We should not expect a negative reaction coming from seed companies, in view of the situation, for they indeed cooperate with Monsanto. They can freely sell their traditional seeds; they can sell even their own variety containing the gene Monsanto licensed to them and which competes directly with the traditional variety. However, since they receive the rate of 12.5% on technology, they are induced to sell the genetically modified seeds rather than the other, since its profit is higher. Besides this seed market, Monsanto gathered a third generation of profits because the firm is, at the same time, the biggest producer of glyphosate in Argentina and Brazil. This herbicide increased considerably its share of the market, if compared to the number of farmers who use the resistant soybean to this same herbicide. With the increased use of this soybean variety, the use of herbicide also increased proportionally.

This subject was the object of an analysis done by the Competition Defense Council, in March 2006, ordered by the Economic Defense Secretary.⁵⁷ In a temporary decision, the Council decided that Monsanto and its partners had to change the exclusivity sections of the contract to allow the addition of other genes, avoiding therefore, a soybean technological monopoly.

In this way, Monsanto improved its market share on soybean seeds substantially in a few years. However, the most difficult step was to make every farmer pay for the soybeans, respecting the Monsanto patents rights. The main problem is that most of the soy planted in Brazil was not bought from Monsanto but planted by the farmers themselves or by cooperatives or illegally brought from Argentina, without Monsanto control.

⁵⁶ Monsanto marketshare was only 18.70% in 2002. Competent companies: Embrapa (27.98%), FMT (19.65%), Coodetec (16.37%), Fepagro (2.27%), CTPA (1.64%), Bayer (1.37%). Monsanto of Brazil. Information given to SEAE by the firm and available at Parecer sobre o Ato de Concentração n.º 08012.003997/2003-83.

⁵⁷ Brazil. Parecer sobre o Ato de Concentração n.º 08012.003997/2003-83.

8. The extension of intellectual property rights through agreements directly with farmers

Monsanto needed to control farmers. However, it was difficult to do so. Since farmers did not buy their seeds from Monsanto, it was impossible to discover who was using its technology or not. The first step was to start a control on the new seeds. Every time a farmer bought new seeds from Monsanto or from one of the associate companies, the farmer was obliged to sign an agreement on the seed sale. In that agreement, the farmer promises to pay royalties to Monsanto. Moreover, Monsanto could build an important database with names, addresses, size of property, and quantity of seeds bought by each farmer.

The second step was to control all the other farmers who produced their own seeds. In that case, Monsanto created an *ex post* control. When the farmer tried to sell the seeds, the trader had an agreement with Monsanto to test it and verify if it were a GM seed. In that case, the trader could only buy the seed after the compensation payment to Monsanto. In both cases, the payments were based on the presumption that there were valid patents on the seed.⁵⁸ Monsanto justified its right to ask for compensation as a consequence of its patents.

In Brazilian states such as Parana, for example, where control was strict, the area planted with this soybean variety was rather small. At the end of the harvest, when the illegal plantings were found, instead of applying the punishments proscribed by the Law, the Federal Government exempted the farmers. Consequently, production increased in the following years, and again farmers were amnestied, until the plantings of 2004/5, reaching 300 million acres of glyphosate-resistant soybeans, and growing it was legally authorized. In 2009, according to Monsanto and the agricultural cooperatives of the State of Rio Grande do Sul, it is estimated that 90% of soybean plantings in this particular State, for example, are genetically modified.⁵⁹ After a few years, when it was not possible to avoid this variety of soy, the Government finally authorized it.

At an inferior level, Monsanto also made deals with farmers' cooperatives, consenting to a discount for those who control and cooperate with the payment of royalties

⁵⁸ Charlene D'Avila *et alii* (eds), *Propriedade intelectual e agricultura* (2011), at 227.

⁵⁹ C. Heath, *The scope of DNA patents in the light of the recent Monsanto decisions*, 40 (9) ICC (2009) at 943.

on its technology. According to the Company⁶⁰, it signed more than 300 contracts with cooperatives of all sizes. In these deals, there are “discounts on the sale price” of up to 5% of the normal price charged.⁶¹ As a counterpart, Monsanto expanded its database with data from cooperative members.

In this scheme, firms benefit by receiving rates from using the technology. Companies like Monsanto are rather free to fix rates as they wish, and these rates have increased substantially in the past few years. The initial value charged by the use of technology was fixed at R\$1.20 per bag of 60 kilos (2.20 bushels); but the firm, since the beginning, gave a 50% “discount” to farmers. Back then the sack value on the international market was R\$45, which represents 1.3% of the seed price. Nevertheless, with soybean’s devaluation of the Brazilian Real in relation to the American Dollar, there was a substantial increase of the percentage charged. The discount died out. In 2005, for example, Monsanto charged a value of R\$1.20 per each sack of R\$30.00, which is about 3.75% of the seed price. This represented to a charged amount of approximately 80 million dollars only on the soybean production of Rio Grande do Sul, where the firm especially concentrated its efforts to gather charges that year.⁶²

⁶⁰ Brazil. State Court of Rio Grande do Sul. *Cooperativa Triticola de Campo Novo (Cotricampo) et alii v. Monsanto*. Lawsuit Contestation 088/1.04.001125-7, before the County of Campo Novo, RS, at 127

⁶¹ The cooperatives help in the inspection, demanding the gathering of values to the firm on each bag sold. See below an interesting circular by Bianchini Cooperative S/A:

To all Our Suppliers, legal entities and relevant brokers (...) Considering that we established a contract with the firm Monsanto, with in mind the commercial licensing on soybean “Round Up Ready” and the correspondent payment of the intellectual property rights (IPR), from which originates high tickets, we require the attention and kindness, from now on and in case the merchandise contains genetically modified organisms, when confirming soybean sells to do it taking into account the following statements:

I) In the case of Participants:

“The salesperson declares that he enters the system of intellectual property rights (IPR) of soybean Round Up Ready of Monsanto, in the category of Participant.”

II) In the case of Collaborators :

“C The salesperson declares that he enters the system of intellectual property rights (IPR) of soybean Round Up Ready of Monsanto, in the category of collaborators. Consequently, by doing so, he authorizes the buyer to deduct from the price that will be given by the payment of the merchandise R\$0.60 by bag of 60kg, to be passed again to Monsanto of Brazil, related to the payment of the IPR”

⁶¹ Brazil. State Court of Rio Grande do Sul. *Cooperativa Triticola de Campo Novo et alii v. Monsanto*. Lawsuit Contestation 088/1.04.001125-7, before the County of Campo Novo, RS. *Cotricampo Cooperative* gathers 8721 farmers, in 12 municipalities in Rio Grande do Sul, summing a production in 2003 of 1.700.000 bags of soybean.

⁶²

9. The legal battle among European importers, farmers, and Monsanto: the fall as a house of cards

Since there are no instruments to verify in great scale the existence of the modified gene, the collecting of charges was done on the entire cultivated crop, without undergoing detection tests. Once seeders and other cooperatives integrated Monsanto's "intellectual property system," farmers ended up with no means to question the system, with rare exceptions. One of the exceptions was the class action set on Cotricampo Cooperative, from Campo Novo, Rio Grande do Sul, against Monsanto.⁶³ In the files, the cooperative argued the illegality of royalty collection, the lack of existence of intellectual property rights on the cultivated plant, the impossibility to charge the produced grains – according to the law in force, cartel formation with the remaining firms, as well as the oligopoly, considering the considerable market domination by Monsanto, Cargill, Bunge, and ADM. The cooperative obtained a restraining order preventing the royalty collection, which was canceled by the Supreme Court of Justice.

Monsanto retaliated against the farmers who brought this matter to justice through the use of incriminating statements made to Rio Grande do Sul's Prosecutor, alleging an infraction of its intellectual property⁶⁴ rights. Prosecution even proposed to claim for a denunciation, which was carried out by the judiciary. In an interesting sentence, the Company and the *parquet's* allegation were not accepted by the magistrate, who based its interpretation on the piled up theory in order to acquit the farmers: it would not be possible to classify as an infraction something that the state stimulates⁶⁵. In the absence of a judiciary decision on the legality of the patents granted to Monsanto, the case remained open; the smuggling of genetically modified soybeans was allowed by the State who did not put into practice its control authority; the amnesty given by the temporary measures of the Federal Government encouraged, also, the crop. Consequently, one cannot talk of infraction, which confirmed the trial of the Courthouse of the State of Rio Grande do Sul.

⁶³ Brazil. State Court of Rio Grande do Sul. Cooperativa Triticola de Campo Novo *et alii* v. Monsanto. Lawsuit Contestation 088/1.04.001125-7, before the County of Campo Novo, RS.

⁶⁴ Brazil. State Court of Rio Grande do Sul. Cooperativa Triticola de Campo Novo *et alii* v. Monsanto. Lawsuit Contestation 088/1.04.001125-7, before the County of Campo Novo, RS.

⁶⁵ Interview with the lawyers of Cooperativa Agrícola de Campo Novo, in 2009.

The legal strategy, it would appear, started to collapse after the European Courts' decisions, starting with Monsanto itself. Monsanto started lawsuits against importers of soybeans from Argentina, based on the European Regulation 1383/2003. The firm requested the retention of the product in European ports if they were not paid royalties on patented genes. Importers of Argentine soy did not accept the proposal from Monsanto. Monsanto then requested the retention of the goods at the customs ports of Spain, the UK, and the Netherlands. However, after a few years, these courts ruled in a restrictive interpretation, against Monsanto. There were three different decisions with different repercussions. In Spain, the Trade Court of Madrid ruled that the European Regulation did not allow the extension of rights to processed soybeans.⁶⁶ The United Kingdom not only accepted the same argument as that in Spain, but the Court accepted also the argument of Cargill, importer, that Monsanto stimulated the contrafacion and then could not invoke the violation of its patent rights⁶⁷. The Netherlands Court, facing a relevant doubt, sent the case to the European Court of Justice. After a few years, in 07.06.2010, the European Court decided in favor of the restriction of rights of Monsanto, considering the imports of derived products from biotechnological inventions, as soybeans, should not pay royalties.⁶⁸

Since at the International level, the exporters do not have to pay royalties any further, the house of cards started to collapse. The leading case was a class action only filed on April 14, 2009. It is still under judgment at the Supreme Court of Rio Grande do Sul, but the preliminary decisions are noteworthy. The plaintiffs are some rural syndicates of Passo Fundo, Sertão, and Santiago. Passo Fundo is the only city of average size. The other two are villages, with few inhabitants. Yet these are traditional centers of soybean production. During the lawsuit, more than 370 other syndicates or associations joined the action.

The Farmers asked for: a) Stop paying royalties to Monsanto, because they did not purchase any grains from it, b) Suspension of the payment during the trial, because it could be then used against them as a form of self-recognition of the rights of Monsanto; c) The rights values were abusive, and they were in violation of the principle of the social function

⁶⁶ Trade Court of Madrid, *Monsanto Technology LLC v. Sesostri S.A.E.* – “Roundup Ready Spain” , decision of 07.27.2007, at 488/07.

⁶⁷ The full decision is available at 40 (2) International Review of Intellectual Property and Competition Law, 2009.

⁶⁸ Tribunal de Justiça CE –C-428/08, Monsanto Technology LLC c. Cefetra BV.

of property; d) The Brazilian law prevents dual protection, by patents and UPOV system, and the only system to obey was UPOV; e) The patents were invalid.

Monsanto had for arguments: a) It had several valid patents on soybeans, accordingly to the Brazilian Patent n. 9.279/96 (following TRIPS); b) It had UPOV rights, recognized by the Brazilian Law 9.279/96.

The Brazilian INPI had participated on the side of Monsanto, to say that the patents were valid.

The judge at first instance then asked Monsanto to present the patents and all other intellectual property rights that justified its claim. Monsanto presented three patents. Then, the judge hired an expert to evaluate those patents, UPOV rights, and all other information registered by Monsanto in other countries, that could be valid through the Unionist system, as the recognition of a U.S. pipeline patent, for example.

The conclusions of the judge at the trial were quite interesting:

a) With respect to the first patent (PI 11001067-3), was a patent assured by pipeline. The deposit date was the first one in the United States. Thus, the validity expired on January 23, 2007. Monsanto attempted an extension, with more litigation at different Courts, but this was denied by the Federal Justice, ultimately, after several attempts.

b) The second patent (PI 11001045-2) also lost its validity on January 13, 2007. As the first one, it had been subject of several court cases and had also lost its validity in a final decision, after many years of litigation.

c) The third patent (PI 110008-3) also lost its validity on August 31, 2010. This patent was subject to another trial extension, considered impossible at first instance by the Federal Justice Federal of Rio de Janeiro, on April 04, 2011. Monsanto has appealed, and the judgment has not yet been made by the Federal Justice (as of fall 2012). According to the expert, among the patents submitted by Monsanto, the third one would be the only one to have a relationship with the patented soybeans.

The judge ruled that Monsanto had no rights because:

1) There is no suspensive effect in the appellation. Therefore, the only possible patent was no longer valid.

2) The Brazilian law prevents dual protection, so the patent has no effect on living matter (soybean seed).

The judge, therefore, condemns Monsanto:

a) Return all that it acquired from farmers since the harvest 2003/2004, plus 1% per month as interest rate, plus the inflation.

b) The suspension of the requirement of rights under the daily penalty of 1 million Brazilian Reals per day (about 500,000 U.S. dollars per day).

Finally, the judge acknowledged that there were farmers' rights, of any size farm, to produce their own seeds.

As of fall 2012, the Supreme Court of Rio Grande do Sul has not judged the decision. However, the parties estimate the compensation would be approximately 2-3 billion U.S. dollars, if confirmed.

Indeed, the Brazilian law is very clear about the exclusive applicability of the law instead of UPOV on seeds and the impossibility of accumulation. Yet, there is an institutional weakness in Brazil, the Judiciary takes an enormous time to judge, and the lack of knowledge on biotech patent rights creates even more difficult coordinated solutions.

Monsanto uses these institutional weaknesses by getting pipeline patents, and uses extensions at different judicial fora in the federation and extensions of several patents to secure these rights, although some patents had nothing to do with soy. Sometimes, the Company demonstrated its rights with patents unrelated to soybeans. It was noteworthy, for example, that the judge made an explicit (and ironic) report about an opinion of a Brazilian jurist, which was added to the process at the request of Monsanto, to analyze a patent that was not even under discussion. Given that this is a class action case, the judge had the opportunity to condemn Monsanto to compensate all farmers in the country, even those who were not part of the process.

10. Conclusions

The complexity of the patent legal system on biotechnology allows companies to patent genes, even when States expressly prohibit it through their legislation. This is especially true in developing countries where the patent offices are more fragile. In these countries, even when patent offices deny patents demands, companies can enforce patent rights recurring to judiciary. Since the time to decide these lawsuits could take many years, in practice, the judiciary allows patent holders to exercise their monopoly for periods as long as permitted under a regular patent.

The complexity of patent law also makes it difficult for other actors of the production chain involved, whether or not there are intellectual property rights over a plant and the limits of these patents. The case study shows that Monsanto has used patents not related to GM soy or of no validity in Brazil to convince that it had rights to control soy production regarding Brazilian farmers and courts.

Monsanto increased substantially the control on Brazilian production of soybeans in Brazil through a series of agreements established directly with farmers, but also with trade barns and traders.⁶⁹ Schematically, the increased control happened in two aspects: the control of production and sale of seeds, for instance, by the acquisition of local seed companies, and the control of intellectual property rights on transgenic seeds produced by farmers.⁷⁰ This control happened more easily due to the farmers' interests in this soybean, resistant to glyphosate, and, in the Brazilian case, due the fact they believed there were valid patents that obligated them.

The soy planted in Brazil was not bought from Monsanto. This genetically modified soybean was the result of the crossing done by farmers between Monsanto soybeans, imported illegally from Argentina, with the traditional Brazilian soybean.⁷¹ Since Brazil had temporarily banned genetically modified crops at this time, Monsanto could not sell its "soy resistant to glyphosate" in Brazil. However, even though illegal, these beans were rapidly adopted at the main production centers, without any real control from public authorities. Brazilian farmers imported the soybean, reproduced the seed in Brazil, and started the cultivation in great scale, despite the prohibition. Considering the amount of seeds used, it is believed that some of the authorities, who were in favor of the genetically modified soybean, willingly did not control its insertion in the market nor control its cultivation and then, eventually, legalized it.

Monsanto's interest in effectively applying its rights of intellectual property grew because Brazil became at this time the third worldwide producer, and the RR soybean was legalized. Once allowed cultivation, the company moved on to the strategy of control, in collaboration with competing firms, through the use of contracts. Monsanto offered competitors the license to use the gene of glyphosate resistance and to incorporate it into

⁶⁹ In this research, our team has visited farmers in three different States (Goiás, Mato Grosso and Paraná), to collect information about agreements.

⁷⁰ See above n. 6, at. 5.

⁷¹ See above n. 6, at. 5.

their own soybean varieties. These firms insert the gene of resistance with the consent of the patent holder of the gene, and they can start to sell, as well, genetically modified soybeans, with Monsanto's technology. Since it is a technology of high interest for the farmers, companies that cooperate gain a share of the market, and above all, will be able to export legally.⁷²

However, the strategy was fragile, because even after many years, even in a developing country like Brazil, the judiciary analytically discerned the technically complex patent applications and noted their invalidity. The result was a court decision with significant compensation damage to the Company.

⁷² See above n. 49.