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### **Commission/Kommission III**

Individual Report – Rapport individuel – Individueller Bericht

*Food Safety and Food Security biotechnological challenge / Le défi technologique de la sécurité  
alimentaire / Die biotechnologische Herausforderung für Lebensmittelsicherheit*

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**ABSTRACT**

*The purpose of the present article is to highlight the main challenges that are been faced in the context of Food Safety, particularly focusing on questions relating to the biotechnology contribution in the development of seeds, both conventional and transgenic, in providing food with the quality required to address consumers' health and basic needs.*

**KEYWORDS:** *FOOD SAFETY; FOOD; BIOTECHNOLOGY; CONSUMER LAW; CONSUMER PROTECTION; AGRARIAN LAW.*

**SUMMARY:** *01. Introduction; 02. Principles on food safety; 03. Biotechnology and food safety; 04. The concerns with the use of biotechnology in the food sector; 05. GMO regulatory cultivation in Brazil; 06. Biotechnology and non-genetically modified seeds; 07. Conclusion: Proposals of legislative innovation*

**01. Introduction**

Human beings have always taken, along evolution, significant care with food production, preservation and distribution, a fundamental wealth to the self-sufficiency of the peoples. It was ascertained from the very beginning that, for such purpose, the existence of sufficient food stock should be guaranteed to supply the dominant classes and the overall population with healthy products that would be safe for those consuming them.

The contemporary notion of food safety arose from the awareness developed during the Second World War that poverty was the main cause for hunger and malnutrition. For no other reason this concept focused at first only on the world concern with the amount and stability food supply to meet individual basic needs. Along time, this idea achieved a new and much more extensive dimension, and started to translate, as of the 1990s, a set of global actions that aimed to grant access to quality food to all so as to provide an active and healthy life.

This new approach of the food issue had to combine the perspectives both of rural producers and consumer and environmental defense to seek solutions for controversial arguments, such as the

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concerns with the eventual correlation between a situation of food insecurity and biofuel production, or forest preservation.

Among such views, consumer protection takes on particular importance due to the legal presumption of consumer vulnerability that results precisely from the fact that consumer interests are often trumped by supplier interests in the confrontation that naturally arises between them. That is why the regulation of consumer relations has to be necessarily limited by mechanisms that compensate, or at least minimize, the existing discrepancies between the situations experienced by producers/suppliers and consumers, which are marked by the latter's vulnerability.<sup>1</sup>

Despite such vulnerability being a constant throughout the relations in which the consumer is one of the poles, it must be recognized that it is particularly serious regarding the risks inherent to food intake, whether due to sanitary reasons in its handling or preparation, or to the intrinsic danger with regard to its composition or production processes.

To be healthy for consumption, food should not only meet minimum sanitary requirements established by the sanitary authorities, but also be free from any type of contamination, whether it is the impregnation of toxic substances (such as pesticides) or genetically modified products that may be potentially harmful to human beings.<sup>2</sup>

Food safety, which is internationally regulated by the *Codex Alimentarius*, is very fragmented in the Brazilian legal system, being governed by the Consumer Defense Code (CDC) and, more specifically, by several resolutions and administrative rules issued by the National Health Surveillance Agency – ANVISA.

## **02. Principles on food safety**

Raised to the category of fundamental right as of 2006,<sup>3</sup> the access to proper food in Brazil is provided by constitutional and statutory principles.

Among the constitutional principles, it is worth highlighting the principle of protection to non-pecuniary consumer rights, such as life, health, safety, access to proper food and consumer education. The list of constitutional principles is complemented by the principles of free competition and consumer protection, in addition to those related to environmental protection and the social role of property.

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<sup>1</sup> GRASSI NETO, Roberto. **Princípios de Direito do Consumidor - Elementos para uma Teoria Geral**. Santo André: ESETec, 2007, p. 112

<sup>2</sup> GRASSI NETO, Roberto. **Segurança alimentar: da produção agrária à proteção ao consumidor**. São Paulo: Saraiva, 2013, p. 47

<sup>3</sup> Article 6 of the Brazilian Constitution: "Education, health, food, work, housing, leisure, security, social security, protection of motherhood and childhood, and assistance to the destitute are social rights, as set forth by this Constitution".

By the same token, the legal nature of the precautionary principle and the principles of transparency, traceability, objective and joint liability of food suppliers, is indisputable.

### 03. Biotechnology and food safety

The Brazilian model<sup>4</sup> has been found, however, insufficient to settle the heated debates that have arisen, for instance, about whether the use of new agricultural and cattle-raising technologies is convenient, especially technologies that comprise transgenic techniques.

On the one side, transnational agricultural technology companies, such as “*Monsanto*”, “*DuPont*” and “*Syngenta*” hold that the creation of cultivars<sup>5</sup> by using genetically-modified seeds would truly be a safe solution against crop pests, capable of ensuring both the supply of the ever growing consumer market, and raising Brazil to the status of agricultural commodity exporting power. On the opposite side, environmentalists and consumer entities assure that the inconsequent cultivation exposes both consumers and the environment to unnecessary risks.

### 04. The concerns with the use of biotechnology in the food sector

Seed producers state that soil cultivation with genetically-modified products to be resistant to pesticides – either through the so-called Roundup Ready™ (RR) technique, or the “BT” system – not only would be innocuous to human beings, but also beneficial to the extent it would reduce the use of pesticides, not to mention the notorious agricultural production increase.

Notwithstanding, there is growing concern that this real “nature’s leap”,<sup>6</sup> which is the genetic manipulation, might be effectively harmful to human health.

Results of the studies made with mice fed with transgenic potatoes to which the *Bacillus thuringiensis* gene was introduced, have indicated, indeed, a possibility of damage to their intestine cells<sup>7</sup>; more recent lab tests performed between 2005 and 2009 have found, on their

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<sup>4</sup> Brazilian food safety regulatory model is somewhat scattered among the National System of Food and Nutrition Security (SISAN), the National System of Sanitary Surveillance (SNVS), the National Biosafety Council (CNBS) and the National Biosafety Technical Commission (CTNBio).

<sup>5</sup> “Cultivar” is the “assemblage of plants that has been selected for a particular character or combination of characters, and which is distinct, uniform and stable in those characters, and when propagated by appropriate means, retains those characters” (article 2.2 of the International Code of Nomenclature for Cultivated Plants – ICNCP). Under article 3 (IV) of Law no. 9456/1997, “cultivar” is the “variety of any gender or type of superior vegetable that is clearly distinguishable from other known cultivars by a minimum margin of descriptors, for its own denomination that is homogeneous or stable regarding the descriptors through successive generations and which is a type usable by the agricultural and foresting complex, described in specialized publication available and accessible to the public, as well as a hybrid lineage component”.

<sup>6</sup> GERMANÒ, Alberto. *Biotechnologie in agricoltura*. In: SACCO, Rodolfo (a cura di). **Digesto delle discipline privatistiche – Sezione civile. 4. ed. Digesto banca dati ipertestuale. Torino: UTET, 2008.**

<sup>7</sup> FARES, Nagui H., EL-SAYED, Adel K. **Fine Structural Changes in the Ileum of Mice Fed on  $\delta$  Endotoxin Treated Potatoes and Transgenic Potatoes. *Natural Toxins*. vol. 6, p. 219-233, Nov.-Dec. 1998.**

turn, disturbing negative side effects of the transgenic corn of types MON 863<sup>8</sup>, NK 603 e MON 810<sup>9</sup> indicative of liver and kidney toxicity signs, possibly due to the new pesticides specifically used in each type of corn. Furthermore, it is also controversial the use of technology that employs antibiotic-resistant genes in genetic transfers, because if the bacteria that normally exists in the human organism acquired such DNA they might become antibiotic-resistant themselves.<sup>10</sup>

The concerns regarding consumer health risks strengthen the notion of “precaution” that was raised to a legal principle also in the context of Consumer Rights, which was enunciated by us in a former paper<sup>11</sup> as being the high-level regulatory guideline to assure preventive consumer protection regarding product quality in cases where the available scientific data does not permit a complete assessment of the risks to our physical integrity and health.

In general, the advocates of immediate GMO liberation ground their position on the principles of substantive equivalence (also referred to as substantial equivalence)<sup>12</sup> and the benefit of the doubt. On the other hand, those who believe advisable that such liberation should be preceded by scientific studies establishing a higher degree of certitude, are grounded on the idea of precaution.

We are compelled to recognize, however, given that the adoption of the principle of substantive equivalence (predominantly used in the US FDA) is limited to a merely comparative analysis between the main GMO properties and those of its non-modified equivalent, it ends up by not being sufficient to effectively assess the safety in the use of certain pesticides, or in the consumption of such genetically modified organisms by humans, and, therefore, the worries concerning their eventual prevalence are not absurd in face of the notion of precaution (overall accepted by the members of the European Union) to the exposition of human health and the environment to unacceptable risks, because human beings would be at the mercy of the

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<sup>8</sup> SERALINI, Gilles-Eric. **Report on MON 863 GM maize produced by Monsanto Company – June 2005. Controversial effects on health reported after subchronic toxicity test: a confidential rat 90 day feeding study.** Available at: [https://www.greenpeace.de/sites/www.greenpeace.de/files/bewertung\\_monsanto\\_studie\\_mon863\\_seralini\\_0.pdf](https://www.greenpeace.de/sites/www.greenpeace.de/files/bewertung_monsanto_studie_mon863_seralini_0.pdf) Accessed on: 12 June 2015.

<sup>9</sup> SERALINI, Gilles-Eric. How Subchronic and Chronic Health Effects can be Neglected for GMOs, Pesticides or Chemicals. **International Journal of Biological Sciences**, 2009, p. 438-443.

<sup>10</sup> Another controversial technology consists in the use of antibiotic-resistant genes in genetic transfers. There is the concern that bacteria generally existent in the human organism might acquire this DNA and develop resistance to antibiotics. The risk of resistance to antibiotics might also be transferred via genetics to microorganisms and viruses that would become subsequently very difficult to fight (VALLETTA, Marco. **La disciplina delle biotecnologie agroalimentare: il modello europeo nel contesto globale.** Milano: Giuffrè, 2005. p. 27).

<sup>11</sup> GRASSI NETO, Roberto. **Princípios de direito do consumidor:** elementos para uma teoria geral. 2. ed. Santo André: Esetec, 2007, p. 88.

<sup>12</sup> The advocates of the “principle of substantive equivalence” argue that, until otherwise proven, the risks with the introduction of a new food to the environment or consumer health would be equivalent to the risks concerning traditional food consumption.

transnational companies that actually hold the economic power.<sup>13</sup>

Despite the “precautionary principle” being grounded on the Brazilian Federal Constitution that guarantees both protection to consumers and the right to an ecologically balanced environment, Brazilian governmental agencies practically ignore it upon the issuance of a set of complex rules that such agencies deceptively consider “sufficient” mechanisms, but which, in practice, have been found pitiful to protect either consumers or the environment.

If the genetically modified products are not effectively and properly controlled, dramatic situations involving poisoning, allergies and other problems might occur, not to mention the appearance of glyphosate-resistant weeds in the transgenic crops, which would result, even, in the need to use larger amounts of such herbicide; farmers that use transgenic seeds, on their turn, are at the mercy of the companies that hold such technology, such as Monsanto and Syngenta that impose to producers contracts with clearly abusive clauses.

## **05. GMO regulatory cultivation in Brazil**

The so-called “Biosafety Act” (Law no. 11105/2005) that regulates the liberation of genetically modified organisms in the environment, provides in its section 1 that the drafting of safety rules and the conception of surveillance mechanisms for the disposal of genetically modified organisms shall be guided, in addition to the encouragement of the scientific development of biosafety and biotechnology, by the protection to the life and health of human beings, animals and plants, and by the principle of precaution regarding environmental protection.

It also grants special importance to the question concerning transparent information in the labelling of food products that contain or are made of GMOs.

In Brazil, the subject-matter is provided in section 2 of Decree no. 4680/2003, under which consumers shall be informed of the existence of genetically modified organisms in the manufactured foods and/or ingredients in case the presence of GMO is detectable by more than 1% of its composition, the same level adopted by the EU legislation. The label shall also include in the identification of the ingredients the species of the donor gene eventually introduced in the food. There is further technical regulation issued by the Brazilian Association of the Technical Standards – ABNT (NBR 15.974).

Notwithstanding the above legislation being within the most advanced regulatory texts in the world, the truth is that, in practice, the Brazilian Government has used any available loophole to circumvent legal regulations that might result in restrictions to agricultural productivity, so as to focus only on obtaining immediate results that warrant the immediate increase of foreign currency to the country.

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<sup>13</sup> GRASSI NETO, Roberto. **Segurança Alimentar: da Produção Agrária à Proteção ao Consumidor**. São Paulo: Saraiva, 2013, p. 232.

Considering the care to be adopted for GMO liberation in the environment, the loosening of such rules may be ascertained upon the enactment of Law no. 11460/2007, whereby a provision (section 57-A) was added to Law no. 9985/2000 (that had instituted the National System of Nature Conservation Units) granting to the Executive the role of determining the limits for the cultivation of organically modified organisms in areas that surround such conservation units until such time that the respective buffer area is established and its respective Management Plan is approved. That has permitted the reduction of the GMO cultivation buffer strips near preservation areas that had been generically established in 10 km under section 2 of Resolution no. 13/90 of the National Environment Council (CONAMA), and appears to regulate the worrying limits that had already been established by Decree no. 5950/2006 (section 1) both for the glyphosate-resistant soybean (500m) and for the genetically modified insect-resistant cotton (800m or 5000m).<sup>14</sup>

Another fact that causes increased concern is the approval by the Brazilian House of Representatives of a bill (PL no. 4148/2008) in April 2015 that simply releases companies from the obligation of informing consumers about the eventual transgenic origin of the food they market. Under the Brazilian legislative system, to be turned into a law, such bill has only to be voted on and approved by the Brazilian Senate.

We cannot ignore that, on the suppliers' side, the information corresponds to a duty of good faith, and its access by consumers is an essential right to their dignity as human beings. The content of what is informed to consumers by the social agents certainly gives rise to a liability (*Verantwortlichkeit*) due to the reliance vested on such social agents.

Making available the information about the characteristics of the purchased product is always necessary for well-balanced consumer relations because it minimizes the vulnerability of the end user. Considering the transgenics applied to GMOs, however, the knowledge of the characteristics of the food offered to consumption is indispensable, not only for the health safety questions inherent to the process, but also for the existence of a significant percentage of people that develop intolerance or allergy to certain food ingredients.

## **06. Biotechnology and non-genetically modified seeds**

It cannot be ignored, however, that the use of biotechnology in food production is not limited to the transgenics. Such situation may be evidenced by the success obtained with the development of non-transgenic hybrid seeds, such as corn and soy, by simply crossing different lineages of the vegetable, and their high productivity comparable to and sometimes even higher than the productivity obtained with transgenic seeds.<sup>15</sup>

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<sup>14</sup> Considering the *Bt* cotton, the buffer strips are slightly larger, 5.000 m or 800 m, according to whether it has been ascertained the presence of wild relatives or direct ancestor in the conservation unit.

<sup>15</sup> In the 1940s, the first Brazilian hybrid commercial specimen arose from the crossing of a US variety with Brazilian Cateto maize seeds. A study published by the Science Magazine produced during fourteen years in the

We had the opportunity to stress in a former paper<sup>16</sup> the success of Brazilian agribusiness initiatives whereby producers seek to extend the market offer of grains obtained from high-performance conventional seeds – more specifically soybean, corn and cotton – motivated by existence of an important segment which, for being more careful regarding the consumption of genetically modified organisms, accepts paying a higher price per bag just to ensure that the purchased product will be free from any controversy about health risks for those consuming it.

Currently in its 5<sup>th</sup> edition, the so-called “Soybean Free Program” [*Programa Soja Livre*]<sup>17</sup> corresponds to the joint initiative of the Brazilian Agricultural Research Corporation (EMBRAPA) and the Mato Grosso State Soybean & Corn Producers Association (APROSOJA), with the purpose of making available varieties of conventional soybean seeds to the agricultural raw material supplier market, especially developed with the use of non-transgenic biotechnology to obtain a conventional harvest, which production volume and price are so competitive compared against the genetically modified product as to render it a commercially feasible option to producers. For the 2014/2015 and 2015/2016 harvests, eight conventional soybean cultivars<sup>18</sup> have been developed by the Brazilian Agricultural Research Corporation (EMBRAPA) and Tropical Melhoramento e Genética Ltda (TMG).

The use of transgenic-free biotechnology may be found, for instance, in the transposition to Brazilian reality of the criteria developed in the United States which permits to select based on the degree of maturity the best varieties of seeds for each latitude range, since the adaptability of each cultivar varies according to the displacement towards the South or the North due to the soybean “photoperiod” sensitivity.<sup>19</sup>

Despite the productivity by hectare of the conventional hybrid soybean being comparable to the transgenic soybean, their costs are currently circa 10% higher.<sup>20</sup> This unfavorable conjuncture to

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so-called “Corn Belt” of the United States proved that North-American conventional grain producers are obtaining higher economic and financial results than farmers that cultivate transgenic crops. The explanation is provided by Paul Mitchell of the Wisconsin-Madison University, according to whom the cost decrease with the application of pesticides does not offset the payment of royalties. (BRASIL. Associação Brasileira dos Produtores de Grãos Não-Geneticamente Modificados. **Informativo Abrange**, October 2011, year 2, n. 4, p. 2).

<sup>16</sup> GRASSI NETO, Roberto. Food Safety, Food security and Biotechnology. *Potravinová Bezpečnosť a Biothcnológia. AGRÁRNE PRÁVO EÚ (EU Agrarian Law)*, Nitra: Slovenská Poľnohospodárska Univerzita, v. 1, n.1/2012, p. 24-25.

<sup>17</sup> The program is sponsored by the companies Caramuru, Aprosmat, Sementes Nova Fronteira, Sementes Ouro Verde, Sementes Quati e Celi Sementes, and the Bolsa de Sementes e Agronegócios (BS&A – Seed and Agribusiness Stock Exchange), Cooperativa de Desenvolvimento Agrícola (Coodeagri), Cerrados & Triângulo Foudations likewise participate in the program.

<sup>18</sup> While the 2011 portfolio of the “Soybean Free Program” [*Programa Soja Livre*] was composed of 17 different varieties of conventional soybean seeds, the 2015 portfolio was reduced to the following 08 non-transgenic cultivars: BRS MG 752S; BRS MG 753C; BRS MG 810C; BRS 7980; BRS 8381; BRS 8581; TMG 4182 e TMG 4185 (Brasil. EMBRAPA. **Programa Soja Livre**. Available at: <[http://www.sojalivre.com.br/imagens/folder\\_soja\\_livre\\_embrapa\\_baixa.pdf](http://www.sojalivre.com.br/imagens/folder_soja_livre_embrapa_baixa.pdf)>. Accessed on: 30 June 2015.

<sup>19</sup> BRAZIL. Embrapa. **Cultivares de soja tradicionais**. Embrapa: Londrina. 2011, p. 07.

<sup>20</sup> In the 2014/2015 crop, the conventional soybean production cost was higher than the *Roundup Ready* RR1 soybean and lower than the *Roundup Ready* RR2 soybean, which increased cost is easily explained by higher

non-transgenic grain producers, instead of being corrected by the adoption of public policies specific for the sector, was worsened along 2014 by inconsequent governmental options in face of a floating market to such point that important entities, such as the Brazilian Association of Non-Genetically Modified Grain Producers (ABRANGE) simply had to discontinue their activities.

The global economic slowdown has effectively reduced the demand for energy, minerals and also agricultural products. This phenomenon, combined with the growing expectation of the US interest rate increase, has resulted in a plunge in commodity values, including agricultural commodities, in the international market.<sup>21</sup>

As long as this scenario of decreased economic activity worldwide is combined with the current Brazilian economic situation characterized by an impacting and recessive fiscal adjustment that was imposed on the population to clear the public accounts devastated by the poor management of government resources, the most pessimistic assessments made by a significant part of agricultural producers seem to be well grounded, notwithstanding the concentrated efforts made by the Brazilian Government to direct the meager official investments to the agribusiness, one of the few Brazilian economic sectors that still show signs of competitiveness.

Considering the specific case of the non-transgenic grains, the scenario is even worse, due to the total absence of a policy to stimulate the production of GMO-free (or NGM) grains.

A study of the International Service for the Acquisition of Agri-biotech Applications (ISAAA) indicates that the planted area with transgenic soybean varieties in the 2014/2015 Brazilian crop was 93.2%. The remaining 6.8% which relate to the Brazilian conventional production are scattered around the country in minor cultivations created mainly in new areas opened to cultivation by the agricultural expansion, and correspond to less than 2 million hectares.

Intended specifically for the European consumer<sup>22</sup>, more demanding and with higher *per capita*

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*royalties* paid to the technology companies (R\$ 115.00 per hectare). After being adjusted by the Extended Consumer Price Index (IPCA), the conventional soybean production costs for the 2014/2015 crop were, however, 10.0% higher than the costs of the 2013/2014 crop, and the RR1 soybean costs exceeded by 4.8% the costs of the previous year. These data indicate, on the one hand, that the RR1 soybean has a slight advantage over the conventional soybean, both in price variation and produced quantities; the conventional soybean has a small advantage over the RR2. On the other hand, it is inevitable to conclude that farmers have to spend more money to produce grains. (Richetti, Alceu. Viabilidade econômica da cultura da soja na safra 2014/2015, em Mato Grosso do Sul. **Comunicado Técnico – Embrapa**. Julho, 2014 Dourados, MS, p. 13).

<sup>21</sup> FRANKEL, Jeffrey. Why are commodity prices falling? **Project Syndicate**. 15 Dec. 2015. Available at: <<http://www.project-syndicate.org/commentary/commodities-oil-falling-prices-by-jeffrey-frankel-2014-12>>. Accessed on: 30 Jun. 2015

<sup>22</sup> A recent report made by the EU Joint Research Center provides a picture of the status of the supply chain for PI (preserved identity) NGM soybean products and its byproducts for 2012/2013. Upon an estimate of 10% NGM soybean meal imports, these data confirm that such products are more than a simple market niche. A more attentive look indicates that the consumption is uneven according to the country in question: in some countries the demand for NGM PI soybean is almost inexistent (e.g., Belgium, the Netherlands, Portugal and Spain), while others, such as Hungary and Sweden, demand almost only conventional soybean (TILLIE, Pascal;

income, the production of NGM grains that had already been reduced in face of the decreased demand of such market due to the very economic difficulties which the European Union has undergone, should drop more significantly in the 2015/2016 crop, being limited to mere 5% or 6% of the total, a percentage close to US levels.<sup>23</sup>

Differently from the US, however, the Brazilian production of conventional grains is processed in grain cooperatives under very expensive segregation conditions (for the machine cleaning costs), which increases mixing risks; while, in the US, the farms are self-sufficient regarding grain processing and their storage in their own warehouses.

As a result of such disastrous public policy, the premium paid for the conventional soybean in Brazil has fallen from amounts that went up to R\$ 7.50 in 2014 (i.e., circa USD 2.50) to an overprice that floats between R\$ 1.00 and R\$ 4.00 (USD 0.30 and USD 1.30) in 2015, depending on the region and the agreements made with the trading companies; in the US, producers are able, however, to trade the non-genetically modified soybean with an increase of up to 10% on the production value.<sup>24</sup>

This situation is exacerbated by the fact that out of the two genetically modified varieties more commonly cultivated in Brazil, RR1 (herbicide-tolerant - TH) and RR2 (insect-resistant and herbicide-tolerant with combined genes – RI/TH), only the latter requires the adoption of “buffer strips”, and such buffer strips do not even have to be planted with conventional soybean, they could be used to cultivate RR1, also transgenic.

## **07. Conclusion: Proposals of legislative innovation**

Brazilian governmental authorities should be recognized for their special efforts to fight hunger and grant effective access to food to the overall population. Notwithstanding, situations of disrespect to consumer and environment protection still prevail, and, therefore, there is much to be done. Among the proposal that we consider feasible for the sector, the following are worth highlighting:

a) The creation of really effective policies that guarantee the right to proper nutrition, with the creation of the National Agency of Food Security, an independent regulatory agency that would be part of the National System of Food Security with the purpose of establishing policies and promoting a satisfying offer of food both quantitatively (food security) and

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RODRÍGUEZ-CEREZO, Emilio. Markets for non-Genetically Modified, Identity-Preserved soybean in the EU. **Science and Policy Report by the Joint Research Centre - European Commission**. Luxembourg: Publications Office of the European Union, 2015, p. 43).

<sup>23</sup> PASSOS, André. Ocupação quase total. **Revista safra**. **April**. **2015**. Available at: <<http://revistasafra.com.br/quase-tudo-dominado-pelos-transgenicos/>>. Accessed on: 30 Jun. 2015.

<sup>24</sup> For the next crop, the forecast is even more disappointing: in some places, like the State of Mato Grosso, the premium price should be reduced to R\$ 2.00 in average, and in the State of Paraná, with the largest number of agreements that used to be closed providing a premium of circa R\$ 2.00 per bag, the premium will not be paid at all.

qualitatively (food safety).

b) Gradual extension of the range of foods subject to mandatory traceability, with the immediate inclusion of GMO-content food. Such traceability system should be based on a complete, open and dynamic model characterized by the accurate register of the entire product path and for speedy and effective data update, so as to decrease errors resulting from lack of information or misinformation.

c) Veto of Bill no. 4148/2008 that releases food industries from informing in their labels whether the marketed product has transgenic origin.

d) Governmental agencies to be prohibited from taking decisions based on opinions of researchers funded by biotechnology companies.

e) Transfer of the additional costs resulting from the adoption of procedures to prevent the contamination of conventional farms from the farmers to producers of the genetically modified crop or to companies that supply genetically modified seeds; alternatively, adoption of financing and subsidizing public policies that assure full grain processing and storage autonomy to conventional producers, so as to reduce production costs, and, in particular, segregation costs.

While the procurement of mineral products *in natura* depends mainly on the availability of the respective reserves of each country, the production of manufactured goods with high-added value and agricultural commodities is focused on the needs and desires of the domestic and international consumer markets. Despite transgenic grain production guaranteeing, at least in the short term, an increased revenue to Brazil, regardless of the arguments concerning environmental preservation and consumer health it cannot simply ignore the importance of preserving a conventional grain production, which not only can coexist, but should complement the genetically modified crop, so as to further supply this expressive consumer market composed of demanding consumers with higher purchase power who do not accept to consume genetically modified products. For that purpose, the offer of a portfolio of more productive seeds should be granted to conventional producers, likewise a significant bonus should be guaranteed in addition to the payment of the crop.

Lastly, alongside the adoption of the abovementioned public policies, the Judiciary Power should go beyond the mere award of indemnifications for contingent damages, so that, upon construing the constitutional rules, it may boldly recognize the unenforceability of the food security-related provisions which, directly or indirectly, may violate the principles guaranteed by such constitutional rules.

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