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# NAFTA's effects on Mexican agriculture: unequal and forceful integration

Los efectos del TLCAN en la agricultura mexicana: integración desigual y forzada

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#### Abstract

This paper analyzes the effects of NAFTA in the Mexican agriculture sector. For that purpose, some indicators of trade in key sectors related to food chain are shown, for México and US. We will try to prove the inefficiency of the regulating mechanisms designed by the Mexican state to strengthen the agrifood sector and thus guarantee food security. After twenty years, the results continue to register profound asymmetries between the three countries with results mostly unfavorable to Mexico. **Key words:** NAFTA, agriculture, food security, agrifood systems, Mexico, USA.

#### Resumen

Este artículo analiza los efectos del TLCAN en el sector agrícola mexicano. Para ello, se muestran algunos indicadores del comercio en sectores clave relacionados con la cadena alimentaria, para México y EE.UU. Intentaremos demostrar la ineficiencia de los mecanismos de regulación diseñados por el Estado mexicano para fortalecer el sector agroalimentario y así garantizar la seguridad alimentaria. Después de veinte años, los resultados siguen registrando profundas asimetrías entre los tres países con resultados mayoritariamente desfavorables para México.

Palabras clave: TLCAN, agricultura, seguridad alimentaria, México, Estados Unidos.

#### 1. Introduction

The inclusion of the agricultural sector as part of the North American Free Trade Agreement (NAFTA) has been one of many controversial subjects in recent years, since many sectors associated to the national agrifood chain continue to be alerted to the existing differences in areas like subsidies, access to technology, seeds, supplies and inputs between farmers and food producers in Mexico and those that their counterparts in the United States and Canada enjoy. Even though NAFTA contemplated the agricultural sector would deregulate tariffs in a period of ten years and thus reach levels of competitiveness among its partners, after two decades of commercial exchange the results indicate the opposite (Torres, 2003, Gazol, 2004).

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The purpose of this paper is to analyze the interactions and effects this trade agreement generates in Mexico on the area of food production, particularly those that stem from the commercial relationship with the United States. In the light of new and recent indicators of commercial exchange, we will try to prove the inefficiency of the regulating mechanisms designed by the Mexican state to strengthen the agrifood sector and thus guarantee food security. After twenty years, the results continue to register profound asymmetries between the three countries with results mostly unfavorable to Mexico, which can been seen, among other things, in the growing dependence on the importation of basic grains, in the increase of Mexicans living under the food poverty line and in the dismantling of the value chains between the national agrifood systems and the welfare of families.

The article is structured as follows: we will delve directly into the subject at hand by exposing the impacts of NAFTA on the agricultural production of food, with emphasis on the commercial exchange between the three countries and the deficit imbalances seen for Mexico. Next, we will approach which and what agriculture subsidies programs operate in the United States and Mexico, which due to their asymmetry have been fundamental in explaining the uneven natures of Mexican and US agriculture. We will then show the growing Mexican dependence on some of the main foods of its traditional diet which are being imported from the United States. In addition, we will analyze which are the main food products that Mexico exports to the United States. Finally, we will present some considerations that indicate a greater risk scenario in the area of food security and will note some public policy guidelines that should be considered on the governments' agenda in the coming years.

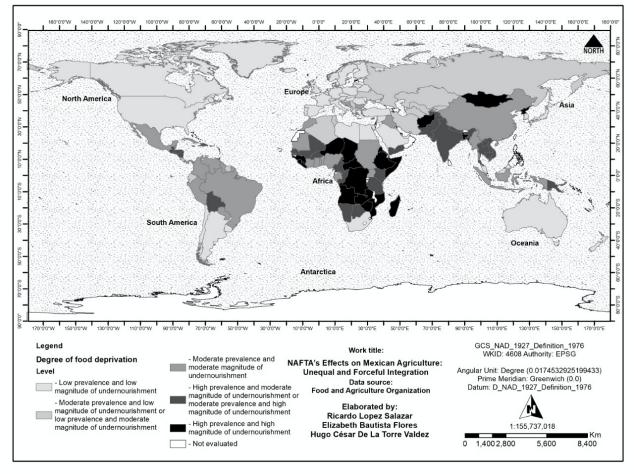
# 1.1. NAFTA and its impact on Mexican agriculture

During the last two decades of the last century and the first decade of the current century, Mexico entered into a phase of accelerated entrance into global markets that resulted in a noticeable increase of the country's commercial trade with the rest of the world. This process can be chronicled as follows: Mexico's 1986 acceptance as a member of GATT (which preceded the World Trade Organization (WTO)), which was subsequently bolstered by the entry into force of the North American Free Trade Agreement (NAFTA) in 1994, and an unprecedented deregulation of all laws that prohibited foreign investment. Currently, Mexico is one of the main exporting countries on a worldwide basis and among the highest recipients of Direct Foreign Investment (DFI). For example, since 1994 it is possible to see a relevant increase of DFI, which reached 35 billion dollars in 2013 and an annual yearly growth of 15% for the period of 1994-2013. Contradictory to its food exporting power, Mexico presents high levels of food deprivation (Sagarpa, 2017) (fig. 1).

As a result, in nearly three decades, from 1986 to 2010, exports recorded an annual growth rate of 9.33%; however, imports grew at average rate of 12.33%, and GNP barely reached 1%. This is unequivocal proof of the dynamism of international commerce, but also of the disequilibrium in macroeconomic indicators and the slow growth of the national economy. Part of this unevenness, as we shall soon see, is reflected in the low productivity of Mexican agriculture and in the deficit in the production of food.

Indeed, Mexico's trade openness and integration processes have resulted in Mexican agriculture as one hardest hit sectors of the economy. Even though NAFTA contemplated a ten-year period to deregulate tariffs and thus ensure that national producers would be more competitive, it was not enough to reach the levels of competitiveness that the other two trading partners actually have. Therefore, it is not surprising that Mexico has developed a growing dependence on imported food which is a phenomenon that authors like Torres (2003) have signaled as a loss of sovereignty problem and a submission to the will of international food markets.

**Figure 1** World's food deprivation levels



Source: by the authors based in FAO, 2021.

Thus, in 1994, Mexico showed a commercial trade deficit against all the countries with which it trades food items, particularly the United States and Canada. This deficit has been increasing with time to the point that in 2011 it reached 14 billion US dollars, nevertheless this year agricultural trade with the United States and Canada showed a surplus for the first time (chart 1).

The below is the result of a series of factors among which the following stand out: changes in national food policies oriented towards the purchase of "low-cost food items" from third countries; the decrease of supports and subsidies to agriculture under the pretext of not interfering with free trade; and the reorientation of important food producers towards crops that are more likely to become exports for international markets, such as fresh vegetables like avocados and tomatoes, to mention some (López y Sandoval, 2018).

The decrease in subsidies to agriculture has also discouraged national food production. Budgeted government sums for the different activities in the sector went from 1.36 of GDP in 1981, to 0.44% in 1999 and reached 0.53% in 2006. Also, the participation of the food sector in the GNP shows a downward tendency of 11.37% in 1986, 10.26% in 1994 and 9.71% in 2006 (González and Macías, 2007), whereas in 2014 it was at 6% (INEGI, 2014). The share of agriculture related jobs as part of the national total job also decreased from 26.89% in 1993 to 13.10% in 2010. Finally, the industrial value added for the foodaccording to Rubio (2008, beverage, and tobacco sector decreased by 28% in 1994 and 26% in 2006. The above data can be explained by the existence of a process of food destructuring,), since the productivity conditions that normally would allow the agricultural sector to supply

basic foodstuffs to the population in a structured manner are disappearing in addition to the inability of the population segment comprised of farmers and small and medium sized agricultural entrepreneurs to generate conditions of survival and employment for the rural population. This is due, among other aspects, to their subordination and control by the great transnational food companies which are supported by the governments of more developed countries through two mechanisms: international food price controls and the drive to make less developed countries open up their trade policies.

Year	Countries	Exports	Imports	Total Trade	Trade Balance	Var (%)
1994	All Countries	3,625	5,912.90	9,538.00	-2,287.90	
	USA.	3,211.30	4,149.8	7,361.14	-938.54	
	Canada	34.1	298.4	332.54922	-264.3	
2009	All Countries	15,049.60	18,442.10	33,492.90	-3,392.50	
	NAFTA	11,983.10	15,045.80	27,029.00	-3,062.70	
	USA	11,511.60	13,733.60	25,245.20	-2,222.00	
	Canada	471.50	1,312.30	1,783.80	-840.80	
2010	All Countries	17,463.60	20,932.30	38,396.00	-3468.7	
	NAFTA	14,152.40	17,159.30	31,312.00	-3006.9	
	USA	13,554.20	15,568.40	29,123.00	-2014.2	
	Canada	598.3	1,590.90	2,189.00	-992.6	
2011	All Countries	21,725.70	18,442.10	47,929	3283.6	
	NAFTA	17,476.20	15,045.80	38,879	2430.4	
	USA	16,773.20	13,733.60	36,105	3039.6	
	Canada	702.9	1,312.30	2,773	-609.4	
Accumlated Deficit		148,333	162,679.69	226,706.00	-14,346.99	527.08

Chart 1 Mexico agrifood balance with the United States, Canada and the rest of the world

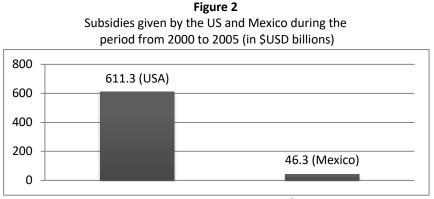
Source: by the authors, using Sistema Nacional de Información e Integración de Mercados (SNIIM), 2013

The loss of productive capacity, especially in corn production, which is a product that for generations has been the source of national identity and considered one of the main centers of biodiversity due to its expansion and domestication for various millennia, has become in recent decades in a limitation to continue promoting traditional diet. This decrease has affected the diet and nutrition of the Mexican people because it has generated a movement to replace fresh and nutritious foods for other products of lesser nutritional value, which would include processed products and those labeled as "junk food" (Oseguera and Esparza, 2009).

All of these tendencies have resulted in the creation of two realities for Mexican agriculture that coexist in the same space and time. The first, is characterized by abandonment and economic backwardness in terms of competitiveness and productivity, with a clear tendency towards the disappearance of Mexican agriculture as a transcendental activity of food security. The second, is created by the existence of highly profitable crops for international markets such as fresh vegetables and Mexico's high market share of products such as cantaloupe, avocado, tomatoes, and limes for the North American market, which is controlled by the large agrifood businesses (Mella and Mercado, 2006).

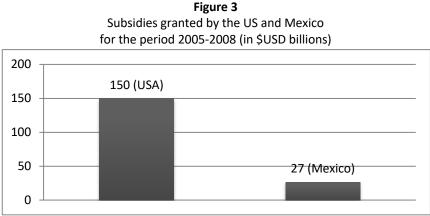
# 1.2. Subsidies and agriculture support programs in Mexico and the United States

Subsides and agriculture support programs by the Mexican and US governments were identified as the main inequality variable. Even though the World Trade Organization issued a resolution which bound the US government to limit the subsidies to agricultural producers to a maximum amount of 55 billion dollars annually, which forced the US to gradually reduce these starting in 1995, when these reached the amount of USD \$22.9 bb, however, they again began to increase reaching levels of USD \$55.4 bb in 1999. This amount was very much over the limit that the WTO had established and in clear disregard by the US of the guidelines issued by the organization. During the period of 2000-2005, the United States granted subsidies which totaled USD \$611.3 bb, while total Mexican subsidies to its agricultural sector amounted to USD \$46.3 bb (fig. 2) (CEFP, 2009).



Prepared by the authorswith CEFP<sup>4</sup>, 2009

According to the Agriculture Law of 2002, for the period of 2005-2008 it was estimated that the US government granted subsidies in amounts over USD \$150 bb to its agricultural producers. Meanwhile, it is estimated that during the same period Mexican subsidies to its agricultural sector did not exceed USD \$27 bb (fig. 3) (CEFP, 2009).



Prepared by the authors from CEFP, 2009.

In chart 2, United States and Mexico support programs to agricultural producers is presented

<sup>&</sup>lt;sup>4</sup> Translators Note: CEFP stands for the *Centro de Estudios de las Finanzas Públicas* or Center for the Study of Public Finances. For purposes of this translation, the acronym in Spanish used by the authors will be used throughout the document.

Figure 4				
Main programs related to agricultura				
sector in Mexico and USA				

USA					
Commodity Loan Program					
Commercialization loans program					
Counter-cyclical payments of passive income support					
Insurance programs					
Agricultural products exports subsidies					
Export credit guarantee program					
Intermediate export credit guarantee program					

Prepared by the authors from CEFP, 2009 data.

#### **1.2.1.** Support programs in Mexico

#### Programa ALIANZA para el Campo - ALIANZA Agriculture Program

This is one of the main agricultural support programs in Mexico. It is co-financed by state governments and agricultural producers. These supports are proportional to investment and to producers mainly in marginal rural areas (CEFP, 2009).

#### PROCAMPO, currently called PROAGRO

Through this program, payments are disbursed to selected growers, depending on the area cultivated from a historical period or the conditions in which growers use their farmland, production levels or for environmental protection programs (CEFP, 2009).

# Supports and Services to Agricultural Commercialization - Apoyos y Servicios a la Comercialización Agropecuaria (ASERCA).

This program was created in 1991 to implement support policies to the commercialization of the agricultural sector through direct supports (PROCAMPO), and also gives assistance to commercialization efforts and risk management with the goal of offering a temporary compensation to producers for structural deficiencies and the asymmetries in the assistance and production conditions of foreign competitors which took free market references in a process in which producers sold their products directly. This program supports the producers of wheat, corn, sorghum, rice and other crops from a fall in prices (CEFP, 2009).

#### **Energy Goods and Tariffs Subsidies**

Based on the Energy Law for the Agricultural Sector, several subsidies in prices and tariffs for production energy (diesel fuel, fuel oil and electricity) are granted when used in agricultural production. The main subsidies are for diesel used in agricultural activities and assistance for production costs for those that use electricity (CEFP, 2009). Currently, diesel fuel subsidies were replaced by programs meant to modernize farm equipment and machinery. The percentage of electric subsidy is 90% for kilowatt/hour on average, which represents a cost of 18 billion pesos a year to the Mexican government (SCDHCU, 2014).

#### 1.2.2. Support programs in the United States

#### **Commodity Loan Program**

This program allows agricultural producers to suspend payments for loans related to commodities, which leave the crops at the disposal of the Commodities Credit Corporation (CCCP) when market prices are lower to the amount of the loan, that is, the indicative price. In turn, the CCCP sells commodities that come under its control in the free market, but at a lower price than the rate of interest of the outstanding loan at the moment of sale (CEFP, 2009).

#### **Commercialization Loan Programs**

These programs are meant to sustain the earnings of agricultural producers but not at market prices. Under these programs agricultural producers repay the loan at the original loan interest rate or at the loan repayment rate if it is lower. The difference between the two rates constitutes the subsidy to producers (commercialization loan benefit) (CEFP, 2009).

#### **Counter-cyclical Payments of Passive Income Support**

This form of subsidy was introduced in the new United States Farm Bill and offers important advantages related to price for crops that are covered by the program, such as corn, as long as the actual price of these is lower than the target price and unlike the aforementioned repayments to make up for losses in the market. Counter-cyclical payments are subject to price, the history of acreage sowed and yields (CEFP, 2009).

#### Insurance Programs

These programs are another form of subsidies to agricultural producers in the United States. The purpose of these programs is to lower the financial impact of the uncertainty of climate changes that could affect crops. They are also meant to protect farmers against lost income, including income lost due to a fall in prices or crop yields. In these cases, the government pays the total amount of premium payments related to loss of production due to natural events of a fall in price (CEFP, 2009).

#### **Agricultural Products Export Subsidies**

This support mechanism to producers includes 13 groups of agricultural products, including cereals. In 2005, it is estimated that these supports reached USD 425 mm, while cash grants for exports reached USD 52 mm during that year, which is slightly less than the USD 53 mm granted in 2003. This reduction is the result of agreements of the United States government with the WTO (CEFP, 2009).

#### Export Credit Guarantee Program (GSM-102)

This is the main export promotion program for agricultural exports in the United States and grants loans with a repayment schedule that can go from 90 days to three years (CEFP, 2009).

#### Intermediate Export Credit Guarantee Program (GSM-103)

This program offers loans with longer repayment schedules that go from 3 to ten years (CEFP, 2009).

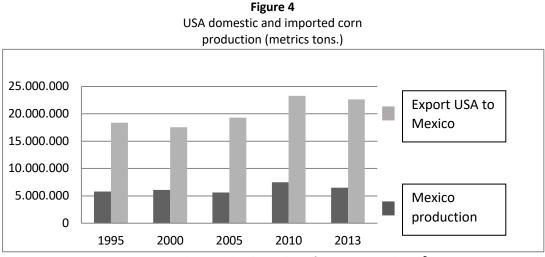
# 2. Methodology

The study is of a documentary type, that is, the main sources of information used are of a secondary nature, from public databases, such as those provided by the Instituto Nacional de Estadística Geografía e Informática (INEGI) of Mexico, to information from the United States Foreign Agriculture Service (FAS). Also, we rely on other studies on the subject matter, which allowed us to reconstruct the phenomenon addressed.

# 3. Results

# **3.1.** Agricultural products imports from the United States to Mexico

Corn has a value to Mexico that goes far beyond a basic food staple or a product for industrial use. A close relationship exists between corn and the Mexican people which elicits a strong emotional. In fig. 4, the tonnage of corn produced in Mexico is compared to the amount of corn imported from the United States. One can appreciate how corn production in Mexico positively exceeds the amounts imported from the United States. On average, Mexico has imported 6,300,000 tons of corn from its neighbor and has maintained an average production of 20,242,861 tons of this staple of Mexican diet. Corn is the crop that has the greatest territorial coverage in Mexico and uses approximately 4.1% of national territory (8,170,227 hectares).



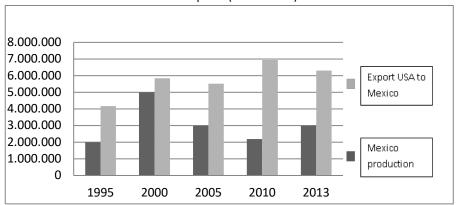
Amounts expressed in tons by the authors from USDA and SIAP<sup>5</sup>, 2013.

Until year 2000, beans were the second largest crop in Mexico with approximately 1.0% of total national land mass dedicated to this crop (1,987,789 hectares); but starting in 2000, sorghum took the second place with an average of 1.01% of national territory dedicated to this crop (2,000,000 hectares), second only to corn. This reduction in bean production meant that more had to be imported. It must be noted that this legume is part of the basic food basket and almost as important as corn. In fig. 5, the amounts of sorghum produced in Mexico and what is imported from the United States can be seen. In this case, the scenario changed, and how Mexico has come to rely more on US imports to meet its domestic sorghum needs can be seen. Sorghum production in Mexico is still greater, but imports are affecting many producers and make necessary to pay closer scrutiny to this matter.

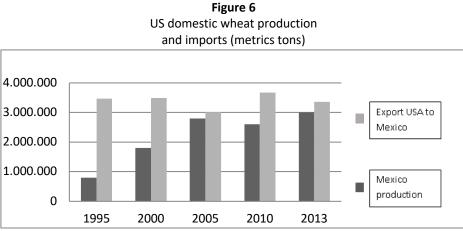
The situation with wheat production is critical since imports from the US almost exceed national production. This is an unequivocal sign that Mexico depends on wheat imports, especially from the US, to meet its needs. The percentage of national territory where wheat is sowed is 0.38% or 747,383 hectares. Fig.6 compares national wheat production and US wheat exports to Mexico.

<sup>&</sup>lt;sup>5</sup> Translators note: SIAP stands for Servicio de Informació nAgropecuaria y Pesquera issued by SAGARPA, which is the Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación (Ministry of Agriculture, Ranching, Rural Development, Fishing and Food). For purposes of this translation, the acronym in Spanish cited by the authors will be used.

Figure 5 US domestic sorghum production and imports (metric tons)

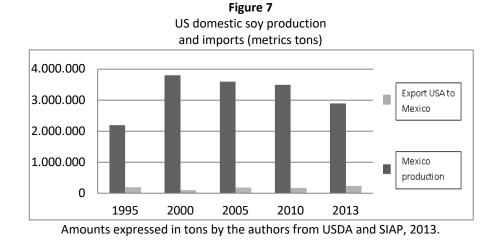


Amounts expressed in tons by the authors, from USDA and SIAP, 2013 data.



Amounts expressed in tons by the authors, from data from USDA and SIAP, 2013.

The situation with respect to soy production is alarming. It is obvious that national producers of this legume are incapable of competing with their US counterparts. For example, 0.06% of national territory is used for soy crops, representing 135,588 hectares. Soy production does not take off because soy beans from the US are cheaper thanks to the subsidies producers there enjoy, therefore Mexican soy producers cannot meet this challenge. If this trend continues, other crops could soon face a similar scenario and this would cause Mexican agriculture to lag further behind and increasingly depend on foreign imports (see fig. 7).

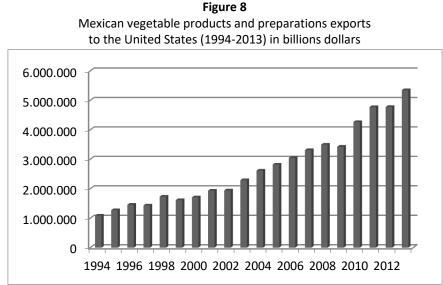


# **3.2.** Mexican exports of agricultural products to the United States

#### **3.2.1.** Vegetables and preparations

As mentioned before, some authors take the position that Mexican agriculture shows two opposite faces that coexist in the same space and place, in other words, agricultural activity shows "winners and losers" depending on the crop that is being analyzed. This is apparently supported by the evolutionary analysis of crops that have been labeled as "winners" among which one of the most representative examples have been vegetables and preparations exports for the US market. For example, USDA data (2013) shows that Mexico is a dominant player in the exports of fresh vegetables (included in vegetables and preparations) with a 69% share of the total. The Mexican Annual Average Growth Rate (TCPAM) or the years between 1994 to 2013 was 9.05% and the

Annual Average Growth Rate for the Rest of the World (TCPAR)<sup>6</sup> was 8.76%. The gap between Mexican vegetable exports to the US is not much higher than the global rate, however, aggregate data shows that Mexican vegetable exports reached USD \$6 bb, in 2013, and experienced a 400% growth rate in twenty years (see fig. 8).



Prepared by the authors from Foreing Agriculture System (FAS) and USDA, 2013

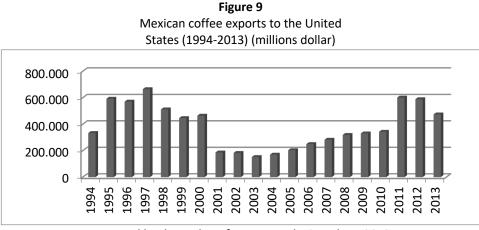
A USDA report (2013) shows the dominance of Mexican vegetable and fruit exports to the United States which reached a rate of growth of 15% in 2012, exceeding Canada's 14% growth rate.

# 3.2.2. Coffee

According to Statissta, 2013, coffee represents the second import commodity for the US, second only after oil imports. Within that context, Mexico occupies ninth place in world coffee production with 3.29% of the total production. while Brazil is in first place with 33.29%. Climate conditions in the US make it impractical to grow coffee so it has no option but to import coffee to meet domestic demand. This allows Mexico, which is not an important player in coffee production, to be the fourth provider of coffee to the US after Brazil, Vietnam and Colombia. In value terms, Mexican coffee exports grew at an accelerated pace from 1994 to 1997 and later grew

<sup>&</sup>lt;sup>6</sup> Translators note : The acronym in Spanish TCPAR, which stands *for Tasa de CrecimientoPromedioAnual al Resto del Mundo,* used by the authors in the original text, will be also used in remainder of this document to indicate the global annual average growth rate excluding Mexico.

at decreased rate from 1998 to 2003. In 2004, production rebounded and maintained an uninterrupted growth rate that lasted until 2012 (see fig. 9).



Prepared by the authors from Fas and USDA data, 2013

#### 3.2.3. Livinganimals

The United States is the largest global meat producer -with a production of 11,239 mt- surpassing Brazil, which produced an estimated 9,920 mt in 2013. The impressive North American meat production is sustained by the purchase of calves and piglets from other countries such as Mexico (SENASICA-SAGARPA, 2013). For example, livestock exports (listed under the heading of live animals), represented 0.12% of total Mexican agribusiness exports to the US in 2013 and amounted to USD \$339,796,000.00 (SENASICA-SAGARPA, 2013). The value of bovine exports amounted to USD \$281,647,337.00, or the remaining99.83%. Of the aforementioned amounts USD \$281,181,258.00 came from exports to the United States (ibid.). Despite the ups and downs in trade, exports of live animals, mainly livestock, reached a new record in 2012 with approximately USD 700 mm in sales (see fig. 10). During the period between 1994 and 2013, the TCPAM was 9.69%, while TCPAR was 4.90%, and the average share of Mexican products in the North American market was 21.04%.

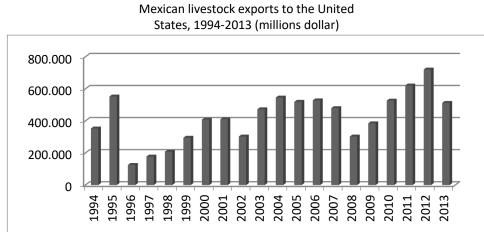
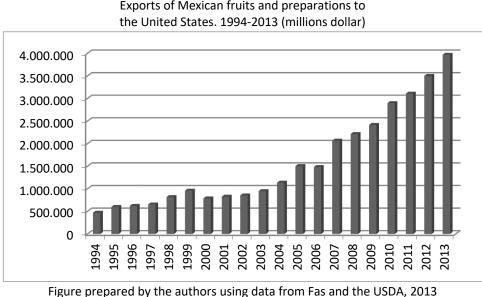


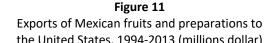
Figure 10

Prepared by the authors from data from Fas and the USDA, 2013.

#### 3.2.4. Fruits and preparations

Similar to the behavior shown by Mexican vegetable exports, fruits and preparations of Mexican origin prevail in the US market. The magnitude of leadership in this context is such that the second largest competitor (Chile) totals only USD \$1.22 bb for 2012, while Mexico reached USD \$2.86 bb during the same year (USDA, 2013). One year later, it reached a record of almost USD \$4 bb (see fig. 11). The TCPAM, between 1994 to 2013, was 12.6% and TCPAR was 7.97%, while the Mexican share of the US fruit import market reached 21.09%.





# 4. Conclusions

Food integration between Mexico and the United States is an irreversible fact, as are the inequalities and synergies resulting from commercial exchanges from the opening up of the economy and NAFTA. Twenty years after its implementation, the food debit balances in the agrifood sector indicate an unfavorable food safety scenario for Mexicans. Government promises to reactivate agricultural productivity and competitiveness, based on revised tariff regulations, have resulted in contrary results such as low profitability for the sector and the abandonment of crops that had traditionally provided income to thousands of farmers throughout the country.

These changes have not only served to institutionalize the permanence and functionality of NAFTA agreements, but also to generate a new form of land ownership based on rent-seeking and indirect control of land ownership by foreign investors. It has also generated short-term remedies through direct subsidies to producers of commodities, which have seen the price of their crops fall until these have become unviable or unsustainable. The result has been an agricultural restructuring which focuses on the more profitable vegetable crops and the use of newer and more modern technology favored by the great international corporations which now control seed and fresh produce production. In this sense, and under the current scenario, a national debate to reopen negotiation of some of the treaty clauses that have affected agricultural productivity and exacerbated the inequalities between the three countries -like what was proposed the years following the signing of NAFTA should at least motivate a profound analysis of the programs and policies applied by the State in relation to the agricultural sector, the promotion and implementation of innovative initiatives that allow for a gradual reduction of foreign food dependence and greater food security.

Certainly, the above implies a heroic task since the problems of national food production, today more than ever, are related to others of global food security which go beyond production and technical issues and overlap with other economic, social, political, cultural and environmental issues that affect the food supply of all Mexicans. This means that agricultural and food production problems are the result of various, multiple, complex and interactive dynamics that should be addressed with a more coherent and integrated vision. Fox example,

considering nutritional values and food security issues as well as macroeconomic and foreign trade policies geared towards improved control of the food that is consumed.

On the other hand, the organizations that are responsible for drafting and implementing guarantees establishing a more level playing field among the parties to the treaty seem to have stepped aside, become absent, or have shown very little interest in the enforcement of trade laws. Even within the WTO one can witness elitist undertakings that come to light when one sees the great disparity in agricultural subsidies that exists among NAFTA members. While several sectors in the US see NAFTA as a success, as reflected in the enormous quantities of products that are exported to Mexico and the great amounts allocated to support its producers, basically the US and NAFTA operate in such a manner mostly benefits the United States, thus making NAFTA an elitist project which has strayed from the initial purpose of seeking mutual benefits, a better standard of living and the abatement of poverty.

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