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STRUCTURAL DEVELOPMENTS IN THE MEXICAN LIVESTOCK SUBSECTOR: THE CASE OF FEEDER CATTLE AND BEEF PRODUCTION

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INTRODUCTION

The purpose of this paper is to give an overview of the recent evolution of the Mexican Livestock Subsector, with special emphasis on feeder cattle, and to consider the internal and external factors that have been changing the scope and perspectives of producers. We also stress the interrelations between trade flows of grains and feeder cattle/meat from/to the United States and Canada. First, we briefly describe the general evolution of the Mexican Agricultural Sector, considering recent trends and changes that affect its development. In the next sections we analyze the characteristics of the supply and demand of live cattle/beef. Next, we analyze several foreign trade issues, including imports/exports from the North American Free Trade Agreement (NAFTA) region as well as the behavior of direct foreign investment in the sector, and identify the main problems affecting the development of this important subsector.

A BRIEF OVERVIEW OF THE MEXICAN AGRICULTURAL SECTOR

Since the signing of NAFTA, many people have argued about the asymmetric conditions of Mexican Agriculture compared to the U.S. and Canadian agriculture. This is something that we should bear in mind in order to understand the situation of our producers. Mexico is a country of about 1.95 million square kilometers, which is roughly half of the size of the United States. Almost 195.8 million hectares are dedicated to some agricultural and forestry activity. Eighteen percent of this surface is dedicated to crops, 41 percent to livestock raising and 41 percent to forestry. We have a total population of 93 million people, of which 40 percent lives in rural areas.

Agriculture is a major element of the Mexican economy. According to the 1990 census, about 22 percent of the total work force is working in rural areas (around 5 million people, without considering families). But agricultural Gross Domestic Product (GDP) represents around 7 percent of total Gross Domestic Product (GDP). These figures indicate an acute problem of income distribution of rural areas versus urban areas.

This income distribution problem is also present among different kinds of rural producers. For example, about 60 percent of all producers are growing crops on farms which are from less than 1 to 5 hectares, with yields below the national average. In the case of the livestock subsector, about 82 percent of the total raising facilities account for only 28 percent of the total herd, with an average of less than 50 head per ranch. This is an indicator that many of our producers are producing for personal-consumption or for very small local markets, with little responses to international market signals, coexisting with a highly dynamic market oriented exporting sector which is worth about 5 billion dollars a year.

The dynamic behavior of some areas in Mexican agriculture and agrifood industries is reflected in the agricultural trade balance. Trade in agriculture and agrifood sector represents more than 50 percent of total agricultural GDP. Even though Mexico is still a net grain importer (about 50 percent of the total agricultural import value comes from maize, sorghum, wheat, soybeans and other oilseeds), it is becoming an important importer of processed foods. With respect to exports, we are concentrating our activity on those commodities in which we have comparative and competitive advantage, like coffee, tomatoes, fresh fruits and vegetables as well as live cattle, with an approximate value of 3 billion dollars.

With respect to the institutional and legal environment of Mexican agriculture, in the last decade, the Mexican economy has undergone a tremendous process of adjustment and reform, in order to provide economic actors with a stable, long term, decision making framework. On one hand, changes in the legal framework, such as reform to the Agrarian Law, or Article 27th of our Constitution, or Laws referring to Norms and Quality Standards, or those related to auxiliary banking activities, just to mention a few, combined with the agreements concerning foreign trade, that is, regulations concerning NAFTA and World Trade Organization (WTO), have provided economic factors with a long term decision making framework. On the other hand, the economic environment has been affected by the privatization of banks, telecommunications, public warehouses, ports and other state-owned enterprises.

Of special interest are the reforms to the land tenure system in Mexico, comprised in article 27 of our Constitution. There are three basic forms of land tenure in Mexico: ejido¹, private, and public (or communal property). Ejido land represents 31.7 percent of total land ownership (about 34.3 million hectares). Private land represents 65.1 percent of the total (about 70.5 million hectares). The remaining 3.2 percent is public and communal land (about 3.5 million hectares).

¹ Ejido is a communal ownership system.

In 1992, Article 27 of the Constitution and the Agrarian law was reformed (see Table 1). This reform allows increased private land ownership and a greater degree of certainty in property. The reform makes it possible for ejido farmers (those jointly owning common lands) under certain conditions to own, sell, rent or mortgage their land. It eliminates the legal prohibition against the formation of productive associations with other producers or businesses, while limiting foreign investors to minority participation in ejido capital. To avoid excessive concentration of land ownership and the emergence of large illegal land extensions, limits on maximum property size have been established together with regulations.

In fact, the Mexican producers have been exposed to a very rapid process of opening the economy. For example, in 1986 we entered the General Agreement on Tariffs and Trade (GATT) and unilaterally began our tariff reduction and tariffication policies. In 1992 we signed our first free trade agreement with Chile. In 1994 we signed the NAFTA; in 1995 we had free trade agreements with Bolivia, Colombia, Venezuela and Costa Rica; and a few months ago we closed the negotiations for a free trade agreement with Nicaragua. Right now we are in the middle of negotiations with MERCOSUR and the European Union, and we are continuing the free trade negotiations with Panama, Ecuador, Peru, the Triangle of the North, and of course, we are strong supporters of the Free Trade Agreement of the Americas (FTAA) initiative.

Table 1: Main Changes in Agrarian Law, February 26, 1992

<i>Main Items</i>	<i>Changes in Legislation</i>			
Land Distribution	Declares an end to the land redistribution program and defines property rights for owners.			
Stock Companies	Private corporations may own or rent rural land.			
Foreign Ownership	Up to 49% of series T shares			
Land Limits	Up to 25 times the limits of the small property			
<i>Land Limits</i>	<i>Per Individual</i>		<i>Per Corporation</i>	
<i>Concept</i>	<i>Hectares</i>	<i>Acres</i>	<i>Hectares</i>	<i>Acres</i>
Irrigated land	100	247.1	2,500	6,175.0
Cotton production	150	370.5	3,750	9,262.5
Other Agric. Prod.	300	741.0	7,500	18,525.0
Forestry	800	1,976.0	20,000	49,400.0

Source: SAGAR. 1 ha. (hectares) is equivalent to 2.47 acres

Trade policy is by far one of the main instruments that is changing the shape of the agricultural sector as we know it. In particular, NAFTA is an important driving force towards market orientation. For example, between 1990 and 1996 total trade between Mexico and the United States has increased almost 135 percent, and total trade with Canada has increased almost 290 percent in the same period. If we compare these figures with, for example those for the European Union or Japan, we will see that our trade with them has increased 35 percent and 83 percent respectively during the same years. Agricultural trade between Mexico and the United States, has grown about 60 percent during the same period.

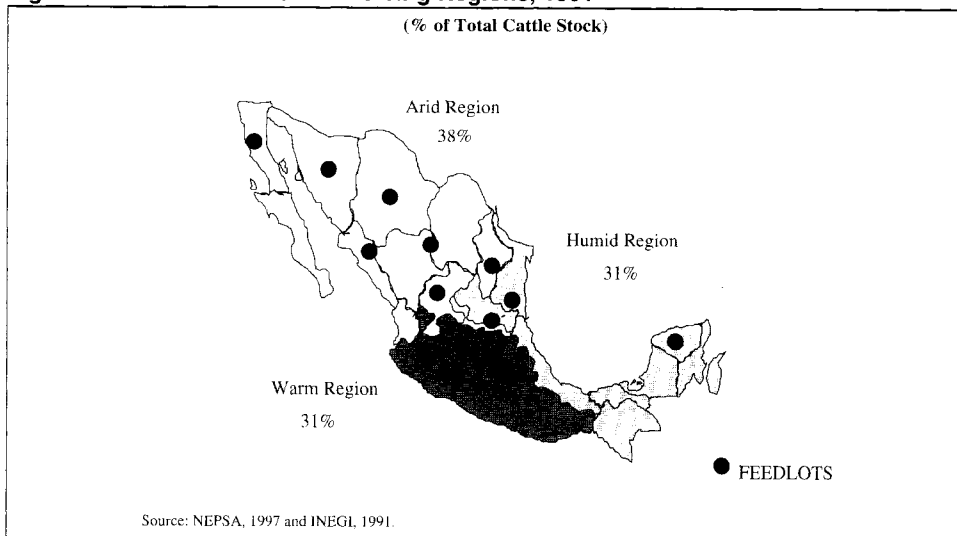
The rapid expansion of our agricultural trade is changing the vision of producers and agri-food processors. Free trade and globalization imply the substitution of tariffs with norms, standards and new regulations that impact efficiency, quality and price of our agricultural goods. Mexican producers and agribusiness all around the country are creating new alliances that tend to integrate production, processing, marketing and distribution of agricultural goods, in order to successfully confront the new market requirements. Good examples of this new trend are the poultry, avocado and tomato industries.

THE MEXICAN LIVESTOCK SECTOR: THE SUPPLY SIDE

According to the 1991 Agricultural Census, about 38 percent of the cattle herd are in the North and Northwest states of Mexico, on arid lands. This is the same region in which most of the feedlots are concentrated, too. Nevertheless, with the comparative advantages of grazing, 62 percent of the herd is concentrated in the humid and warm regions of the country; 59.6 percent of all cattle is raised on rangeland; 16.5 percent in feedlots and the rest, 23.9 percent, in a combination of both (see Figure 1).

The main cattle and beef producers in our country are the states of Jalisco and Michoacán in the warm region, Veracruz, Chiapas, Tabasco and Tamaulipas in the humid region, and Chihuahua, Sonora, and Durango in the arid region. All these states account for about 60 percent of total production (see Table 2).

Figure 1: Mexico—Main Cattle Raising Regions, 1991



In terms of cost of production, currently feedlots are less profitable vis-à-vis pasture because of the cost of grains and the competitive advantages of the American feedlots in the border zones. Nevertheless, in the long run feedlots are more profitable because of their higher capital recycling, thanks to the possibility of obtaining more animals in less time. According to the National Feeders Association, by the beginning of 1997 the installed capacity of feedlots in Mexico was 1.2 million animals per month, but only 39 percent was in use (about 465 thousand animals). Some feedlots in Jalisco and in the north of Veracruz, Tabasco and Chiapas are using a combination of both systems, with outcomes very similar to American standards, using a combination of 30 months in prairies and two to six months in feedlots. Access to imported grains and other inputs at world market prices is one of the crucial issues for the competitiveness of feedlots.

According to INEGI, 1995 (see reference section), about 54.8 percent of total beef production comes from small private properties, 40.8 percent in ejidos, and 4.4 percent in other kinds of land tenures. As we said before, about 82 percent of the total raising facilities account for 28 percent of stock, with an average of less than 50 head per ranch. Sixteen percent of the production units have between 50 and 500 head.

In the last five years, the Mexican Livestock Subsector has been facing changes that affect its development. On one hand, severe droughts in the northern states of Mexico have caused the cattle herd to decrease since 1994. From a maximum of 31.6 million head in 1994, there were 29.3 million head left in 1996, which represents a 7.1 percent decrease in three years, with effects varying from region to region (see Table 2).

Table 2: Mexican Beef Cattle Herd, 1993-1996

<i>STATE</i>	<i>1993</i>	<i>1994</i>	<i>1995</i>	<i>1996</i>	<i>% CHANGE 1993-96</i>
	<i>Thousand Head</i>				
ARID REGION					
Baja California	118.1	123.4	159.3	165.7	40.3
Baja California Sur	125.2	131.2	133.7	131.2	4.8
Coahuila	559.2	576.8	568.1	404.9	-27.6
Chihuahua	1,892.1	1,990.9	1,783.1	917.9	-51.5
Durango	1,175.1	1,165.4	1,171.8	1,143.3	-2.7
Nayarit	630.1	582.6	573.1	573.9	-8.9
Nuevo León	561.0	555.4	555.5	459.9	-18.0
Sinaloa	1,583.0	1,613.1	1,627.6	1,586.3	0.2
Sonora	1,627.6	1,682.0	1,683.5	1,666.4	2.4
Zacatecas	1,072.4	1,068.5	1,074.9	1,058.3	-1.3
SUBTOTAL	9,343.8	9,489.3	9,330.6	8,107.8	-13.2
WARM REGION					
Aguascalientes	84.7	82.0	81.5	61.5	-27.4
Colima	221.6	231.1	240.9	251.2	13.4
Distrito Federal	5.2	6.2	5.1	5.2	0.0
Guanajuato	650.2	635.6	629.0	610.1	-6.2
Guerrero	1,177.5	1,182.0	1,185.5	1,189.1	1.0
Hidalgo	381.6	397.3	401.3	385.8	1.1
Jalisco	2,404.5	2,555.7	2,593.6	2,577.9	7.2
México	410.1	426.9	434.2	338.8	-17.4
Michoacán	1,480.0	1,551.2	1,541.5	1,542.5	4.2
Morelos	99.3	100.3	98.6	92.7	-6.6
Oaxaca	1,548.2	1,493.4	1,506.8	1,515.9	-2.1
Puebla	455.5	463.2	471.1	478.1	5.0
Querétaro	166.4	166.4	169.7	166.4	0.0
Tlaxcala	18.0	18.5	21.6	27.6	53.3
SUBTOTAL	9,102.7	9,309.8	9,380.4	9,242.8	1.5
HUMID REGION					
Campeche	475.9	523.4	546.7	594.1	24.8
Chiapas	2,933.3	2,933.3	2,911.3	2,864.1	-2.4
Quintana Roo	105.0	113.5	90.7	90.7	-13.6
San Luis Potosí	767.4	770.4	753.0	637.2	-17.0
Tabasco	1,720.8	1,719.5	1,782.8	1,735.7	0.9
Tamaulipas	1,076.2	1,107.4	1,122.2	919.0	-14.6
Veracruz	4,766.0	4,715.0	4,762.2	4,432.1	-7.0
Yucatán	844.6	871.4	857.5	677.9	-19.7
SUBTOTAL	12,689.2	12,753.9	12,826.4		
TOTAL	31,135.7	31,553.0	31,537.4	29,301.4	-5.9

Source: Centro de Estadística Agropecuaria, SAGAR.

On the other hand, changes in the marketing environment of meat, caused by the opening of the economy and the change in the productive structure of the meats markets have changed the perspectives and the short run incentives of producers. Imports of boneless meats, sometimes under conditions that may suggest unfair trade practices, tend to displace the marketing of Mexican beef in some domestic

markets. This is combined with the fact that the production of beef has been increasing in 1994 and 1995, as a result of the slaughtering of a significant part of the cattle herd.

Beef production in Mexico increased 26.8 percent between 1990 and 1995. Especially, in 1994 and 1995 beef production grew 8.6 percent and 3.5 percent respectively. In 1996, beef production fell in almost 6.0 percent (see Table 3).

Table 3: Beef Production in Mexico, 1990-1997

Year /Product	1990	1991	1992	1993	1994	1995	1996	1997
	<i>Tons</i>							
Beef (Tons)	1,113,919	1,188,687	1,247,195	1,256,478	1,364,711	1,412,336	1,329,947	1,340,071
% Change	-----	6.7%	4.9%	0.7%	8.6%	3.5%	-5.8%	0.8%

Source: SAGAR, Centro de Estadística Agropecuaria.

As mentioned above, the growth in beef production observed in 1994-95 combined with an increase in total cattle exports resulted in a sharp decline in the cattle herd. Nevertheless, the share of beef in the total meat production has decreased, from 51 percent in 1970, to 35.4 percent in 1997 (see Table 4). This situation reflects the substitution of beef for cheaper animal protein, mainly because of the change in relative prices of these products.

Table 4: Shares of Meat Production in Mexico, 1970 and 1997

<i>SPECIES</i>	<i>1970</i>	<i>1997</i>
	<i>%</i>	<i>%</i>
Beef	51.0	35.4
Pork	28.0	24.8
Poultry	17.0	38.1
Goat & Sheep	4.0	1.7

Source: SAGAR, Centro de Estadística Agropecuaria.

The livestock producer has been long exposed to market competition, with a very low producer subsidy equivalent (PSE) level, and low compared to the ones observed for most years in the United States and Canada according to the Organisation for Economic Co-operation and Development (OECD). Even though the methodology for calculating PSEs for beef is questionable, it is obvious that our livestock, and specially beef, industries have not been protected (see Table 5).

Table 5: Producer Subsidy Equivalents for Beef and Veal (Percentage)

	<i>1989-1991</i>	<i>1993-1995</i>	<i>1994</i>	<i>1995p</i>	<i>1996e</i>
Mexico	10	3	14	-23	-1
U.S.A.	7	6	4	5	5
Canada	20	16	14	14	13

Source: OECD, 1997.

In fact, the protection for the beef and veal industries have been substantially less than the protection given to other segments of the livestock subsector (see Table 6).

Table 6: Producer Subsidy Equivalents for Livestock Products (Percentage)

	<i>1989-1991</i>	<i>1993-1995</i>	<i>1994</i>	<i>1995p</i>	<i>1996e</i>
Mexico	21	16	29	-10	8
U.S.A.	24	17	18	14	16
Canada	40	33	33	30	29

Source: OECD, 1997.

In 1995 and 1996 the Secretariat of Agriculture began to reverse this negative support trend, and implemented the *Alianza para el Campo* (Alliance for Agriculture) program. *Alianza* is a set of strategies aimed to increase the competitiveness of agricultural producers all around the country, including the livestock producers.

Alianza para el Campo is the first step toward the goal of improving welfare of the rural sector. This support scheme is based on the concept that it is the producer, and not the government, who has to take the decision of where to allocate budget resources in rural areas. Therefore, the *Alianza* budget is allocated in all states depending on the demands, targets and strategies that are designed at the state level, with the participation of producers and local authorities. The Federal Government fixes general criteria, evaluates and supervises the use and impact of resources, but the specific resource allocation in all projects is a decision taken at the sub-national level. This is a process that we call federalization. Budget allocation also depends on the willingness of state governments and producers to participate with their own resources in the selected programs. For every peso that the State Government and the producer provide, the Federal Government will provide another peso, generating a tripartite system of shared responsibility.

Within *Alianza* we have programs associated with the production of specific commodities (maize and dry beans seed exchange, milk, coffee, oilseeds and rubber), while others are of a more general nature (animal and plant health, genetic improvement, rural training and extension, women in rural development, marketing promotion). Specifically, in the case of livestock we have the following programs:

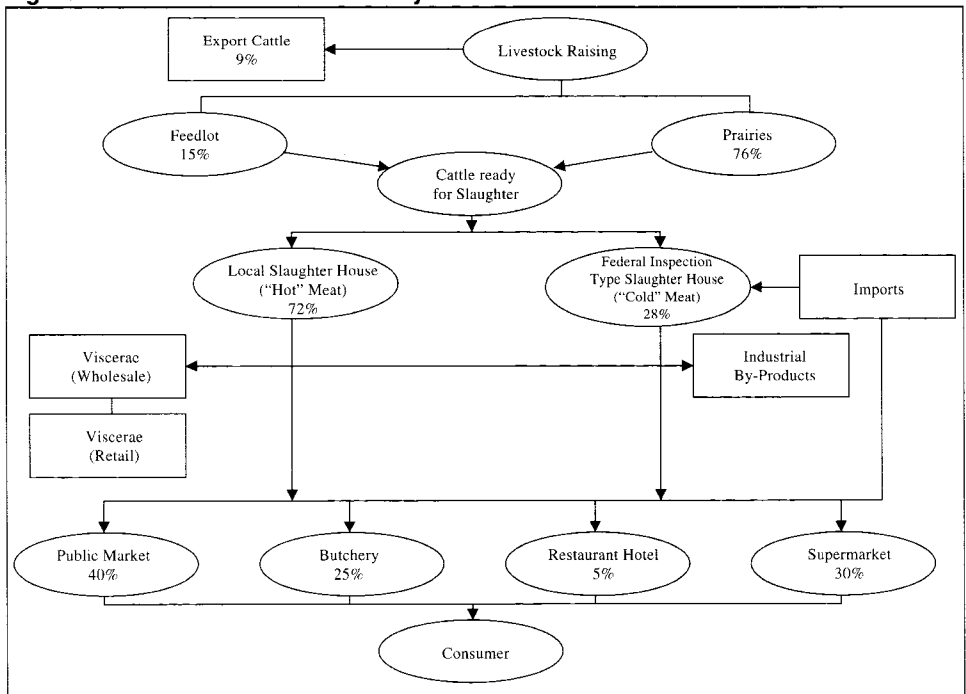
- **Better Livestock:** aimed at increasing the production of meat and milk per animal unit, through the acquisition of national, high genetic quality breeding animals. It also aims to increase the cattle herd by supporting the acquisition of national heifers.
- **Repopulation of Cattle Stocks:** aimed at promoting the recovery of cattle raising by importing heifers, breeding animals, semen and cryogenic thermic units. Support varies between 15 percent and 25 percent of the cost of heifers and breeding animals; and 50 percent in the acquisition of semen and cryogenic thermic units.

- **Prairies:** aimed at rehabilitating already existing prairie lands, creating new ones, increasing the technological level of livestock production units and limiting the expansion of rangeland into environmentally sensitive areas. The program supports 50 percent of all purchases of seeds, fences and basic infrastructure material, with a maximum payment of about \$10,000 US dollars per farm.
- **Infrastructure for fences:** aimed at improving the management practices for forage and feed. Government support is about 50 percent of total investment.

Market Structure

We see from Figure 2 that there is little integration along the livestock marketing chain. The fragmentation of producers and its small scale operation favors this situation. On average, about 76 percent of Mexican cattle are fed grass, and the rest grain.

Figure 2: Livestock and Meat Industry in Mexico



Source: NEP, Comercialización de la Carne de Bovino en México. July 1997.

In Mexico the production of beef usually involves several stages and actors. Private traders (acopiadores) buy cattle from producers and resell them to the feedlots (engordadores). After a period that varies between 6 months (grain fed) to

2 years (grass-fed) fattening, the steers are sold to intermediaries or middlemen (introductores) who resell them to slaughterhouses. Vertical integration between producers and slaughterhouses is a process that is just emerging, and is complicated by the extreme dispersion of producers. Vertical integration is more common in the case of pork production, where almost 30 percent of pigmeat production is vertically integrated and another 30 percent of production comes from producer's associations.²

In the case of slaughterhouses, all of them are subject to health inspections through the Secretariat of Health. Slaughterhouses that meet federally approved standards for inspection (or Federal Inspection Type Plants; TIF) have high sanitary standards and advanced technological processing levels. SAGAR (the Secretariat of Agriculture), Livestock and Rural Development Branch is in charge of inspecting and certifying the general conditions of the TIFs. SAGAR has accredited about 199 TIF slaughter plants, but these account for less than 10 percent of all slaughterhouses in Mexico, and 28 percent of total slaughter in the country.

About 25 percent of all 199 TIF plants are dedicated to beef, and the rest are dedicated to poultry and pork. In 1991 the Government began with the privatization process of TIF plants, and almost 40 percent of these plants are currently owned and operated by regional livestock producers' associations and feeders. The rest are in hands of other private producers that are not integrated with livestock raisers or feeders.

In the case of municipal, or local privately owned and operated slaughterhouses, its technical and sanitary conditions tend to be poor. Under the 1994 Law on Animal Health, all slaughter and meat processing plants built in Mexico are now required to be TIF plants.

We must mention the case of Ferreria, the biggest slaughterhouse in the country, that along with IDA, a state-owned enterprise, used to control the supply of carcasses to Mexico City. In 1989, about 80 percent of Mexico City carcasses were supplied by IDA. Until 1992, IDA imported live cattle and controlled beef and veal supply to Mexico City through Ferreria, and IDA passed on to middlemen (introductores) the price it received from sales. In 1993 IDA was privatized and livestock producers were subsequently provided with investment capital by the Government to build new slaughterhouses. Today, IDA is in the hands of the National Confederation of Livestock Producers (Confederación Nacional Ganadera, CNG). Since 1991 Ferreria stopped its slaughterhouse activities but continued as one of the biggest meat marketing facilities in Mexico.

One of the main reasons producers do not want to use TIF plants is the cost of slaughter, about 30-40 percent higher than the one of municipal slaughterhouses. According to Foreign Investment Review Agency (FIRA) and NEPSA, only around 40 percent of the total capacity of TIF plants is in use. Most of the meat is directly

² See OECD (1997b).

distributed as "hot" meat to small butcheries and public markets. About 25 percent goes to supermarkets. Modernization of the slaughtering and marketing of meat has been one of the main concerns of the Mexican Government.

MEXICAN LIVESTOCK SECTOR: THE DEMAND SIDE

Beef and other meat products are highly elastic in terms of price and income. In fact, price is the most important factor that influences the shopping decisions of Mexican housewives. For each 1 percent increase in income, or a 1 percent decrease in price, meat and dairy products demand increase their purchase by 1 percent and 2.4 percent respectively (see Table 7).

Beef is perhaps the most affected product by changes in price, and this may help explain why the consumer has been switching from beef to other animal protein sources. The retail prices of beef in relation to pork, poultry and egg has been increasing in the last year (1997), which explains the switching to other products.

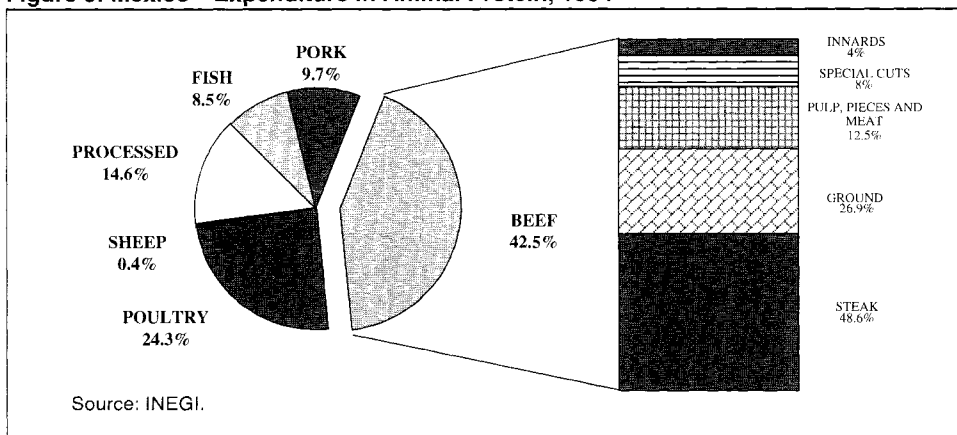
Table 7: Income and Price Elasticities of Demand for Processed Foods in Mexico

	<i>INCOME ELASTICITY</i>	<i>PRICE ELASTICITY</i>
Meat and Dairy Products	0.99962	-2.350
Canned Fruits and Vegetables	1.00000	-0.998
Wheat Flour Products	0.99966	-0.996
Corn Flour Products	0.99913	-0.713
Oils and Fats	0.99977	-0.999
Other Food Products	1.00046	-0.992
Alcoholic Beverages	1.00000	-0.989
Beer	1.00022	-0.998
Refreshments and Sodas	1.00022	-1.004
Tobacco and its Products	1.00065	-0.994

Source: BANAMEX, 1992.

According to the National Survey of Income-Expenditure 1994, in Mexico family expenditure dedicated to beef is the highest of all animal protein sources (42.5 percent). More than 60 percent of Mexican families eat beef two days a week as an average, but its consumption is more frequent in higher income strata³ (see Figure 3).

³ See ENURBAL (1995).

Figure 3: Mexico—Expenditure in Animal Protein, 1994

Mexican consumers prefer steak, 22 percent in American type cuts, and 78 percent in Spanish type (very lean) cuts. The preference for Spanish cuts is very common in the central and southern states of the country, while the American cuts are preferred in the northern states of Mexico.

Per capita beef consumption has been increasing in the last decades, from 9.1 kilograms/ year in 1970 to 11.4 kilograms/year in 1996 (25.3 percent). About 85 to 90 percent of total per capita consumption comes from domestic sources and the rest is imported, mainly from the United States (see Table 8).

Table 8: Mexico—Apparent Consumption of Beef (Tons)

	1970	1988	1989	1990	1991	1992	1993	1994	1995	1996
	<i>Tons</i>									
Slaughter	436,622	666,182	677,268	667,567	721,071	753,200	837,681	848,943	966,810	925,199
Municipal	327,496	581,953	560,450	584,214	621,393	603,408	626,323	627,926	670,319	662,203
TIF	109,126	84,229	116,818	83,353	99,678	149,792	211,358	221,017	296,491	262,996
Imports	----	54,701	64,293	142,473	205,694	228,559	152,921	192,600	60,238	138,604
Apparent Consumption	436,622	720,883	741,552	810,040	926,765	981,759	990,602	1,041,543	1,027,048	1,063,803
Population (000s)	48,225	77,462	79,280	81,141	83,045	84,994	86,989	89,031	91,120	93,258
Per Capita Consumption (kg)	9.1	9.3	9.4	10.0	11.2	11.6	11.4	11.7	11.3	11.4
Domestic production	9.1	8.6	8.5	8.2	8.7	8.9	9.6	9.5	10.6	9.9
Imports	0.0	0.7	0.8	1.8	2.5	2.7	1.8	2.2	0.7	1.5

Source: NEPSA

Mexican urban consumers prefer “hot”, non frozen meat, as a synonym of freshness. The problem is that most of this meat comes from slaughterhouses with no or little sanitary control. In fact, this kind of facility is prohibited by law, but the authorities have not been able to close and substitute municipal slaughterhouses for TIF plants.

Even though most of the meat imports affect and compete in supermarkets and restaurants, they have become an important price reference for other segments. Most of the meat imports coming from the United States consist of frozen, boneless meats from where the Spanish cut can be obtained. The Mexican market has become a price taker, following American reference prices for imports. This situation creates a problem for the Mexican market, since most of our meat imports consist of non classified remainders of the American market (offal, low quality cuts and other pieces not usually consumed by the American consumer). This allows imports to be sold at low prices in the Mexican market competing with Mexican meat under unequal conditions. In fact, the internal price adjustment depends not on domestic inflation, but rather on the price of imports and the exchange rate. This is why in 1994-95, the National Livestock Producers' Federation (CNG) initiated a dumping case against Mexican imports of meat from the United States (see Table 9).

In April 1996, the National Livestock Producers' Federation (CNG) agreed to drop the antidumping case against beef imports from the United States. It was agreed that CNG and the U.S. National Cattlemen's Association would exchange information and develop a program to promote the repopulation of the cattle herds in Mexico.

INTERNATIONAL TRADE ISSUES

In 1994, with the signing of NAFTA, trade of cattle and beef and veal was liberalized with both the United States and Canada. Under the Uruguay Round Agreement (URA), imports of live cattle, beef and veal are subject to a 50 percent tariff. Nevertheless, since 1994 rates of 15 percent for live cattle, 20 percent for fresh beef and 25 percent for frozen beef, have been applying on a Most Favored Nation Basis. For offal, the NAFTA import tariff of 20 percent will be removed by year 2003, and the 25 percent base import tariff for frozen beef set under the URA will be reduced by 10 percent by 2004, but the rate of 20 percent for fresh beef will continue to apply on a Most Favored Nation basis.

Table 9: Tariff Phase-Out Schemes for Cattle and Beef under NAFTA

	<i>Description</i>	<i>Base</i>	<i>Tariff Phase Out</i>	
			<i>USA</i>	<i>Canada</i>
Live Animals				
0102.10.01	Pure Race Breeders	Exempt	D	D
0102.90.02	With pedigree	Exempt	D	D
0102.90.03	Bovines for slaughter, when imported by IDA	Exempt	D	D
0102.90.99	The rest	Exempt	D	D
Fresh or Frozen Meat				
0201.10.01	Carcass or half carcass	Exempt	D	D
0201.20.99	Cuts with bone	Exempt	D	D
0201.30.01	Boneless	Exempt	D	D
Frozen Meat				
0202.10.01	Carcass or half carcass	Exempt	D	D
0202.20.99	Cuts with bone	Exempt	D	D
0202.30.01	Boneless	Exempt	D	D
Edible Leftovers				
0206.10.01	Fresh or refrigerated	20	C	C
0206.21.01	Frozen tongues	20	C	C
0206.22.01	Frozen livers	20	C	C
0206.29.99	The rest	20	C	C
Processed Meats				
0210.20.01	Meat	10	C	C
0210.90.01	Innards or bovine lips, salted	10	C	C
1602.50.01	Innards or bovine lips, cooked, hermetically packed.	20	C	C

Source: Suárez Domínguez and López Tirado (1997). C stands for a linear phase out in ten years beginning on January 1, 1994, which means that the product will be tariff free by January 1, 2003. D means that the product was already tariff free at the moment of negotiations.

Under NAFTA, the United States and Canada removed the import tariffs applied on live Mexican cattle. Meat exports from Mexico are exempted from both the Canadian Meat Import Act and the U.S. Meat Import Law. The main barrier to Mexican exports to the United States has been the sanitary standards related to bovine tuberculosis, and inspection standards for Canada. Exports to both countries have been limited to the 12 states that are free of cattle ticks.

NAFTA has enhanced the chances of the livestock and feeder cattle industries for accessing grains and inputs at international prices, improved the market access opportunities for all participants, improved the investment environment in the sector and implemented trade dispute settlement mechanisms. But it has also made evident some of the problems faced by the industry that must be corrected in order to improve our competitiveness.

One problem that we face in Mexico, that became quite evident with the opening of the economy, is the lack of a consistent norms and standards system, as well as certification schemes. All norms and standards that have been implemented refer to obligatory conditions affecting human health. For example, we have 25 Mexican Official Standards that regulate aspects related to control of bovine tuberculosis, meat verification procedures, analysis of toxic residuals, construction and characteristics of TIF slaughterhouses, industrialization of meat products among others.

But we still have a vacuum in the areas of quality (which is considered as an optional standard). Consumer information is another area with problems. With an under-regulated market and the inability to supervise the norms, there is still a great deal of anarchy in the markets. This is a problem because our lack of standards opens the door to imported products that are not certified and might have sanitary problems.

About 96 percent of our total cattle/beef trade is done with the United States. In 1997, 51.4 percent of all import values coming from the United States were boneless bovine meats, fresh or frozen, followed by cattle for slaughter (22.8 percent) and boneless meat (6.7 percent). It should be noted that due to the severe decrease in the Mexican cattle herd, in 1997, the imports of breeding animals, milk cows and other high quality animals increased 191.3 percent, 201.4 percent and 136.8 percent, respectively. Nevertheless, these goods have a share of 9.3 percent in total cattle and beef imports. One of the main reasons why Mexican producers have not been able to import more live cattle is the difficult conditions imposed by the Mexican banks in order to access to EEP, EDP and other CCC programs (see Table 10).

Because of the difficult conditions that cattle raisers have faced in the last years, most of them are classified as high risk clients by the commercial banks, thus increasing the level of guarantees required to access to import credits. This is why in fiscal years '95-96 and '96-97, 125 million dollars per year were allocated in credits for buying cattle under the CCC's GSM-103 program. In these two years, only 5 million dollars were used. For 97-98 fiscal year there 100 million dollars allocated for this purpose.

Table 10: Mexican Cattle/Meat Imports from United States, 1990-97

Harmonized System Code	Description	1990	1991	1992	1993	1994	1995	1996	1997
Thousands of US Dollars									
01021001	Pure race breeders	13,086.7	24,714.4	23,050.8	18,694.7	24,574.8	9,702.9	11,052.8	32,197.1
01029001	Milk cows	40,051.5	33,663.7	28,259.6	20,710.4	25,144.2	4,877.4	5,176.9	15,604.9
01029002	With pedigree or with a high register certificate, except what is comprised in fraction 0102.90.01.	1,954.8	3,211.8	3,574.4	740.9	385.0	78.5	79.8	189.0
01029003	Bovines for slaughter, when imported by industrial De Abastos	48.6	162.6	213.6	0.0	0.9	0.0	445.3	0.0
01029099	The rest	4,878.6	96,210.6	112,740.0	31,326.1	63,309.1	3,688.6	61,803.3	117,684.9
02011001	Carcass or half carcass, fresh or frozen	25,624.8	53,297.1	29,990.1	9,542.1	8,961.9	517.2	3,961.9	9,509.1
02012099	The rest of the cuts (pieces) with bone fresh or frozen.	24,634.1	58,382.0	50,205.1	25,709.6	33,803.7	8,072.1	18,030.9	33,543.8
02013001	Boneless bovine meat fresh or frozen.	4,994.3	42,277.2	120,018.5	90,532.0	218,476.7	72,015.0	122,167.7	265,194.6
02021001	Bovine meat in carcass or half carcass, frozen.	4,545.8	5,540.4	1,987.6	237.8	654.3	3.0	127.6	48.0
02022099	The rest of the cuts (pieces) with bone.	7,860.9	7,287.3	7,523.3	3,226.4	6,021.3	3,734.4	4,328.5	7,066.1
02023001	Boneless	28,984.8	55,800.0	53,598.1	18,435.9	41,630.4	20,736.2	32,227.2	34,763.5
02102001	Meat of the bovine species.	20.9	28.4	111.9	131.4	148.2	14.7	6.4	27.2
02109001	Innards or bovine lips, salted.	91.3	17.4	0.0	1.9	0.0	0.4	0.0	0.0
	TOTAL	156,777.0	380,592.9	431,272.9	219,289.2	423,110.6	123,440.6	259,408.4	515,828.2

Source: SECOFI

It must be noted that after years of steady growth, U.S. beef exports to Mexico fell about 60 percent in value during 1995 and 1996, due to the loss of purchasing power brought about by the devaluation of the Mexican peso. Another important factor was the higher slaughter levels registered in Mexico during these years. Higher slaughter numbers were due to the fact that producers decided to get rid of their cattle herds because of the high prices of grain and the critical weather conditions faced in some northern states of the country. In 1997, the situation was back to normal.

In the case of Canada, our imports consist mainly of Breeders (66.3 percent) and milk cows (21.7 percent) (see Table 11).

Table 11: Mexican Cattle/Meat Imports from Canada, 1990-97

Harmonized System Code	Description	1990	1991	1992	1993	1994	1995	1996	1997
<i>Thousands of US Dollars</i>									
01021001	Pure race breeders.	400.1	3,763.2	4,414.6	3,302.8	6,173.8	549.6	6,352.4	16,071.9
01029001	Milk cows	9,312.7	15,146.4	19,812.4	14,766.7	14,994.4	3,058.6	3,063.5	5,266.1
01029002	With pedigree or with a high register certificate, except what is comprised in fraction 0102.90.01.	289.3	56.6	136.0	151.0	155.2	0.0	0.0	0.0
01029003	Bovines for slaughter, when imported by industrial De Abastos	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01029099	The rest.	2.4	0.0	77.4	119.2	47.3	0.0	108.3	62.5
02011001	Carcass or half carcass.	0.0	131.5	0.0	0.0	0.0	0.0	0.0	0.0
02012099	The rest of the cuts (pieces) with bone.	0.0	0.0	10.7	213.9	91.9	8.3	0.0	14.8
02013001	Boneless	39.8	107.9	621.9	380.4	816.1	633.9	542.0	1,925.0
02021001	Carcass or half carcass.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
02022099	The rest of the cuts (pieces) with bone.	0.0	5.6	1.1	0.0	0.2	9.3	1.5	44.6
02023001	Boneless	289.3	4,177.3	1,475.0	206.6	286.7	781.8	835.0	831.5
02102001	Meat of the bovine species.	0.0	0.0	0.0	34.3	8.0	13.8	3.2	0.0
02109001	Innards, or bovine lips, salted.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL		10,333.6	23,388.6	26,549.2	19,174.8	22,573.6	5,055.3	10,906.0	24,216.3

Source: SECOFI.

With respect to exports, Mexico has traditionally concentrated on live cattle (96 percent of total export values). The United States sells meat and livestock to Mexico, buying mainly feeder cattle. The transportation of meats between Mexico and the United States is done by trucks, because Mexican rail cars are not refrigerated. Most United States exports of meat and cattle go through the Texas border points of Laredo, Hidalgo, El Paso, and Santa Teresa. Live cattle are also trucked into Mexico, although rail is used in some cases. Most of the cattle are hauled to the northern rangelands of Mexico, to privately-owned and operated farms. The trucks are cleaned and then must be inspected by Mexican customs officials. The Mexican Government requires the CNG to handle all transfers of livestock through customs. From Mexico to the United States, inspection by USDA officials is done mostly at the crossing point in Laredo, Texas⁴ (see Table 12).

⁴ See USDA-ERS (1996).

Table 12: Mexican Cattle/Meat Exports to the United States, 1990-97

<i>Harmonized System</i>	<i>Description</i>	<i>1990</i>	<i>1991</i>	<i>1992</i>	<i>1993</i>	<i>1994</i>	<i>1995</i>	<i>1996</i>	<i>1997</i>
<i>Thousands of US Dollars</i>									
010210	Pure race breeders	0.0	0.0	0.0	0.0	0.0	0.0	72.9	308.1
01021001	Pure race breeders	35.6	121.7	293.2	17.5	86.6	243.8	0.0	0.0
01021002	Males with register	10.4	58.8	100.7	29.4	86.1	132.8	0.0	0.0
010290	The rest	91.0	0.0	0.0	0.0	0.0	0.0	127,312.7	197,761.7
01029001	Milk cows	522.5	2,307.1	10,211.4	53,134.5	55,480.0	107,846.3	0.0	0.0
01029002	Other animals of the bovine species	350,754.2	355,774.3	318,063.3	394,755.6	305,683.9	427,443.0	0.0	0.0
01029003	Bovines for slaughter, when imported by industrial De Abastos	62.6	4.0	115.3	95.8	196.4	97.4	0.0	0.0
01029005	Bovine meats with bone	5.2	25.9	0.0	0.0	0.0	0.0	0.0	0.0
01029099	The rest	6.7	14.7	204.8	0.0	0.0	0.0	0.0	0.0
020110	Carcass or half carcass	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
020120	The rest of cuts, with bone	0.0	0.0	0.0	0.0	0.0	0.0	56.2	0.0
02012001	Bobine meat with bone	1.9	0.0	1.3	6.4	52.6	69.1	0.0	0.0
02012002	Bovine meats, cut	101.8	0.0	0.0	2.9	0.0	0.0	0.0	0.0
020130	Bovine meat without bone	0.0	0.0	0.0	0.0	0.0	0.0	2,008.8	1,688.7
02013001	Bovine meat without bone	86.3	51.2	123.4	523.1	1,591.2	1,244.9	0.0	0.0
02013002	Bovine meat, cut	0.0	0.0	22.0	14.9	56.0	0.0	0.0	0.0
020210	Frozen carcass of half carcass	0.0	0.0	0.0	9.5	0.0	0.0	0.0	0.0
020220	The rest of the cuts (pieces) with bone, frozen	0.0	0.0	0.0	0.0	0.0	0.0	44.4	431.3
02022001	The rest of the cuts with bone, frozen	0.0	0.0	6.5	117.8	6.9	61.4	0.0	0.0
02022002	The rest of the cuts, frozen	876.7	0.5	103.9	24.1	0.0	0.7	0.0	0.0
020230	Boneless	0.0	0.0	0.0	0.0	0.0	0.0	7,518.4	6,026.5
02023001	Boneless	3,043.5	3,996.2	3,250.7	2,903.6	2,207.5	4,207.1	0.0	0.0
02023002	Boneless	3,049.8	45.1	23.0	0.0	968.4	154.8	0.0	0.0
	TOTAL	358,648.3	362,399.4	332,519.6	451,635.1	366,415.7	541,501.2	137,013.2	206,216.5

Source: SECOFI.

One of the critical points that determines the competitiveness of the feedlots and cattle raising activities is the access to grains at competitive world prices. The problem is not really the access or the price, since in the last four years the exercised assignments of corn under the NAFTA quota have been below the authorized amounts, as we will see.

Under NAFTA, Mexico granted duty-free minimum access of 2.5 million tons and 1000 tons (to be increased by 3 percent a year) for maize imports from the United States and Canada respectively. Both in 1994 and 1995 the tariff quota was filled. In 1996, due to critical conditions in some northern states of Mexico, the Secretariat of Commerce (SECOFI) authorized a substantial increase in the duty free NAFTA quota. The quota was allocated via prior assignment to starch factories (about 40 percent), the feed sector (33 percent), flour companies (26 percent) and cereal traders (1 percent) in 1994 and via prior assignment (93 percent) and "first come first served" basis (7 percent) in 1995. The purchases of CONASUPO (The National Company of Popular Subsistence) are used to ensure the supply of corn for

the production of tortilla under Government subsidized programs. The base above-quota tariff was set at 215 percent to be reduced by 24 percent by 2000, and then gradually phased out between 2000 and 2008⁵ (see Table 13).

Table 13: Mexican Duty Free Tariff Quota for Corn Under NAFTA. Allowed and Used Assignments by Sector, 1994-96

SECTOR	1994		1995		1996	
	ALLOWED	USED	ALLOWED	USED	ALLOWED	USED
	<i>Tons</i>					
PRIOR ASSIGNMENT	2,562,533	2,276,474	3,204,010	2,405,682	9,532,124	5,909,037
Starch	948,236	918,167	904,714	846,190	1,350,500	1,244,744
Flour	636,776	585,672	361,081	268,225	1,569,616	1,223,555
Cereals	25159	11797	8,000	174	21,000	---
CONASUPO	---	---	65,000	45,000	1,701,300	1,533,057
All Livestock Products	952,362	760,647	1,611,215	1,209,772	3,726,708	1,326,076
Traders	---	---	254,000	36,320	1,163,000	581,605
"FIRST COME FIRST SERVED"	---	---	165,000	184,834	---	---
All Livestock Products	---	---	---	44,765	---	---
Traders	---	---	---	140,068	---	---
TOTAL	2,562,533	2,276,474	3,369,010	2,590,515	9,532,124	5,909,037

Source: SECOFI.

In 1997, livestock and feed producers were allowed to import one million tons of corn, but only used its right to import 514 thousand tons. Feed producers imported 84.2 percent of its total authorized quota, while feedlot owners and poultry producers only imported 58.3 percent and 39.1 percent, respectively. In fact, the total used imports under the NAFTA corn quota were below the total NAFTA corn quota for 1997 (see Table 14).

Table 14: Mexican Duty Free Tariff Quota for Corn Under NAFTA. Allowed and Used Assignments by Sector, 1997

SECTOR	JAN - DEC. 1997	
	ALLOWED a/	USED b/
	<i>Tons</i>	
STARCH	1,696,996	1,646,459
FLOUR	325,000	210,071
CEREALS	85,000	68,410
LIVESTOCK	1,004,767	514,797
Feed Producers	242,335	203,954
National Assoc. of Manufacturers (CANACINTRA)	444,217	175,433
Poultry Producers	247,000	96,488
Feedlot owners	40,800	23,804
National Federation of Livestock Producers (CNG)	3,000	---
Others	27,415	15,117
TOTAL	3,111,763	2,439,737

Note: a/ Considers 114,000 tons allowed until July 31; b/ Includes 45,344 tons allowed until September 30, 1997.

Source: SECOFI.

⁵ See OECD (1997b).

As we can see, the livestock subsector has been granted substantially more access to the corn import quotas than they have used. In fact, in 1997 the import requirements were below the NAFTA quota. That suggests that access to grain is not a problem. In the case of sorghum all tariffs were removed for the United States and Canada, but a 15 percent seasonal tariff is still applied on a Most Favored Nation Basis under the Uruguay Round Agreement.

The real issue seems to be the lack of financial schemes for financing domestic grain inventories. In Mexico, crops tend to be very seasonal, that is, about 70 percent of the grain crops are harvested in very short period of time. In the past, producers used to sell their grains to the state-owned enterprise CONASUPO, but since 1991 free market conditions have applied in Mexico. The problem is that the financial cost for grain inventories in Mexico are extremely high due to the high interest rates, lack of infrastructure and risk management markets. That makes buying domestic grain very expensive. There have been some experiments trying to use external resources (like using the recycling of CCC funds for financing domestic inventories, or implementing commodity inventory financing options with international banks), but they have been unsuccessful, mainly because of the guarantees that Mexican banks are asking from producers.

A recent development in Mexico is that foreign corporations, like Farmland for example, are directly investing in the production of livestock in Mexico. At the same time, they are financing feed projects as well as the direct import of grain for their partners, providing funds at competitive interest rates.

DIRECT FOREIGN INVESTMENT

One of the most important impacts of NAFTA and the reforms to the legal framework of the Mexican agricultural sector is the flow of direct foreign investment to the Mexican countryside. By the end of 1997 there were 152 firms with direct foreign investment directly participating in primary activities. The direct foreign investment in the agrifood sector totaled 2.3 billion dollars in 1997, with a 1994-97 average participation of 18.4 percent in total foreign investment (see Table 15).

Table 15: Direct Foreign Investment in Mexico, 1994-97

SECTOR	1994	1995	1996	1997	Accumulated Investment 1994-1997	% Share
	<i>Million US Dollars</i>					
Agriculture	7.9	8.9	23.2	0.80	40.9	0.1
Food, Beverages and Tobacco	1,761.4	604.6	452.2	2,333.1	5,151.3	18.3
AGRIFOOD SUBTOTAL	1,769.3	613.5	475.4	2,333.8	5,192.1	18.4
Other Sectors	8,411.0	7,049.9	5,646.5	1,873.4	22,980.8	81.6
TOTAL DIRECT FOREIGN INVESTMENT	10,180.3	7,663.4	6,121.9	4,207.3	28,172.9	100.0

Source: SECOFI, Dirección General de Inversión Extranjera. 1997 data updated to August.

Around 65.1 percent of the direct foreign investment in the Mexican Agrifood sector comes from the United States. Canada participates with a 3.3 percent, and non-NAFTA countries with the other 31.6 percent (see Table 16).

Table 16: Country of Origin of Direct Foreign Investment in the Mexican Agri-Food Sector

<i>Country</i>	<i>Firms</i>	<i>% Share</i>
NAFTA Countries	104	68.42
United States	99	65.13
Canada	5	3.29
Non-NAFTA Countries	48	31.58
Spain	7	4.61
Chile	6	3.95
Holland	6	3.95
Germany	5	3.29
Cayman Islands	4	2.63
Other Countries	20	13.15

Source: SECOFI, Dirección General de Inversión Extranjera. 1997 data updated to August.

With respect to specific areas of investment, crops, horticulture and other plants account for 90.7 percent of direct U.S. foreign investment in the agricultural sector, while livestock account for about 9.34 percent of the capital (see Table 17).

Table 17: Direct Foreign Investment from the U.S. in Agriculture and Livestock, 1994-97

<i>ACTIVITY</i>	<i>ACCUMULATED</i>					<i>% SHARE</i>
	<i>1994</i>	<i>1995</i>	<i>1996</i>	<i>1997</i>	<i>1994-97</i>	
	<i>Thousands of US Dollars</i>					
AGRICULTURE	5,720.1	5869.3	22,059.0	264.3	33,912.3	90.66
Vegetable and Flower Growing	2,460.2	3,625.2	19,956.0	9.5	26050.6	69.65
Fruit Trees	1,409.9	1,457.2	2,097.1	0	4,964.2	13.27
Experimental Fields	499.0	718.4	0.2	0	1,217.6	3.26
Other	1,351.0	68.5	5.7	254.8	1,679.9	4.48
LIVESTOCK	1,728.5	1,173.8	513.5	76.6	3,492.4	9.34
Livestock associated to other activities	1,175.8	525.9	502.7	0	2,204.4	5.89
Poultry	490.6	643.5	0	73.4	1,207.5	3.23
Honey	31.2	0	0	0	31.2	0.08
Other	30.9	4.4	10.8	3.2	49.3	0.14
TOTAL	7,448.6	7,043.1	22,572.0	340.9	37,404.7	100

Source: SECOFI. 1997 data updated to August.

Two things must be stressed: there has been a steady decrease in foreign investment in the livestock sector, and direct investment in cattle production is very low.

CONCLUSIONS

Mexico-U.S.-Canada live cattle-beef trade has few tariff barriers and seems to be a good example of specialization based on competitive advantages of the three countries. Mexico's comparative advantage appears to be in the production and export of feeder cattle and the importation of U.S. beef for supermarkets and restaurants.

NAFTA has improved access to grains and inputs, as well as the market access conditions. It has also created a better investment environment and trade dispute settlement mechanisms. But it has also made evident some challenges that we must face in order to improve our competitiveness.

Live cattle production can be improved with larger scales of production. This involves more intense work around the organization of producers and vertical integration around certified slaughterhouses. The Alianza para el Campo Programs are aiming to help producers to reach these objectives.

One of the most critical issues which would improve the competitive position of Mexican beef, is that of Norms, Standards and certification systems, specially in the quality and consumer information sides.

Currently, there are many opportunities for foreign investment in the sector. The opportunities are especially attractive for firms that can provide credit at internationally competitive rates. Producers are still facing problems of accessing competitive credit conditions for importing live animals for replenishing the cattle stocks and for financing the domestic grain stocks at competitive international interest rates.

An important vertical integration point is the TIF plants. TIF plants are the only ones that can ensure quality for consumer and meat exports. Integration of cattle raisers with TIF plants is something that must be considered, but incentives for the use of TIF plants must be implemented.

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