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## ***Transgenic maize in Mexico: a neoliberal account?***

### **El maíz transgénico en México: ¿un relato neoliberal?**

Gustavo Sadot Sosa Núñez\*

#### **Resumen**

*Este artículo hace un recuento del desarrollo de la política del etiquetado de maíz transgénico en México. Al examinar enfoques y argumentos opuestos para etiquetar transgénicos, se detalla la inclusión del maíz en las negociaciones del TLCAN, así como su contexto internacional y la interacción trilateral con América del Norte. También presenta la actualización de la legislación mexicana en la materia. Estos aspectos ofrecen una perspectiva respecto a la posición de apertura en el sector del maíz seguida por México.*

**Palabras clave:** *maíz transgénico, etiquetado, México, Norteamérica.*

#### **Abstract**

This paper makes account of the development of transgenic maize labelling policy in Mexico. By examining opposing approaches and arguments to label transgenics, it details the inclusion of maize in NAFTA negotiations, as well as its international context and the trilateral interaction with North America. It also presents the respective update of Mexican legislation. These aspects offer an insight about the liberalising position that Mexico has followed with respect to maize.

**Key Words:** transgenic maize, labelling, Mexico, North America.

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## Background

Genetically Modified (GM) maize has been cultivated since 1995 for production of food, food additives, feed, and feed additives. There are two varieties of commercially released transgenic maize produced by means of genetic engineering: BT<sup>1</sup> maize, which produces an insecticide for certain types of insects, and herbicide-resistant maize. In addition, there are hybrid combinations of both (OECD, 2003).

Regardless of varieties, GM maize has the potential to modify the environment and affect wildlife and biodiversity. In this sense, there is a perceived danger that this crop can cause if spreading either by cross-pollination with non-GM maize or by establishing itself outside the area where it is planted (Cook, 2005: 135). That is, GM maize can potentially damage the biodiversity of ecosystems as well as the biodiversity of maize itself.<sup>2</sup> Furthermore, there are ethical questions. They are identified as the consumers' right to information and people's feelings against the manipulation of nature; both of which relate to the social

and cultural characteristics of different societies. Hence, using labels becomes a reliable option to make consumers aware of what they purchase and consume. Nevertheless, developments at the international level seem to deter this option for the sake of international trade.

This is the case of Mexico when siding with its North American counterparts. However, the case of maize has shown different signs due to its particular features. For this reason, an assessment of the manner in which the Mexican government has dealt with transgenic maize assists in determining whether such story is a neoliberal account. Consequently, an examination of issue-related documents is made, presenting how international developments influence the Mexican policy to label Genetically Modified Food (GMF) and GM maize.

## Labelling transgenics

Labelling is generally proposed with the aim of achieving a social goal, like improving human health and safety, mitigating environmental hazards, averting international trade disputes, or supporting domestic agricultural and food manufacturing industries. Labels develop from different views, which represent diverse perspec-

<sup>1</sup> BT stands for "*Bacillus Thuringiensis*", which is a soil-dwelling bacterium commonly used as biological pesticide.

<sup>2</sup> For a clear explanation of maize diversity and its definitions, see Bellon, M.R. and Berthaud, J. (2006). 'Traditional Mexican agricultural systems and the potential impacts of transgenic varieties on maize diversity'. *Agriculture and Human Values* 23: 1. March 2006. 3 – 14.

tives from consumers, companies, third-party entities, and governments. All of them play a role in determining which of a food's many attributes are described on food labels.

As with any policy, the costs and benefits of government intervention in labelling must be weighed in. For this, governments need to take into account economic efficiency, producer and consumer concerns, political expediency, public opinion, and current events. The results can be mandatory labelling, voluntary labelling, or no labelling at all.

There are opposing views on whether labelling is a successful approach for GMF. On one side, labels cannot prove useful if they aim to inform on complex information that can be difficult to consumers to digest. Furthermore, they can impose extra costs on producers; that is, if food is labelled as genetically modified. On the other side, views supporting the need to label GMF have also been regarded as adequate. Labelling can mean an attempt to respect both the real nature of consumer concerns about GMF and the environment of uncertainty in which any regulatory policy for biotechnology operates. Nevertheless, labels can be of limited value to consumers, who can be underinformed or misinformed due to the high cost of becom-

ing informed and the perceived value of information.

With this, the manner and the extent to which GMF should be labelled are based on two academic approaches: scientific and paternalistic.

The first approach states that scientific knowledge has considerable influence over consumer protection policy. The complexity, with which GMF is produced, goes beyond the mere information of where the food they are consuming is coming from. For example, there are risks that, by introducing new genetic material, food sources can acquire new allergenicity that consumers may not be aware of (Hadfield and Thomson, 1998: 555). A further aspect to bear in mind is the possible toxicity that GMF may entail. That is, GMF can contain genes that have not previously existed in conventional food. This can come as the result of transferring different material to newly developed food. Besides allergenicity and toxicity, the nutritional content of GMF could also be modified (Kessler et al, 1992). Therefore, it seems approachable to assess the potential changes and toxicity to be able to inform consumers about them.

The second approach, known as 'paternalistic' (Viscusi, 1994), regards consumers' beliefs in selecting products to be in line with scientific risk assessments. If a

gap exists between consumers' perceptions and scientific assessments, the latter would be considered as the point of reference. However, consumers' perceptions may exceed risk assessments of the scientific community. Some consumers have concerns about nutritional, health, environmental, and ethical issues, besides scientific concerns. The observable divergence between what consumers expect and what they get can be regarded as the driving force to setting policies with respect to information through labels.

Within the remit of the paternalistic approach the perspective of equivalence between GMF and non-GMF is established. This argument develops from the idea that both types of products are considered equal as long as the former preserve the same characteristics as the latter. This, of course, is backed by the respective testing, certification, and enforcement methods.

The effective consumer protection can, thus, follow one of two approaches to labelling. In North America, the norm has been to authorise GMF based on health and safety regulations; making observable the paternalistic view. Hence, no additional labels stating the GM origin of food have been needed as long as the characteristics of modified products do not diverge to an

extent that the name of the traditional product would no longer apply. Specifically, both Canada and the USA have developed a voluntary approach to labels based on the equivalence between GMF and its conventional counterpart. This is the case of GM maize. However, specific features apply for Mexico. Although this country supports the argument of equivalence, it requires compulsory labels for GM maize seeds due to environmental purposes.

### **Mexico's inner story: opening up to the market**

The inclusion of maize in the North American Free Trade Agreement (NAFTA) was the result of many critical situations that Mexico was experiencing prior to signing the agreement. Due to the 1982 debt crisis, the Mexican government began a liberalisation strategy to get mostly needed new sources of capital and investment. Crucial to this was reaching agreements with the IMF, the USA, and the WTO; encouraging exports through plants on the US border, and amending investment rules (O'Brien, 1995: 707). All these went through jointly with a series of measures to liberalise Mexico's foreign economic relations. From then on, an agenda aimed at a series of liberalisations in Mexico was set up. As provided by the USA-Mexico Framework Agreement

on Trade and Investment,<sup>3</sup> an acceleration of import liberalisation took place. In addition, the publication of Mexico's Foreign Investment Regulations,<sup>4</sup> allowing majority foreign ownership of companies, caused foreign capital moving to Mexico at a rapid rate in the form of loans, rather than direct investment. Under these circumstances it was that the Mexican government started to seek a free trade deal with the USA and Canada. In fact, Mexicans were well aware of the accomplishments of the Canada-USA Free Trade Agreement of 1989 and wanted to emulate a similar success. Nevertheless, the primary Mexican concern in NAFTA negotiations was not on trade matters; instead it was to create an institutional structure that would bolster investor confidence.

All these liberal ideas and strategies were proposed by US-educated Mexican technocrats in the bureaucracy, which meant that the adoption of liberal economic principles was primarily state-led. This thus meant low participation from civil society in this type of decisions. Nevertheless, the society was aware of the proposals for a

NAFTA, and they were initially resistant to this deal due to, mainly, the 1982 crisis and disenchantment on politicians. But it was the selling of NAFTA as a chance to join the 'first world' when the agreement found popular resonance. This thus left the Mexican government with room to manoeuvre the free trade deal. However, civil society was not aware of the whole range of sectors to be included in the agreement. Sensitive crops, like maize, were negotiated carefully. GMF and biotechnology were not referred to in the agreement. Perhaps this was the result of the equivalence between GMF and non-GMF agreed under WTO rules.<sup>5</sup> Maybe it was because GM crops were not much of an issue in the early 1990s.

Prior to NAFTA, policies on maize were dealt with carefully due to its cultural and social inferences. As this crop is an essential staple food for the country, on which the low-income stratum depends heavily,<sup>6</sup> the government was increasing its production for local consumption since 1970. In this regard, the commercialisation of maize was considered a strategic activity

<sup>3</sup> The USA-Mexico Framework Agreement was signed in November 1987, and it paved the way for Mexico to join the General Agreement on Tariffs and Trade (GATT), which was the precursor to the World Trade Organisation (WTO).

<sup>4</sup> *Reglamento de la Ley para Promover la Inversión Mexicana y Regular la Inversión Extranjera*. Published on 16 May 1989 in *Diario Oficial de la Federación*.

<sup>5</sup> To be discussed further in this article.

<sup>6</sup> Prior to drafting NAFTA, around 75 per cent of the population was getting a large part of its caloric and nutritional needs from maize (Guerrero, 2005: 20). Besides, roughly a third of the population lived in rural areas, from which up to 60 per cent of workers were engaged in agriculture, and maize production accounted for the largest workforce (Levy and Van Wijnbergen, 1992: 15 – 17).

for the government: it embraced a network of different important social groups that had numerous members.<sup>7</sup> The government adopted a policy aimed at reducing and preserving low maize prices by increasing subsidies as a response to free market activities boosting prices worldwide (Brambila, 1987: 78). In order to achieve this, governmental agencies like *Compañía Nacional de Subsistencias Populares* (CONASUPO), had to control an important share of the maize market.<sup>8</sup> This became extremely costly for the government, which argued that subsidisation was reaching not just the needy classes, but society as a whole. To further complicate matters, Mexico was having difficulties paying its external debt and could no longer afford to allocate huge consumer subsidies to maize, particularly at a time when liberalisation in a number of areas was sought. To cope with the situation, a series of short-term policies were implemented,<sup>9</sup> and these were checked upon until NAFTA negotiations began.

The subsequent adoption of a similar regulatory framework to that of North

<sup>7</sup> Agricultural peasants, farmers with deficit production, and urban workers are those whose alimentation is based on maize (Guerrero, 2005: 33).

<sup>8</sup> CONASUPO increased its share in 1970 from 15 to 33 per cent, reaching 50 per cent in 1980 (Brambila, 1987: 80, 211).

<sup>9</sup> Subsidised water for maize producers, guaranteed prices, subsidised credits, and the creation of a replacement for traditional maize input.

American trading partners, in terms of maize liberalisation, would result in a change of policy direction. Such a move would not pose a problem for Mexico, though, as the USA was selling 72 per cent of its maize worldwide and could easily meet Mexican demands (Appendini, 2001: 218).

### Maize and NAFTA negotiations

The inclusion of maize in NAFTA found opposition from different groups in each country. The Mexican perception of comparative advantage, in terms of methods of production and efficiency of Canadian and American farmers with respect to Mexican counterparts, was an issue. Another was Mexican public opposition to what they perceived was behind-closed-doors negotiations by their government, who considered that it was in the best interest of the country to switch to the production of other crops aimed at the American market, such as vegetables and fruits.

On the opposite side, the idea of entering the Mexican maize market without restrictions attracted great interest from Canada and the USA, whose governments were lobbied by biotechnology transnational companies fascinated by the size of the market and the possibility of entering it in order to strengthen their competitive po-

sition. However, American drafters were uneasy at the prospect of including maize in the agreement because of potential social and political consequences. They acknowledged how sensitive the crop was for Mexico, and further acknowledged that potential implications could be of significance for the USA. Their Congress would not accept its inclusion as this could result in a reduction in wages of American workers if a cheap Mexican labour force were to illegally migrate to the USA and take up employment (Weintraub, 1992: 46). The initial belief had been that NAFTA would guarantee Mexico's economic growth while reducing illegal migration (White House, 1992). In this context, Mexican negotiators were questioned as to their intentions and their answer was that Mexican farmers would need to cultivate more profitable products<sup>10</sup> (Von Bertrab, 1997: 55). So the decision to include maize trade in the agreements was taken independently by Mexico.<sup>11</sup> Trade barriers associated with maize would be completely eliminated, although this grain would be dealt with in the category of 'sen-

sible products'.<sup>12</sup> On a reciprocal basis, Mexico would request access to vegetables, fruits, and, mainly, sugar. This in turn would necessitate negotiations for a wider agricultural agreement, considered risky by the American delegation since it would go against the interests of influential American farmers lobbying the American Congress. Despite these worries, maize ended up being included in the agreement. This then opened the possibility for American biotechnology companies to gain access to the Mexican market.

The agricultural chapter proved to be one of the most polemic aspects with which to deal because the American agricultural sector was characterised by transnational companies producing big-scale processed food, as opposed to the Mexican sector, in which small-scale farmers were the main feature. This would presuppose that Mexico would be eager to protect its agricultural status quo. However, the Mexican government praised otherwise with the purpose to provide arguments to the American Congress on its viability by giving concessions to the American agricultural private sector.

The inclusion of maize in NAFTA allowed the then Mexican government to re-

<sup>10</sup> Liberalisation of maize crops in Mexico started before NAFTA negotiations took place. It dates back to the late 1980s, and was aimed at reducing price subsidisation of the crop.

<sup>11</sup> It is noticeable that Mexican officials pushing for the inclusion of maize and dealing with the agricultural chapter of NAFTA were not officials of the Ministry of Agriculture, but came from the Ministry of Commerce (Lasana, 2003: 67).

<sup>12</sup> NAFTA eliminated tariffs gradually over different periods of time: immediately it came into force, and then in periods of five, ten, and fourteen years. Agriculture was included in the latter period.

duce the political costs of liberalising the agricultural sector (Domínguez, 1998: 30). By arguing that it was a sacrifice imposed from the outside, but that it would return benefits in medium and long terms; the government would gain greater manoeuvrability when reforming broader agricultural policies.<sup>13</sup> However, there was dissent from within the Mexican negotiating team. The argument was that linking maize to NAFTA would not just increase food dependency on the USA, but would also reduce governmental control over transnational companies controlling grain markets which were starting to operate in the country. In spite of these disagreements, the final position was that maize was going to be included in the agreement and that full advantage should be taken out of it (Lasana, 2003: 86, 89).

Control over maize imports was transferred from the governmental sphere to a reduced number of companies that had nexuses with the administration of the time.<sup>14</sup> Some of them were working towards a transnational environment with bio-

technology as its main purpose, and were also acquiring Mexican-owned factories producing maize flour.<sup>15</sup> This would mean that imported maize used to produce maize flour could contain GM maize. However, as GM products were considered in the USA as equal to conventional products, there was no label to identify when, where, and how GM maize was being introduced to Mexico.

The Mexican government argued that maize needed to be liberalised due to its inefficient production compared with that of the USA<sup>16</sup> and because of the comparative advantages Mexico had when cultivating other crops. Simultaneously, there was a counter-argument stating that maize imports were the result of a financial arrangement rather than as a strategy to level down maize prices or to counter re-

<sup>13</sup> The reforms comprised the reduction and cancellation of subsidies, the modification to the legal basis of land ownership and property, the approximation of national prices with international prices, credit selection and privatisation (Lasana, 2003: 79).

<sup>14</sup> These were transnational companies importing maize like Anderson Clayton, Continental, Pilgrim's Pride, Purina, and Cargill. Afterwards, the latter formed an association with Monsanto.

<sup>15</sup> For example, the company Archer Daniels Midland (ADM), which has links with Novartis, acquired 22 per cent of *Maseca* shares in 1994, *Maseca* being one of the two main maize flour producers in the country (Lasana, 2003: 96).

<sup>16</sup> Historically, production in Mexico reached 2 tons per hectare, while production in the USA reached an average of 11 tons per hectare, although the Mexican government did not relate such a disparity to the fact that American farmers use capital-based methods, sustained with heavy machinery, agrochemical resources, and transgenic seeds (Nadal, 2004: 158 – 9). In addition, environmental conditions suitable for the cultivation of the crop are ideal in the American mid-west, as opposed to those in Mexico, where maize has mutated to adapt to diverse geographical conditions which have, in fact, become an advantage for Mexican farmers.

duced production.<sup>17</sup> The governmental elite gave priority to the interests of national and foreign companies, which would benefit from secured access to American corn, rather than to the interests of small farmers (Nadal, 2004: 156). However, the inclusion of maize in NAFTA was also the result of a lack of organisation by small farmers when articulating their demands and trying to exert pressure.<sup>18</sup> As a consequence, there was no opposition to the consensus taken among the governmental elite and influential businesses.

A mix of technological disadvantages in Mexican farming and the financial interest of big companies were the determining factors when liberalising maize trade in Mexico. Also, there were other specific features. By deciding that it was better to import maize rather than to produce it, the Mexican government not only gave transnational companies control over the maize market, it also empowered the emerging biotech industry in the country because liberalisation would not only allow GM maize to access the Mexican market

<sup>17</sup> The USA supports agricultural exports through the Commodity Credit Corporation (CCC) through which maize importers get credits with long-term payments.

<sup>18</sup> The lack of organisation of small farmers was related to the political situation that Mexico was having at the time: the government was subsidising production and was promising to keep so doing in order to make it possible for the farmers to compete with their American counterparts (Appendini, 2001: 225).

but also allow the possibility of taking over control of national maize production due to small farmers moving to urban centres.<sup>19</sup> The interest of the biotech industry in Mexican maize was stimulated by the genetic characteristics of maize,<sup>20</sup> which could offer updated scientific insights for the development of new and different GM maize varieties.

Perhaps with an aim to ease concerns inherited from the previous Mexican administration,<sup>21</sup> the one that followed<sup>22</sup> launched two public programmes to support small farmers who wished to continue to produce maize, so that they could compensate for American subsidies and to prepare them for the time when maize would be completely liberalised.<sup>23</sup> Running counter to this, governmental intervention was not aimed at improving small farmers'

<sup>19</sup> Making small farmers move to cities was part of the strategy of liberalising the agricultural sector. Mexican officials thought this action could reduce rural poverty.

<sup>20</sup> Mexican maize has developed in several naturally-achieved genetic varieties that can overcome a number of agro-ecological obstacles posed by diverse regions, weather, altitudes, and soil characteristics. This is the result of traditional farmers continually experimenting with their maize landraces, crossing them with other maize varieties to see if they can improve the quality of their maize crop (CIMMYT, 2002: 2).

<sup>21</sup> NAFTA was conceived, drafted, and signed during the administration of former Mexican president Carlos Salinas (1988 – 1994).

<sup>22</sup> The administration of former president Ernesto Zedillo was in operation from 1994 to 2000.

<sup>23</sup> *Programa de Apoyos Directos al Campo* and *Alianza para el Campo*.

competitiveness,<sup>24</sup> but at administrating their exclusion from the market by negotiating the longest possible period for tariff reduction (Guerrero, 2005: 170, 182). The transition period, during which such tariffs and quotas would be completely phased out, would end by January 2008.

### **Influence of GMF label-related international agreements in North America**

Biotechnology and GMF have been dealt with at the international level through different agreements. They represent different perspectives to approach policies on labelling GMF, including GM maize.

In the WTO context, two international agreements with different perspectives relate to biotechnology products. One is the Sanitary and Phytosanitary (SPS) Agreement. It establishes that its member nation-states have the right to take sanitary and phytosanitary measures necessary for the protection of human, animal or plant life or health, provided that such measures do not contravene international trade. Any measure taken should be based on scientific principles and not maintained without sufficient scientific evidence. This thus would exclude any social, cultural or eco-

nomical consideration from playing a role in setting health or safety standards.

The other is the Technical Barriers to Trade (TBT) Agreement. It establishes that technical regulations should not be more trade-restrictive than necessary to fulfil a legitimate objective, such as the protection of human health or safety, animal or plant life or health, or the environment. In this framework, labels can be deemed a technical regulation<sup>25</sup> or a standard<sup>26</sup>. The content of this agreement refers to halting the introduction of technical measures that could impede free trade, unless human health or safety, animal health, plant life fertility or the environment were threatened. Within this framework, labelling has been included.

Depending on the perspective, both TBT and SPS Agreements can be observed differently in terms of GMF labelling. On one side, the TBT Agreement may suggest compulsory labelling of GMF because it ensures the provision of consumer information (Burchardi, 2001: 87, 101). On the

<sup>24</sup> There was an absence of support for research, technical assistance, and other types of aid needed to develop the maize industry.

<sup>25</sup> A technical regulation lays down product characteristics or their related processes and production methods. It can also include or deal exclusively with terminology, symbols, packaging, marking, or labelling requirements as they apply to a product, process or production method (TBT Agreement).

<sup>26</sup> A standard is a document approved by a recognised body, which provides for common and repeated use, rules, guidelines or characteristics for products. It may also include terminology, symbols, packaging, marking or labelling requirements (TBT Agreement).

other hand, the SPS Agreement may affirm that there are no reasons to label GMF as there is no scientific information indicating risks to health and safety (Makuch, 2004).

Within the context of NAFTA, the SPS Agreement is explicitly included in Chapter 7, which defines the context in which agricultural trade should take place. However, there is no reference to terms such as 'biotechnology', 'genetically modified' or 'genetically engineered'. This may be the result of the SPS Agreement considering GM crops equivalent to conventional crops.

Also, Chapter 9 of NAFTA makes explicit reference to the TBT Agreement when determining standard-related measures. This requires the avoidance of unnecessary obstacles to trade when products comply with national requirements and would have the same purpose as similar products. In these terms, the potential labelling of GM maize can be understood as a technical barrier since the product is considered equivalent to conventional maize. However, Chapter 9 clearly provides for exemptions when there are 'fundamental climatic, geographical, technological or infrastructural factors' that can be justified scientifically according to national levels of protection.

Both the SPS and TBT Agreements take into account a third perspective, that of the Codex Alimentarius,<sup>27</sup> which aims to reinforce the notion of validating the 'substantial equivalence' between both GM and non-GM maize advocated by the USA and Canada. This has resulted in the formulation of international labelling standards that evade stating the GM status of products. With respect to labelling, the Codex Alimentarius establishes that it should be provided only for nutritional purposes, or when it contains allergens. The reason for this position is that GM and traditional crops are equivalent.

Another international agreement is the Cartagena Protocol on Biosafety (CPB).<sup>28</sup> It lays down the procedures for granting authorisation, following notification, for Living Modified Organisms (LMOs) as well as a system of notification for LMOs intended for direct use as food or feed, or for further processing. A cornerstone of the CPB is the adoption of the precautionary

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<sup>27</sup> The Codex Alimentarius is a joint programme of FAO and WHO. It consists of a collection of internationally recognised standards, guidelines and recommendations in food, food production and food safety; while emphasising consumer protection

<sup>28</sup> The Cartagena Protocol on Biosafety was adopted at the Conference on the Convention on Biodiversity held in Montreal on 29 January 2000, which concern transboundary movements of GMOs. Its objective is to contribute to ensuring an adequate level of protection and safety during the transfer, handling and use of GMOs.

principle.<sup>29</sup> In this context, labelling is considered necessary for the introduction of GM seeds into a certain nation-state for cultivation. This is in order to verify that such GMOs have been authorised and that they comply with CPB guidelines. Hence, the CPB lists documentation requirements for transboundary movements of LMOs for research, for environmental release, and for food, feed, and processing.

The issues that were developed during CPB negotiations suffered a major setback, which had major implications for the direction of discussions on documentation issues. Article 18.2(a) was one of the most difficult issues.<sup>30</sup> Then, in an attempt to overcome this aspect, the USA,<sup>31</sup> Canada

and Argentina, held two meetings<sup>32</sup> as LMO exporting nation-states looking for an agreement on documentation requirements. The work of these meetings concerned specific elements for a common approach on bilateral arrangements with importing nation-states, assigning responsibility for provision of documentation accompanying a shipment, resolution of issues and adventitious presence.

The output from the meetings was an arrangement for bilateral agreements between exporter and importer nation-states. The stated intention was to facilitate trade of GM products once the CPB was in force. This was possible because the CPB allows bilateral and regional agreements with non-parties. Nonetheless, they have to be consistent with objectives of the CPB, without resulting in a lower level of protection.

Subsequently, documentation would be triggered only with transboundary movements of LMOs that were authorised in the exporting country, except in cases when signatories of this type of bilateral agreements contractually defined that a shipment of 95 per cent non-GMO content is considered as non-GMO shipment. Thus, a 5 per cent threshold for unintentional presence of living GMOs before shipment

<sup>29</sup> The precautionary principle refers to measures imposed to an activity that raises threats of harm to human health or the environment, even if some cause and effect relationships are not fully established scientifically. In this context, the proponent of the activity, rather than the public, should bear the burden of proof. It involves an examination of the full range of alternatives, including no action (Science and Environmental Health Network, 1998).

<sup>30</sup> At the Second Meeting of the Parties of the Cartagena Protocol on Biosafety (COP-MOP2, Montreal, 30 May-3 June 2005), negotiations collapsed and the meeting failed to take a decision on the detailed documentation requirements for transboundary movements of LMOs intended for direct use as food or feed, or for processing. After intense and controversial talks the decision on Article 18.2(a) BS-III/10 was adopted at COP-MOP3 (Curitiba, 13-17 March 2006).

<sup>31</sup> According to John Pitchford, USDA former Director of International Affairs during CPB negotiations; documentation requirements were not clearly stated in the CPB, leaving room for multiple interpretations. In his view, the CPB had the potential to disrupt American export trade (USDA, 2003).

<sup>32</sup> March and June 2003.

could be tagged with the 'may contain' phrase.

In this way, the USA and Canada, both non-signatories of the protocol, signed a trilateral agreement with Mexico. This trilateral agreement became important in subsequent CPB meetings because Mexico was unwilling to agree to any decision that was not in line with this trilateral agreement. Also, Mexico opposed the introduction of new documentation requirements for living GMOs (Andrée, 2007: 260). Reaching consensus proved difficult.

It was in Curitiba, Brazil, in 2006, that the identification requirements for living GMOs, the form of documentation, and the threshold for adventitious presence would be set. At the host's proposal, there were ideas about including the text of 'containing' GMOs. However, Mexico was again at odds with its counterparts, arguing against any 'contains' language that did not have a 'may contain' option. This country's position was based on the possibility of maintaining a series of trade agreements with other countries, as well as on its commitments to the USA and Canada.<sup>33</sup> With this, Mexico insisted on inserting a paragraph stating that the specific documentation require-

ments being negotiated would not apply to trade with non-parties to the protocol.

The final outcome was that 'may contain' labels would be used in cases when the living GMO was not known, while 'contain' labels would apply when the living GMO was identified. With the latter phrase, listing living GMOs of species other than those that constitute the shipment would not be required. In either phrasing, exporters would be expected to provide common, scientific, and commercial names, unique identifier codes, and transformation events with a view to considering a decision to ensure that all relevant shipments clearly state that they 'contain' or 'may contain' living GMOs.

Furthermore, there was no agreement on whether to use commercial invoices or a stand-alone document. The final decision was to leave it up to nation-states to establish their own requirements. Overall, this was considered as a victory of Mexico and its allies (Andrée, 2007: 268).

### **Trilateral relationship**

As previously stated, NAFTA does not include production and commercialisation of GMF. Instead, both aspects have been handled through a bilateral Cooperative Agreement signed in 2001 between the USA and Mexico, which aims at enhancing

<sup>33</sup> Comments made by Mr. Marco Antonio Meraz, member of the Mexican delegation, quoted in Andrée (2007).

activities of mutual interest on safety of foods for human consumption<sup>34</sup>.

In addition, environmental concerns on the development of GM maize in the USA and Mexico have led interest groups to deal with the North American Commission for Environmental Cooperation (CEC),<sup>35</sup> a regional institution created through the North American Agreement for Environmental Cooperation (NAAEC). An example of such actions referred to Mexican farmers from indigenous communities and Environmental Non-Governmental Organisations (ENGOS),<sup>36</sup> who filed a legal request to the CEC, in 2002, to force an investigation into the reasons and implications of GMOs found in conventional maize varieties (ENS, 2004).

Pursuant to Article 13 of the NAAEC<sup>37</sup>, the CEC issued a report based

<sup>34</sup> Cooperative Arrangement among the Department of Health and Human Services and the Department of Agriculture of the United States of America and the Secretariat of Health and the Secretariat of Agriculture, Livestock, Rural Development, Fish, and Food of the United Mexican States regarding cooperation to enhance activities of mutual interest in the area of the safety of foods for human consumption.

<sup>35</sup> The role of the CEC has been that of ensuring the enforcement of environmental laws in the three nation-states, while addressing environmental challenges and opportunities presented by continent-wide free trade. It is an intergovernmental institution established by the North American Agreement on Environmental Cooperation (NAAEC).

<sup>36</sup> Greenpeace Mexico, the Mexican Center for Environmental Rights, and the Union of Mexican Environmental Groups.

<sup>37</sup> Article 13 of the NAAEC authorises the CEC to conduct studies on environmental-related matters affecting North America.

on background research<sup>38</sup> made on socio-economic, legal, technological, health, agricultural and environmental issues. Among the recommendations were the preservation and enforcement of the 1998 moratorium on maize seeds imports. It also advised to label all imported maize from the USA as either containing GM maize or else certified as GM-free. This would not include Canada, though, as it did not export bulk maize to Mexico. In case American or Canadian maize was not certified as GM-free, it was suggested that it should be milled into flour at the American border so as to prevent transgenic seeds from being planted in Mexico. Another recommendation was that the Mexican government should notify local farmers that maize distributed by Diconsa was likely to contain GM maize and that grain bags should be labelled accordingly. This was stipulated because traditional maize could not be considered a problem only for Mexico. The effect on genetic biodiversity of Mexican maize could have direct repercussions on the biodiversity of maize and ecosystems in all of North America (ENS, 2004). For this purpose, it was suggested that the assessment and management of bio-safety risks should be approached through

<sup>38</sup> Research consisted of a 10 Chapters volume elaborated by different scientists and scholars coming from Mexico, the USA and Canada.

greater coordination of research and regulatory policies in all three countries. The CEC brought into focus other aspects related to the exclusion of GM maize from Mexican territory. Listed among them were programmes with the aim of educating farmers to avoid planting transgenic seeds.

The report provoked strong protests from the USA and Canada. Their governments claimed that the report was fundamentally flawed and unscientific (CEC, 2004). Key recommendations, they argued, were not based on sound science and were contradicted by the report's own scientific findings. They also contended that the report failed to consider the potential benefits of biotechnology. They complained, too, that the report lacked economic analysis, while too much emphasis was placed on Mexican socio-cultural considerations. In this regard, USA officials, through the Environmental Protection Agency (EPA) and the United States Trade Representative (USTR), considered that adopting the report's recommendations would cause economic harm to farmers and consumers across the three NAFTA nations and restrict international trade because of the portrayed equivalence between GM and conventional products. Canada encouraged the development of a Mexican regulatory framework to deal with this matter, working

jointly with Environment Canada, the agency in charge of commenting on the report, arguing that the level of protection should be consistent with Mexico's international obligations. Environment Canada also considered that risk assessment and regulation of GM products should be science-based and no more trade restrictive than necessary. In case there was insufficient information upon which to take a protective decision, a possibility should exist for adopting provisional measures within a reasonable period of time. Even so, Environment Canada stated that such measures should be adopted according to relevant international standards.

Except for any reference to labels, the CEC proposal was formally established in March 2005, under the Prosperity Agenda of the Security and Prosperity Partnership (SPP) of North America. The necessity for increased cooperation between each nation's regulatory policy on agricultural biotechnology was observed. This would partially achieve the aim of maintaining high standards of health and safety for North American citizens, while enhancing the competitive position of North American industries throughout the world. A proposal was tabled for the elimination of 'redundant testing and certification requirements' (White House, 2005). To cope

with these duties a Food and Agriculture Regulatory Systems Working Group (FARS) was created, and three initiatives were put into place. The first was designed to initiate, coordinate and prioritise various biotech activities: it was proposed that by March 2006, Mexican regulators would be included in the technical regulatory exchanges between Canada and the USA, leading to the formalisation of trilateral regulatory exchanges. The second initiative, working towards developing common approaches for regulatory policies, was reached by establishing training workshops in Mexico for risk assessors, also in March 2006. The third initiative would place its emphasis on cooperation and sharing of information on international biotechnology activities.

### Updating the Mexican legal framework

A year after NAFTA was brought into force; commercial GM maize was first released in the USA. Then, the Mexican government took action on the matter. The Ministry for Agriculture, Livestock, Rural Development, Fisheries and Alimentation (SAGARPA) published a proposal<sup>39</sup> for official norm NOM-056-FITO-1995, which established the phytosanitary requirements for han-

dling, import, and experimental cultivation of Genetically Modified Organisms (GMOs). Such a norm listed a series of requirements. One of them stated that any person, institution or company aiming to release into the environment or to import a transgenic product would need to hand in a phytosanitary certificate. Moreover, any move of the GM product from within Mexico would entail notifying in writing to the General Directorate for Vegetal Health.<sup>40</sup> Certificate information had to include scientific and commercial names so as to identify organisms modified in a given product. With respect to labelling, the official norm stated that the GM product to be released, moved, and/or imported should be identified with visible labels containing information related to the nature and quantity of the product, country of origin, contact details of traders, and phytosanitary certificate numbers.

In 1997, the General Law on Health<sup>41</sup> was amended by adding a chapter regulating biotechnology products. It included the requirement to inform the Ministry of Health about these products when destined for human consumption. Labelling was contemplated according to official

<sup>39</sup> The proposal for an official norm was published in the *Diario Oficial de la Federación* on 20 November 1995.

<sup>40</sup> The General Directorate for Vegetal Health is part of the structure of the Ministry for Agriculture, Livestock, Rural Development, Fisheries and Alimentation (SAGARPA).

<sup>41</sup> *Ley General de Salud*.

norm NOM-056-FITO-1995, which was complemented with specific legal outlooks on the marketing of GMOs established in the Regulation of the General Law of Health in terms of Marketing.<sup>42</sup> It was stated that GM products cannot be advertised under three assumptions: firstly, as having attributes different to those for which they were evaluated; secondly, as being indispensable for human life; or thirdly, as being of a quality higher than conventional products (Art. 70). Moreover, this Regulation allowed the Ministry of Health to determine the cases when it was deemed necessary to advertise precautionary or warning messages that a given GM product recipient would need to contain (Art. 71).

Besides the advertising side of the issue, Mexico regarded itself as the centre of maize diversity, and the introduction of GM seeds would exacerbate losing such diversity. For this reason, the Mexican government issued a moratorium<sup>43</sup> in 1998 on the introduction of GM maize seeds to the

<sup>42</sup> *Reglamento de la Ley General de Salud en materia de Publicidad.*

<sup>43</sup> The moratorium was the result of a study made by the National Council of Science and Technology (CONACYT), and was suggested to SAGARPA by the National Committee on Agricultural Biosecurity. The General Direction of Vegetal Health established the moratorium through an official document sent to people interested in requesting authorisation for experimental release of GM maize under the scope of official norm NOM-056-FITO-1995 (SAGARPA, 2005).

country<sup>44</sup> (Ostroff, 2004). Nevertheless, this proved fruitless, as there was a concern that at least 30 per cent of maize imported from the USA by 1998 was already transgenic, with a great chance that it could be used for cultivation in open areas (SAGARPA, 2005). Scientific assessments confirmed this. Biologists discovered transgenic DNA in native maize (Quist and Chapela, 2001).

By January 2002, the Mexican government further reported higher percentages of GM maize in communities where the crop had previously been found, as well as in Diconsa stores, the government's food distribution agency, where 37 per cent of grains were found to be transgenic (ENS, 2004). In this context, the CIBIOGEM<sup>45</sup> considered adequate lifting the moratorium as it was posing limits to scientific research, and stopping biotechnology from offering substantial improvement in the cultivation of maize.<sup>46</sup> However, the Commission for Agriculture and Livestock of the Mexican Congress exhorted the Executive Government to instruct the

<sup>44</sup> Between 1993 and 1998, 22 trials were permitted under conditions of extreme environmental security, but from 1999 no other request was granted. This was because phytosanitary certificates were temporarily suspended (SAGARPA, 2005).

<sup>45</sup> CIBIOGEM is the Inter-Ministry Commission of Biosecurity of Genetically Modified Organisms. It is formed by SAGARPA, SEMARNAT, Health, Education, Treasury, and Economy.

<sup>46</sup> Agreement 06.02.03, Meeting 02.03 of CIBIOGEM, dated 13 August 2003.

Ministries conforming CIBIOGEM to preserve the moratorium status on the experimental cultivation of maize until a federal law was set up (*Senado de la República*, 2004).

In this context, three legislative initiatives to deal with GMF were presented to the Mexican Congress but did not become law because the congressmen who proposed them failed to raise enough support from their parties or the rest of Congress to discuss such initiatives. The first one dates back to 4 April 2001, and it related to the inclusion of a paragraph in Article 282 of the General Law on Health to make compulsory the labelling of all GM products destined for human consumption. Also without success was the initiative suggested for a law on the production, distribution, commercialisation, control and encouragement of GM products proposed on 2 October of the same year. Finally, by 23 October, 2001, three articles were proposed for inclusion in the Federal Law of Consumer Protection, which sought to inform consumers on the existence and characteristics of GM products.

It was not until March, 2005, that a Law on Bio-security and Genetically Modified Organisms (LBOGM)<sup>47</sup> was estab-

lished. Its main purpose has been to regulate the research and commercial activities of GMOs with an aim to prevent, avoid and reduce potential risks to human health, to the environment, and to biodiversity. Furthermore, it established the National System of Information on Biodiversity, and the National Registry of Biodiversity of GMOs. The general public, the private and social sectors, as well as the producers, would be consulted when releasing GMOs into the environment. Security measures would be based on technical and scientific grounds, with the lack of scientific evidence not considered an indicator of a potential risk or its absence. This was because LBOGM would focus clearly on the experimental release into the environment as well as on research with educational, scientific, commercial and industrial purposes.

A key development of LBOGM was the protection of certain territories against scientific research and the release of GMOs since they were considered centres of origin and biodiversity for specific crops. This was the case of maize, an issue that was developed from the position on the 1998 moratorium.

LBOGM includes two articles with regard to labels. On one side, Article 101 states that GMF should be labelled without

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lished in *Diario Oficial de la Federación* on 18 March 2005.

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<sup>47</sup> Acronym LBOGM stands for *Ley de Bioseguridad de Organismos Genéticamente Modificados*. Pub-

prejudice to the usual labelling requirements when characteristics are significantly different from those of conventional food. This was not the case of seeds destined for agricultural production, for which a compulsory labelling system indicating features of genetic modification and their implications for cultivation was established. The requirements for this type of labelling would be agreed upon following national standards and international treaties of which Mexico was a signatory. On the other side, Article 102 established that labels should state the reason behind using any GM seed.

After the LBOGM was issued, on 30 October 2006, a further proposal from the Senate called for an amendment to the General Law on Health.<sup>48</sup> The initiative aimed at labelling all GM products and respective derivatives. This was due to what was considered as a handicap for world agriculture. The Senate ruled that, despite GMF being controversial and that there could be long term consequences, there was no need to rule on the matter. The reason for this ruling was that the issue was already contemplated in the LBOGM, in which it is stated that GMF should be

labelled according to the official norms issued by the Ministry of Health, informing of the GM status only if the characteristics of the products were significantly different to those of conventional products.

Three years after the LBOGM was published, additional regulations supporting it were set up: RLBOGM.<sup>49</sup> Information about process and required documentation were included for cases when importing GMOs and releasing them with either agricultural or commercial purposes. License requests for environmental release, monitoring measures for GMO cultivation and human protection, equivalence studies in case of consumption, as well as legal assurances that the GMO in question has already been released in the country of origin were also set up. However, no explicit mention was granted for labels: They would be established by official norms.<sup>50</sup> Overall, RLBOGM became controversial among Non-Governmental Organisations (NGOs) and civil society because it established the possibility to cultivate and import GM maize, although this would be granted on a case by case basis and under strict assessment procedures (CIBIOGEM, 2010).

<sup>48</sup> Proposal sent by former Senator Mr. Manuel Velasco Coello, from the Green Party, to the Joint Commission for Health and Legislative Studies of the Mexican Senate.

<sup>49</sup> *Reglamento de la Ley de Bioseguridad de Organismos Genéticamente Modificados* was published on 19 March 2008 in the *Diario Oficial de la Federación*.

<sup>50</sup> Referred to official norm NOM-056-FITO-1995.

By 2009, official norm NOM-056-FITO-1995 was cancelled.<sup>51</sup> The argument behind this decision was that the LBOGM was of a higher hierarchical level,<sup>52</sup> and that its additional regulation foresaw the elaboration of newer official norms. This was necessary so as to adequate new norms to the issues prevailing in the LBOGM.

Further to cancelling official norm NOM-056-FITO-1995, the moratorium on GM maize was lifted by September of 2009. In this respect, CIBIOGEM (2010) affirmed that the conditions in which Mexico was a decade earlier were different to those at the time of issuing the RLBOGM. Explicitly, the moratorium was established at a time when Mexico was not part of an international agreement regulating cross-boundary transfer of GMOs, and did not have a national law regulating them. But the LBOGM and its respective RLBOGM were now providing legal instruments that assured appropriate and secure use of biotechnology methods. Thus, lifting the moratorium would allow generating information

that would assist in answering scientific questions on the transgenic sequences of maize, while assuring the protection of centres of origin and of genetic diversity. Weeks after, SAGARPA and SEMARNAT granted 15 approvals for experimental cultivation in some regions of the country.<sup>53</sup> From this moment on, a struggle between supporters and detractors has taken place many times. Recently, a federal judge upheld a decision prohibiting authorisation for environmental, experimental and commercial release of transgenic maize until a ruling about its environmental effects is made.<sup>54</sup> Unsurprisingly, the decision has already been challenged by legal representatives of Mexican ministries.

## Observations

Initially, Mexico developed more stringent rules about maize than its North American counterparts. This was the result of Mexico showing specific cultural, social, environmental, and economic features with respect to maize. However, during the process of liberalisation of its market, a series of is-

<sup>51</sup> Cancellation announcement (*Aviso de cancelación de la Norma Oficial Mexicana NOM-056-FITO-1995, por la que se establecen los requisitos fitosanitarios para la movilización nacional, importación, y establecimiento de pruebas de campo de organismos manipulados mediante la aplicación de ingeniería genética*) was made on 22 June 2009 in *Diario Oficial de la Federación*.

<sup>52</sup> While LBOGM is a law, NOM-056-FITO-1995 is merely a norm.

<sup>53</sup> Of the 15 approvals, 9 were granted to Monsanto, while Dow AgroScience obtained 6.

<sup>54</sup> A civil federal judge of the 12nd district began the procedure based on the plaint of members of the civil society and NGOs against SAGARPA, SEMARNAT and biotechnology companies like Monsanto (Enciso, 2013).

sues regarding GMF and its labelling took place.

It is observable that GM maize labelling policy has been set up according to the equivalence between GMF and conventional counterparts. But this refers to food produced through biotechnology means. A different case has been set up for GM maize seeds. Mexico's approach to label GM seeds comes as a result of specific environmental, consumption, societal, and legislative issues that characterise this nation-state with respect to its northern neighbours.

Despite this, it is noticeable that Mexico has aligned its overall legislation on GMF labelling. Lifting the moratorium and establishing national laws that changed the previous approach have meant Mexico has renounced to its own initial views on the matter. This could have been done for the sake of market interests, resulting in policies converging at the regional level.

The relevance of trade for the Mexican government is observable when acknowledging the role it has played in CPB

discussions. Trade relations with the USA were evidently a higher priority for Mexico than standing firm with most other protocol parties on detailed documentation requirements. This aspect could be understood as submission from the Mexican government to American and Canadian trade interests.

It was also in the interest of the USA to develop the approach that finally stood up against labelling GMF, as it was regarded an obstacle to trade. This thus shows the superiority given to international trade over social, environmental and consumer concerns. Indeed, all the findings point at arguing that the development of Mexico's transgenic maize has been a neoliberal account. It will continue to do so, as a result of its commercial linkages under NAFTA context. Nonetheless, resistance from the society means that this approach will not happen smoothly. •

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