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# Agriculture in a North American Free Trade Agreement

Analysis of Liberalizing Trade  
Between the United States and Mexico





## **Abstract**

This report provides some background information and analysis on the agricultural aspects of a hypothetical North American Free Trade Agreement (NAFTA) in which all barriers to trade are removed. Negotiations toward a NAFTA are important because (1) the United States, Mexico, and Canada are major agricultural trading partners, (2) border protection remains high on some agricultural products, and (3) there is a need for clarity and transparency in trade negotiations. Complete bilateral elimination of Mexican and U.S. border protection for agricultural trade over a transition period would expand agricultural trade of both countries. If recent levels of protection were removed, U.S. agricultural exports to Mexico would expand about one-third, while Mexican agricultural exports to the United States would increase about one-fifth by the end of the NAFTA implementation period. Thus, agricultural trade, which has been about equal between the two countries in recent years, would tend to favor the United States in the trade balance at the end of a transition period.

**Keywords:** Agricultural trade, North American Free Trade Agreement, Mexico, United States.

## **Preface**

Title XV, Section 1551, of the Agriculture, Conservation and Trade Act of 1990 states that "The Secretary of Agriculture shall study the effects on the United States agricultural economy of the creation of a North American free trade area, including the creation of a United States-Mexico free trade area." The analysis in this report was done before negotiations on the North American Free Trade Agreement were completed. The report does not analyze the actual agreement. Any economic analysis or impact estimates of a proposed free trade agreement presented in this report are tentative and should be interpreted with care.

This report builds on the Interim Review provided by the U.S. Department of Agriculture (USDA) to Congress in April 1991 and was written, reviewed, and updated by analysts in the Economic Research Service (ERS) and the Foreign Agricultural Service (FAS) of USDA. It is based on information and data gathered by USDA and by ongoing research being conducted by USDA. The overall negotiations were between the United States, Mexico, and Canada; however, the focus of this report is the effects of an agreement on the United States and Mexico. Special thanks goes to the Agricultural Counselor's office in Mexico City for helping with all aspects of this report.

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## Summary

The United States and Mexico began movement toward the negotiation of a free trade agreement in 1989. Canada joined the discussions in 1991. This report provides some background information and analysis on the agricultural aspects of a North American Free Trade Agreement (NAFTA).

The first few chapters of this report present a description of the basic characteristics of free trade agreements, a summary of overall impacts of a NAFTA, and some economic and agricultural data for the United States and Mexico. This material should provide a general review of the agricultural basis for the negotiations that are currently underway.

Negotiations toward a NAFTA that includes agriculture are important because (1) the United States, Mexico, and Canada are major agricultural trading partners, (2) border protection remains high on some agricultural products, and (3) there is a need for clarity and transparency in trade negotiations.

The bulk of this report is devoted to a commodity-by-commodity description of the factors affecting the impacts of a NAFTA for that commodity. Each section describes the production and consumption background for that commodity. The important economic and agricultural policies are also discussed, along with recent changes and expected adjustments in the near term. A trade profile focuses on trade patterns and the underlying forces affecting trade in North America. Finally, a few remarks are provided about the anticipated effects of more open trade policies between Mexico and the United States. The discussion of anticipated effects of a NAFTA are relatively general and tentative, given that negotiations remain underway.

For commodities with remaining significant trade barriers, reducing these barriers with a NAFTA could significantly increase U.S. exports to and imports from Mexico.

For all potential agricultural exports, a NAFTA will likely help provide for a growing market in Mexico as more open trade and investment policies and more access for Mexican exports improve the performance of the Mexican economy.



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## **Glossary of Mexican Institutions**

AARC	Grower Association of the Culicán River
ALADI	Latin American Association of Development and Integration
ANAGSA	National Agriculture and Livestock Insurance Agency
ANDSA	National Warehouses
BANCOMEXT	Foreign Trade Bank
BANRURAL	National Rural Credit Bank
BORUCONSA	CONASUPO Rural Warehouses
CAADES	Confederation of Agricultural Associations of the State of Sinaloa
CFTA	U.S.-Canadian Free Trade Agreement
CNPH	National Association of Horticultural Producers
CONASUPO	National Commission for Distribution of Basic Food
DICONSA	Retail Affiliate of CONASUPO
FEGA	Trust Fund for Agricultural Insurance and Technical Assistance
FERTIMEX	National Fertilizer Company
FICART	Trust Fund for Credit in Irrigated and Rainfed Areas
FIRA	Agricultural Trust Fund in Bank of Mexico
ICONSA	CONASUPO Industries for Processing of Grains and Oilseeds
IMPECSA	Wholesaler and Small Commerce Promoter Affiliate of CONASUPO
LICONSA	Milk Producing and Distributing Affiliate of CONASUPO
MASECA	Corn Flour Industry
MICONSA	Maize Processing Affiliate of CONASUPO
PECE	Pact for Economic Stability and Growth
PRONASE	National Seed Producer
SARH	Secretariat of Agriculture and Hydraulic Resources
SECOFI	Ministry of Commerce and Industry
SHCP	Ministry of Finance and Public Credit
SPP	Ministry of Planning and Budgeting
TABAMEX	Government Tobacco Industry
TRICONSA	Wheat Processing Affiliate of CONASUPO

# Major agricultural production in Mexico



# **Agriculture in a North American Free Trade Agreement**

## **Analysis of Liberalizing Trade Between the United States and Mexico**

### **Introduction**

During the last decade, Mexico shifted its economic policies toward a more open economy. Mexico's first major step toward a more open economy was its decision to join the General Agreement on Tariffs and Trade (GATT) in 1986. In 1987, the United States and Mexico recognized their close economic ties by negotiating an agreement to govern commercial relations. That agreement was called the "Framework of Principles and Procedures for Consultations Regarding Trade and Investment Relations." An important feature of that agreement was establishing a dispute settlement mechanism. Five working groups--agriculture, industry, investment, tariffs, and services--were set up to review problems.

In 1989, the United States and Mexico deepened their commitment to expand trade and investment by agreeing to a mandate for "Trade and Investment Facilitation Talks" (TIFT's). The mandate specified that the talks would concentrate on problems that arise from the time a product leaves the factory or farm until it reaches the consumer. In March 1990, both governments agreed to negotiate on "standards, regulations, testing and certification."

At their meeting in June 1990, Mexican President Salinas asked President Bush to consider a free trade pact. In September, Canada announced that it would like to participate in a North American Free Trade Agreement (NAFTA) and President Bush notified the House Ways and Means Committee and the Senate Finance Committee of White House intentions to begin negotiations with Mexico. Following additional discussions with Mexico and Canada, the President notified Congress in February 1991 of his intent to open three-country negotiations. Congress began holding hearings in late 1990 and early 1991. Numerous individuals in Congress and other organizations expressed concern about the economic effects of a NAFTA and about such issues as the environment, health and safety, and labor.

After numerous and intense discussions between the administration and Congress, in late May 1991, Congress extended the "Fast Track Authority" to a June 1, 1993, deadline. The three countries began meeting in June 1991 to establish procedures for the negotiations, which are currently underway.



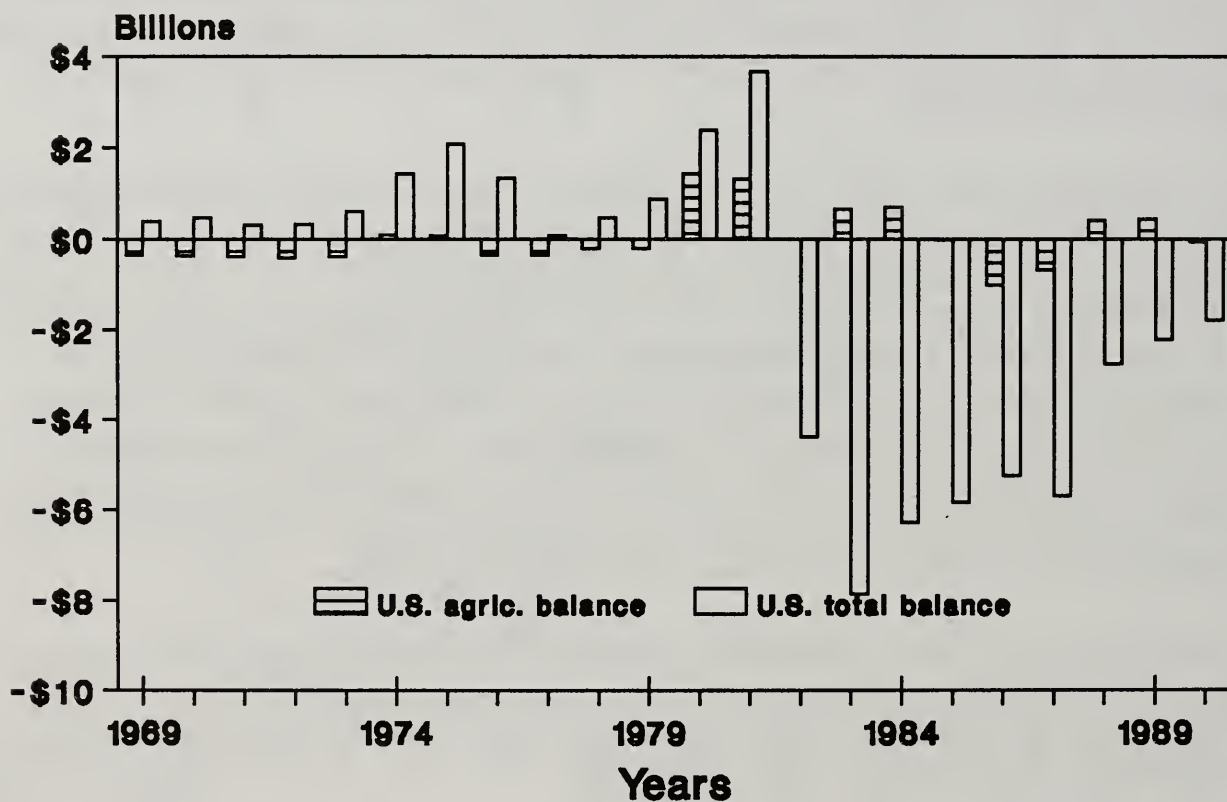
## Trade Patterns

Mexico is our third largest trading partner after Canada and Japan, with bilateral trade of \$59 billion in 1990. U.S. exports to Mexico in 1990 totaled \$29 billion, while U.S. imports from Mexico totaled \$30 billion. Mexico purchases more than two-thirds of its imports from the United States. The total U.S. balance of trade with Mexico has been negative for most of the 1980's, but the agricultural trade balance has been positive (fig. 1). Further, much of the U.S. and Mexican agricultural trade tends to be complementary in the sense that each country exports products that the other country produces in limited quantities.

U.S.-Mexican bilateral farm trade reached a record level of \$5.1 billion in 1990, about \$150 million higher than in 1989 and nearly \$1 billion higher than in 1988. In 1990, Mexico was the fourth largest single market for U.S. farm exports after Japan, Canada, and Korea, and fifth if the European Community (EC) is included as a group. U.S. farm exports to Mexico were valued at a record high of \$2.55 billion in 1990. As a source of products, Mexico was our second largest supplier of agricultural imports after Canada, with total Mexican shipments of a record \$2.6 billion in 1990.

Figure 1

### Trade balance with Mexico 1969-90



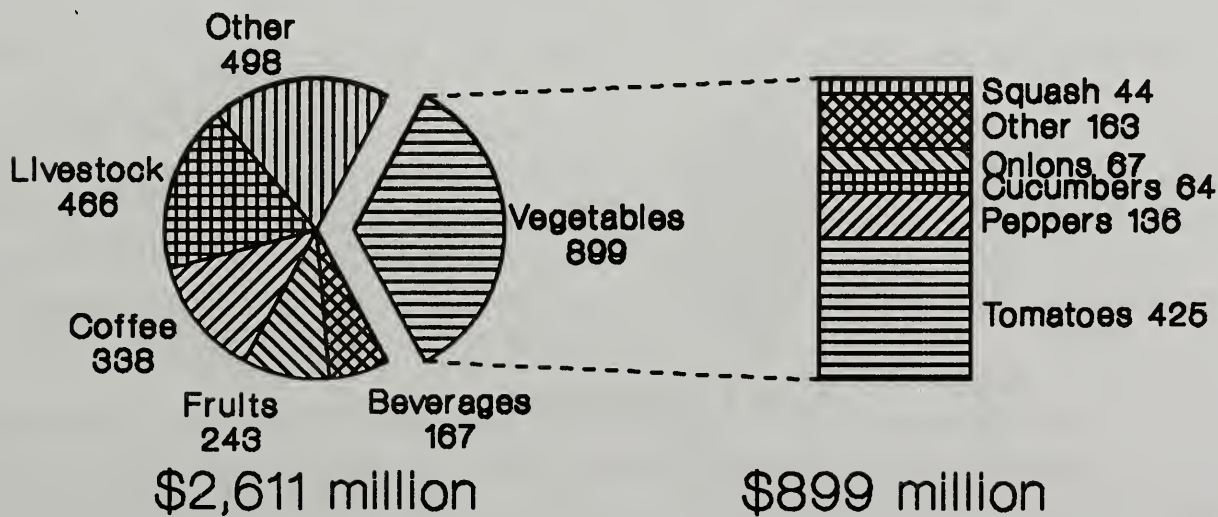
The major agricultural imports from Mexico in 1990 were fresh vegetables, live cattle, coffee, fresh noncitrus fruits, and fresh melons (fig. 2). Many agricultural imports from Mexico are products that are not produced in the United States or produced in only limited amounts (for example, coffee, cocoa, bananas).

U.S. imports of Mexican horticultural products now make up a major part of agricultural imports from Mexico and have grown more rapidly than other agricultural imports from Mexico. Imports of these products rose from \$500-\$600 million in the early 1980's to a record \$1.6 billion in 1989. In recent years, Mexico has also become an important U.S. supplier of processed foods, including tomato paste, and of beverages, such as fruit juices and beer.

U.S. agricultural exports to Mexico varied dramatically during the 1980's, falling from about \$2.5 billion in the early 1980's to \$1.0-\$1.2 billion in 1986-87, before rising to a record level of \$2.7 billion in 1989. The major U.S. agricultural exports to Mexico in 1990 were corn, grain sorghum, soybeans and products, sugar, dried beans, seeds, beef and veal, animal fats and oils, cattle hides, dairy products, poultry meat, live cattle, and wheat (fig. 3). Grains have typically been the largest export items. Exports of dairy, livestock, and poultry products have grown the most rapidly, annually rising from less than \$300 million in 1980 to about \$800 million during the 1988-90 period.

Figure 2

U.S. farm imports from Mexico  
1990





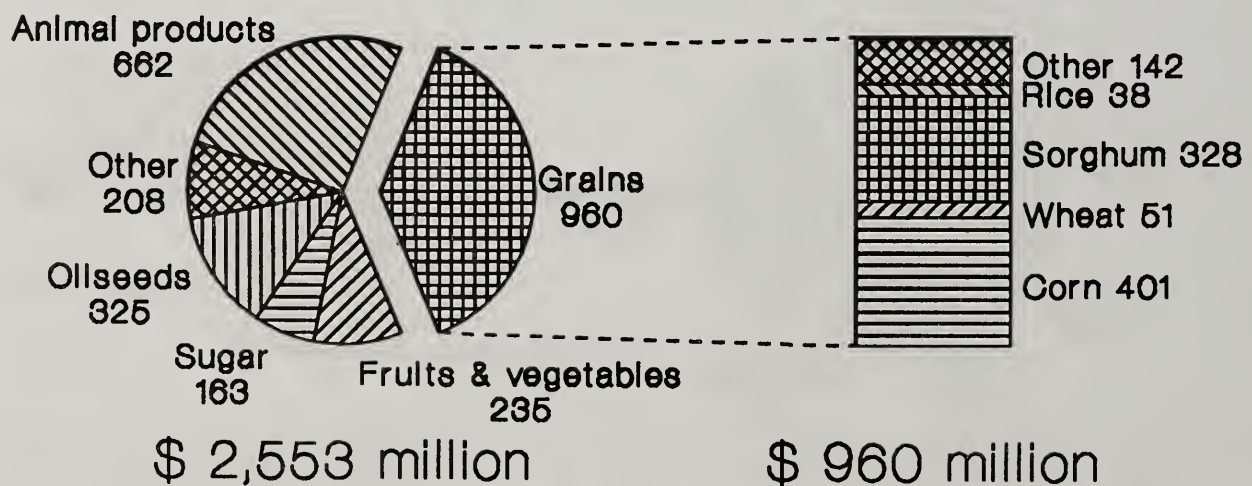
## Levels of Protection

While Mexico has reduced its import licensing requirements, the Government of Mexico has failed to meet its GATT commitment to justify the import restrictions it maintains on various agricultural products of export interest to the United States. Import licensing requirements continue to restrict many U.S. agricultural exports, most notably corn, wheat, poultry, nonfat dry milk, animal fats, and grapes. Import permits also are required for wood and wood products. Although licensing requirements affect less than 6 percent of Mexican tariff categories, these categories, based on 1990 trade, represent approximately one-third of U.S. agricultural exports to Mexico.

Mexican trade is restricted through import licenses, certain sanitary and phytosanitary requirements, and administrative irregularities. Mexico's standards, testing, certification, and registration procedures generally are not compatible with those maintained in the United States and Canada.

Figure 3

### U.S. farm exports to Mexico 1990



# **U.S. Goals for a North American Free Trade Agreement**

The United States would like a comprehensive agreement that eliminates, to the maximum extent possible, remaining trade and investment barriers between the United States, Mexico, and Canada. All three countries are members of the GATT. Article XXIV in the GATT states that if separate free trade agreements are formed by certain GATT members, the agreement must cover substantially all trade. Also, it is easier to obtain a balanced agreement when there is wide-ranging coverage. The United States will seek to establish a fair and expeditious dispute settlement mechanism. A particularly important goal of a NAFTA from a U.S. agricultural standpoint is eliminating Mexico's tariff and nontariff barriers that currently restrict U.S. agricultural exports.

## **General Principles**

A NAFTA would complement the successes the United States has garnered from the U.S.-Canadian Free Trade Agreement (CFTA). In addition, a NAFTA would build on the progress already achieved in the U.S.-Mexico Framework Understanding and the Trade and Investment Facilitation Talks. Both of these understandings have significantly advanced U.S.-Mexican trade cooperation.

A NAFTA should be consistent with the principles established in the GATT, of which all three countries are signatories. The GATT maintains certain conditions for countries entering into a free trade area. These conditions, found in GATT Article XXIV, hold that a free trade area cannot result in higher or more restrictive duties than those existing prior to its formation; countries should provide a plan and schedule for the formation of a free trade area to the GATT; countries should promptly notify the GATT contracting parties and make information available to enable them to make reports and recommendations as they deem appropriate; and duties and other restrictive regulations (except those permitted under various GATT articles) are eliminated on substantially all the trade between those countries.

To meet these conditions, the U.S. objective for a NAFTA is to reach a comprehensive agreement eliminating, to the extent possible, all remaining tariff and nontariff barriers between the United States, Canada, and Mexico. The United States plans to achieve this objective by negotiating on a broad spectrum of areas. Individual negotiating groups have been established in each of these areas, as well as other areas including rules of origin, dispute settlement, and safeguards.

The negotiations on a NAFTA will maintain consistency with the agricultural negotiations of the Uruguay Round. Both agreements should have the same fundamental principles and provide the rules and disciplines to guide countries toward a freer trading environment. These rules must be comprehensive in nature, yet



provide a degree of flexibility to allow countries to comply with the final agreements in an orderly fashion.

## **Food Safety, Sanitary, and Phytosanitary Measures**

NAFTA negotiations with Mexico and Canada provide the opportunity to develop better means to guarantee the safety of agricultural products traded throughout the region. At the same time, a NAFTA agreement will strive to ensure that health-related regulations, or sanitary and phytosanitary (S&P) measures, are not applied to imports in an arbitrary manner or used as disguised barriers to trade. Effective disciplines over the application of S&P measures will not compromise the safety of food imports. Imported foods will still be required to meet the standards set by U.S. regulatory agencies, which will continue to undertake all measures necessary to verify the safety of foods entering the U.S. food supply.

In the context of the CFTA and the GATT Uruguay Round, working groups were developed to address issues concerning food safety, animal health, and plant health. The NAFTA will strive to create a similar environment for the entire North American market.

In the GATT negotiations on S&P measures, countries have focused on strengthening rules to ensure that national measures are based on scientific evidence and that rules are developed in a transparent manner. Other important principles developed in the draft S&P text include equivalency, pest-free zones, and enhanced roles for international standards. A similar obligation in the NAFTA should be reassuring to U.S. consumers.

The principles and obligations included in the GATT draft on S&P will be a useful starting point for discussion in this area. The recognition within the GATT S&P negotiations that countries must retain the right to conduct their own risk assessments and to determine and set appropriate levels of health protection is particularly important. In the NAFTA, the United States will seek an agreement on S&P standards and measures without compromising its sovereign right to protect human, animal, and plant life and health.

Every nation has a legitimate need to maintain sanitary and phytosanitary standards for imports. Certification requirements, however, should be administered in a transparent and expeditious manner. Such requirements should not be applied to imports in an arbitrary manner or as a disguised barrier to trade. The United States is strongly committed to working with Mexico and Canada on food safety issues on a scientific basis with complete transparency.

## **Safeguards**

One of the key negotiating concerns for agriculture will be in the safeguard area. Temporary relief provisions could be negotiated for certain import-sensitive sectors. The United States has proposed a temporary safeguard measure in the Uruguay Round to help domestic industries that may have difficulty adjusting to global agricultural market liberalization.

The CFTA provides safeguards for U.S. and Canadian producers of some fresh fruits and vegetables, allowing for a full pre-agreement duty ("snapback") when certain market conditions are met. Some U.S. producers are interested in similar protection for their potentially import-sensitive commodities.

## **Other Areas**

Other negotiating areas for a NAFTA may affect U.S. agriculture as well. The negotiations on investment could be very important for U.S. agricultural producers and agribusinesses. Likewise, the negotiations on intellectual property rights could play an important role for the future of U.S. biotechnology industries. It is important that an effective dispute settlement mechanism is incorporated into the NAFTA. Agriculture, like other sectors, needs fair, speedy, and effective procedures to resolve trade disputes.

A NAFTA also will include provisions on rules of origin. These provisions will establish the ground rules for the conditions that must be met for a product to be defined as Mexican, American, or Canadian. Customs authorities on both sides of the border would be charged with ensuring that goods entering the United States labeled as Mexican meet the rules-of-origin requirements.



## Summary of Overall Effects

The economic consequences of a NAFTA for agriculture are examined in this report. The focus of this report is largely on the effects on the United States and Mexico. Because the United States and Canada already have a free trade agreement and because trade between Mexico and Canada is small, including Canada in a NAFTA is projected to be much less significant than including Mexico. Accordingly, Canadian analysis in this report is limited.

Title XV, Section 1551, of the Food, Agriculture and Trade Act of 1990 stated that, "The Secretary of Agriculture shall study the effects on the United States agricultural economy of the creation of a North American free trade area, including the creation of a United States-Mexican free trade area."

Because the final terms of a NAFTA are unknown, we must make assumptions about the nature of a hypothetical agreement to make useful but tentative economic estimates. We also need to establish a benchmark set of economic conditions under which the effects of the hypothetical agreement will be estimated.

The analysis summarized in this report starts with the assumption that the agreement will completely eliminate over a transition period all tariffs, quotas, and licenses that act as barriers to agricultural trade among the United States, Canada, and Mexico. No changes are assumed to be made in domestic farm programs or domestic support for consumer-related food programs for each of the countries. The final agreement could differ considerably from these assumptions, but this scenario can serve as a basis for comparison.

Complete bilateral elimination of Mexican and U.S. border protection for agricultural trade over a transition period would expand agricultural trade of both countries. If recent levels of protection were removed, U.S. agricultural exports to Mexico would expand about one-third while Mexican agricultural exports to the United States would increase about one-fifth by the end of the NAFTA implementation period. Thus, agricultural trade, which has been about equal between the two countries in recent years, would tend to favor the United States in the trade balance at the end of a transition period.

The main U.S. farm exports to Mexico are feed grains, oilseeds, meat, and dairy products. These exports likely would expand with liberalized trade. Grains and oilseeds are estimated to account for the majority of the expansion in U.S. agricultural exports. With the expansion of exports to Mexico, total U.S. agricultural exports would increase about 2 percent.

Mexico's main exports to the United States are tropical and specialty crops, such as coffee, fruits, and vegetables, as well as feeder steers.



The NAFTA examined here implies a net expansion in U.S. agricultural production, but the increase would be small. The increase in production of export-oriented commodities would be small because agricultural exports to Mexico represent a small proportion of U.S. production. The expansion in U.S. agricultural imports from Mexico, as a result of the assumed NAFTA, would also be small. Consequently, the overall impact on U.S. agricultural production resulting from these effects would be limited.

The expected production adjustments in Mexico for the major agricultural products would be larger than the adjustments expected in U.S. agriculture. Mexican agriculture faces constraints in land and water resources, low labor productivity, and a relatively inefficient transportation and marketing system.

A preferential trade agreement between the United States and Mexico would have little overall effect on other exporting countries primarily due to the fact that the United States accounts for approximately 80-90 percent of Mexico's agricultural exports and imports.

A NAFTA with Mexico is expected to boost the growth rate of personal income in Mexico. More rapid income growth would increase Mexican demand for livestock and livestock products, as well as for food and feed grains. In response, Mexican imports of these products from the United States should grow. Further, Mexican demand for fruits and vegetables should grow even more rapidly as personal income in Mexico grows. If Mexican demand increases, Mexico would have smaller quantities to export to the United States. Over a period of 10-20 years, the increase in Mexican income from the NAFTA could have an annual positive effect on U.S. agriculture that would continue to grow and become quite substantial.

Food processing in the United States is a very large industry, with sales of \$346 billion in 1989. Processed foods consist mainly of meats, beverages, dairy products, preserved fruits and vegetables, milled products from grain, and a long list of other products. Most of the U.S. industry's output is for domestic consumption, with only 5 percent of shipments going abroad. U.S. imports are slightly larger than exports. Mexico is the fourth largest market for U.S. exports of processed foods and the fifth largest source of U.S. imports.

Many U.S. food processing firms prefer to expand sales by directly investing in foreign facilities and licensing rather than exporting products produced in the United States. Having wholly owned or joint-venture production facilities in the host country allows packaged food firms to maintain better control over many marketing and distribution activities necessary to efficiently reach thousands of food stores.

Affiliates in Mexico of U.S. food processing firms purchase most of their food inputs from within Mexico. Though information is limited, it appears these firms may purchase much of their machinery and other capital goods from the United States. Few of the products produced by the U.S. affiliates in Mexico are exported back to the United States.

Rules of origin are a critical component of the negotiations affecting the food processing industry and can make a substantial difference in terms of emerging trade patterns from a NAFTA. At this point, it is too early to predict what will be the specific rules conferring eligibility for free trade under the NAFTA.

Direct U.S. investment in Mexico's food processing industry has grown rapidly since 1987. This growth has been greatly helped by Mexico's recent liberalization of policies toward trade and foreign investment. Trade in processed food products between the United States and Mexico is expected to grow, and direct investment is expected to continue its recent rapid growth.



## Background

Mexico's population is about a third of the size of the United States' population, averages about 10 years younger, and has a life expectancy of about 67 years compared with the United States' 73 years. Mexico is densely populated compared with the United States, and both countries are highly urbanized. About 18 percent of the Mexican labor force is unemployed, and an additional 40 percent is considered underemployed. Mexico's population is concentrated in the central States. Estimates indicate that 20-25 percent of the population lives in the Mexico City metropolitan area. Approximately one-third of the population continues to live and work in rural, largely agricultural areas. In the United States, the food and fiber sector is the Nation's largest employer. About 21 million people work in some phase of agriculture, from growing food and fiber to selling it at the supermarket. Farming itself employs roughly 2 million workers. Agriculture requires the services of about 19 million people to store, transport, process, and merchandise the output of the Nation's farms. In total, the food and fiber sector employs approximately 17 percent of the U.S. labor force.

The U.S. economy is vastly larger than the Mexican economy, with a gross domestic product (GDP) that is nearly 20 times larger than Mexico's. U.S. per capita GDP was about \$21,000 in recent years compared with about \$2,000 for Mexico. Exports and imports account for about 7 and 9 percent of U.S. GDP, while in Mexico, these figures are 16 and 15. Mexico's agricultural sector accounts for approximately 9 percent of GDP, while in the United States, it is less than 3 percent. The proportion of GDP generated by both countries' agricultural sectors has declined as the industrial and service sectors have grown. However, the food and fiber industry (from farm to supermarket) is the largest industry in the United States.

Throughout the 1970's, the cost of Mexico's success mounted both internally and externally in terms of domestic and foreign debt. In the late 1980's, Mexico streamlined the domestic economy and generated foreign exchange from non-oil sources which opened its economy to international competition. Mexico's joining GATT in 1986 was a major step toward liberalization, and those efforts are continuing through the current NAFTA negotiations.

Goals for the agricultural sector have been intended largely to complement economywide goals. They sometimes have included conflicting goals, such as the provision of an abundant and inexpensive food supply to underwrite urbanization and industrialization, the improvement of farm income levels (sufficient to avoid widespread rural unrest), the generation of foreign exchange from agricultural exports, and the narrowing of the income gap within agriculture. The major thrust of agricultural trade policy until recently was government control over the importation and exportation of essential foodstuffs and agricultural raw materials. Now, the private sector's role in agricultural trade is increasing. Diversification of food import sources has also been a trade policy objective but has not been very successful.

Strong sentiments for food self-sufficiency are voiced by some sectors of the Mexican Government, and some agricultural policy programs have supported this orientation. However, Mexico will continue in the 1990's to rely heavily on food imports to meet domestic consumption requirements. The current agricultural plan stresses "food access," whether domestically produced or imported, rather than self-sufficiency.

The Government of Mexico has been involved in all aspects of the country's food system, from the farm to retail level, since the 1930's. The Government invested heavily in agricultural infrastructure from the 1940's until the mid-1960's. New lands were opened and irrigation was expanded, particularly in the northern and northwestern regions. Other government programs, some supported by the Rockefeller Foundation, resulted in the development of high-yielding crop varieties, particularly wheat. Much of the basic research emphasized technology associated with irrigated production. These activities, along with ample credit policies and price support levels, spurred impressive agricultural growth rates. Facing growing financial constraints in the 1970's and 1980's, the Government came to rely less on long-term investments and more on price incentives, input subsidies, and crop insurance programs to stimulate the production of basic commodities.

The Government guaranteed that it would buy basic crops, including corn, beans, wheat, sorghum, soybeans, rice, safflower, and cottonseed, at support prices through CONASUPO, its regulatory agency for agricultural commodities. Announcements of support prices were made twice yearly, including adjustments for inflation. Government purchases of covered commodities maintained average rural prices close to support levels, but generally failed to provide increases in real producer prices (adjusted for inflation). Mexican support prices have periodically fallen below U.S. and world prices.

The Government offered numerous and substantial input subsidies to agriculture to encourage production and to keep food prices low. Input costs (principally fertilizer, improved seed, credit, irrigation, electricity, fuel, and crop insurance) rose far less than crop prices over most of the past 30 years. For example, fixed diesel fuel prices (in nominal terms) remained unchanged for many years, and real interest rates for credit provided by public institutions have been negative until recently.

Regulation of retail prices of "the Mexican basket of basic commodities" is carried out by the Government through CONASUPO. Retail prices of basic food items were kept at low levels for many years. The financial crisis and austerity measures recently have pressured Mexico to substantially reduce consumer subsidies. As a result, consumer prices of these controlled commodities rose faster in some years than the prices of other commodities.

In addition to price controls, the Government, through CONASUPO, provides subsidies along the marketing chain for basic commodities. The Government purchases a portion of domestic agricultural production and most imports of basic commodities, owns and operates processing plants, and operates a network for distribution and



retail sales. The Government has been selling off many of the government-operated facilities.

Until recently, CONASUPO was the sole authorized importer of most grains, oilseeds, and dairy products. Now, a committee that includes CONASUPO and other governmental and private industry representatives makes import decisions. The Government still controls the final import decision for many basic commodities. Since joining the GATT, Mexico has converted many of its restrictive licensing requirements to tariffs; however, the tariffication process has been slower for the agricultural sector than for any other sector. Mexico has discontinued the use of its "official" pricing system for the purpose of calculating ad valorem duties. In most cases, these prices were substantially higher than actual invoice prices.

Many agricultural exports from Mexico required licenses and were subject to export taxes. Licensing of such exports as coffee, cotton, beef, and live cattle was often used to restrict exports until domestic needs had been met and domestic price objectives obtained. This has changed completely in the past few years.

Since 1985, Mexico has significantly reduced its tariffs as part of a major program to liberalize its economy, following its accession to the GATT in 1986. With the notable exception of sugar, Mexico's maximum applied tariff rate has been reduced to 20 percent from a 1985 maximum rate of 100 percent, falling well below the overall GATT binding tariff of 50 percent.

Mexico has also liberalized its import licensing requirements. Import licenses, which had formerly been applied to all imports, have been retained only for selected commodities. However, most of these are agricultural items. As the use of licensing requirements for agricultural imports fell between 1988 and 1990, Mexico tended to increase tariffs. Mexican licensing requirements applied to about 40 percent of U.S. agricultural exports to Mexico but to only about 28 percent of total Mexican agricultural imports during the 1988-90 period.

Mexico is the world's 12th largest country in area and is about 20 percent the size of the United States (Mexico is slightly less than three times the size of Texas). About two-thirds of Mexico is arid or semi-arid. Its total arable area is about 57 million acres compared with 464 million for the United States. Mexico has about 0.7 acre of arable land per person compared with 1.9 for the United States.

Water and water use have played an important role in Mexican agricultural development and will play an even greater role as Mexico faces increasing conflict over water use. About 10 percent of U.S. arable land is irrigated compared with 20 percent for Mexico. The availability of water for irrigation highly depends on rainfall because much of Mexico's irrigation water is from surface storage.

Over half of Mexico's cropland is located in the rain-fed central highlands. In this region, rainfall varies widely and is often irregular, with most of it from July through



October. While most crops in this region are grown under rain-fed conditions, there is some supplemental irrigation.

Mexico's agricultural sector is extremely diverse. Irrigated, large-farm areas of the arid north produce a wide variety of crops, including wheat, sorghum, oilseeds, cotton, sugarcane, vegetables, and forage crops. Nonirrigated, small-farm areas of the central parts of the country tend to rely heavily on staples, such as corn and beans. Corn is produced mainly by small farmers in semi-arid and arid areas. There is some diversification toward feed grains, oilseeds, and fruits and vegetables, particularly near Mexico City. Irrigated pockets produce crops, such as strawberries, for agribusiness use. The southern, tropical regions of the country are oriented toward the production of coffee, rice, sugarcane, and traditional plantation crops. Cattle operations are concentrated in the northern and gulf States, where livestock is largely range-fed. Pork and poultry operations are more decentralized, and production is more intensive in modern, commercial operations.

Mexico has three types of landholding: private, communal, and public. There were about 1.2 million private farms in the early 1980's, accounting for about 203 million acres (169 acres per farm on average). The maximum landholding was determined by the amount of irrigated land, types of crops raised, and the number of livestock held. Ejidatarios (small farmers working communal land) accounted for about 205 million acres, with an average size of 79 acres. Mexican land tenure laws are currently under revision, which will permit much more flexibility in owning, selling, and renting land.

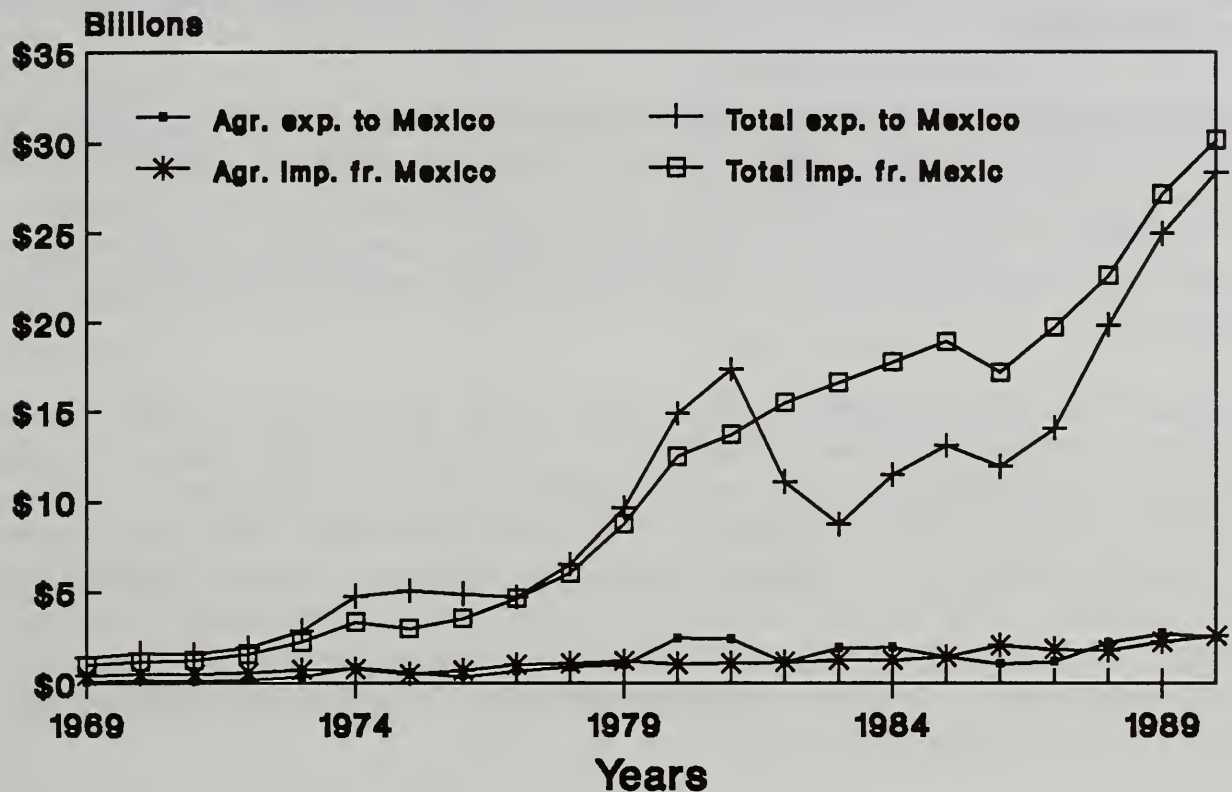
Trade between the United States and Mexico can be traced back to the earliest times in the history of both countries. Indian tribes in the Southwestern United States traded with Aztecs and Mayans 1,000 years ago. Live cattle trade between the countries goes back over the past 200 years. Trade between the United States and Mexico has been growing for the past couple of decades and is becoming more important to both countries (fig. 4). Fueled by a growing population and an expanding economy over the past few decades, Mexico has become our third largest trading partner. The total U.S. balance of trade with Mexico has been negative for most of the 1980's, but the agricultural trade balance has been positive during most of the 1980's.

Mexico exported more agricultural products to the United States than it imported from the United States during the 1960's and 1970's, but the trade balance shifted in the United States' favor for most of the 1980's. The United States had a slight agricultural trade deficit with Mexico in 1990. The United States imported nearly all of Mexico's agricultural exports and supplied over three-fourths of Mexico's imports. Mexico's agricultural trade has always been highly oriented toward the United States (tables 1 and 2). U.S. farm trade is more geographically diverse than Mexico's.

Although a major agricultural trading partner, Mexico supplied only 12 percent of U.S. farm imports and bought 7 percent of U.S. farm exports in 1990.

Figure 4

## U.S. trade with Mexico 1969-90



Mexico's principal exports to the United States are coffee, fruits and vegetables, and live cattle. About 20 percent of total U.S. coffee imports, a third of U.S. fruit and vegetable imports, and 60 percent of U.S. live cattle imports come from Mexico. Coffee imports are spread evenly throughout the year, with a slight decrease in the summer, while fruit and vegetable imports are heaviest in January, February, and March. Mexico's processed agricultural exports to the United States have become increasingly important, with a rate of growth during the 1980's second only to the growth in its auto sales to the United States. Processed agricultural exports include frozen and canned vegetables, fruit juices, and beer.

U.S.-Mexico two-way agricultural trade increased from \$3.5 billion in 1980 to \$5.2 billion in 1990, about \$150 million higher than in 1989 and nearly \$1 billion higher than in 1988. Mexico was the fourth largest single market for U.S. farm exports in 1990, with a total export value of a record \$2.6 billion. The value of this trade grew at one of the highest growth rates among major U.S. agricultural trading partners. However, the growth pattern of U.S. and Mexican agricultural exports has differed. Mexican agricultural exports to the United States have steadily grown (aside from a surge in 1986, which was mainly the result of higher coffee prices). U.S. agricultural exports to

Mexico, however, have fluctuated widely, mainly reflecting Mexican harvest conditions and poor Mexican economic conditions. The availability of U.S. export credit guarantees and competition from other suppliers may also be factors.

U.S. imports of Mexican horticultural products now make up a major part of total agricultural imports from Mexico and have grown more rapidly than other agricultural imports from Mexico.

U.S. agricultural exports to Mexico varied dramatically during the 1980's, falling from about \$2.5 billion in the early 1980's to about \$1 billion in 1986-87, before rising to a record level of \$2.7 billion in 1989. Grains have typically been the largest export items. Exports of dairy, livestock, and poultry products have grown the most rapidly, rising from less than \$300 million in 1980 to about \$800 million annually during the 1988-90 period.

The Mexican Government played a direct role in trade as an importer and exporter of agricultural products before the late 1980's. For example, in 1988, about 41 percent of agricultural commodities imported were imported by the Government. The major commodities and percentage imported by the Government were wheat, 96 percent; corn, 73 percent; sorghum, 51 percent; soybeans, 20 percent; beans, 9 percent; and cattle, 47 percent. The Mexican Government also accounted for about 8 percent of the agricultural commodities exported. The major commodities that the Government exported were coffee, 11 percent; tobacco and honey, 92 percent; and wheat, 100 percent.



Table 1--Mexico: Main suppliers of agricultural imports, 1988-90 average

Commodity	Imports	Top three countries, percentage of total
	Million dollars	
Total	3,954	U.S., 68%; EC, 11%; Canada, 3%
Live animals	2,793	U.S., 70%; EC, 11%; New Zealand, 4%
Meats and preparations	376	U.S., 90%; EC, 2%; Canada, 2%
Dairy products and eggs	545	EC, 41%; U.S., 30%; New Zealand, 18%
Cereals	906	U.S., 94%; Canada, 2%; EC, 1%
Fruits and vegetables	227	U.S., 61%; Argentina, 10%; Chile, 7%
Sugar and honey	270	U.S., 28%; EC, 20%; Brazil, 9%
Animal feeding stuff	168	U.S., 87%; Chile 8%; EC, 2%
Hides, skins, and furs	103	U.S., 94%; Nicaragua, 1%; Guatemala, 1%
Oilseeds	385	U.S., 79%; Canada, 9%; Argentina, 4%
Cotton	44	U.S., 83%; Guatemala, 11%; Argentina, 2%
Animal, vegetable oil, fat	327	U.S., 57%; EC, 11%; Argentina, 18%

Table 2--Mexico: Main markets for agricultural export, 1988-90 average

Commodity	Exports	Top three countries, percentage of total
	Million dollars	
Total	2,655	U.S., 84%; EC, 7%; Japan, 2%
Live animals	257	U.S., 99%
Meats and preparations	33	Japan, 57%; U.S., 41%
Cereals	45	U.S., 54%; Tunisia, 35%; Switzerland, 2%
Fruits and vegetables	1,100	U.S., 95%; EC, 3%; Japan, 1%
Sugar and honey	139	U.S., 32%; EC, 33%; USSR, 17%
Coffee, tea, cocoa, and spices	515	U.S., 76%; EC, 13%; Switzerland, 3%
Animal feeding stuff	2	U.S., 72%; EC, 21%; Panama, 3%
Beverages	262	U.S., 89%; EC, 5%; Canada, 1%
Oilseeds	32	U.S., 86%; EC, 5%; Israel, 3%
Cotton	108	U.S., 78%; China, 5%; Japan, 5%
Animal, vegetable oil, and fat	19	U.S., 82%; EC, 5%; Japan, 5%



# **Analysis of Individual Commodities**

## **Corn**

### **Production**

Corn is Mexico's major crop, occupying over one-half of total cropland. Corn is produced throughout Mexico on farms that range in size from small subsistence plots in the southeast to large commercial farms in the central and Pacific central region. Corn is the principal crop of over 2 million small farmers. Two-thirds of corn area is farmed under the ejido system, where ejidatarios (small farmers) work communal land. The land tenure laws under the ejido system are being changed to encourage more productivity. The remainder of the corn area is farmed by private farms of more than 5 hectares.

About 90 percent of corn output is harvested during September-March and is concentrated in the States of Mexico, Jalisco, Chiapas, Puebla, Michoacan, and Guerrero. The remainder is harvested during April-August in the State of Tamaulipas. Although 86 percent of harvested corn area is rain-fed, irrigated corn still accounts for a large share of irrigated land (28 percent). Dependence on rainfall makes corn production highly variable. About 80-90 percent of the corn grown in Mexico is white corn, the type most preferred by Mexican consumers.

Corn yields in Mexico are low and vary greatly across regions. From 1985 to 1990, yields averaged 1.7 tons per hectare compared with the U.S. average of 7.1 tons per hectare. Even on irrigated land, yields are far below both world and Latin American averages. The 1988 National Costs Survey indicates that over 60 percent of corn area is planted with low-quality seeds, fertilizers are used in only 87 percent of area harvested, and the combination of improved seeds and fertilizer is used on less than 40 percent of planted area.

Corn area and production showed little trend during the latter half of the 1980's. However, a sharp increase in the producer guarantee price in 1990 has encouraged an increase in planted area.

### **Consumption**

Corn is the staple of the Mexican diet. The poorest segments of the population rely on beans and corn tortillas to provide the greatest share of calories and protein in their diets. In the 1980's, continued growth in corn consumption was stimulated by the continual fall in the relative price of tortillas and continued population growth (fig. 5). Per capita consumption of corn is around 120 kg (kilograms) per year.

Approximately 75 percent of the corn is used for human consumption (compared with 15-20 percent in the United States), about 12 percent for animal feed, 6 percent for

industrial use, and 1 percent for seed. The balance is lost. About two-thirds of the corn used for food goes to the making of tortillas. Corn is used as feed in spite of a presidential decree that prohibits this. The amount of corn used for feed is influenced by the relative prices of corn, sorghum, wheat, and barley.

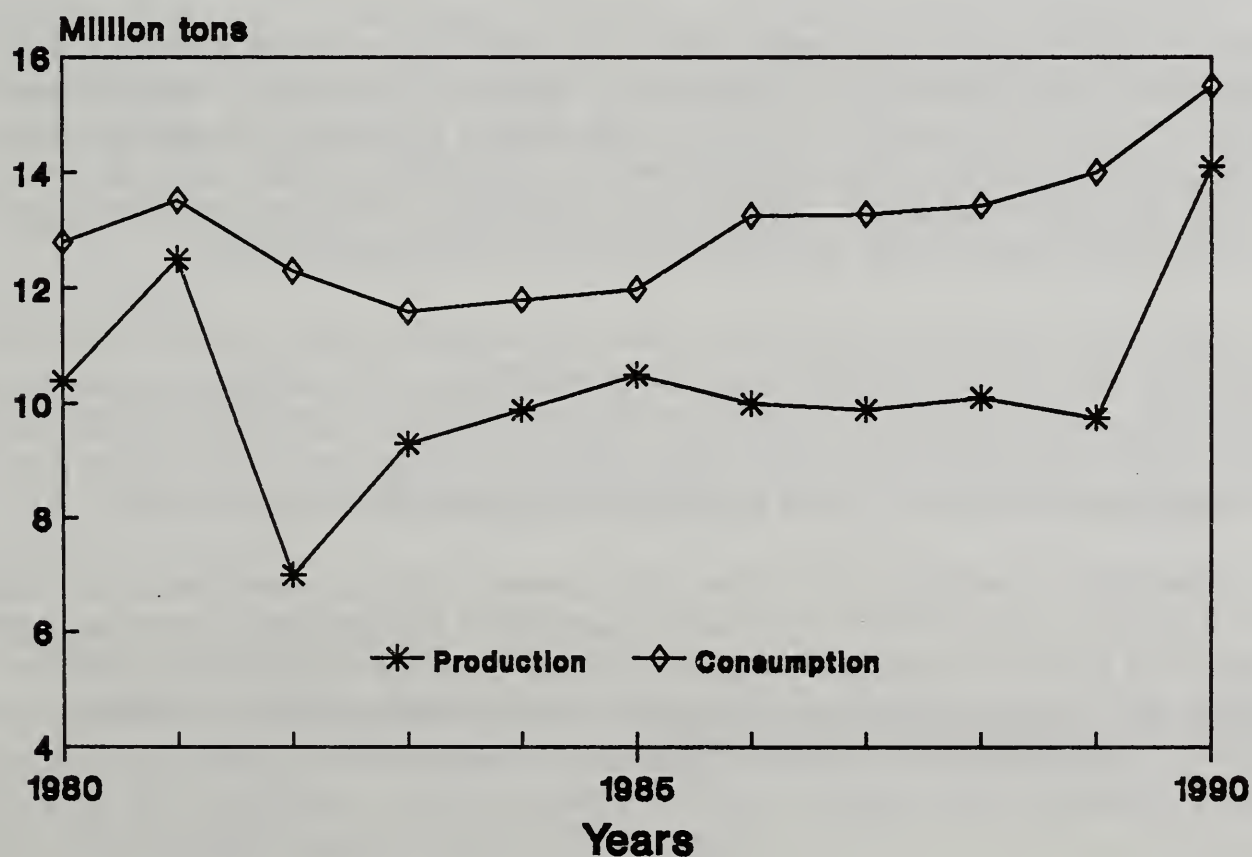
About 40 percent of corn production is typically consumed onfarm. About 35 percent of domestic production is purchased by the National Commission for Distribution of Basic Food (CONASUPO). The remaining 25 percent is purchased and marketed by the private sector. Corn usually accounts for about half of CONASUPO's total grain purchases.

CONASUPO sells its corn at subsidized prices to tortilla producers. In 1989, CONASUPO sold 58 percent of its corn to dough producers, 27 percent to flour producers, and 15 percent to DICONSA, a retail distribution affiliate branch of CONASUPO.

About 75 percent of the tortilla market is served by the traditional semi-industrial producers, while the rest of the market is served by two companies: MASECA, a private firm, and MICONSA, the state-owned mill. Both companies have a combined

Figure 5

## Mexican corn





total installed capacity of 1.58 million tons a year: MASECA has 57 percent of the capacity, while MICONSA has 43 percent.

The more traditional semi-industrial sector includes 10,642 tortilla producers, 9,659 integrated producers of flour for dough and tortillas, and 12,390 producers of flour for dough.

MICONSA and ICONSA traditionally were parastatals set up for processing corn. MICONSA, involved in the processing of products derived from corn, had 21.5 percent of the industry's installed capacity in 1986. ICONSA, the primary corn flour processor, had 6.4 percent of the installed capacity in 1986. ICONSA was recently disincorporated as part of the government reform process.

## **Policies**

Corn is the most significant commodity subsidized in Mexico. Producer and consumer subsidies for corn absorb the largest share of CONASUPO's subsidy budget.

The principal policies affecting Mexican corn producers and consumers have included (1) a price support program, managed by CONASUPO, guaranteeing the purchase of the domestic crop at a fixed minimum price, which has generally exceeded the world market price; (2) import license controls; (3) input subsidies provided by several other government agencies for credit, fertilizer, crop insurance, pesticides, irrigation water, and electricity; (4) fiscal support; (5) general marketing subsidies provided by CONASUPO; and (6) direct consumption subsidies for corn products.

Mexico's import license requirement and CONASUPO's marketing subsidies aid the operation of the guaranteed price program in Mexico. Requiring an import license for corn allows the internal price of the domestic crop to be higher than world market levels, even though the price paid by Mexico's processing industry may fall short of the official guaranteed price. CONASUPO's marketing subsidies are used to cover the marketing costs of moving corn from the farm to wholesale level.

The Gabinete Agropecuario sets the guaranteed support prices, which the Mexican Government has phased out for all primary agricultural commodities, except corn and dry beans. Since 1990, the Government has set different prices for white and yellow corn. In marketing year 1991, the price of white corn was set at 636,000 pesos (\$5.57 per bushel) and yellow corn was set at 530,000 pesos (\$4.64 per bushel).

The objectives of paying a high price to the farmers that grow corn and at the same time providing cheap tortillas to the urban population has induced a complex system of regulations along the corn-tortilla chain. Although guaranteed prices for corn are uniform nationwide, there are four different prices for sales of corn to millers, producers, and DICONSA, and for tortillas.



Farm credit subsidies have also been significant for corn producers. Nearly half of Mexico's corn producers are ejidatarios who cannot secure short-term commercial loans since the law prevents them from mortgaging their land.

The Government designed a fiscal support program in 1987 to be provided through certificates called "CEPROFIS," for partial payment of machinery purchases and/or production infrastructure (storage facilities, well construction) for corn. Producers in rain-fed areas received payment for 25 percent of their expenditures, while producers in irrigated areas received 15 percent. The CEPROFIS system was eliminated in 1989. In addition to support from the CEPROFIS system, other small farmers and ejidatarios received tax credits on the imports of machinery and agricultural instruments.

CONASUPO provides subsidies to corn consumers as well, including price controls for downstream users. CONASUPO provides two types of consumer subsidies: the corn flour subsidy and the low-income subsidy.

With the corn flour subsidy, CONASUPO makes up the difference between the cost of producing flour and the subsidized price at which this flour is sold to the tortilleros through a direct subsidy to flour producers. CONASUPO purchases some of the domestic corn crop at the guaranteed price and then resells it to processors at a lower price. Millers are then expected to pass these reduced costs along the marketing chain to consumers. There are strict barriers to entry in the manufacturing corn-tortilla industry.

In addition, as part of the Mexican Government's nutrition policies, CONASUPO implemented a targeted subsidy program in 1986 to directly subsidize the price of processed goods (tortillas, flour, dough) for low-income consumers. The tortibonos program provides maize tortillas at preferential prices to 4.5 million people. Under the current tortibonos (tortivales) program, each household gets tortilla stamps to obtain 1 kg of free tortillas per day from the tortilla manufacturer. CONASUPO sells the corn to the tortilla manufacturer who then takes the stamps to CONASUPO for reimbursement.

Consumer subsidies provided by CONASUPO were offset during most of the 1980's by the taxing effect of price and import licensing policies. Consumer subsidies have declined substantially as a result of the austerity programs that began in 1988 as the Government has tried to eliminate general subsidies and concentrate on targeted subsidies to the poor.

### **Phytosanitary Requirements**

Mexico requires an official document from the country of origin certifying that the grain does not have aflatoxin levels above 20 parts per billion. To meet Mexican regulations, the certificate must be issued by USDA's Federal Grain Inspection Service (FGIS). Mexico also requires a certificate of origin.

## **Trade Profile**

Corn imports represented about one-fourth of domestic corn supply during 1985-90 and over 58 percent of total grain imports. Annual imports throughout the 1980's averaged around 2.9 million tons. Although highly variable from year to year, the import level ranged from 571,000 tons in 1981 to close to 5 million tons in 1989. Imports are mostly of Grade No. 2 yellow corn for food use.

CONASUPO's average level of corn imports during 1985-89 accounted for 49 percent of its total corn purchases, with the remainder being obtained in the domestic market.

CONASUPO was the primary corn importer before 1985, accounting for about 65 percent of corn imports. Licensed imports by private processors accounted for the remainder. However, since 1986, the share imported by CONASUPO has declined, while that of corn-tortilla companies has increased.

The United States typically supplies most of Mexico's corn imports (table 3). Over 80 percent of corn imports to Mexico were from the United States during 1985-90. The availability of U.S. credit helped maintain and increase the U.S. market share in Mexico. USDA authorized \$1 billion worth of GSM-102 credit guarantees for corn between 1985 and 1990. Annual corn exports under GSM-102 averaged 2 million tons during fiscal year 1985, or about 82 percent of total commercial U.S. corn exports to Mexico. The value of corn exports under these programs in fiscal year 1990 was \$460 million, the value of corn gluten meal exports was \$14.9 million, and the value of corn oil exports was \$3.6 million.

## **Importance of Corn to the United States**

Corn is the United States' third largest commodity in value (\$17 billion) after cattle and calves and dairy. It is grown over a widely dispersed area and is similar in planted acreage to wheat (planted acreage for soybeans is slightly less than corn). The United States, unlike Mexico, grows corn primarily for feed purposes, producing nearly 40 percent of the world's production, 20 times as much as Mexico produces. More than a fourth of U.S. corn production is exported. Corn has a price support program and an acreage reduction set-aside program for producers. Producers must comply with any acreage reduction/set-aside requirements to receive program benefits. Mexico and Canada together usually take less than 10 percent of U.S. corn exports.

## **Effects of Trade Liberalization**

Trade liberalization (the elimination of import licensing or the replacement of import licensing with a tariff) would put pressure on the producer price supports system to avoid large stockpiles of expensive domestic corn. The supply effect alone would increase Mexico's corn imports, but the magnitude of imports would be affected by demand factors as well. The quantity of corn demanded for both food and feed would increase in response to lower prices. The United States is likely to be the major

beneficiary of the predicted trade creation, given that nearly all of Mexico's corn imports come from the United States.

Projected increases in Mexico's corn imports would vary with both the level of support and the policies chosen to deliver this support. The policy choices regarding input and consumption subsidies would affect the level of corn imports as well. The predicted effects are obvious: projected imports would vary inversely with the level of input subsidies and directly with the level of consumption subsidies.

Significant increases in trade in corn and other bulk commodities could be hampered by constraints in marketing infrastructure and transportation. These constraints may arise from a shortage of storage facilities, port capacity, and rail cars in Mexico.

### **Implications for Other Trading Partners**

Implications for other trading partners are likely to be relatively minor. Canada does not export corn to Mexico but does import from the United States.



Table 3--Corn production and trade in NAFTA countries, 1990<sup>1</sup>

Item	Canada	Mexico	United States
1,000 metric tons			
Production	7,160	14,100	201,509
Total exports from:			
	Canada	Mexico	United States
1,000 metric tons			
Total exports	150	0	43,817
To Canada	-	0	500
To Mexico	0	-	2,000
To U.S.	0	0	-
To ROW	150	0	41,317
Total imports to:			
	Canada	Mexico	United States
1,000 metric tons			
Total imports	500	2,000	71
From Canada	-	0	0
From Mexico	0	-	0
From U.S.	500	2,000	-
From ROW	0	0	71
	Canada	Mexico	United States
Kilograms			
Per capita consumption:	269	173	611
Food use	47	154	134

<sup>1</sup> Columns may not sum because of preliminary data, shipments that are in progress, etc.

- = Not applicable.

Source: U.S. Department of Commerce; Agriculture Canada, Statistics Canada; Foreign Agricultural Service, USDA; Banco de Mexico.

# Sorghum

## Production

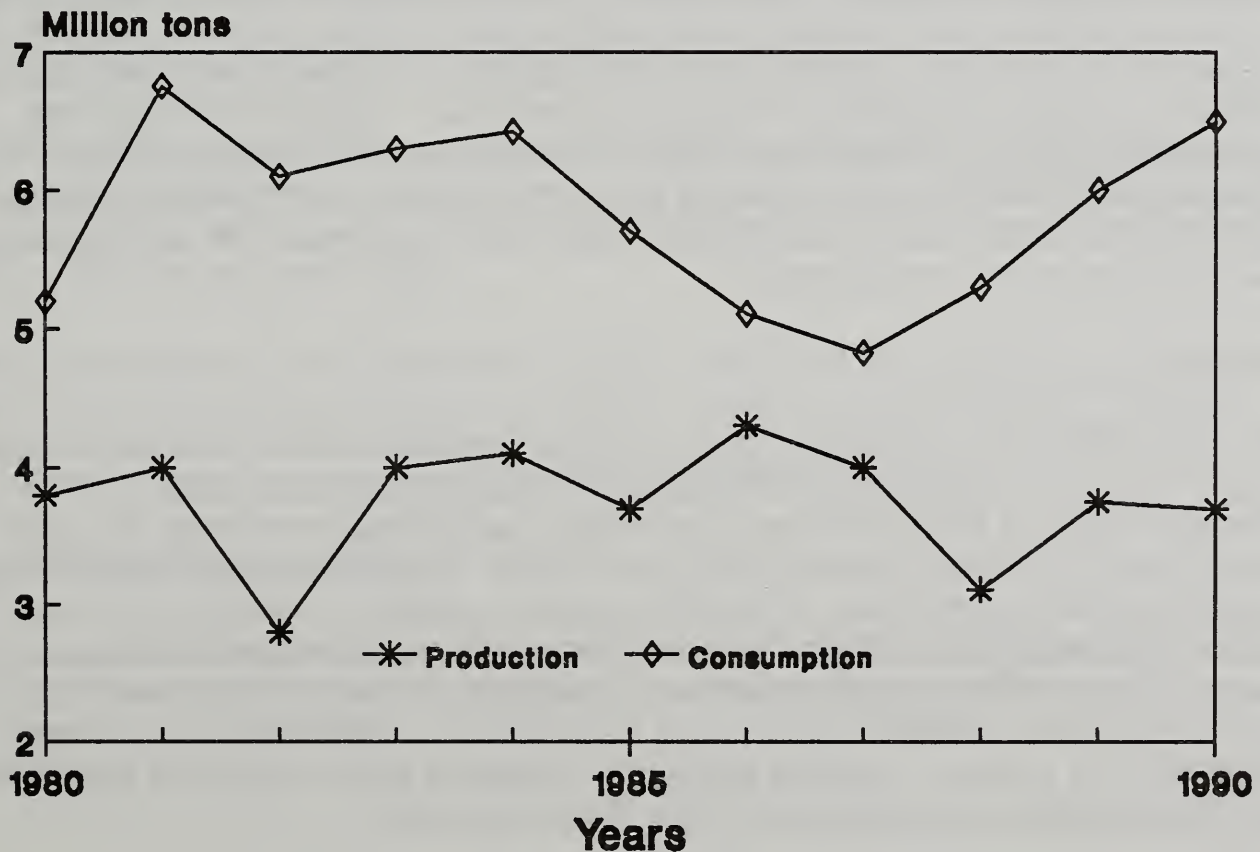
Sorghum ranks third in area harvested in Mexico after corn and dry beans and also third in production after corn and wheat. Sorghum area harvested in 1990 was 1.3 million hectares (about 12 percent of the total crop area harvested). Production of 3.7 million tons accounted for 19 percent of total grain output (fig. 6 and table 4).

Production is spread throughout the country. The Bajio region (Guanajuato, Jalisco, and Michoacan) accounts for about 47 percent of production, Tamaulipas in the northeast accounts for 40 percent, and Sinaloa in the Pacific north accounts for 11 percent. Private farms of more than 5 hectares produce slightly more than half of Mexico's sorghum. The rest is grown on ejidos and small private farms.

About 70 percent of the sorghum crop is harvested during September-February and the remainder during April-July. Sorghum production is subject to high annual variation. About two-thirds of the crop is grown on rain-fed land. There has been no perceptible trend in production since 1980, although productivity per hectare has

Figure 6

## Mexican sorghum



tended to decline since 1984. Sorghum yields averaged 2.93 tons per hectare during 1985-89, significantly lower than the U.S. average of 4.06 tons per hectare.

Sorghum competes with corn for use of land in the Bajio region. A recent sharp increase in the guaranteed corn price is expected to shift about 10 percent of normal sorghum area into corn in marketing year 1990/91 in this region. Sorghum competes with cotton in Tamaulipas. The incentive to switch to cotton production in this area varies directly with the cotton/sorghum price ratio. The cotton price of this ratio is determined in international markets for Mexican producers, while the sorghum price is determined by distributors, the Government, and producers, as described in the policy section.

## **Consumption**

Sorghum is Mexico's major feed grain, and the bulk of sorghum supply is used for feed by pork and poultry producers. Over 60 percent of the sorghum is consumed in the Bajio region where the commercial pork industry is located. Consumption is also high in the States of Sonora, Jalisco, and Puebla.

Since the mid-1980's, reduced demand for poultry and pork associated with declining per capita incomes has slowed growth in sorghum consumption. In recent years, sorghum demand has also been affected by the availability of surplus domestic wheat, as well as competition from lower priced imported corn.

CONASUPO traditionally has played a prominent, but variable, role in sorghum marketing activities, including financing, purchasing, storing, and transporting the crop.

CONASUPO's annual sorghum purchases averaged 1.9 million tons during fiscal year 1985-89, or about 22 percent of total grain purchases. CONASUPO's domestic purchases of sorghum have ranged from 4 to 64 percent of production during the past 5 years. CONASUPO historically has been the primary buyer of imported sorghum, accounting for about half of total imports. However, since mid-1989, all imports have been handled by the private sector.

## **Policies**

The principal policies affecting Mexican sorghum producers have included (1) a price support program, managed by CONASUPO, guaranteeing the purchase of the domestic crop at a fixed minimum price, which has generally exceeded the world market price; (2) import license controls and tariffs, which have been fundamentally important to the maintenance of the price support program for sorghum; (3) input subsidies provided by several other government agencies for credit, fertilizer, crop insurance, pesticides, irrigation water, and electricity; (4) fiscal support; and (5) general marketing subsidies provided by CONASUPO, which were used to fund CONASUPO's program of selling sorghum to millers at prices below the acquisition cost (the domestic guaranteed price plus marketing costs).



Price supports and import licensing have accounted for the bulk of the support, followed by credit and insurance subsidies.

The Government initiated its price support system for sorghum in 1965. The sorghum/corn price ratio was traditionally maintained at around 0.60 and moderated land substitution between sorghum and corn. Strong pressure from the producers during the early 1980's induced an increase in the sorghum support price, producing a shift towards sorghum. In the last 3 years, however, the price of corn relative to sorghum has risen, the result of the Government's policy to raise the guaranteed corn price while shifting to an agreement price system for sorghum.

The Government replaced the sorghum price support system in 1989 with a system that established producer prices based on a compromise between the Government, producers, and distributors. Under this system, CONASUPO was no longer obligated to buy production, but buyers were required to purchase the entire domestic crop before importing any supplies. Last year, the agreement price for sorghum was approximately \$3.63 per bushel.

The new system led to a temporary domestic surplus of sorghum when millers did not honor the agreement price and purchased cheaper imports instead of domestic supplies. In 1990, producers convinced the Government to institute a seasonal (May 1-December 15) 15-percent ad valorem tariff to assure the purchase of the domestic crop.

Mexico is eliminating most producer subsidies but is retaining some consumer subsidies. Mexico has reduced its untargeted producer subsidies for such inputs as credit, fertilizer, electricity, and irrigation water and channeled input subsidies toward those crops that are produced for direct human consumption.

The Government's fiscal support, provided through the CEPROFIS certificates for partial payment of machinery purchases and/or investment in production infrastructure (storage facilities, well construction) also applied to sorghum producers. This system, however, was eliminated in 1989.

Marketing subsidies have declined since 1984. CONASUPO's purchases of the domestic crop have been minimal over the last 3 years. During 1985-87, the direct subsidy provided by CONASUPO to the feed industry (sorghum consumers) was more than offset by the taxing effect of price and import licensing policies.

### **Phytosanitary Requirements**

Mexico has eliminated the sorghum phytosanitary authorization, which required certification that aflatoxin levels not exceed 20 parts per billion, but Mexico still requires a certificate of origin.

## **Trade Profile**

Sorghum imports accounted for over 30 percent of total supply between 1985 and 1990, and close to one-third of total grain imports. Annual imports averaged around 2.1 million tons throughout the 1980's. Imports have been highly variable, ranging from 627,000 tons in 1985 to over 3 million tons in 1989, and are linked to variable domestic production and the availability of domestic feed substitutes, primarily durum wheat and feed corn. Sorghum imports for the past 3 years have averaged near 2.6 million tons. In fiscal year 1989, the elimination of sorghum import permit requirements, together with high domestic corn and sorghum prices relative to international prices, led to a sharp increase in sorghum imports.

CONASUPO's average level of annual sorghum imports during 1985-89 accounted for 52 percent of its total sorghum purchases, with the remainder being obtained in the domestic market.

Mexico has traditionally procured virtually all of its sorghum imports from the United States. About 88 percent of Mexico's sorghum imports for the 1985-90 period were from the United States.

USDA authorized a total of \$439 million worth of GSM-102 credit guarantees for sorghum between 1985 and 1989. Approximately 61 percent of sorghum sales to Mexico during 1985-89 were under the credit guarantee programs. Annual sorghum exports under GSM-102 averaged 765,112 tons during fiscal years 1985-89. The amount of sorghum registered under GSM-102 has been increasing over the last few years, rising from 336,600 tons in fiscal year 1986 to close to 1.4 million tons in fiscal year 1989. Sorghum imports from the United States were valued at \$190 million in fiscal year 1989. The value of U.S. sorghum exports to Mexico under these programs was over \$235 million for fiscal year 1990.

## **Importance of Sorghum to the United States**

Sorghum is the United States' 18th largest commodity in value (\$1.25 billion) after tomatoes, oranges, and grapes. It is grown in areas with limited water, such as in the Plains States, and as an alternative to corn. It is similar in planted acreage (12 million acres) to barley and oats. The United States, like Mexico, grows sorghum for feed purposes, producing more than four times as much as Mexico (table 4). Exports account for more than a fourth of U.S. sorghum production. Sorghum has a price support program, and U.S. producers participate in an acreage reduction set-aside program to receive deficiency payments. Mexico takes over a fourth of U.S. grain sorghum exports. Canada imports very little.

## **Effects of Trade Liberalization**

Trade liberalization is expected to increase Mexico's imports through its effects on supply and demand, given the current levels of producer support and consumer taxation arising primarily from the combination of Mexico's agreement price system



and import tariffs. Nearly all of sorghum imports come from the United States, so direct trade gains would go primarily to the United States, with little potential for trade losses for other suppliers. Farmers faced with lower product prices could choose to produce cotton in Tamaulipas or corn in the Bajio. The livestock industry would be expected to increase its use of sorghum if it has access to cheaper sorghum in the world market. The magnitude of the projected increases in Mexico's sorghum imports would depend on the amount of support that Mexico wants to provide its producers and the policies chosen to deliver this support.

### **Implications for Other Trading Partners**

Canada does not produce sorghum.



Table 4--Sorghum production and trade in NAFTA countries, 1990<sup>1</sup>

Item	Canada	Mexico	United States
1,000 metric tons			
Production	0	3,700	14,516
Total exports from:			
	Canada	Mexico	United States
1,000 metric tons			
Total exports	0	0	5,588
To Canada	-	0	0
To Mexico	0	-	2,300
To U.S.	0	0	-
To ROW	0	0	3,288
Total imports to:			
	Canada	Mexico	United States
1,000 metric tons			
Total imports	0	2,500	0
From Canada	-	0	0
From Mexico	0	-	0
From U.S.	0	2,300	-
From ROW	0	200	0
	Canada	Mexico	United States
Kilograms			
Per capita consumption	0	74	42
Food use	0	74	1

<sup>1</sup> Columns may not sum because of preliminary data, shipments that are in progress, etc.

- = Not applicable.

Source: U.S. Department of Commerce; Agriculture Canada, Statistics Canada; Foreign Agricultural Service, USDA; Banco de Mexico.

# Wheat

## Production

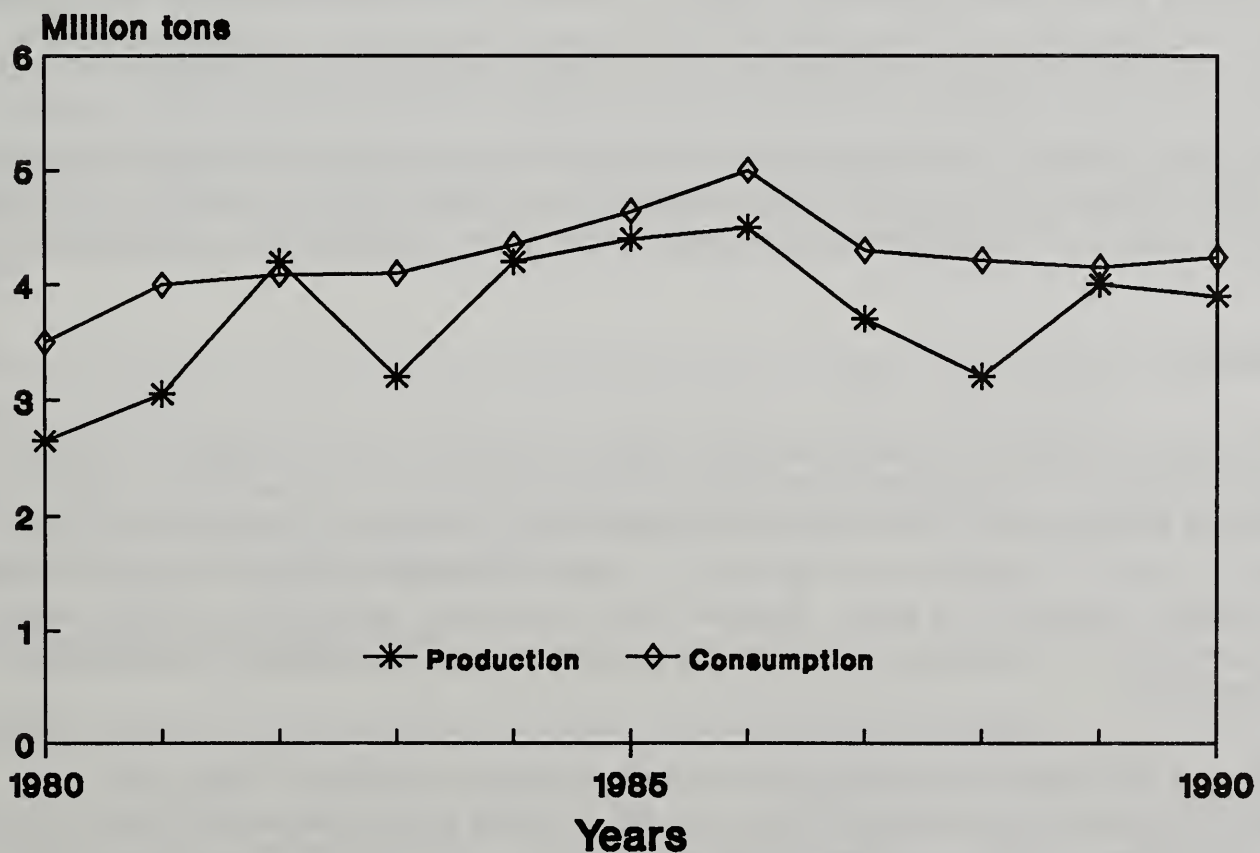
Wheat ranks fourth in area harvested in Mexico after corn, dry beans, and sorghum, and second in production after corn. Production in the late 1980's was 3.9 million tons (fig. 7 and table 5). Mexico has one of the highest average wheat yields in the world due to the widespread adoption of semi-dwarf wheat varieties grown on irrigated land. Wheat yields averaged 4.14 tons per hectare during 1985-89 compared with the U.S. average of 2.37 tons per hectare.

Wheat is grown in two areas. The northwest region, including Sonora, Sinaloa, Chihuahua, and northern and southern Baja California, accounts for 75 percent of output. The central region, including Guanajuato, Michoacan, and Jalisco, accounts for the remaining output. About 95 percent of production is harvested during April-July and the remainder during September-February.

About 80 percent of production is high-yielding soft winter varieties. Hard durum and white durum varieties make up the remaining production. Large-scale farmers account

Figure 7

## Mexican wheat



for about two-thirds of output, with the rest produced by farmers with less access to modern inputs and credit. About 90 percent of the wheat crop is grown on irrigated land. Wheat is the second largest single user of irrigated land, taking up about 25 percent of area under irrigation.

## **Consumption**

Wheat accounts for about 20 percent of total grain consumption. As much as 80 percent of Mexican wheat has gone to food uses in recent years, with the remainder used for feed and seed. Within the food use category, over 50 percent is used in bakery products (cookies and pastries), 40 percent in bread, and the remainder primarily in pasta. Wheat is used to only a limited extent for feed, principally in the northwestern growing areas. Feed use varies annually according to the price of wheat relative to sorghum and other feeds. Wheat accounted for less than 3 percent of total feed grain use in 1989.

Wheat consumption has declined slightly since the mid-1980's as a result of declining per capita incomes (fig. 7). The urban middle class consumes a large share of wheat products, and the annual per capita wheat use of about 52 kg is well below U.S. per capita use of about 78 kg per year. The Mexican urban population is expected to annually grow by about 2.8 percent in the 1990's, double the expected overall population growth rate; therefore, demand is likely to expand with economic recovery.

CONASUPO's annual wheat purchases averaged 1.8 million tons during fiscal year 1985-89, or about 22 percent of total grain purchases. CONASUPO typically purchases and markets between 25 and 50 percent of the wheat supply. CONASUPO tries to maintain around 40 percent of the annual consumption in reserve stocks in order to ensure a constant supply of wheat products throughout the year.

The private wheat milling industry purchases the remainder of the domestic crop and imports. Wheat milling industries are located near consumption centers, with one-third of the wheat flour production concentrated in the Federal District surrounding Mexico City.

## **Policies**

The principal policies affecting Mexican wheat producers have included (1) a price support program, managed by CONASUPO, guaranteeing the purchase of the domestic crop at a fixed minimum price, which has generally exceeded the world market price; (2) import license controls; (3) input subsidies provided by several other government agencies for credit, fertilizer, crop insurance, pesticides, irrigation water, and electricity; (4) fiscal support; and (5) general marketing subsidies provided by CONASUPO.

As part of the economic austerity and reform programs initiated in 1988, the Government has moved toward more market-oriented price policies and reduction of input subsidies. The guaranteed price, supported by CONASUPO purchases, has



been replaced by a new system in which producer prices for wheat are based on a compromise between producers, distributors, processors, and the Government. Under this new system, processors, rather than CONASUPO, are obligated to honor the agreement price for the domestic crop. During marketing year 1990/91, the agreed price for wheat was established close to \$5.26 per bushel.

Mexico protects its domestic wheat market through state trading, import licensing, and tariffs. CONASUPO was the primary authorized buyer of imported wheat, but since 1988, CONASUPO has permitted private millers to import more wheat. Import licenses and phytosanitary certificates are still required. Milling wheat has no tariff; durum wheat has a 10-percent duty.

As part of the economic reform process, input subsidies, especially for fertilizer, credit, and irrigation water, have decreased over the past year. Irrigation water and fertilizers have traditionally accounted for the largest share of support to wheat producers. Subsidies on irrigation are high. Producers pay only an estimated 30 percent of the market price for irrigated water provided by the Mexican Government, charges are not usually made for capital expenditures, and less than half of operational and maintenance costs are charged to the producers. Fertilizer prices are also highly subsidized: they have ranged from 40 to 60 percent below the import price and have covered only about 75 percent of production costs.

The Government's fiscal subsidies, provided through the CEPROFIS certificates for partial payment of machinery purchases and/or production infrastructure investment (storage facilities, well construction), also benefited wheat producers. The CEPROFIS system was eliminated in 1989.

CONASUPO has historically purchased a large percentage of the domestic crop at the guaranteed price and resold it to millers for less than the acquisition cost. The money allocated to cover this negative marketing margin constituted CONASUPO's marketing subsidies. With the implementation of the agreement price system, these subsidies have diminished. CONASUPO now buys far less of the domestic crop than in the past.

Wheat consumers are indirectly subsidized not only through the marketing subsidies but also through controlled retail prices for wheat flour and wheat bolillos. CONASUPO sells these products through thousands of its wholesale and retail outlets, but ceiling prices for these items are in effect in private sector establishments as well. CONASUPO's consumer subsidies declined substantially beginning in 1985 as part of the effort to reduce public sector deficits.

### **Phytosanitary Requirements**

Mexico requires a phytosanitary certificate and a certificate of origin.

## **Trade Profile**

Mexico's wheat imports, consisting primarily of No. 2 hard red wheat, have been erratic over the past decade, ranging from 50,000 tons in 1982 to close to 1.2 million tons in 1988. Average annual wheat imports were around 600,000 tons.

Mexico's wheat imports averaged 12 percent of domestic supply and close to 10 percent of total Mexican grain imports during 1985-90. Wheat import demand rose over the last 2 years, primarily because of smaller harvests.

CONASUPO has been the primary buyer of imported wheat, handling around 70 percent of total wheat imports during the 1980's. CONASUPO's average annual wheat imports during 1985-89 accounted for 16 percent of Mexico's total wheat purchases. The share imported by CONASUPO in recent years has declined, and small quantities of wheat are being imported under license by private entities.

The United States typically maintains a dominant share of Mexican wheat imports, and U.S. sales have also tended to increase erratically in recent years. Over 65 percent of wheat imports to Mexico were from the United States during 1985-90.

USDA export programs have been instrumental in U.S. wheat sales to Mexico, with approximately 90 percent of U.S. sales made with short-term loans guaranteed under the Commodity Credit Corporation's GSM-102 program. Annual wheat exports under GSM-102 averaged 412,629 tons during fiscal year 1985-89. USDA authorized over \$168 million worth of GSM-102 credit guarantees between 1985-89. However, the amount of wheat registered under GSM-102 has declined over the last few years from about \$90 million in fiscal year 1988 to \$44 million in fiscal year 1990. About 1.4 million tons of U.S. wheat were exported to Mexico in fiscal year 1988 and fiscal year 1989 under the Export Enhancement Program (EEP).

The recent privatization of some imports has contributed to increased Mexican imports of value-added items, such as wheat flour. Mexico imported about 2,000 tons of wheat flour during both fiscal year 1989 and fiscal year 1990.

## **Importance of Wheat to the United States**

Wheat is the United States' fourth largest commodity value (\$7.7 billion) after cattle and calves, dairy, and corn. It is grown widely but is concentrated in the central portion of the United States in the Plains area east of the Rocky Mountains. Wheat is similar to corn in planted acreage (planted acreage for soybeans is slightly less than for wheat). The United States, like Mexico, grows wheat primarily for food purposes, producing about a tenth of the world's production.

## **Effects of Trade Liberalization**

Trade liberalization may result in a moderate increase in Mexico's wheat imports, given the current level of Mexico's dependence on wheat imports (averaging about 12



percent of consumption during 1985-89) and the comparatively low level of producer support arising from price supports and border measures. Trade liberalization would reduce the general level of producer prices for wheat, since reductions in producer price supports would be required to avoid stockpiles of expensive domestic wheat. However, if all grain trade were liberalized, declines in producer prices of wheat would likely be small relative to some other major commodities that now have much higher support from border and price policies.

Although the Government has allocated a great deal of its input subsidies to wheat producers over the years, these subsidies still account for a relatively small share of producer value. As a result, reduction or elimination of these subsidies, with the exception of water, is not likely to result in substantially reducing the wheat production.

Trade liberalization would reduce domestic market prices of wheat and increase consumption. Trade liberalization in wheat could benefit the Government of Mexico. The budgetary cost of producer price supports would be eliminated, and because of lower market prices of wheat, the unit cost of CONASUPO's direct consumer subsidies would fall.

Free trade would likely increase U.S. exports of wheat to Mexico, although increases would be modest as Mexican price supports for wheat are moderate relative to other grains.

### **Implications for Other Trading Partners**

Canada competes with the United States in exporting wheat to Mexico (table 5). However, Canada's wheat exports to Mexico have been erratic during the past decade. Canadian wheat exports to Mexico in marketing years 1986/87 and 1987/88 were made under credit. Canada presently has a credit agreement with Mexico for exporting 75,000 tons of wheat during calendar years 1990-92. Canada's wheat exports depend on both Mexico's financial situation and quantities of feed wheat available for export, which is a function of weather.



Table 5--Wheat production and trade in NAFTA countries, 1990<sup>1</sup>

Item	Canada	Mexico	United States
1,000 metric tons			
Production	31,710	3,900	74,532
Total exports from:			
	Canada	Mexico	United States
1,000 metric tons			
Total exports	21,800	0	29,064
To Canada	-	0	0
To Mexico	75	-	300
To U.S.	500	0	-
To ROW	21,225	0	28,200
Total imports to:			
	Canada	Mexico	United States
1,000 metric tons			
Total imports	0	550	990
From Canada	-	75	500
From Mexico	0	-	0
From U.S.	0	300	-
From ROW	0	175	490
	Canada	Mexico	United States
Kilograms			
Per capita consumption	253	50	150
Food use	143	44	96

<sup>1</sup> Columns may not sum because of preliminary data, shipments that are in progress, etc.

- = Not applicable.

Source: U.S. Department of Commerce; Agriculture Canada, Statistics Canada; Foreign Agricultural Service, USDA; Banco de Mexico.

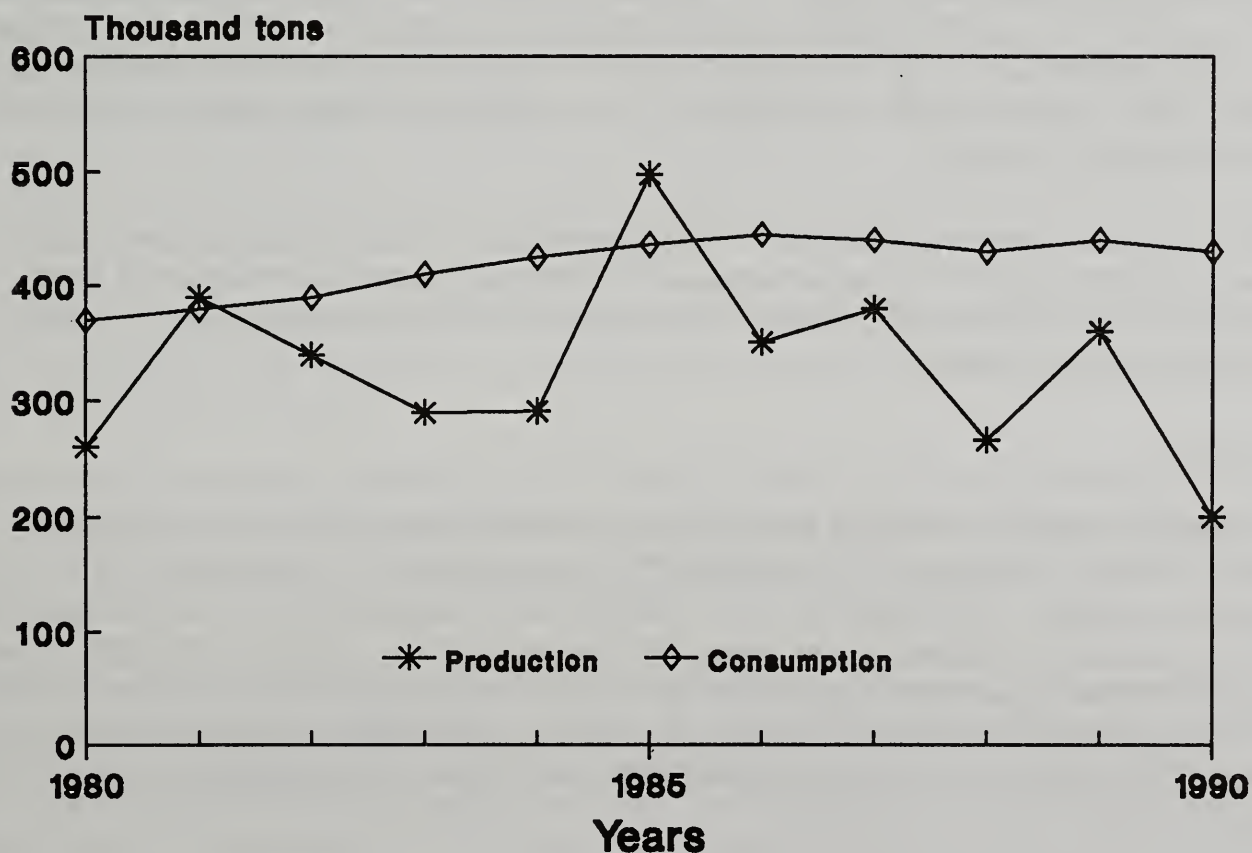
## Rice

### Production

Rice is a relatively minor crop in Mexico, covering little more than 1 percent of the cultivated area, accounting for only 1.5 percent of total crop production, and generating less than 1 percent of the overall agricultural income. "Long-grain" is the type of rice produced in Mexico. Paddy production in Mexico has averaged 366,000 tons since 1985 but has fluctuated widely (from 266,000 to 498,000 tons a year), mainly reflecting changes in the availability of water and variations in the level of prices (fig. 8). Yields, however, have increased significantly since the early 1970's, reaching a peak of 2.8 tons per hectare in 1986, compared with 1.6 tons per hectare in 1971, and averaging nearly 2.6 tons per hectare under irrigation during 1985-89 or twice as much as under rain-fed conditions. The bulk of production still takes place under irrigation; however, output has significantly increased in the rain-fed peninsular regions where climatic and soil conditions are favorable to rice. Two States, Sinaloa in the northwest and Veracruz on the gulf coast, account for about 52 percent of the rice area. The Sinaloa area, with higher yields than other producing regions in Mexico, accounts for about half of total production.

Figure 8

### Mexican rice



Most rice (paddy) is cultivated under the spring-summer cycle (plantings in May-July, harvesting in November-December), but irrigation also permits the production of a secondary rice crop (5 percent of annual output) during the fall-winter cycle (planting in November-December and harvesting in April-July).

Irrigated paddy production has traditionally accounted for 70 percent of the total and is concentrated in the northwest and central States where rice is cultivated under rotation with other grains and soybeans. Paddy is grown as a monoculture in the rain-fed southeastern States.

Nearly 70 percent of the rice area is under the ejidos system. Private farms of greater than 5 hectares account for 29 percent of the area, and private farms of less than 5 hectares have about 1 percent.

Rice is principally cultivated as a cash crop, and the production system uses modern inputs. Cultivation is highly mechanized; 86 percent of the total area is covered with fertilizers and 70 percent by improved seeds.

Rice area and production depends on the availability of water for irrigation and the government producer price policies.

## **Consumption**

Rice is considered to be a basic staple food. Rice has generally been the most expensive food grain in Mexico, and prices have tended to increase faster than those of other staple foods. Per capita consumption has remained constant at about 5.6 kg per year over the last 10 years. Growth rate in consumption of 1.2 percent per year (from 410,000 tons in 1983 to 440,000 tons in 1989) has been in line with population growth. Rice consumption represented only 1.8 percent of total grains consumed in Mexico during 1985-90.

Most of the rice (paddy) produced in Mexico is destined to the market, and almost none is consumed onfarm except as seed. About 65 percent of the total is sold directly to the private mills, with the remainder being sold to CONASUPO, mostly in areas with difficult access.

## **Policies**

The principal policies affecting Mexican rice producers have included (1) a price support program, managed by CONASUPO, guaranteeing the purchase of the domestic crop at a fixed minimum price, which has exceeded the world market price; (2) direct support in opening new areas to rice production; (3) input subsidies provided by several other government agencies for irrigation water, electricity, seeds, fertilizer, machinery, credit, and crop insurance; (4) general marketing subsidies provided by CONASUPO; (5) import license requirements and tariffs; and (6) direct control of rice prices.



The guaranteed producer price, corresponding in principle to a floor price administered by CONASUPO since its introduction in 1961, has been phased out and replaced with a new system in which producer prices have to be simultaneously approved by producers and processors. This new system, known as "agreement prices," is intended to facilitate gradual movement toward market pricing. The price of rice is set on the basis of the Chicago Board of Trade spot price, plus the cost of insurance and freight, a certain percentage corresponding to a tax, and the amount for transportation and storage costs. Processors, rather than CONASUPO, are obligated to honor the "agreement price." However, in marketing year 1990, CONASUPO gave producers a bonus equal to 10 percent of the price for all rice they were to purchase. At the same time, BANRURAL established a credit line to finance the purchase at preferential rates below market prices for rice produced in the State of Veracruz. In the State of Sinaloa, despite the existing "agreement price," CONASUPO purchased the bulk of the crop under pressure from producers. The producer price is about \$184.16 per ton.

Production increases to match the requirements of a growing population have been sought through expansion of rain-fed areas in the southeastern States, with the Government of Mexico providing the basic infrastructure of roads, mills, machinery, and investment in water control and irrigation.

Subsidies provided by the Government of Mexico on basic inputs have assisted in slowing the decline in production. Subsidies on irrigation are high; producers are charged less than half of the operational and maintenance costs, while charges are not usually made for capital expenditures. Certified seeds are sold at subsidized prices estimated to cover only about 65 percent of the cost of production. Fertilizer prices are highly subsidized; they have been from 30 to 70 percent below the import price and have covered only about 75 percent of production costs. In addition, fertilizer prices have declined relative to those of rice, contributing substantially to the increased profitability of rice cultivation. More recently, the Government of Mexico has moved to increase fertilizer prices to cover the total cost of imported components and to periodically readjust them in line with increases in the agreement prices and production costs. The Government of Mexico rents machinery to producers at rates 30 percent below those charged by the private sector. Credit for the purchase of agricultural machinery is also given at preferential rates, and up to 25 percent of its cost is refunded to the purchaser. In addition, farmers are required to participate in the crop insurance program.

The marketing subsidies provided by CONASUPO, which cover only storage and marketing costs, have been smaller than for other main staples (corn and dry beans). CONASUPO historically purchased a large percentage of the domestic crop at the guaranteed price and resold it to millers for less than the acquisition cost.

Until 1985, CONASUPO had a monopoly on imports of all types of rice except for glutinous polished rice, which could be imported by private traders for consumption by tourists. However, the private sector has now been authorized to import other types of rice to limit CONASUPO's imports to the amounts required for its own distribution network and for stockholding. The quantities imported of these other types of rice are

determined by a committee composed of government officials and private sector representatives. Rice imports by CONASUPO are exempt from tax payments and are principally made through public tenders and government-to-government contracts. Rice imports do not require an import license. Paddy or rough rice, broken rice, and brown rice have a 10-percent ad valorem duty, and semi-milled and wholly milled rice have a 20-percent tariff.

The Government controls stocks and imports through direct intervention of CONASUPO in marketing and the establishment of maximum retail and wholesale prices by SECOFI (based on the maximum prices after milling plus an allowance to cover marketing costs). Price controls exist on 10-25 percent broken, but there are no price controls of 5-percent broken for consumer rice.

The privatization and liberalization effort of the Government since 1989 reportedly has reduced significantly the level of subsidies.

### **Trade Profile**

Output has not kept up with consumption growth since 1970, and imports have increased. However, because production has fluctuated widely, trade volume has also fluctuated. Imports averaged over 21,000 tons in 1970-75. There were no imports during 1976-77, when limited quantities were exported. Since 1978, Mexico has been a rice importer in most years, with a peak level of 203,000 tons in 1984. Mexico became self-sufficient again in 1986 and 1987. Rice imports represented only 1.1 percent of total grain imports during 1985-90 but over 16 percent of rice consumption. CONASUPO traditionally has been the primary buyer of low-quality milled imported rice (U.S. Grade No. 4, 20-percent broken, long-grain rice), but private millers are allowed to import directly U.S. rough or brown rice, mill it, and sell it as premium 5-percent broken, which do not have price controls.

Mexico has been an erratic rice importer. Imports have been mainly in the form of white or husked rice from China, Thailand, and Costa Rica. The United States has become the primary rice supplier for Mexico during the last few years. The United States exported 249,560 tons of rice in fiscal year 1989 under the GSM-102 credit guarantee program, worth over \$79 million. Mexico imported 50,000 tons of rice from Vietnam and Thailand in 1990. The United States agreed to supply a record high of 200,000 tons of brown rice in calendar year 1991. The Government of Mexico eliminated phytosanitary requirements on milled rice imports in fiscal year 1990, which should encourage U.S. rice exports to Mexico.

## **Effects of Trade Liberalization**

Trade liberalization may result in larger Mexican rice imports, given the current level of Mexico's dependence on rice imports (averaging about 42 percent of domestic supply) and the high level of producer support.

Trade liberalization will also benefit the Government through reduced budgetary expenses due to the elimination of producer and consumer subsidies. Most of Mexico's rice imports have come from the United States, so direct trade gains will go primarily to the United States.



Table 6--Rice production and trade in NAFTA countries, 1990<sup>1</sup>

Item	Canada	Mexico	United States
1,000 metric tons			
Production	0	200	5,590
Total exports from:			
	Canada	Mexico	United States
1,000 metric tons			
Total exports		0	2,425
To Canada	-	0	121
To Mexico	0	-	113
To U.S.	0	0	-
To ROW	0	0	2,190
Total imports to:			
	Canada	Mexico	United States
1,000 metric tons			
Total imports	130	130	135
From Canada	-	0	0
From Mexico	0	-	0
From U.S.	121	113	-
From ROW	9	17	135
	Canada	Mexico	United States
Kilograms			
Per capita consumption	5	5	11

<sup>1</sup> Columns may not sum because of preliminary data, shipments that are in progress, etc.

- = Not applicable.

Source: U.S. Department of Commerce; Agriculture Canada, Statistics Canada; Foreign Agricultural Service, USDA; Banco de Mexico.

# Barley

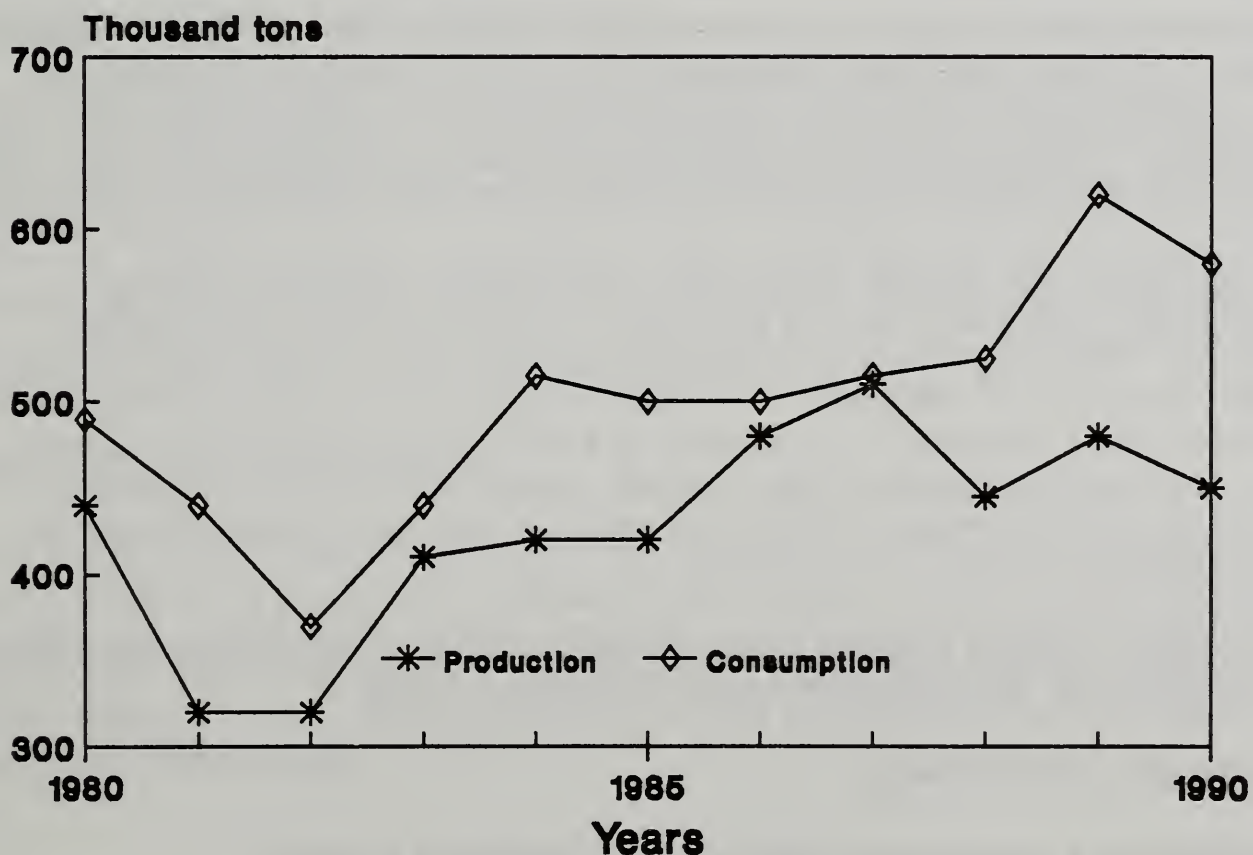
## Production

Since barley's introduction in Mexico in 1971, barley production has increased more rapidly than any other major crop. By 1990, area harvested was nearly 300,000 hectares, ranking fifth among field crops. However, barley yields remain low, averaging 1.73 tons per hectare during 1985-89 compared with the U.S. average of 2.59 tons per hectare. In the late 1980's, production averaged near 450,000 tons (fig. 9 and table 7).

Feed barley, grown primarily in the Mexicali region of northern Baja California, accounts for about 60 percent of barley production. Malting barley generally accounts for over 40 percent of production and is produced on irrigated land in the central Bajio region. About 80 percent of production is harvested during May-June and the remainder during September-February.

Figure 9

## Mexican barley



## **Consumption**

Demand for barley comes from livestock and poultry producers (feed barley) and from the brewing industry (malting barley). Continued growth in feed barley demand was stimulated in the 1980's by increased consumer subsidies and price controls on food products. Malting barley consumption has increased as improving per capita incomes have led to higher beer consumption.

CONASUPO purchases and markets less than 10 percent of the feed barley crop. Malt producers generally purchase the bulk of the malting barley crop; however, when the quality of the crop is inferior, CONASUPO purchases it for use as animal feed. Malt producers are then permitted to import malting barley.

CONASUPO's annual barley purchases averaged 10,724 tons during fiscal years 1985-89, or about 0.12 percent of total grain purchases.

## **Policies**

The principal policies affecting Mexican barley producers have included (1) a price support program, managed by CONASUPO, guaranteeing the purchase of the domestic crop at a fixed minimum price; (2) import license controls and tariffs; (3) input subsidies provided by several other government agencies for fertilizer, irrigation water, and electricity; and (4) general marketing subsidies provided by CONASUPO. Input subsidies for barley historically have been more limited than those for other major crops, such as wheat, sorghum, and soybeans.

The guaranteed price support for feed barley was suspended in 1990, when no official producer guarantee prices were announced for that crop. However, an agreement price for malting barley was fixed based on the outcome of negotiations between the beer industry, malting barley producers, and the Government. Processors, rather than CONASUPO, are obligated to honor the agreement price for the entire domestic crop.

Barley consumers are affected by the same price support and import licensing measures that affect producers, but their effect is to tax, rather than to subsidize, consumers. The taxing effects of these measures is at least partially offset by direct subsidies provided by CONASUPO. CONASUPO purchases domestic feed barley at guaranteed prices and sells it to processors at a lower price, absorbing all marketing costs. CONASUPO subsidies at least partially compensate producers of livestock products (for example, eggs, chicken, pork, and milk) who face controlled prices for their products.

Trade policies for barley continue to include import licensing requirements and import tariffs of 5 percent. All imports are handled by private traders.

## **Phytosanitary Requirements**

Mexico requires a phytosanitary certificate and a certificate of origin.



## **Trade Profile**

Imports are highly variable, linked to both the quantity and quality of Mexican domestic production, the availability of carryover stocks, and the relative prices of feed wheat and corn. The average level of annual Mexican imports was around 65,000 tons throughout the 1980's, although they were highly variable from year to year, ranging from 5,000 tons in 1986 to 140,000 tons in 1989. These imports have included both malting barley and feed barley.

Mexican barley imports represented about 13 percent of domestic barley supply and 1.2 percent of total grain imports during 1985-90.

Barley represents a small share of U.S. feed grain exports to Mexico. Canada accounted for all of Mexican imports of both feed and malt barley during most of the 1980's. However, Mexico imported 136,000 tons of U.S. barley in marketing year 1988/89, accounting for all of its import needs for that year. Mexican import demand for malting barley and hops is partially determined by demand for Mexican beer in the U.S. market.

CONASUPO did not import any barley in the 1980's, with the total of its purchases being obtained in the domestic market.

The availability of U.S. credit helped export 12,970 tons of malting barley to Mexico in fiscal year 1990. The value of malting barley exports under the GSM-102 program was over \$4 million.

## **Importance of Barley to the United States**

Barley is the United States' 25th largest commodity in value (\$950 million) after lettuce, cane sugar, and rice. It is similar to sorghum and oats in planted acreage (9 million acres). The United States, like Mexico, primarily grows barley for feed purposes, producing more than 20 times as much as Mexico. Exports account for a fifth of U.S. barley production. Barley has a price support program and an acreage reduction set-aside program in order for producers to receive deficiency payments. Mexico takes 2 percent of U.S. barley exports (table 7). Canada occasionally imports small amounts of barley, under license, from the United States.

## **Effects of Trade Liberalization**

Trade liberalization is likely to generate lower producer and consumer prices in Mexico, creating the potential for increased import demand. Lower domestic costs for feed barley and other feeds would tend to stimulate demand by Mexican livestock and poultry producers, and to reduce the fiscal cost of CONASUPO's current subsidy on barley. However, actual increases in barley imports would depend on the relative prices of competing feeds.

Trade benefits for the United States may be in the form of increased demand for quality U.S. malting barley. The magnitude of this increase would depend on the details of a trilateral agreement for both beer and malting barley. The U.S. import tariff on beer currently stands at 1.6 cents per liter, but exporters must also pay a Federal excise tax of \$9 per 31-gallon barrel.

### **Implications for Other Trading Partners**

Canada is a major barley producer and exporter, including some exports to Mexico.

Table 7--Barley production and trade in NAFTA countries, 1990<sup>1</sup>

Item	Canada	Mexico	United States
1,000 metric tons			
Production	14,100	450	9,120
Total exports from:			
	Canada	Mexico	United States
1,000 metric tons			
Total exports	4,500	0	1,739
To Canada	-	0	0
To Mexico	15	-	40
To U.S.	200	0	-
To ROW	4,285	0	1,699
Total imports to:			
	Canada	Mexico	United States
1,000 metric tons			
Total imports	0	125	323
From Canada	-	15	200
From Mexico	0	-	0
From U.S.	0	40	-
From ROW	0	70	123
	Canada	Mexico	United States
Kilograms			
Per capita consumption	320	7	33
Food use per capita	34	5	16

<sup>1</sup> Columns may not sum because of preliminary data, shipments that are in progress, etc.

- = Not applicable.

Source: U.S. Department of Commerce; Agriculture Canada, Statistics Canada; Foreign Agricultural Service, USDA; Banco de Mexico.



## **Soybeans and Products**

### **Production**

Soybeans are Mexico's primary oilseed, ranking fifth in area and fourth in production among all field crops. Soybeans account for more than 50 percent of Mexican oilseed production. Nearly all of Mexican domestic soybean production and all soybean imports are crushed to produce meal and oil. Soybeans are harvested in September. Most of the crop is grown on large, private commercial farms in the northwest States of Sonora and Sinaloa, where they are double-cropped with winter wheat, and in the northeast State of Tamaulipas. Soybeans represent about 43 percent of total cropland planted to oilseeds. About 85 percent of the crop is grown on irrigated land. Most growers use modern inputs, including certified seed and pesticides. Soybean yields averaged about 2 tons per hectare during 1985-89 compared with the U.S. average of 2.16 tons per hectare.

Soybean area and production are linked to the availability of irrigation water, to developments in the livestock and poultry sector that affect soybean meal demand, and to government production policies. Frequent drought, combined with the heavy irrigation requirements of the winter wheat crop, has caused major fluctuations in soybean production. Gains in production during the late 1980's resulted from increased area planted, while yields have tended to decline (fig. 10).

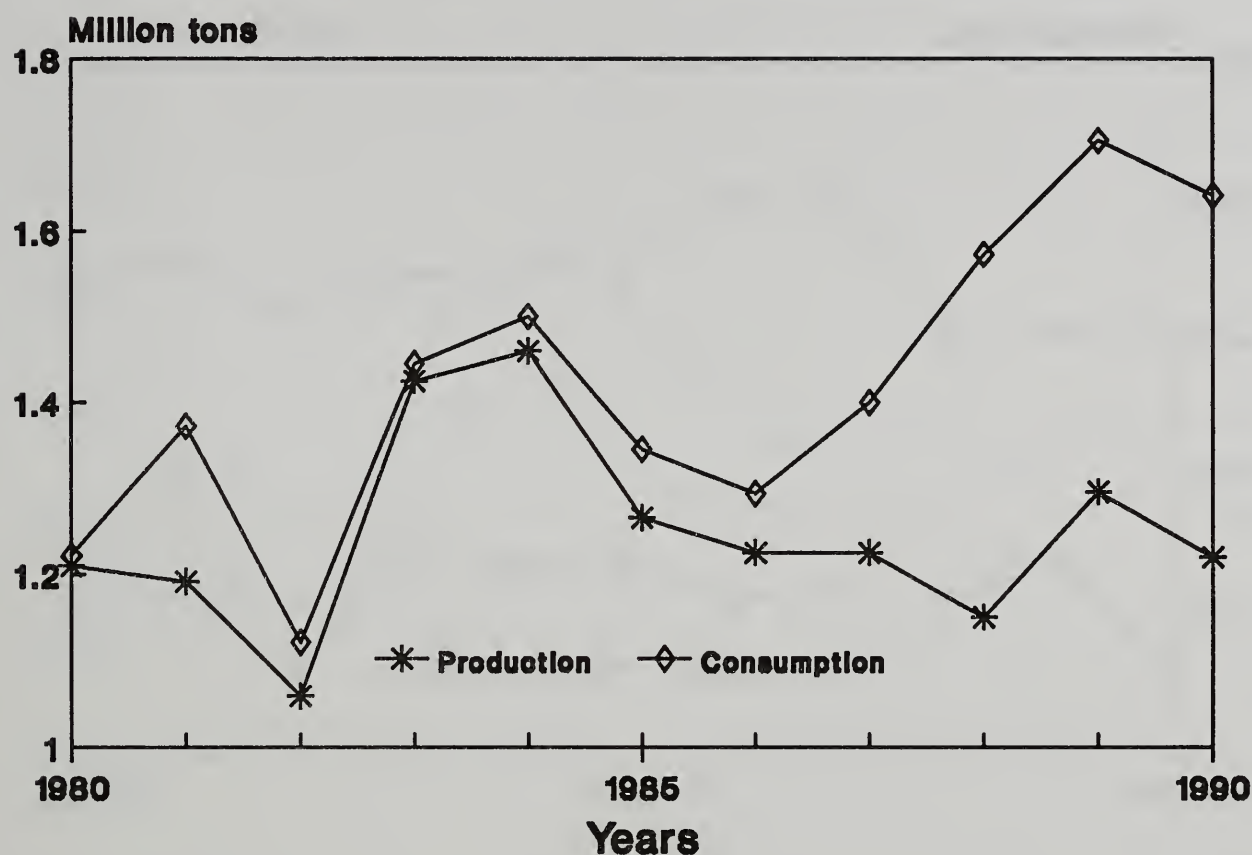
### **Consumption**

Demand for soybean products has outpaced Mexican domestic soybean production during the last decade (fig. 11 and fig. 12). Human consumption of soybeans represents only about 3 percent of total use, so the bulk of soybean demand is derived from the demand for meal and oil. Crushing demand is determined by the price of soybeans relative to competing oilseeds, particularly rapeseed, and by developments in the pork and poultry sectors. Soybean meal accounts for approximately 70 percent of all oilseed meals consumed in Mexico. Steady increases in soybean meal consumption in the 1970's and early 1980's were tied to the steady expansion of pork and poultry output. Over the past 3 years, meal consumption averaged about 1.5 million tons, reflecting little growth in demand for livestock products and feed (fig. 11). Soybean meal consumption has also been affected by the availability of surplus domestic wheat and lower imported corn prices. Soybean oil accounts for about 40 percent of all edible vegetable oils consumed in Mexico. The share of soybean oil consumption in total consumption of edible vegetable oils has remained rather stable (fig. 12), although total vegetable oil consumption increased sharply in 1989 and 1990.

CONASUPO's role in the import and marketing of soybeans is now much smaller than in the past, with the privatization of imports and the move away from subsidized soybean prices. CONASUPO's annual soybean purchases averaged 177,229 tons during fiscal year 1985-89, or about 2 percent of total grain and oilseed purchases.

Figure 10

## Mexican soymeal



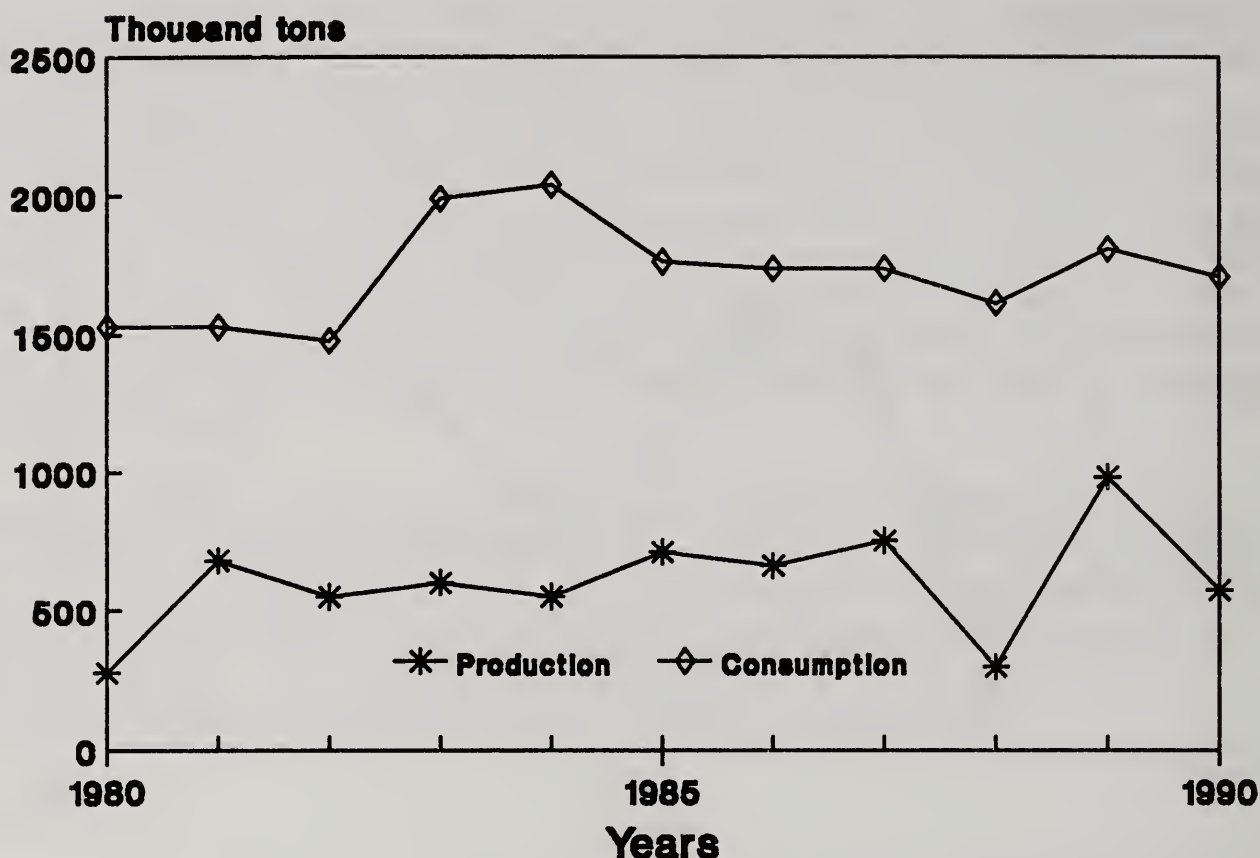
CONASUPO has historically purchased around two-thirds of the total domestic crop and half of soybean imports. CONASUPO has not imported any soybeans since 1988, and domestic purchases have been minimal. CONASUPO purchases of meal and oil have also dropped dramatically since the mid-1980's to virtually zero. The average level of annual soybean purchases during 1985-89 was less than 2 percent of total grain and oilseed purchases.

### Policies

The principal policies affecting Mexican soybean producers and processors have included (1) a price support program, managed by CONASUPO, guaranteeing the purchase of the domestic crop at a fixed minimum price above the world market price; (2) import license controls and tariffs; (3) input subsidies provided by several other government agencies for credit, fertilizer, crop insurance, pesticides, irrigation water, and electricity; (4) fiscal subsidies; and (5) the purchase of soybeans by CONASUPO at the guaranteed price for resale to the processing industry at a price below CONASUPO's acquisition costs. Acquisition costs include the cost of the soybeans, plus transport, storage, and marketing costs.

Figure 11

## Mexican soybeans



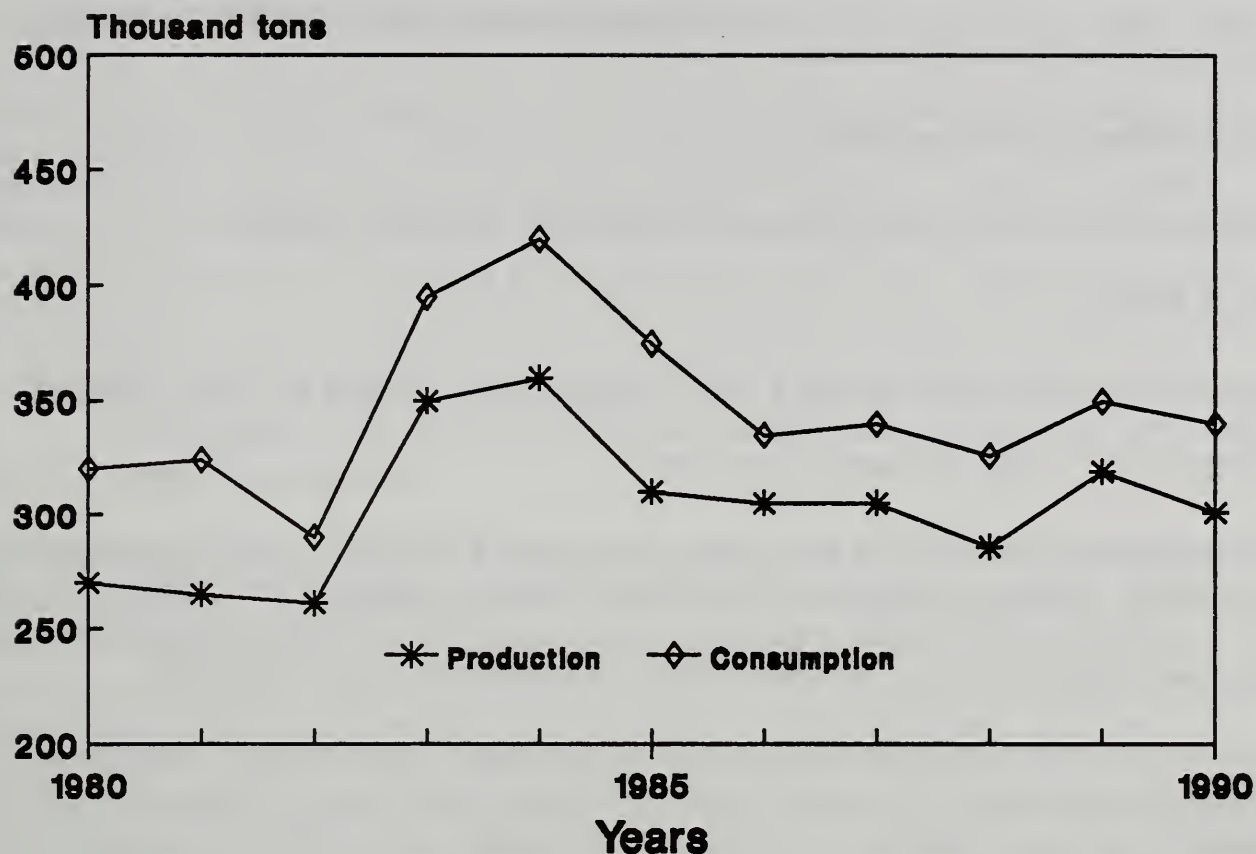
In 1990, the Government replaced the guaranteed price support system for most crops including soybeans with a system that established producer prices based on an agreement between producers, distributors, processors, and the Government. This new agreement price system is intended to facilitate privatization of soybean trading and gradual adjustment to market pricing. The resulting agreement price for soybeans was U.S. \$7.98 per bushel during marketing year 1990/91.

Trade policies for soybeans historically included import licensing requirements and import duties, policies that ensured the domestic crop be purchased before foreign supplies. However, import license requirements for soybeans intended for crushing were suspended in July 1990. Before August 2, 1991, the import tariff was 10 percent for the period October 1 through December 31. The tariff was raised to 15 percent and the season extended from August 1 to January 31. Import licensing for soybean meal and oil was also suspended. Soybean meal is now subject to a 15-percent tariff, and crude and refined oils face 10- and 20-percent tariffs. With these changes, importers now have the flexibility to import either raw soybeans or processed soybean products to meet final demand.



Figure 12

## Mexican soyoil



Input subsidies for soybean producers have declined over the past 2 years. The subsidy on irrigation water has been, by far, the most valuable input subsidy for soybean producers. Subsidies on irrigation water have historically been high for soybeans. However, the subsidized rate that applied to irrigation water was increased in 1990, affecting producers in Sonora and Sinaloa's irrigation districts.

The Government's fiscal support, provided through CEPROFIS certificates for partial payment of purchases of machinery and/or production infrastructure investment (storage facilities, well construction), also benefited soybean producers. The CEPROFIS system was eliminated in 1989.

Policies affecting soybean consumers (processors) include the same price support and import licensing measures that affect producers, as well as a processor subsidy administered by CONASUPO. CONASUPO sells domestically procured soybeans to processors at prices below its acquisition costs. However, the direct subsidy provided by CONASUPO is more than offset by the taxing effect of price and import licensing policies. CONASUPO's subsidies to processors have declined since 1985.

As part of its anti-inflationary policy, the Mexican Government has maintained price controls for several commodities that directly or indirectly affect demand for soybeans and products. Price controls on vegetable oil have led processors to blend soybean oil with other oils to reduce costs. And, while soybean meal is not under direct price control, price controls on such products as milk, eggs, and meat have indirectly dampened the demand for meal.

### **Phytosanitary Requirements**

Mexico requires a phytosanitary certificate and a certificate of origin.

### **Trade Profile**

Mexico has traditionally imported more oilseeds than finished products. Oilseed imports are typically less costly than imports of oils and meal, and there is considerable excess processing capacity.

The average level of annual Mexican imports was around 1.1 million tons throughout the 1980's. Soybean imports during 1985-89 ranged between 877,000 tons in 1985 and 1.3 million tons in 1990, averaging about 64 percent of domestic soybean supply. Soybeans represented 68 percent of total seed imports during 1985-90.

Soybean imports vary depending on domestic production, domestic feed demand, the availability and price of domestic feed substitutes, and at least through mid-1990, the availability of import permits. Soybean imports declined in 1989 when sharply higher support prices and adequate irrigation water supplies resulted in a large harvest. In 1990, the shift to the agreement price system, the suspension of import permit requirements, and reduced production due to poor weather contributed to increased import demand for both soybeans and products.

CONASUPO was the primary soybean importer before 1986, accounting for about half of the domestic soybean imports, with licensed imports by private processors accounting for the remainder. CONASUPO's average level of annual soybean imports during the 1985-89 period accounted for 21 percent of its total soybean purchases, with the remainder being obtained in the domestic market. However, CONASUPO has not imported any soybeans since 1987.

The United States is Mexico's primary supplier of soybeans, meal, and oil. The U.S. market share has traditionally been 78 percent for soybeans and 76 percent for soybean meal and oil. USDA export programs have been instrumental in maintaining a dominant U.S. market share.

USDA authorized \$983 million worth of GSM-102/103 credit guarantees for soybeans and soybean products between 1985 and 1989. Annual soybean exports under GSM-102/103 averaged 761,230 tons during fiscal years 1985-89, or about 73 percent of total commercial U.S. soybean and soybean meal exports to Mexico.



The fiscal year 1990 value of soybean exports to Mexico under these programs was \$202 million, the value of soybean meal was \$50.7 million, and the value of soybean oil exports was \$841,428 (table 8).

### Importance of Soybeans to the United States

Soybeans are the United States' third largest commodity in value (\$17 billion) after cattle and calves and dairy. Soybeans are widely dispersed in their growing area, which is similar to that of corn. The United States, like Mexico, grows soybeans primarily for oil and feed purposes. The United States produces nearly 40 percent of the world's production, 20 times as much as Mexico (table 9). Trade accounts for more than a fourth of U.S. soybean production. Soybean prices are supported by a loan program, though market prices have exceeded loan prices in recent years. Mexico takes 7 percent of U.S. oilseed and product exports; Canada takes 5 percent.

### Effects of Trade Liberalization

Trade liberalization may result in a moderate increase in Mexico's imports of soybeans and soy products. If processor purchase subsidies are eliminated, lower costs for imported soybeans and products would lower the blend price of the product for consumers of beans (processors), meal (the feed industry), and oil (households). The demand effect alone would lead to trade creation. If Mexico chose to phase out agreement prices, both a supply and demand effect would increase imports. Elimination of price supports would lead to a decline in soybean producer returns, perhaps creating an incentive to plant other crops that could be grown more profitably on irrigated land. Lower domestic prices would also increase the incentive to consume soybean products, as noted before. Since Mexico has historically imported a large share of its imported soybeans and meal from the United States, liberalization would likely result in U.S. export gains.

Table 8--GSM-102 credit guarantees for sales of U.S. soybeans and products to Mexico

Item	Average FY 1985-89		FY 1990	
	1,000 metric tons	1,000 dollars	1,000 metric tons	1,000 dollars
Soybeans	769.2	196,646	839.4	202,351
Soybean meal	95.2	26,953	214.5	50,650
Soybean oil	12.6	5,711	1.5	841



The mix of imports between soybeans and processed products will hinge, at least initially, on two factors. One is the amount of excess processing capacity that exists in Mexico and its efficiency relative to that of the United States and competing suppliers. Two is the pattern of reductions agreed to in the free trade agreement negotiations.

### **Implications for Other Trading Partners**

Canada does not export soybeans to Mexico but competes with the United States through exports of canola (rapeseed) and canola oil. Mexican imports of Canadian canola have been erratic.

Table 9--Soybean and products production and trade in NAFTA countries, 1990<sup>1</sup>

Item	Canada	Mexico	United States
1,000 metric tons			
Production	1,292	574	52,302
Total exports from:			
	Canada	Mexico	United States
1,000 metric tons			
Total exports	305	0	20,276
To Canada	-	0	330
To Mexico	0	-	1,739
To U.S.	70	0	-
To ROW	5	0	18,207
Total imports to:			
	Canada	Mexico	United States
1,000 metric tons			
Total imports	875	1,739	75
From Canada	-	0	70
From Mexico	0	-	0
From U.S.	330	1,739	-
From ROW	545	0	5
	Canada	Mexico	United States
Kilograms			
Per capita consumption	43	22	139

<sup>1</sup> Columns may not sum because of preliminary data, shipments that are in progress, etc.

- = Not applicable.

Source: U.S. Department of Commerce; Agriculture Canada, Statistics Canada; Foreign Agricultural Service, USDA; Banco de Mexico.

## **Dry Beans**

### **Production**

Dry beans rank second in area harvested and fourth in production among Mexican field crops. Area harvested in 1990 was 1.9 million hectares, and production was about 1.3 million tons. More than 10 different varieties of beans are produced, reflecting regional consumer preferences. The main varieties are black, pinto, and pink beans. Dry beans are one of the main crops of small subsistence farmers, or ejidatarios, who account for about 70 percent of production. The remainder of the crop is produced on private farms of more than 5 hectares.

About 65 percent of the dry bean production is concentrated in the north central, Pacific central, and central regions of Zacatecas and Durango. About 90 percent of dry bean area is rain-fed. About 70 percent of the crop is harvested in September-February, and the remainder in March-July.

Dry bean production is highly variable, largely because of dependence on rainfall and changing government agricultural policies. A sharp increase in the guaranteed support price in 1990, albeit below the price paid by private-sector buyers, has encouraged a modest increase in planted area. Yields averaged 1.5 tons per hectare during 1985-89, just under the world average. Most growers use pesticides, but only 20 percent of area is planted to certified seed.

### **Consumption**

Pulses, with dry beans accounting for more than 90 percent of the total, are a staple of the Mexican diet and are the major protein source for low-income consumers. Dry bean consumption is highly variable. Per capita consumption fell in the late 1970's because of declining production and imports, but recovered in the 1980's. Current per capita dry bean consumption is about 15 kg per year.

Approximately 90 percent of dry bean supply is used for human consumption, with seed use and losses accounting for the remainder. Between 20 and 30 percent of production is typically consumed onfarm. The remainder of the crop is purchased and marketed by CONASUPO and private traders. Most of the commercial supply is marketed as dry beans packed in bags, with only 3 percent canned or milled into flour.

CONASUPO's annual dry bean purchases averaged 330,886 tons during fiscal years 1985-89. CONASUPO's participation in the domestic market has declined from more than 60 percent of production in 1983 to about 35 percent in 1988, but CONASUPO remains the sole importer of dry beans.



## Policies

The principal policies affecting Mexican dry bean producers have included (1) a price support program, managed by CONASUPO, guaranteeing the purchase of the domestic crop at a fixed minimum price exceeding the world market price; (2) import license controls and tariffs; (3) input subsidies provided by several other government agencies for credit, fertilizer, crop insurance, pesticides, irrigation water, and electricity; and (4) general marketing subsidies provided by CONASUPO.

The price support system for dry beans, initiated in 1953, provides two-tiered guaranteed prices. The guaranteed price is about 15 percent higher for preferred varieties (black beans and pintos) than for nonpreferred varieties (such as limas and pinks). Guaranteed support prices are set by the Gabinete Agropecuario, which reportedly takes into account national average variable costs of production, plus a 30-percent allowance for fixed costs and profits, short-term forecasts of supply and demand, and international prices. Although the Government shifted to an agreement price system for other crops in 1989, the guaranteed price system remains in effect for corn and dry beans. While guaranteed prices for dry beans have been quite variable in the past, the shift to agreement prices for other crops (closely related to international prices plus an additional tax levy on them) has shifted rice, wheat, and sorghum area into dry beans since 1989.

The amount of subsidized credit and fertilizer provided for dry beans has been very limited compared with that for other major commodities, such as wheat, sorghum, and soybeans. However, both price supports and input subsidies have been increased recently. An emergency program, begun in 1990, offers higher dry bean prices to stimulate off-season production in the areas of Sinaloa and Nayarit, which account for over 75 percent of total production. CONASUPO will pay between \$607.73 per ton to \$662.98 per ton, depending on quality and variety. These prices represent the highest dry bean guaranteed prices, in dollar terms, for the past decade.

Dry bean consumers pay more because of the price support and import licensing measures that keep domestic market prices above world prices. Consumers receive a price subsidy administered by CONASUPO. CONASUPO sells its domestically procured and imported dry beans to packagers and consumers at controlled, subsidized prices. Consumer prices are controlled mostly in urban markets, but rural consumers benefit through direct bulk sales. CONASUPO's consumer subsidies on both domestic and imported dry beans have been increasing in recent years.

Trade policies for dry beans continue to include import licensing requirements and import tariffs of 10 percent. Processed and canned dry beans do not require an import permit but have a 20-percent tariff.

The fiscal subsidies, provided through the CEPROFIS certificates for partial payment of machinery purchases and/or production infrastructure investment (storage facilities, well construction), also benefited dry bean producers. Under this system, producers in rain-fed areas were to receive payment for 25 percent of their expenditures, while

producers in irrigated areas would receive 15 percent. The CEPROFIS system was eliminated in 1989.

### **Phytosanitary Requirements**

Mexico requires a phytosanitary certificate and a certificate of origin.

### **Trade Profile**

Imports accounted for about 15 percent of total supply during the 1980's, but have been highly variable because of fluctuations in domestic production. Dry bean imports from the United States were erratic in the 1980's, ranging from 39,000 tons to 400,000 tons. Most imports occur during January-March, corresponding with seasonal shortages in Mexico.

CONASUPO's average level of annual dry bean imports during 1985-89 accounted for 29 percent of its total dry bean purchases, with the remainder being obtained in the domestic market. CONASUPO has historically been the primary buyer of dry beans.

USDA authorized a total of \$103 million worth of GSM-102/103 credit guarantees for dry beans between 1985 and 1989. U.S. export programs have accounted for a significant, but erratic, share of dry bean exports to Mexico. Dry bean exports registered under GSM-102 varied from a low of 4,000 tons in fiscal year 1985 to a high of 133,000 tons in fiscal year 1987. In fiscal year 1990, dry edible bean exports under the GSM-102 program were 72,100 tons in fiscal year 1990, with a total value of \$54 million.

### **Importance of Dry Beans to the United States**

Dry beans are not in the United States' top 25 commodities value (\$680 million). Dry edible beans are produced in several major areas of the country but on less than 2 million acres. Trade accounts for more than a fifth of U.S. dry bean production. Dry bean prices are not supported by an income or price support program. Mexican imports from the United States have been highly variable and have ranged from 2 to 25 percent of Mexican consumption.

### **Effects of Trade Liberalization**

Current levels of support for producers through border and price policies suggest that trade liberalization, including elimination of import licensing and a tariff reduction, may reduce domestic prices and production. However, the price adjustment is highly uncertain because of the thin nature of the world dry bean market. Similarly, while liberalization might tend to reduce domestic consumer prices and stimulate demand, the extent of this adjustment could be offset by rising world prices.

## **Implications for Other Trading Partners**

Canadian production of pulses (dry beans and lentils) has increased during the past 5 years as a result of favorable market prices compared with those of grains. In 1989, pulse exports to Mexico were valued at Canadian \$5.6 million. Other major suppliers recently have been Argentina, Chile, and China.



## Cattle, Beef, and Products

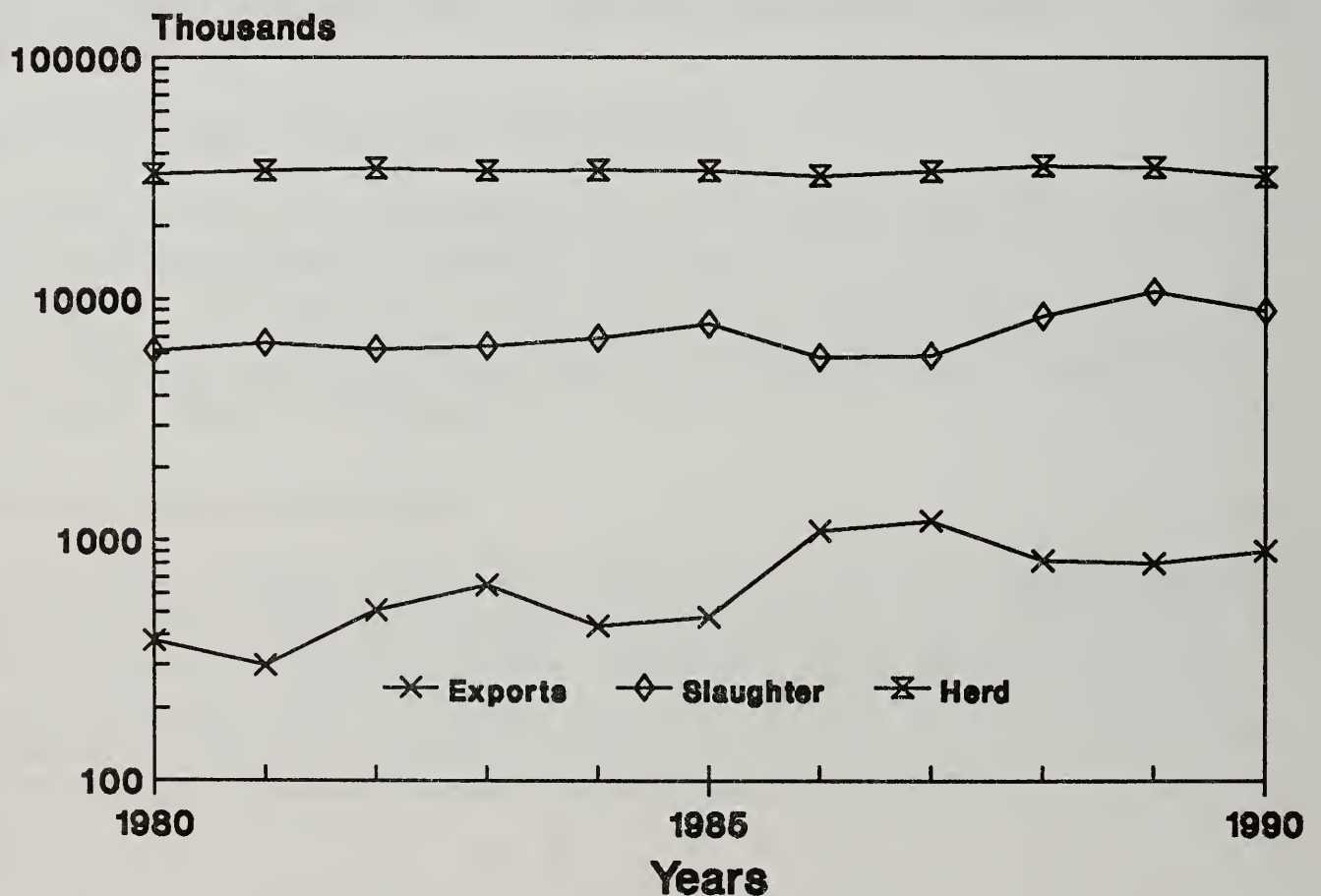
### Production

The majority of Mexico's beef cattle continue to be raised under more traditional, land-extensive types of production systems. Land tenure laws limiting the size and vertical integration of cattle ranches have shaped the industry. Most beef cattle operations are grassland enterprises. Confined, feedlot-type cattle production facilities are virtually unknown in central and southern Mexico, although these types of enterprises are increasing in popularity, particularly in the northern States and along the U.S. border. The predominant cattle breeds in central and southern Mexico are Zebu and Criollo (Mexican mixed breed). European breeds, such as Hereford, Aberdeen-Angus, and various crosses with Zebu, are more common in the more northern Mexican States. Cattle numbers have remained fairly constant over the past decade (fig. 13).

The northern Mexican States have traditionally shipped large numbers of feeder cattle to the United States. During the warmer, wetter summer and fall months, the rangelands and pastures in this area provide ample forage supplies for cattle grazing.

Figure 13

### Mexican live cattle



A supplemental feed source may be needed during the remainder of the year. Peak exports of cattle to the United States normally occur from October to April.

## **Consumption**

Beef is somewhat of a luxury good for the average Mexican consumer, with a price that is normally out of the reach of the middle and lower income groups. This is particularly true for grain-fed beef, which is not common in Mexico, mostly due to its high price. There is demand for U.S.-style, grain-fed beef from the hotel and restaurant trade and from higher income Mexican consumers. Beef consumption is more common in the more northern Mexican States.

Beef consumption in Mexico in 1990 was slightly over 21 kg per capita versus 44 kg in the United States (table 10). Beef consumption was hurt by declining per capita income during the mid-1980's but has been rising recently as purchasing power increases.

## **Policies**

The Mexican Government provides few incentives for beef cattle producers. Instead, many policies boost production costs and control product prices. Land tenure laws place restrictions on the size of landholdings and the raising of feed crops and forages in conjunction with the raising of animals, although there has been some recent liberalization of these legal restrictions. During periods when there have been beef shortages and high prices in the domestic market, exports of live cattle have been limited by the imposition of export taxes and a restrictive export quota. Cattle and beef imports are subject to tariffs.

Domestic price supports and border protection--through State-trading, import licensing, and tariffs--have driven internal price levels of feed grains and oilseeds to above those in the world market (and in the United States). Domestic cattle producers who use confined feeding production practices face a higher cost structure as a result of these policies. Government management of the U.S. dollar/Mexican peso exchange rate and its effects on imported feed ingredient and other imported input prices are also important determinants of profitability.

Live animals and most products are now subject to import tariffs, currently 10-percent ad valorem, with the exception of tallow, which is allowed to enter tariff free. Mexico eliminated the use of import licenses for many livestock and meat items in 1988. The Mexican Government, at one time, was a major buyer of U.S. livestock and products and was exempt from paying duties.

The Mexican Government taxes cattle exports. The Mexican Government abolished the Export Quota System in 1988, and instituted a system that set an export tariff of 20 percent per head (minimum of \$60) for exports up to 500,000 head, and 25 percent for exports above this number. This tax was reduced to 10 percent, or \$30 per head, in September 1989. The tariff was reduced in September 1990 to 5 percent and was



reduced again in September 1991 to 1.67 percent. The tariff is scheduled to be eliminated in September 1992. The live animal export tariff replaced the feeder cattle export quota in 1988.

A program for in-bond feeding of Mexican cattle has operated in the past but is largely unused at present. Under the U.S. Bonded Feedlot Program, Mexican cattle can enter U.S. feedlots and then can be returned to Mexico for slaughter. Because the cattle are in bond, they are not counted as trade between the two countries and are not subject to tariffs or quotas of either country.

Mexico is expected to approve an official grading system for carcass beef. The new grading system will permit beef producers to sell higher quality beef cuts at higher than controlled prices, thus further differentiating the market. Currently, only about 15 percent of Mexico's domestically produced beef carcasses are graded.

U.S. imports of beef from Mexico are subject to the U.S. Meat Import Act. This law provides for the imposition of import controls on fresh, chilled, and frozen beef, veal, mutton, and goat meat if the estimate for annual imports of these and other similar products exceeds 110 percent of a calculated base quantity (or trigger level). Absolute quotas, which fix quantitative limits on imports, apply in principle to meat products covered under the law. However, imports are virtually always restricted by voluntary restraint agreements (VRA's) before the quota becomes effective.

Mexico supplied 1,318,000 pounds, about 0.1 percent, of the total 1.24 billion pounds (562,000 metric tons) product weight imported under the U.S. Meat Import Law in 1983. Mexico was unable to export beef to the United States from 1984 until December 1988, because of failure to meet residue control provisions required under the 1981 farm law. Mexico was recertified to export beef in January 1989. Mexican officials certify the plants, which are inspected biannually by USDA's Food Safety and Inspection Service (FSIS) officials. In 1989, the United States imported from Mexico 126,000 pounds (57 metric tons) of meat subject to the law; this increased to 2,564,000 pounds in 1990 (1,163 metric tons).

The United States assesses tariffs on live cattle and beef products entering the country from Mexico. Live bovine animals are subject to a tariff of 2.2 cents per kg. Other purebred breeding cattle and cows for dairy purposes enter duty free. The U.S. tariff on fresh, chilled, or frozen beef is 4.4 cents per kg, except for processed high-quality beef cuts at 4 percent and other high-quality beef cuts at 10 percent. The tariff for prepared or preserved beef products varies from 3 to 10 percent.

### **Sanitary Requirements**

USDA maintains programs to control the spread of contagious animal diseases. The programs not only prevent the introduction of animal diseases into the United States that are endemic to Mexico, but also create a buffer between the United States and Latin America. USDA has cooperated with Mexico in eradication programs for such diseases as foot-and-mouth and for such pests as the screwworm.



The United States has several sanitary regulations applying to imports of live cattle and beef and products from Mexico. Mexican animals imported into the United States require testing for brucellosis and tuberculosis, and are also required to be examined and treated for ticks capable of spreading splenetic, southern, and tick fever. All cattle imports from Mexico (except in-bond) require "M" brands, which are used in the management of bovine tuberculosis. Special regulations govern animals imported into the United States under the in-bond program. Mexico recently launched a country-wide animal disease control and eradication campaign for diseases such as tuberculosis, brucellosis, and paralytic rabies.

USDA regulations for Mexican cattle destined for in-bond feeding are as follows:

- (1) Cattle must be tested for tuberculosis and brucellosis.
- (2) They must be inspected and dipped for ticks.
- (3) They must be fed in quarantined feedlots only.
- (4) Heifers must be S branded, but steers do not have to be M branded.
- (5) Cattle must be shipped in trucks sealed by USDA inspectors.
- (6) They must have double ear tags for permanent identification.
- (7) They must enter under bond from the U.S. Customs Service.
- (8) They must be directly returned to Mexico for slaughter.

The Mexican Government has, in the past, instituted major changes in its sanitary requirements for live animal and product imports without prior notification, thereby causing major disruptions for U.S. exporters.

## **Trade Profile**

The amount of two-way trade in cattle and products between the United States and Mexico is significant. U.S. exports to Mexico consist principally of hides and skins, beef and veal, live cattle (for breeding and for slaughter), beef variety meats, and tallow. Mexico is the leading market for U.S. exports of live cattle and edible tallow, and ranks among the top five markets for beef and veal, beef variety meats, inedible tallow, and bull semen. Mexico annually ships to the United States nearly 1 million feeder cattle and a small quantity of beef. Mexico was the leading U.S. supplier of cattle, on a per head basis, in 1989 and immediately followed Canada as the leading U.S. cattle supplier by value.

U.S. exports of beef and veal to Mexico totaled 33,000 tons at \$80.8 million in 1990, and beef variety meats totaled \$31.6 million (table 10). U.S. exports of hides and skins to Mexico in 1990 were valued at \$83.4 million, of which \$69.5 million were whole cattle hides. U.S. tallow (edible and inedible) exports to Mexico in 1990 were valued at \$57.3 million. The United States shipped to Mexico live cattle valued at \$55.4 million in 1990, of which \$11.0 million consisted of beef breeding stock, \$35.2 million of dairy breeding stock, and \$9.2 million of cattle for slaughter.

The United States has maintained a relatively large GSM program in recent years to supply cattle hides, beef, pork, tallow, and cattle to Mexico. Mexico received \$30 million in GSM-103 for dairy cattle imports in fiscal year 1991.

U.S. imports of Mexican cattle in 1990 totaled 1,261,000 head valued at \$420 million (table 11). Most of these imports were feeder steers. Beef and veal imports from Mexico totaled \$3.2 million in 1990.

### **Importance of Cattle and Beef to the United States**

Cattle and calves are the United States' number one commodity in value (almost \$37 billion). Cattle are produced in three distinct subindustries: breeding (cow-calf), grazing (stockers or yearlings), and feedlots for high-energy ration finishing. Breeding and stocker operations are geographically dispersed. Grain-fed beef is produced in the United States. It is a significantly different product from the grass-fed beef that is produced in other parts of the world. The United States imports 1-2 million head of cattle for finishing from Mexico and Canada (about 6-8 percent of the U.S. feeder cattle supply). Beef is the major meat in per capita consumption terms, closely followed by poultry and pork.

### **Effects of Trade Liberalization**

Trade liberalization, including a lowering of import tariffs, would lower costs for Mexico's imported feed ingredients, but also lower prices of competing meats. For example, a lowering of tariffs under a free trade agreement would reduce the price of imported feed grains and protein meals, but would also reduce the price of imported meat. Although the lower feed costs would reduce input costs for Mexican producers, lower tariffs on beef and other meat would increase competition to the Mexican cattle industry.

Lower feed costs in Mexico would likely create an incentive for Mexican cattle producers to adopt U.S.-style feedlots and boost Mexican production of fed beef. Beef and products from these operations would be available for the Mexican market or for export. Grain-fed beef has only a relatively small market outlet in Mexico, partly due to its high price (vis-a-vis pork and chicken). An increase in Mexico's grain-fed beef production could partially displace U.S. product in the Mexican market. Fed cattle could be slaughtered and processed in Mexico to take advantage of lower wage rates. Lower priced beef and products could then be retained in Mexico and the higher priced products exported to the United States and elsewhere (Mexico already exports to Japan).

A free trade agreement would likely affect Mexico's exports of feeder cattle to the United States. Lower U.S. tariffs and a reduction in Mexican export restrictions could increase exports of feeder cattle to the United States. However, live cattle exports could be limited by rising demand for beef cattle in Mexico.



Lower tariffs under a free trade agreement would create more opportunities for U.S. exporters of lower priced beef and products and for hides and skins. Any growth of cattle feeding in Mexico could boost demand for U.S. breeding cattle and genetic material.

### **Implications for Other Trading Partners**

Canadian-Mexican trade in beef cattle and products is small. Dairy cattle for breeding was Canada's main export in this category during the 1980's. The value fluctuated between \$58,000 and \$16 million. Canada exports some beef offals to Mexico. Mexico does not export any of these products to Canada.

In contrast, U.S.-Canadian trade in live cattle and beef is significant and relatively free of trade restrictions. The CFTA further liberalized beef trade by eliminating the United States' and Canada's meat import laws with respect to each other.

U.S.-Canadian trade in live cattle is mostly made up of cattle over 700 pounds, many of which are slaughter cattle. This is in contrast to U.S.-Mexican trade in feeder animals, which are mainly lightweight stocker steers, weighing between 200-700 pounds. High transportation costs limit the movement of animals to short distances beyond the border, so a NAFTA is not likely to have much effect on U.S.-Canadian live cattle trade.



Table 10--Beef and veal production and trade in NAFTA countries, 1990<sup>1</sup>

Item	Canada	Mexico	United States
1,000 metric tons			
Production	924	1,790	10,464
Total exports from:			
	Canada	Mexico	United States
1,000 metric tons			
Total exports	110	5	456
To Canada	-	0	87
To Mexico	<1	-	33
To U.S.	104	2	-
To ROW	6	3	336
Total imports to:			
	Canada	Mexico	United States
1,000 metric tons			
Total imports	185	53	1,068
From Canada	-	0	101
From Mexico	0	-	2
From U.S.	88	33	-
From ROW	97	20	965
	Canada	Mexico	United States
Kilograms			
Per capita consumption	38	21	44

<sup>1</sup> Columns may not sum because of preliminary data, shipments that are in progress, etc.

- = Not applicable.

Source: U.S. Department of Commerce; Agriculture Canada, Statistics Canada; Foreign Agricultural Service, USDA; Banco de Mexico.

Table 11--Live cattle inventory and trade in NAFTA countries, 1990<sup>1</sup>

Item	Canada	Mexico	United States
1,000 head			
Inventory	11,147	31,747	98,162
Total exports from:			
	Canada	Mexico	United States
1,000 head			
Total exports	884	1,263	120
To Canada	-	0	35
To Mexico	5	-	64
To U.S.	869	1,263	-
To ROW	10	<1	21
Total imports to:			
	Canada	Mexico	United States
1,000 head			
Total imports	34	69	2,135
From Canada	-	5	874
From Mexico	0	-	1,261
From U.S.	34	64	-
From ROW	0	<1	<1
1,000 head			
Total slaughter	3,479	8,720	35,277

<sup>1</sup> Columns may not sum because of preliminary data, shipments that are in progress, etc.

- = Not applicable.

Source: U.S. Department of Commerce; Agriculture Canada, Statistics Canada; Foreign Agricultural Service, USDA; Banco de Mexico.

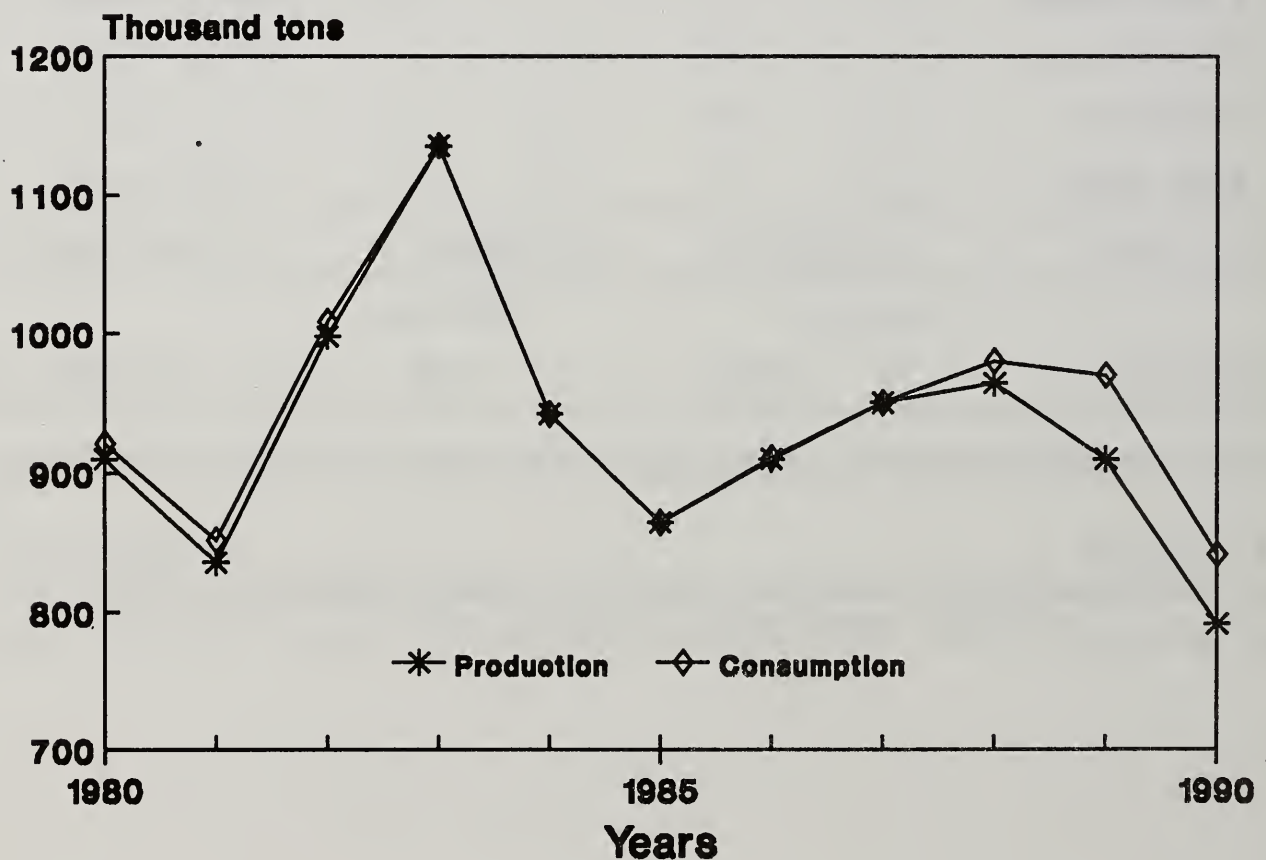
## Swine and Pork

### Production

The Mexican swine sector has changed substantially over the last several decades, evolving from an industry dominated by many, small, often backyard, producers, to one dominated by a smaller group of large producers, mostly using confined production systems. The swine industry in more recent years has gone through a major restructuring, with production becoming even more concentrated. Producers have also increasingly integrated vertically into major inputs, such as feed, and into processing and marketing. About two-thirds of Mexico's swine inventory is currently raised under modern production systems; the other one-third is raised in backyard operations. Practically all commercial pork output is from the specialized confined operations, which depend almost entirely on balanced feed rations. Pork production totaled about 792,000 metric tons (fig. 14 and table 12).

Figure 14

### Mexican pork





## **Consumption**

Less pork is produced in Mexico than beef; however, its consumption is more prevalent than beef consumption among the middle and lower economic classes. Mexico's pork consumption averaged 9.4 kg per capita in 1990, down from previous years due to rising production costs resulting in a decline in output.

## **Policies**

The Mexican Government's domestic and trade policies for feed grains and protein feeds significantly affect a large segment of the Mexican swine industry. These products constitute the principal cost component for a large segment of products. Domestic price supports and border protection--through state-trading, import licensing, and tariffs--have driven internal price levels of feed grains and protein feedstuffs above those in the world market (and in the United States). Feed costs typically constitute 65-70 percent of production costs.

Live hogs and most pork and pork products are still subject to import tariffs, currently 20-percent ad valorem. Mexico still requires an import permit for lard in addition to a 10-percent tariff. The Mexican Government is a major buyer of U.S. livestock and products and is exempt from paying duties.

There are no tariffs on U.S. imports of live hogs from Mexico or on unprocessed fresh, chilled, or frozen pork, but trade is restricted by health regulations. The average tariff for processed fresh, chilled, or frozen pork is 2.2 cents per kg and ranges from 1.3 cents per kg for prepared or preserved pork sausages to 6.6 cents per kg for canned ham.

## **Sanitary Requirements**

The presence of animal disease restricts Mexico's exports of hogs and fresh or frozen pork to the United States. Due to the presence of hog cholera, Mexico can't export live hogs to the United States unless they are quarantined for 90 days.

Mexico has plants certified to export red meat to the United States. At least two of the plants export popping pork skin. Mexican officials certify the plants, and FSIS officials biannually inspect the plants. However, USDA's Animal and Plant Health Inspection Service (APHIS) officials have ruled that, due to the presence of hog cholera in Mexico, pork shipments to the United States must be deboned and fully cooked, deboned and fully dried for 90 days, or canned. Mexico has had difficulty in maintaining red meat inspection standards equal to those of the United States, and thus eligibility to export to the United States has been intermittent.

Mexico has recently tightened its animal regulations for imported animals and products. In the past, the Mexican Government has instituted major changes in its sanitary requirements without prior notification, thereby causing major disruptions for U.S. exporters.

Mexico became concerned in 1989 that hogs for slaughter exported from the United States were being illegally diverted to breeding operations. Some areas of Mexico were experiencing serious new outbreaks of hog cholera, and Mexican officials were concerned that diverted U.S. hogs might be escalating the spread of the disease because U.S. hogs have no natural immunity to hog cholera. The disease was eradicated from the United States in 1978. Because of their concerns, Mexican officials decided to require that all hogs imported for slaughter be vaccinated for hog cholera. This requirement has since been dropped.

## **Trade Profile**

U.S.-Mexico trade in swine and pork products is dominated by U.S. exports of pork, variety meats, offals, lard, and live hogs. Mexico was the second largest market for U.S. pork exports after Japan in 1990. Mexico actually represented the largest export market for certain pork items, including cured bacon and hams and shoulders. In addition, Mexico was the largest U.S. market for pork variety meats, lard, hog sausage casings, and live hogs. The United States also exported substantial quantities of pig and hog skins to Mexico in 1990. The United States imports only minimal quantities of pork and products from Mexico.

U.S. exports of pork to Mexico totaled \$36.9 million in 1990, which includes exports of fresh, chilled, or frozen pork (\$30.8 million), cured bacon (\$2.1 million), and hams and shoulders (\$1.3 million). Other major swine product exports to Mexico in 1990 included pork variety meat (\$32.0 million), lard (\$13.1 million), hog sausage casings (\$8.5 million), and skins (\$5.9 million). In addition, the United States shipped to Mexico live swine valued at \$5.6 million.

## **Importance of Hogs and Pork to the United States**

Hogs and resulting pork products are the United States' fifth largest commodity in value (\$9-\$10 billion). Hogs are produced mostly in integrated units for breeding and finishing. A high-energy ration of primarily grain and soybean meal is fed. The United States imports both live hogs and pork from Canada. Fresh pork is also imported from Denmark, and cooked pork is imported from Europe.

## **Effects of Trade Liberalization**

A NAFTA would involve tradeoffs for Mexico's swine producers. The implications of a free trade agreement on U.S.-Mexico trade would depend critically on the outcome of liberalization in the feed grain and protein feedstuffs sector. Any liberalization of import restrictions and tariffs on feed grains and protein feedstuffs would lower feed costs in Mexico but would also reduce the price of imported meat. The lower feed costs would benefit Mexican producers, but lower tariffs would make imported meat more competitive with Mexican produced products.

U.S. health and sanitary requirements limit imports of swine and products from Mexico. If these requirements could be met, Mexico could compete in the meat

processing industry. Less expensive Mexican labor could be used to process animals produced in Mexico or animals imported from the United States.

### **Implications for Other Trading Partners**

Canada exports small quantities of pork offals to Mexico. Mexico does not export any pork products to Canada.



Table 12--Pork production and trade in NAFTA countries, 1990<sup>1</sup>

Item	Canada	Mexico	United States
1,000 metric tons			
Production	1,134	792	6,965
Total exports from:			
	Canada	Mexico	United States
1,000 metric tons			
Total exports	297	<1	108
To Canada	-	<1	10
To Mexico	6	-	17
To U.S.	237	<1	-
To ROW	54	<1	80
Total imports to:			
	Canada	Mexico	United States
1,000 metric tons			
Total imports	13	26	407
From Canada	-	5	198
From Mexico	<1	-	<1
From U.S.	9	17	-
From ROW	4	5	209
	Canada	Mexico	United States
Kilograms			
Per capita consumption	32	9	30

<sup>1</sup> Columns may not sum because of preliminary data, shipments that are in progress, etc.

- = Not applicable.

Source: U.S. Department of Commerce; Agriculture Canada, Statistics Canada; Foreign Agricultural Service, USDA; Banco de Mexico.

Table 13--Live swine inventory and trade in NAFTA countries, 1990<sup>1</sup>

Item	Canada	Mexico	United States
		1,000 head	
Inventory	10,737	8,563	53,852
	Total exports from:		
	Canada	Mexico	United States
		1,000 head	
Total exports	889	0	57
To Canada	-	0	1
To Mexico	3	-	42
To U.S.	886	0	-
To ROW	<1	0	14
	Total imports to:		
	Canada	Mexico	United States
		1,000 head	
Total imports	<1	45	890
From Canada	-	3	886
From Mexico	0	-	0
From U.S.	<1	42	-
From ROW	<1	<1	4
	Canada	Mexico	United States
		1,000 head	
Total slaughter	14,797	11,000	85,431

<sup>1</sup> Columns may not sum because of preliminary data, shipments that are in progress, etc.

- = Not applicable.

Source: U.S. Department of Commerce; Agriculture Canada, Statistics Canada; Foreign Agricultural Service, USDA; Banco de Mexico.

## Poultry and Eggs

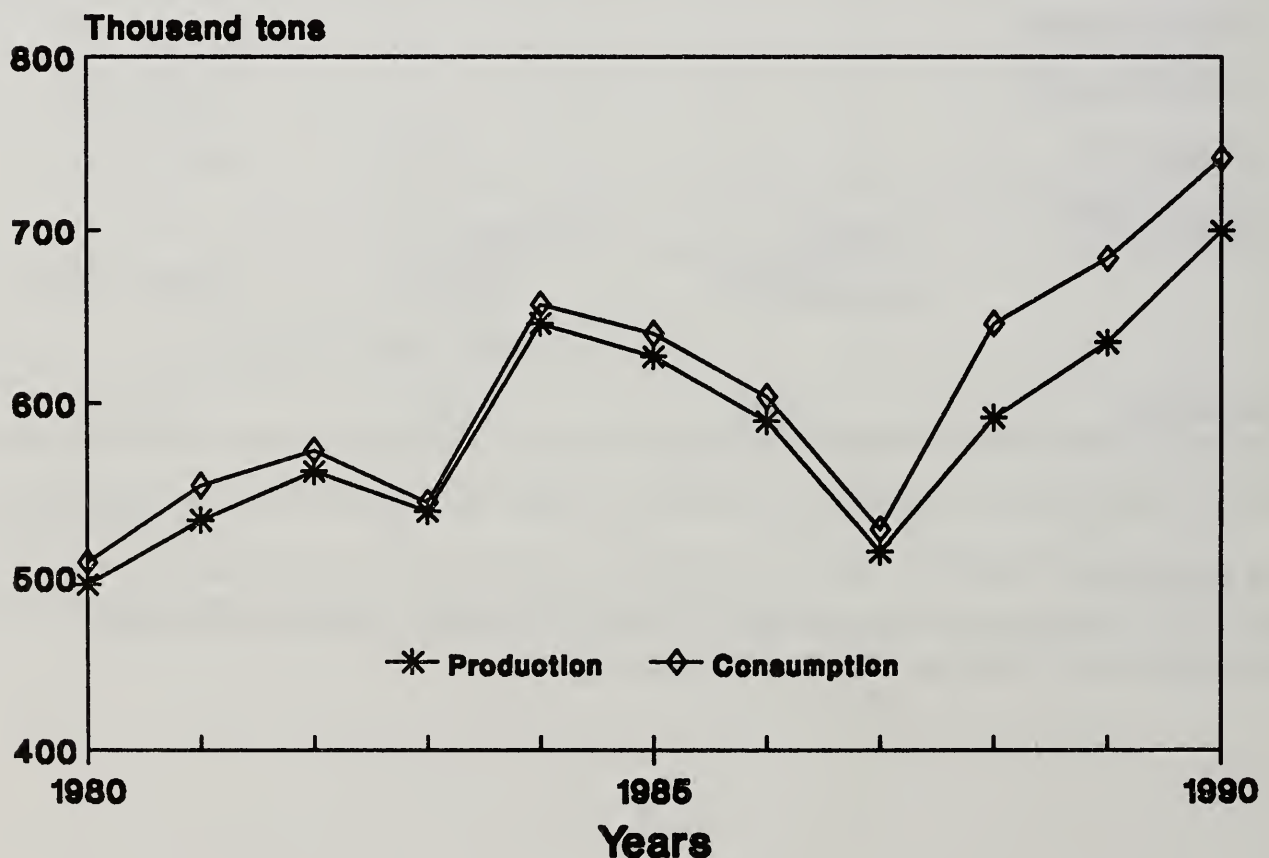
### Production

Mexico's poultry and egg sector has undergone substantial change over the last several decades, evolving from an industry dominated by many, small, often backyard, producers, to one dominated by a relatively small group of large producers using confined-feeding production systems. More than three-quarters of Mexico's poultry and egg layer inventory is managed using modern production systems; the remaining percentage is raised in backyard-type operations. Practically all commercial poultry meat and egg production is derived from the more intensive confined-feeding operations, which depend almost entirely on balanced feed rations. Large poultry and egg producers are often vertically integrated, many mixing their own feed and/or processing their product.

Poultry meat production in 1990 was a record 700,000 metric tons, carcass weight, of which about 94 percent consisted of chicken meat (fig. 15). Mexico maintained about 76 million egg layers in 1990, which produced a total of 18 billion eggs. Egg

Figure 15

### Mexican poultry meat





production in 1990 was higher than in 1988, and about even with the 1986 record production (fig. 16).

Consumption

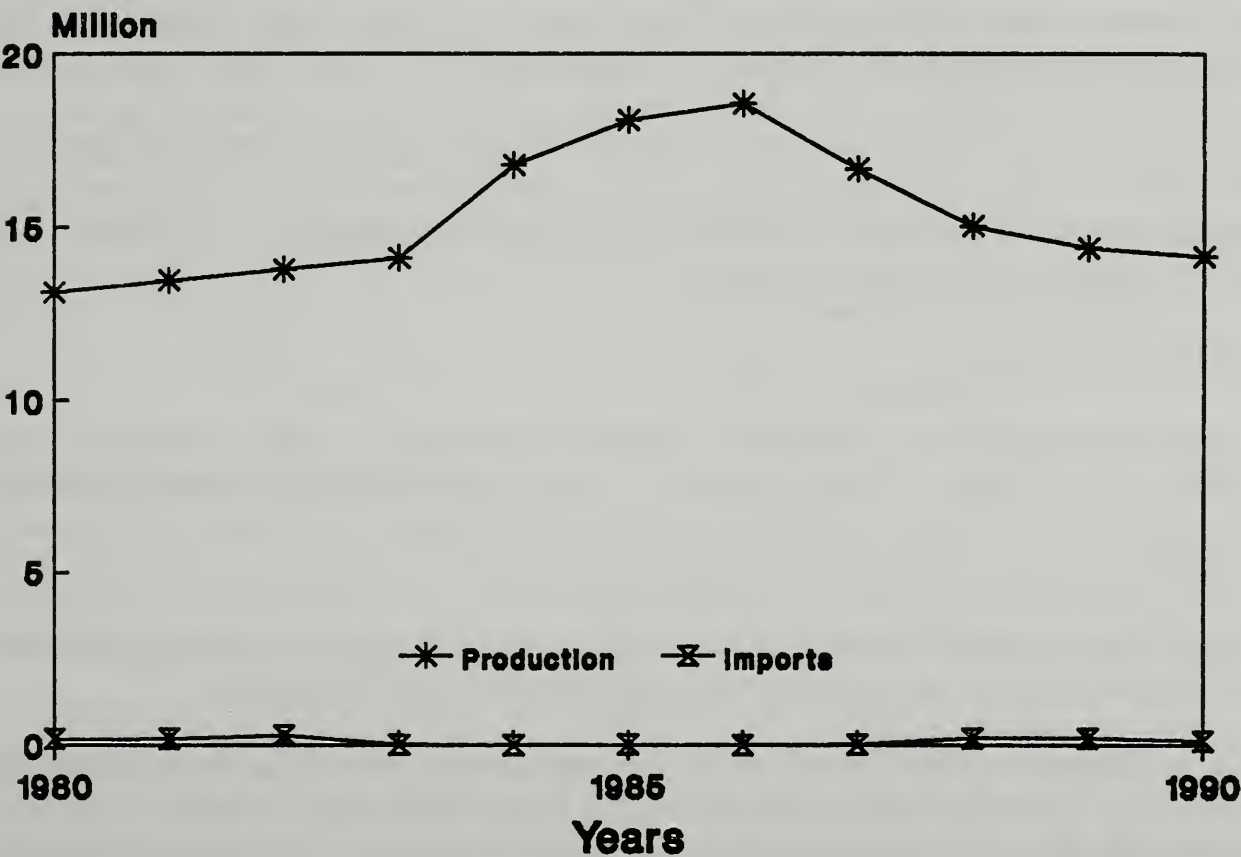
Poultry and eggs are important sources of animal protein in Mexico. All economic classes consume poultry and eggs, but these products represent the least expensive animal protein source for lower income consumers. Annual per capita poultry meat consumption stood at about 8.4 kg in 1990, just below the record 8.6 kg of 1984, while table egg consumption was about 185 eggs per capita.

Policies

The Mexican Government provides few direct incentives for poultry and egg producers, and feed costs are high by world standards. Imports of poultry, eggs, and products are restricted by tariff and nontariff measures. For some types of eggs, consumer prices are controlled at the retail level.

Figure 16

Mexican eggs



The Government's domestic and trade policies for feed grains and oilseeds have a significant impact on the Mexican poultry meat and egg industry. Domestic crop price supports and border protection--through such measures as state-trading, import licensing, and tariffs--have forced internal price levels of feed grains and oilseeds to above those in the world market (and the United States). Since feed constitutes the major cost component for most producers, domestic poultry meat and egg producers face a higher cost structure as a result of these policies.

The Mexican Government shields poultry and egg producers from lower cost imported products, mostly by tariff and nontariff measures. Mexico requires import licenses for day-old chicks, poultry, most poultry products, and fresh and preserved eggs. The principal exception to the requirement for an import license is poultry livers. Fresh eggs and poultry and products are assessed a 10-percent ad valorem tariff, while frozen and dried eggs are subject to a 10-percent tariff.

The Government of Mexico has controlled egg prices for many years. More recently, egg price controls also have been part of the Government's anti-inflationary program. Under this system, the Government maintains price controls (ceilings) on medium and small white eggs marketed in bulk. All other eggs are free of specific controls. CONASUPO remains involved in the marketing of table eggs, although its market role has been substantially reduced in recent years. Mexico also requires a permit to export eggs.

The United States restricts poultry and egg imports from Mexico because of poultry disease concerns. When imports are allowed, they are subject to an import tariff. The tariff for poultry breeding stock not over 185 grams each is 2 cents each and 4.4 cents per kg for other live chickens. The tariff on whole chickens is 11 cents per kg for fresh and frozen and 22 cents per kg for cuts. The turkey tariff is 18.7 cents per kg for whole fresh, 11 cents per kg for whole frozen (valued less than 88 cents per kg), and 22 cents per kg for turkey cuts. The tariff for prepared poultry is 10 percent. The U.S. tariff on eggs is 3.5 cents per dozen.

## **Sanitary Requirements**

USDA maintains programs to control the spread of contagious animal diseases to the United States from Mexico. The programs not only prevent the introduction of animal diseases endemic to Mexico, but also create a buffer between the United States and Latin America.

The United States prohibits imports of live birds, uncooked poultry, and eggs for table use from Mexico due to the presence of Newcastle and other diseases.

Mexico is not eligible to export poultry and egg products to the United States because it does not have a poultry inspection system that meets U.S. requirements. The U.S. Poultry Products Inspection Act provides that countries exporting to the United States have an equivalent inspection system or procedure similar to that in the United States.



The U.S. Egg Products Inspection Act (EPIA) requires that egg products may be imported only from countries that have egg product inspection systems meeting the standards and requirements of the one maintained in the United States. At a minimum, table eggs imported into the United States must meet the quality tolerances of the EPIA.

The Mexican Government in the past has instituted major changes in its sanitary requirements for poultry and egg imports without prior notification, thereby causing major disruptions for U.S. exporters.

## **Trade Profile**

U.S. poultry and egg exports to Mexico are dominated by shipments of chicken and turkey meat, hatching and table eggs, day-old chicks, and some egg products. Mexico was one of the top five markets for U.S. chicken exports in 1990, and was the leading export market for turkey. U.S. poultry meat exports in 1990 were sharply above exports a decade earlier.

U.S. exports of poultry meat to Mexico totaled \$52 million in 1989 and \$57 million in 1990. The major types of poultry meat exported to Mexico in 1989 were fresh/chilled chicken cuts (\$18.9 million), frozen chicken cuts (\$17.2 million), frozen turkey cuts (\$3.9 million), and frozen whole chickens (\$2.5 million). U.S. exports of day-old chicks--for breeding and for egg and broiler production--totaled \$2.7 million in 1989, while exports of hatching eggs totaled \$1.1 million. U.S. egg and product exports to Mexico in 1989 totaled nearly \$9.7 million, with exports of fresh table eggs (\$7.4 million) leading the way. Egg and egg product exports eased to \$8.8 million in 1990.

## **Importance of Poultry to the United States**

Broilers are the United States' 6th largest commodity in value (\$9 billion), eggs are 10th (\$3.9 billion), and turkeys are 14th (\$2.2 billion). Most poultry production is produced in integrated units or contracting units for breeding and production. Marketing or slaughter is also relatively highly coordinated with production, unlike red meats. The United States exports both poultry and eggs worldwide.

## **Effects of Trade Liberalization**

Trade liberalization, including a lowering of import tariffs, would lower the costs for imported feed ingredients, but it would also lower the prices of competing imported poultry products.

The implications of a NAFTA would depend critically on the outcome of Mexican liberalization in the grain and protein feedstuffs sector. A liberalization of tariff and nontariff measures on feed grains and protein feed and products would gradually lower feed costs in Mexico, and would likely raise Mexican poultry and egg production. Lower feed costs would also tend to make Mexico's poultry and egg production more competitive, vis-a-vis U.S. products. Exports to the United States of eggs for



breaking, which are not subject to as restrictive sanitary standards, could increase. Mexico would likely remain a market for lower priced U.S. chicken legs, quarters, and offals.

If Mexico could overcome animal health and sanitary concerns, Mexico could make gains in the more labor-intensive segments of the meat processing industry.

### **Implications for Other Trading Partners**

Canadian-Mexican trade in poultry products is insignificant, with Canada exporting only small numbers of day-old chicks.

Table 14--Poultry production and trade in NAFTA countries, 1990<sup>1</sup>

Item	Canada	Mexico	United States
1,000 metric tons			
Production	701	700	10,878
Total exports from:			
	Canada	Mexico	United States
1,000 metric tons			
Total exports	6	6	554
To Canada	-	0	51
To Mexico	<1	-	56
To U.S.	3	1	-
To ROW	3	5	447
Total imports to:			
	Canada	Mexico	United States
1,000 metric tons			
Total imports	53	56	4
From Canada	-	0	4
From Mexico	0	-	<1
From U.S.	51	56	-
From ROW	2	<1	<1
	Canada	Mexico	United States
Kilograms			
Per capita consumption	28	8	42

<sup>1</sup> Columns may not sum because of preliminary data, shipments that are in progress, etc.

- = Not applicable.

Source: U.S. Department of Commerce; Agriculture Canada, Statistics Canada; Foreign Agricultural Service, USDA; Banco de Mexico.

Table 15--Poultry egg production and trade in NAFTA countries, 1990<sup>1</sup>

Item	Canada	Mexico	United States
	Million eggs		
Production	5,661	18,040	67,919
	Total exports from:		
	Canada	Mexico	United States
	Million eggs		
Total exports	274	0	1,206
To Canada	-	0	328
To Mexico	0	-	87
To U.S.	35	0	-
To ROW	239	0	791
	Total imports to:		
	Canada	Mexico	United States
	Million eggs		
Total imports	430	136	109
From Canada	-	0	35
From Mexico	0	-	0
From U.S.	328	87	-
From ROW	102	49	74
	Canada	Mexico	United States
	Eggs		
Per capita consumption	162	185	186

<sup>1</sup> Columns may not sum because of preliminary data, shipments that are in progress, etc.

- = Not applicable.

Source: U.S. Department of Commerce; Agriculture Canada, Statistics Canada; Foreign Agricultural Service, USDA; Banco de Mexico.



## Dairy and Products

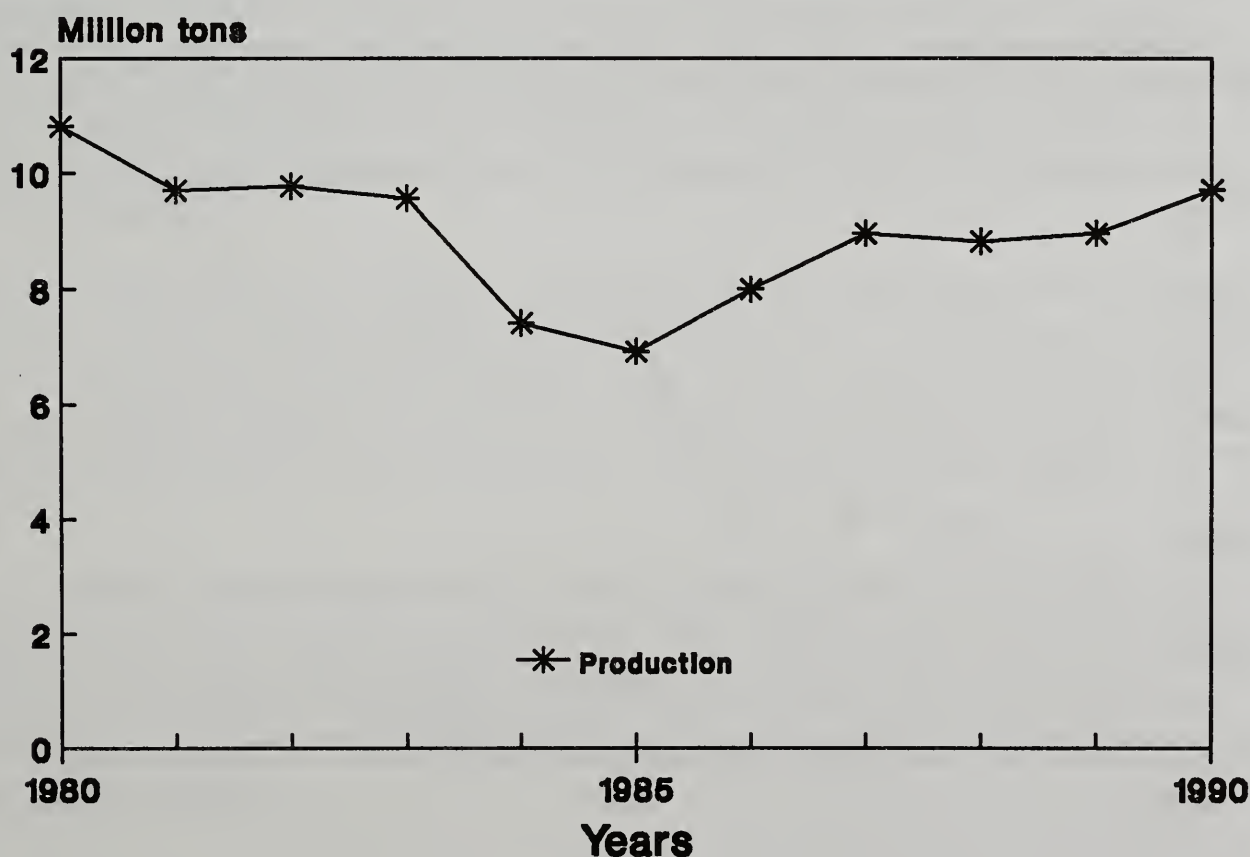
### Production

Mexico's dairy producers and the type of production practices they use vary greatly. One segment of producers uses modern production techniques. These producers mostly use Holstein cows and alfalfa feed, or other forages, and at least some concentrate. This group accounts for about 15 percent of the national dairy herd but produces over one-half of national milk production. A second system, termed semi-confined, accounts for about one-quarter of the national dairy herd, producing about 20 percent of milk output. These producers use Holstein and Brown Swiss animals, which are often bred with Zebu breeds. These cattle are typically fed native grasses and agricultural byproducts or waste. The third group of producers raise mostly local breeds, both for beef and milk. This type of system accounts for about two-thirds of all the cows milked, but only about one-quarter of national milk production.

Mexico's dairy cow herd totaled slightly over 2 million head in 1990, producing about 10 million tons of fluid milk (fig. 17). Mexico's cheese production totaled 384,000 metric tons and butter production totaled 34,000 metric tons.

Figure 17

### Mexican fluid milk



## Consumption

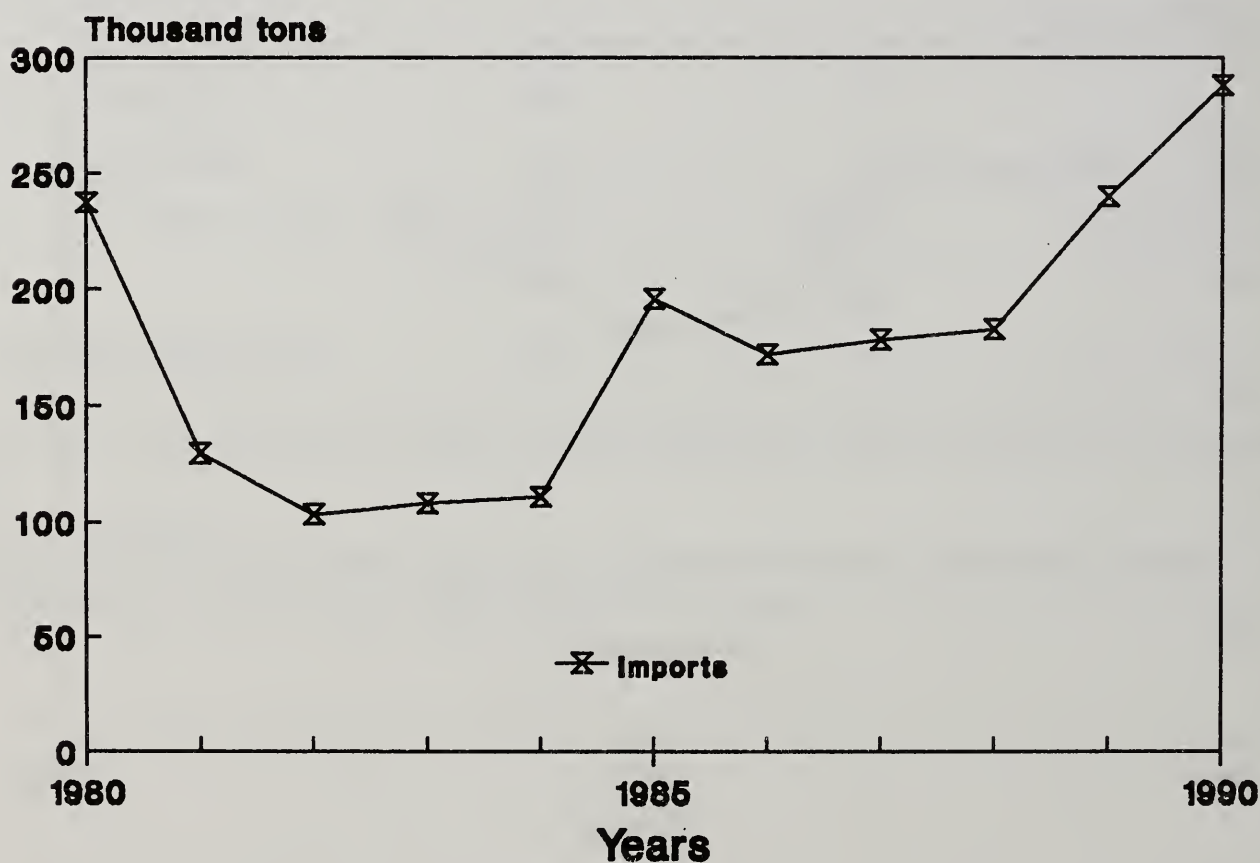
Milk and dairy products are consumed by all economic classes, but most lower income consumers are unable to afford the higher priced products. Much of the fluid milk available in Mexico is reconstituted from powder, a large part of which is imported (fig. 18).

## Policies

The Mexican Government provides few incentives for dairy producers. Instead, many government policies put producers at a disadvantage, principally by boosting production costs and by controlling fluid milk prices. Land tenure laws place severe restrictions on the size of land holdings and also restrict the raising of feed crops and forages in conjunction with the raising of animals. Cheeses, yogurt, ice cream, and other products are not subject to price controls. Mexico assesses tariffs on all dairy products, except nonfat dry milk.

Figure 18

### Mexican nonfat dry milk



The Government's domestic and trade policies for feed grains and oilseeds significantly affect the Mexican dairy industry. Domestic crop price supports and border protection--through state-trading, import licensing, and tariffs--have driven internal price levels of feed grains and oilseeds and products to above those in the world market (and in the United States). As a result of these policies, Mexican dairy producers who used feed concentrates face a higher cost structure. Management by the Mexican Government of the U.S. dollar/Mexican peso exchange rate and its effects on imported feed ingredient prices and other imported inputs are also important determinants of profitability.

The Mexican Government also shields Mexico's dairy producers from low-cost imported products, mostly by the application of tariff and nontariff measures. Mexico requires licenses for some dairy products, including nonfat dry milk, and restricts quantities imported to levels that will not compete with local production. Mexico's import tariffs on dairy products range from 10-20 percent, with the exception of nonfat dry milk, which faces no tariff. Mexico's dairy product imports are mostly controlled by CONASUPO, a semiautonomous government organization that acts as the sole importer of most dairy products. CONASUPO also operates recombining plants to produce fluid milk from imported dairy products and sells dairy products through its large chain of local stores.

Mexico's production, distribution, and supply policies in the dairy sector continue to slowly incorporate decentralized and market-driven structures. The Mexican Government now encourages producer, processor, distributor, and consumer representatives to establish raw milk prices by region. The Government, through the parastatal LICONSA, continues to market milk and dairy products, although its intervention has been considerably reduced. SARH, the Secretariat of Health, producers, and processors are working jointly to modify Mexico's milk grading system and to reduce the number of raw milk classes. The Mexican Government recommends milk categories based on fat content for fresh milk and ultra-high-temperature milk.

Mexico subsidizes milk supplies to both the rural and urban poor through price controls. Dairy products are also controlled under PECE. The program combines fiscal and monetary policies with price, wage, and exchange controls in order to control inflation through a consensus of government, business, and labor interests. PECE, which was to expire on January 31, 1990, was extended through the end of 1991.

U.S. imports of manufactured dairy products (butter, cheese, milk powder, etc.) from Mexico are subject to dairy import quotas under Section 22 of the Agricultural Adjustments Act of 1933, as amended. U.S. imports of cajeta (dessert-type dairy product) are subject to the Section 22 quota for articles of milk and cream, not elsewhere specified. The United States has a wide variety of import tariffs on all milk and dairy products.



## **Sanitary Requirements**

USDA maintains programs to control the spread of contagious animal diseases to the United States from Mexico. The programs not only prevent the introduction of animal disease endemic to Mexico, but also create a buffer between the United States and Latin America. Mexico has a set of strict sanitary standards for milk and dairy products at the farm and processing level. However, these standards are not being enforced.

The United States has extremely strict sanitary requirements for fresh milk imports. At present, only New Zealand is able to export fresh milk to the United States. It is unlikely that Mexico would be able to meet these sanitary standards for fresh milk. Dairy product imports are subject to inspection by the Food and Drug Administration (FDA).

The Government of Mexico in the past has instituted major changes in its sanitary requirements without prior notification, thereby causing major disruptions for U.S. exporters.

## **Trade Profile**

Mexico is a major export market for U.S. dairy products, with 1990 shipments of 133,000 tons valued at \$60 million (table 16). Mexico ranked as the largest export market for nonfat dry milk (\$5.1 million) (fig. 18). Mexico was also the largest export market for evaporated and condensed milk (\$0.9 million) and fluid milk and cream (\$13.4 million). Mexico was the second largest market for butter and milkfat (\$13.3 million) and whey (\$6.2 million) and the third largest market for U.S. exports of dry whole milk and cream (\$0.8 million) and cheese and curd (\$4.5 million).

The United States imports only minimal amounts of dairy products from Mexico, mostly milk food preparations.

## **Importance of Dairy and Dairy Products to the United States**

The value of dairy products (\$19 billion) are second only to cattle and beef in the United States. The dairy industry is scattered throughout the country. Approximately 60 percent of milk production is used for manufacturing purposes. Dairy production receives government support through an intervention buying program for manufactured products, which in turn sets a price floor on farm milk.

## **Effects of Trade Liberalization**

A free trade agreement would lower import tariffs. These lower tariffs would lower costs for imported feed ingredients, but would also lower prices of competing dairy products (except nonfat dry milk, which is not subject to tariffs). For example, lowering tariffs under a free trade agreement would reduce the price of imported feed grains and protein feedstuffs, but would also reduce the price of imported dairy

products. Lower feed costs in Mexico could ultimately boost fluid milk production. However, no major expansion in Mexico's dairy product output is expected under a free trade agreement.

Mexican exports of dairy products will likely remain extremely limited due to present sanitary restrictions, the comparatively small size of the Mexican industry, and Mexico's large deficit in dairy products.

### **Implications for Other Trading Partners**

Canada is a major exporter to Mexico of nonfat dry milk and, in the early 1980's, evaporated and condensed milk. Mexico was Canada's largest customer for dairy products in the 1980's. Exports reached \$84 million in 1981 but were only \$12 million in 1987 as Canada reduced milk production and exports declined.

Table 16--Dairy products production and trade in NAFTA countries, 1990<sup>1</sup>

Item	Canada	Mexico	United States
	1,000 metric tons		
Production	7,900	9,330	67,260
	Total exports from:		
	Canada	Mexico	United States
	1,000 metric tons <sup>2</sup>		
Total exports	301	7	873
To Canada	-	0	22
To Mexico	108	-	133
To U.S.	31	7	-
To ROW	162	0	718
	Total imports to:		
	Canada	Mexico	United States
	1,000 metric tons <sup>2</sup>		
Total imports	143	1,752	1,370
From Canada	-	108	28
From Mexico	0	-	7
From U.S.	22	133	-
From ROW	134	1,511	1,342
	Canada	Mexico	United States
	Kilograms <sup>2</sup>		
Per capita consumption	274	134	263

<sup>1</sup> Columns may not sum because of preliminary data, shipments that are in progress, etc.

<sup>2</sup> Milk equivalent, total solids basis.

- = Not applicable.

Source: U.S. Department of Commerce; Agriculture Canada, Statistics Canada; Foreign Agricultural Service, USDA; Banco de Mexico.



## **Other Livestock Products**

### **Production**

The majority of Mexico's sheep and goats continue to be raised in small herds belonging to low-income rural families, many on communal lands. Most are raised by extensive grazing. The few confinement or feeding operations are mainly for dairy or breeding stock. The majority of the sheep and goats have no defined breed characteristics nor are they defined by production purposes (milk, meat, or wool). The most important areas for sheep and goat meat production are in the arid northern region, mainly Coahuila and Nuevo Leon, and the high central plateau region, including San Luis Potosi, Zacatecas, Hidalgo, and Puebla. Also important is the tropical region, mainly the States of Oaxaca and Guerrero.

A lack of current production technology and structural problems in the industry, along with a lack of slaughter and marketing facilities, are limiting output. Also, lower priced offals and variety meats continue to compete with sheep and goat meat consumption.

### **Consumption**

About 70 percent of the mutton and goat meat that reaches commercial channels is consumed in the form of french barbecue. About 15 percent of total production is consumed on the farm and another 15 percent is marketed in small town butcheries and consumed fresh.

The majority of the mutton consumed in Mexico City is from imported animals. Lamb, mutton, and goat meat per capita consumption was 1 kg versus 0.8 kg in the United States in 1990 (table 17).

### **Policies**

Mexico started the program "Proyecto Nacional de Repoblacion de Ganado Ovino y Caprino" in 1990 in an attempt to increase sheep and goat production. The National Sheep Producers Association was formed in April 1988, combining several small regional associations.

Mexico does not require import permits, but there is a 10-percent ad valorem import tariff on live sheep and goats and lamb, mutton, and goat meat.

### **Sanitary Requirements**

USDA maintains programs to control the spread of contagious animal diseases. The programs not only prevent the introduction of animal diseases endemic to Mexico, but also create a buffer between the United States and Latin America. Mexican feeder lambs can be shipped to the United States if the strict USDA animal health regulations, such as dip and scabie mite treatments, are observed.

The Mexican Government has, in the past, instituted major changes in its sanitary requirements for live animal and product imports without prior notification, thereby causing major disruptions for U.S. exporters.

### **Trade Profile**

Mexico is a significant market for live sheep from the United States (table 18). Although the numbers of sheep exported are large, because most are cull ewes and rams, the value is low (\$13 million in 1990). The United States exports horses (\$3 million) and other live animals (\$4 million) to Mexico. Also exported to Mexico are small amounts of horse and other meats (\$12 and \$26 million, respectively). The United States imports very small amounts of other animal products from Mexico.

Mexico imports small amounts of high-quality lamb and mutton carcasses from New Zealand and the United States for the high-income consumers, but the bulk of the trade is for low-priced cull animals.

### **Importance of Other Livestock Products to the United States**

The value of farm marketings for other livestock products (\$1.4 billion) made up only 2 percent of the value for livestock and products and 1 percent of the value for receipts from all commodities. Cash receipts for other livestock products include sheep and lambs (\$0.4-\$0.5 billion), horses and mules (\$0.5 billion), and aquaculture (\$0.4-\$0.5 billion).

Sheep and lambs are produced mainly for wool and meat. The United States exports mainly cull sheep and lambs and some breeding stock, mainly to Mexico and Canada. Mutton and lamb consumption is small. Horses are produced both for racing as well as work and pleasure riding. Horse meat is mainly consumed in pet food in the United States or exported (mainly to the EC). Little information is available about U.S. horse meat production, but it is believed that a large part of the federally inspected slaughter enters the export market. Aquaculture is a small but growing segment of the market. Production includes mainly freshwater fish and crawfish.

### **Effects of Trade Liberalization**

A NAFTA that reduces tariffs could increase Mexican imports of live sheep, goats, and lamb, mutton, and goat meat from the United States.

### **Implications for Other Trading Partners**

Implications for other trading partners do not seem to be significant.

Table 17--Lamb and mutton production and trade in NAFTA countries, 1990<sup>1</sup>

Item	Canada	Mexico	United States
1,000 metric tons			
Production	8	76	165
Total exports from:			
	Canada	Mexico	United States
1,000 metric tons			
Total exports	<1	0	1
To Canada	-	0	<1
To Mexico	0	-	<1
To U.S.	<1	0	-
To ROW	<1	0	<1
Total imports to:			
	Canada	Mexico	United States
1,000 metric tons			
Total imports	14	10	27
From Canada	-	0	<1
From Mexico	0	-	0
From U.S.	1	<1	-
From ROW	13	9	27
	Canada	Mexico	United States
Kilograms per capita			
Per capita consumption	<1	1	0.8

<sup>1</sup> Columns may not sum because of preliminary data, shipments that are in progress, etc.

- = Not applicable.

Source: U.S. Department of Commerce; Agriculture Canada, Statistics Canada; Foreign Agricultural Service, USDA; Banco de Mexico; Food and Agriculture Organization of the United Nations.



Table 18--Live sheep inventory and trade in NAFTA countries, 1990<sup>1</sup>

Item	Canada	Mexico	United States
1,000 head			
Inventory	759	5,500	11,363
Total exports from:			
	Canada	Mexico	United States
1,000 head			
Total exports	26	0	473
To Canada	-	0	36
To Mexico	<1	-	430
To U.S.	25	0	-
To ROW	<1	0	7
Total imports to:			
	Canada	Mexico	United States
1,000 head			
Total imports	36	453	25
From Canada	-	<1	25
From Mexico	0	-	0
From U.S.	36	430	-
From ROW	0	23	<1
Total slaughter			
	Canada	Mexico	United States
1,000 head			
Total slaughter	450	1,352	5,750

<sup>1</sup> Columns may not sum because of preliminary data, shipments that are in progress, etc.

- = Not applicable.

Source: U.S. Department of Commerce; Agriculture Canada, Statistics Canada; Foreign Agricultural Service, USDA; Banco de Mexico; Food and Agriculture Organization of the United Nations.

## Tomatoes and Tomato Paste

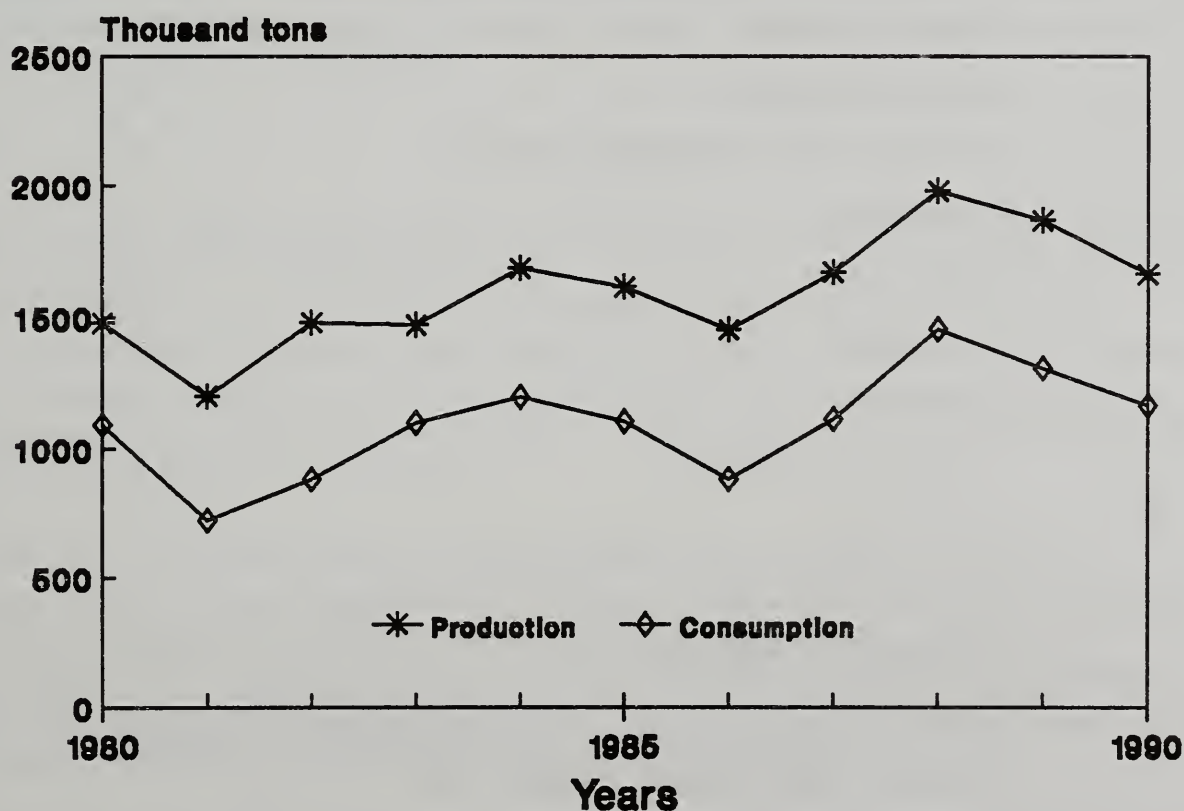
### Fresh Tomato Production

Mexican tomato production has grown steadily over the past decade (fig. 19). Tomatoes for export are principally grown in Sinaloa, which produces mostly mature green tomatoes, and Baja California Norte, which produces mostly vine-ripe tomatoes. Both States are located in the arid northwest corner of Mexico. Jalisco, in the north central region, also produces some vine-ripe tomatoes for export. Tomatoes grown in Morelos in central Mexico are produced for the Mexico City market. In Sinaloa, tomatoes are generally produced on land irrigated with water from reservoirs, rather than wells, so producers face some uncertainty regarding the amount of water the Government will supply them from year to year. The recommended rotation is tomato-soybean-tomato-grain over a 2-year period. In Baja California, tomatoes are produced on land that is irrigated with water from wells.

The most progressive Mexican tomato producers have imported recent advances in technology, such as drip irrigation techniques and plastic mulch. Nonetheless, the average growth in yields for Mexican tomatoes has fallen behind the rate of growth

Figure 19

### Mexican tomatoes



1989-90 consumption data are estimates.

recorded in Florida and California over the last decade. The high cost of capital during the 1980's slowed the rate of investment in most Mexican enterprises.

Mexican producers import many of their inputs from the United States; they are especially reliant on U.S. sources for seed. Their costs of production, therefore, depend on the Mexican Government's exchange rate policy. The structure of the costs of production for fresh tomatoes produced for export in marketing year 1989/90 is shown in table 19.

Harvesting, irrigation, and overhead costs are much lower in Mexico than in the United States, but interest and input costs are much higher. On a per acre basis, Mexican costs of production are far below those in the United States, but on a per ton basis, the gap narrows significantly due to lower average Mexican yields.

The packing, handling, and shipping of fresh tomatoes in Mexico lags the procedures used in the United States. Losses registered between the farm and the border are extremely high. Industry analysts claim that Mexico is still packing fresh tomatoes in the way that the U.S. industry did 30 years ago.

Table 19--Average input costs of tomatoes for export market

Operation costs	Percent of total
Field preparation	3
Planting and transplanting material	8
Fertilization	9
Pest control	13
Cultivation	8
Irrigation	2
Cultivation materials	17
Harvesting	8
Miscellaneous	12
Interest on investment	18
Total	100

Source: CNPH, Annual Report, 1990.



## **Tomato Paste Production**

Although Mexico's processing industry initially used surplus tomatoes diverted from the fresh market, it now uses some industrial varieties. Tomatoes produced for the fresh market constitute approximately 40 percent of the tomatoes used by Mexico's processing sector.

Many of the tomatoes for processing are contracted by the processors directly with local growers. Growers under contract are provided with transplants, fertilizers, and technology for pest control by the processors in order to produce industrial varieties of tomatoes.

The cost of producing tomato paste in Mexico was estimated to be 3 to 4 cents per pound cheaper than in California in 1991. These numbers fluctuate substantially, however, given the variability in fresh tomato prices in Mexico.

The processing industry is quite modern, using highly efficient equipment. Ten firms process tomatoes in Mexico, primarily for paste. Eight of the firms are located in Sinaloa, and the remainder are in Sonora. The feasible processing capacity of the industry is 500,000 metric tons per year (72,000 metric tons of paste at 30-32 degrees brix). Four firms account for approximately 73 percent of the processing capacity.

## **Consumption**

Approximately one-fifth of the tomato harvest is destined for the export market. Another fifth is used by Mexico's processing industry to produce tomato paste, and the remainder is consumed domestically.

## **Policies**

Until last year, the National Association of Horticultural Producers (CNPH) regulated Mexico's production and marketing of fresh tomatoes for export. The Government had given the CNPH the power to sell the certificates of origin required by Mexican customs authorities; this power guaranteed that the CNPH could control the amount that any individual could export. Proceeds from certificate sales funded the other services provided by CNPH to its members. In June 1991, however, Mexico issued the certificates of origin free of charge.

In the past, the Government has provided several input subsidies for tomato producers. Many of these subsidies (for fertilizer, electricity, credit, and insurance) have been eliminated. The Government continues to cover the cost of capital improvements for the large-scale irrigation network in the northwest and absorb a significant percentage of the operating costs. Mexican producers are obliged to pay several taxes, including a social security tax for employees.

Both the United States and Canada levy a seasonal per unit duty on tomato imports (table 20). Although Canada's tariff is specific, the ad valorem equivalent duty cannot

be less than 15 percent. (Note: Canadian tariffs, expressed in U.S. cents, vary with the exchange rate.)

Tomato paste faces an ad valorem tariff of 13.6 percent in both the United States and Canada. Canadian tariffs on U.S. exports of fresh tomatoes and tomato paste are reduced by 10 percent each year under the terms of the CFTA. This implies that current duties levied on U.S. exports of fresh tomatoes and tomato paste to Canada are 30 percent lower than the levels cited above.

Mexico occasionally imports a relatively small amount of fresh tomatoes from the United States when domestic prices rise. Mexico levies a 10-percent ad valorem tariff on all tomato imports.

Under Section 8e of the Agricultural Marketing Agreements Act of 1937, U.S. imports of tomatoes are required to meet the same grade and quality standards as U.S. tomatoes, since tomato production is regulated by a marketing order. The CNPH provides information about U.S. grade and quality standards and changes in these standards to its members.

## Trade Profile

Tomatoes are Mexico's most important fresh vegetable export. Mexico exported about \$370 million to U.S. markets in calendar year 1990. Mexican tomatoes enter the United States year round, but 75 percent of them arrive during the December-May shipping period (fig. 20). During this period, Mexican tomatoes account for

Table 20--Canadian and U.S. tariffs on tomatoes, 1992<sup>1</sup>

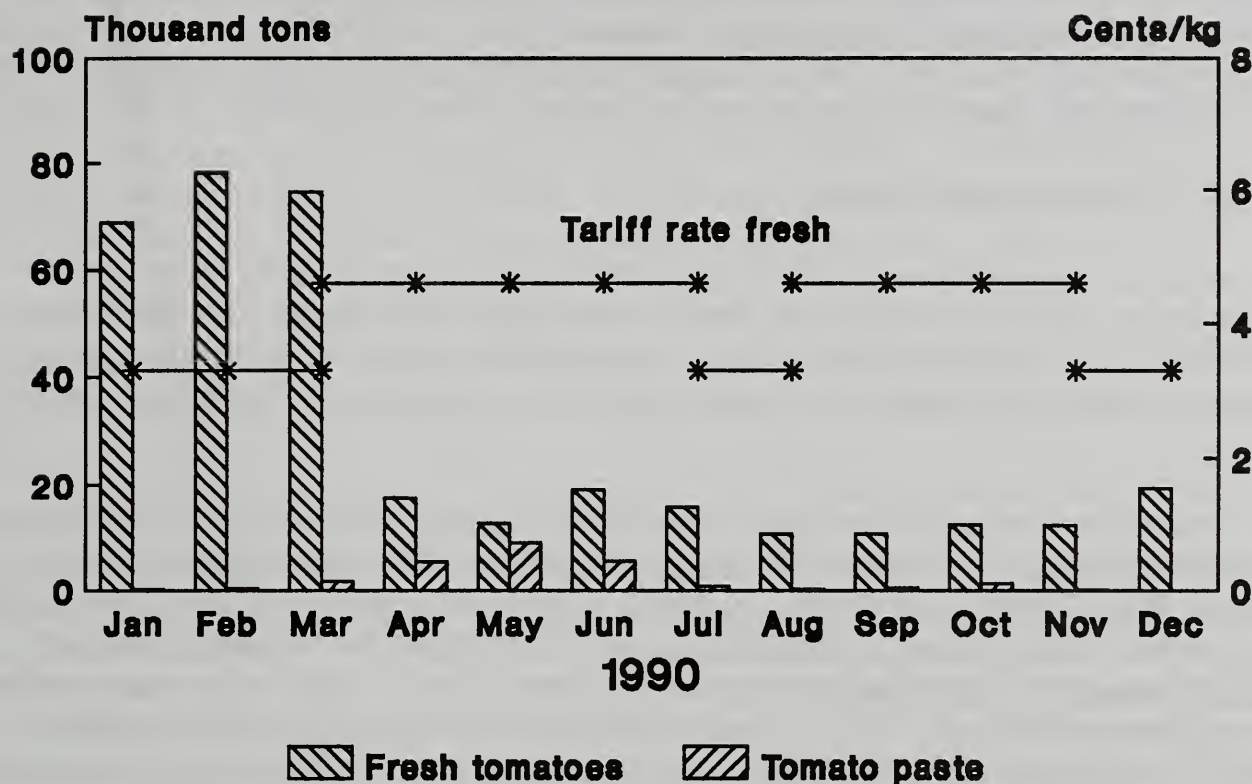
Importing country	In season	Out-of-season
U.S. cents per kilogram		
Canada <sup>2</sup>		
From U.S.	2.86	1.15
From Mexico	4.77	1.86
United States		
From Canada	2.76	1.98
From Mexico	4.60	3.30

<sup>1</sup> U.S. and Canadian bilateral tariffs have been reduced 40 percent as of January 1, 1992.

<sup>2</sup> Canadian tariffs converted to U.S. cents using January 1992 exchange rate.

Figure 20

## U.S. imports from Mexico Fresh tomatoes and tomato paste



approximately 35 percent of the U.S. market. Mexico also ships tomatoes in the June-November marketing period.

The United States and Canada rank as the first and second largest export markets for Mexico's fresh tomatoes. According to U.S., Mexican, and Canadian trade statistics, Mexico provides 98 percent of the tomatoes imported by the United States, but less than 5 percent of the tomatoes imported by Canada. Mexican growers ship less than 15,000 tons of fresh tomatoes directly to Canada each year, according to these statistics, with most of the balance provided by the United States.

Mexico also exports tomato paste to the United States, Canada, and Japan. Mexico exports more tomato paste to the United States than any other country does, accounting for 20 to 40 percent of total U.S. imports. The value of Mexico's tomato paste exports to the United States has risen 75 percent over the past 3 years, from \$12 million to \$21 million. Mexico's principal foreign competitor in the U.S. tomato paste market is Chile, which supplies 10-25 percent of U.S. imports.

Canada is the largest market for U.S. exports of fresh and processed tomato products; Canadian imports of these U.S. products totaled nearly \$100 million in calendar year 1990.



## **Importance of Tomatoes and Tomato Paste to the United States**

Tomato production for fresh and processing consumption ranks 15th in value among agricultural commodities in the United States (\$1.8 billion). Although a significant proportion of production is destined to the processing market, the higher prices of tomatoes grown for the fresh market make their total value higher than those for processing. The United States imports between four and five times as many tomatoes and products as it exports. About 60 percent of tomato and tomato product imports are from Mexico. Mexico is the source of almost all fresh and frozen tomato imports.

## **Effects of Trade Liberalization**

The volume of June-November shipments from Mexico has steadily increased in recent years. Eliminating the U.S. tariff during these months would prompt more tomato imports into the United States. Lower tariffs during the winter-spring season would also provide an opportunity for more tomato imports from December through May.

Yield improvements rather than area expansion is expected to account for increases in Mexican production. No growth in acreage is anticipated in the traditional growing areas of Baja California or Sinaloa because of increasing water salinization and rising water costs. The number of hectares planted in tomatoes for the export market probably would not significantly increase in central Mexico. Mexico's transportation infrastructure will have to improve markedly before central Mexico will be able to produce fresh tomatoes for export. Tomato acreage could expand at the expense of wheat, corn, and/or soybeans grown in the irrigated districts of Sonora.

The Mexican Government has revised its investment laws and regulations to attract foreign capital to Mexico's agro-industrial sector. A number of American firms have already invested in food processing enterprises since the laws were changed in 1989. The Mexican processed tomato industry will therefore likely expand, regardless of the outcome of the free trade agreement. Many tomato processors report that they intend to expand their operations to increase shipments to Pacific Rim markets. Two new plants opened in 1991 with an installed capacity of 1,600 metric tons per day.

## **Implications for Other Trading Partners**

A reduction in U.S. and Canadian tariffs for fresh tomatoes will increase Mexico's market share at the expense of Israel and other smaller foreign suppliers. A reduction in U.S. and Canadian tariffs for tomato paste will increase both the Mexican and U.S. share of the North American market, principally at the expense of the EC but also at the expense of Chile and Argentina.

## Asparagus

### Production

Mexico produced 53,059,000 lbs of asparagus in 1986. The most important production States were Baja California Norte, Sonora, Coahuila, Baja California Sur, and Guanajuato. Production data for Mexican asparagus are scarce. Export data are more readily available, and since most asparagus in Mexico is exported, export data can be used as a guide to investigate production trends (table 21). Mexico exported 13,454 metric tons of fresh asparagus in crop year 1989/90. Exports increased 153 percent between 1985/86 and 1989/90. U.S. data show that Mexican fresh exports to the United States increased 70 percent between calendar year 1986 and 1990.

Sonora and Baja California Norte accounted for 90 percent of the exported asparagus in crop year 1989/90. These two areas are growing rapidly as major exporters. The asparagus grown in Caborca, Sonora, is particularly fine, straight asparagus, reputed to be of higher quality than that grown in the Imperial Valley in California. Export production from Sonora grew 442 percent between marketing years 1985/86 and 1989/90. Export production in Baja California Norte grew 153 percent. Export production increased 597 percent in Baja California Sur but from a very small base, and the State still accounted for only less than 3 percent in the 1989/90 crop year. The production areas in the north have the advantage of preceding the U.S. marketing season, so they can enjoy relatively high early-season prices. The marketing season for most of the northern States' production is from January 10 to the end of March. Some areas market a small amount in October, November, and December.

Table 21--Mexican fresh asparagus exports by State and crop year

Crop year	Sonora	Baja California Norte	Guanajuato	Baja California Sur	Total <sup>1</sup>
Metric tons					
1989/90	6,910.6	5,184.8	631.0	399.9	13,453.7
1988/89	5,517.4	3,680.3	697.7	207.8	10,409.9
1987/88	4,126.0	4,049.9	2,927.0	100.2	11,412.5
1986/87	4,394.4	5,807.6	2,688.1	71.9	13,229.0
1985/86	1,274.7	2,044.0	1,344.6	57.3	5,317.1

<sup>1</sup> Total includes exports from other smaller production States.

Source: Confederacion Nacional de Productores de Hortalizas. (These data may undercount some regions.)



Fresh exports from Guanajuato, the traditional asparagus production area for many years, declined from 25 percent of the export market in 1985/86 to less than 5 percent in 1989/90. Guanajuato exports most of its fresh asparagus in July and August, following the U.S. marketing season. The Guanajuato area also exports some processed asparagus.

Technology used in Mexico is very similar to that used in the United States. However, yields are lower in Mexico than in the United States. Estimates of yields in Mexico range from 1,200 to 3,000 lbs per acre compared with a range of 6,000 to 7,500 lbs per acre in the United States.

Asparagus production is expected to increase in Mexico. However, water scarcity will eventually curb production increases.

### **Consumption**

Almost all Mexican asparagus is exported. As incomes rise in Mexico, the domestic market may become more important.

### **Policies**

No special government policies aid the asparagus industry.

### **Phytosanitary Requirements**

Mexican asparagus has no difficulty meeting U.S. or California standards.

### **Trade Profile**

Most of the Mexican asparagus exports go to the United States. However, a substantial portion of asparagus production, perhaps about 30-50 percent from the Mexicali and Caborca area, goes to Japan. The very fine, straight asparagus from Caborca is particularly prized in Japan. Mexico shipped 338,000 hundredweight (cwt) of fresh asparagus to the United States in calendar year 1990, three-fourths of it shipped during January to March (table 22 and fig. 21). Mexican shipments were up 30 percent above 1990 levels from January 1 to March 10, 1991. Other data show that asparagus imports from all sources accounted for 9.6 percent of U.S. asparagus consumption in 1975 and grew to 24.3 percent by 1989.

This dramatic increase in Mexican imports has occurred despite a 25-percent tariff during most of the year. Only limited quantities of Mexican asparagus enter the United States duty free between September 15 and November 15, when Mexico is eligible for duty free status under the Generalized System of Preferences (GSP).



Table 22--Monthly fresh asparagus shipments by origin, 1990<sup>1</sup>

Month	California	Washington	United States	Mexico	ROW
1,000 cwt					
January	30	0	30	40	7
February	48	0	48	77	0
March	304	0	326	139	0
April	458	66	531	8	0
May	158	113	278	0	0
June	31	68	105	3	0
July	8	1	9	27	0
August	7	0	7	21	1
September	8	0	8	10	17
October	19	0	21	3	26
November	0	0	1	7	29
December	0	0	0	3	26
Total	1,071	248	1,364	338	106

<sup>1</sup> Agricultural Marketing Service shipping information lists all imports but does not contain information on all domestic shipments. The data show Arizona and Michigan shipments and those numbers are included in the U.S. totals.

Source: Agricultural Marketing Service, USDA.

Mexico currently exports mostly fresh asparagus. Some industry people think that Mexico may soon increase asparagus allocated to the frozen asparagus market.

There are no U.S. marketing orders for asparagus.

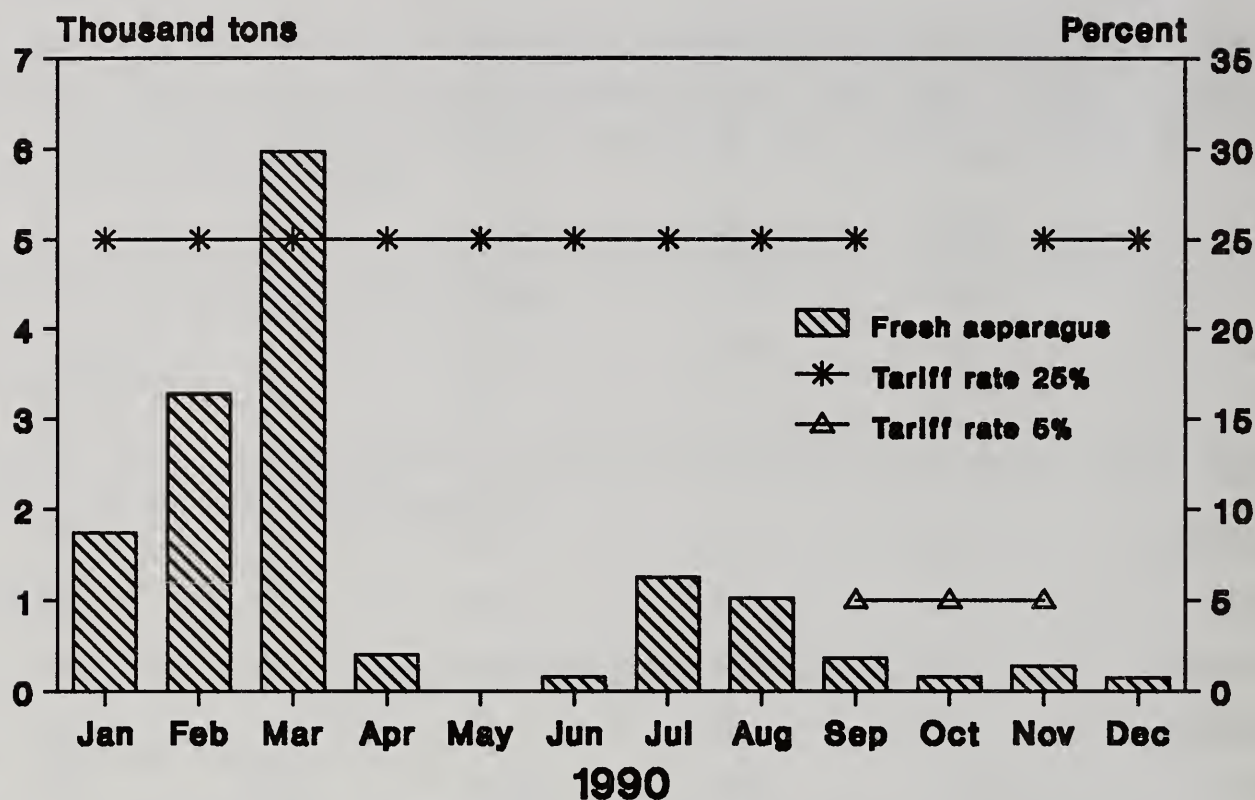
### Effects of Trade Liberalization

The United States produced 2,495,000 cwt of asparagus in 1989. In 1989, 59.7 percent of domestic production was consumed in fresh form, up from 34.2 percent in 1970. U.S. per capita consumption of fresh asparagus increased 100 percent between 1980 and 1989.

Eliminating the tariff would make Mexican asparagus more competitive in the U.S. market.

Figure 21

## U.S. imports from Mexico Fresh asparagus



### Implications for Other Trading Partners

In the September-December period in 1990, 58 percent of the fresh asparagus available in the United States came from Chile, Peru, Argentina, and Guatemala. Peru is perceived to be heavily subsidizing its asparagus production. Only 15 percent of the asparagus available in the United States during this period came from Mexico. While Mexican fresh asparagus exports to the United States have increased 70 percent between 1986 and 1990, exports from other countries have increased 127 percent. These other countries might be affected by lower tariffs for Mexico.

## Broccoli

### Production

Broccoli production patterns in Mexico have changed rapidly in recent years. Export data is more readily available than production data, and since most broccoli is exported, the trends in exports mirror trends in production. Fresh broccoli exports increased 31 percent between crop years 1985/86 and 1989/90 (table 23). Frozen broccoli exports increased 122 percent between calendar year 1986 and 1990.

Most of the broccoli for the fresh export market is currently grown in Sonora and Baja California. Fresh broccoli exports from these areas accounted for 22.8 percent of all Mexican fresh broccoli exports in the 1985/86 marketing year and increased to 59.2 percent of fresh broccoli exports in the 1989/90 marketing year. The northwest region exports from December to March. Guanajuato and Michoacan in central Mexico export some fresh broccoli, mainly during February to April. Some fresh broccoli also comes from Nuevo Leon and Coahuila in northeast Mexico.

In the Bajio, the States of Guanajuato and Michoacan grow broccoli mostly for the processing market, but they also export some fresh. The Bajio accounts for at least 80 percent of total Mexican frozen broccoli production. In this area, exports begin in October and continue most of the year, although production is highest during the winter. There are 20-25 different firms that freeze broccoli and cauliflower. Broccoli for the processing market is also grown in Nuevo Leon and Coahuila, south of the Texas border. Because of poorer weather conditions, these States mostly export frozen broccoli during the winter between October and March.

The growth of the frozen vegetable industry in Mexico is partly due to the lower cost of production, particularly labor. Many of the broccoli products made in Mexico require

Table 23--Mexican exports of fresh broccoli by State and crop year

Crop year	Sonora	Baja California Norte	Guanajuato	Michoacan	Nuevo Leon	Coahuila	Total
Metric tons							
1989/90	3,711	2,434	1,537	1,348	555	302	10,377
1988/89	3,284	1,430	1,326	178	3,448	345	11,761
1987/88	2,180	1,494	543	191	2,894	5,949	16,323
1986/87	379	940	4,587	648	167	5,937	15,834
1985/86	1,474	343	3,002	127	0	54	7,945

Source: Confederacion Nacional de Productores de Hortalizas.



handcutting individual spears of broccoli. The growth has also been affected by the structure of the U.S. frozen vegetable industry. Several large multinational U.S. firms opened up operations in Mexico. These large firms transferred technology and offered financing and technical assistance to Mexican growers to get the industry started in Mexico.

Mexican firms custom pack broccoli for U.S. firms without operations in Mexico and also produce for U.S. industrial users. Some processors control all their own broccoli production and others have contracts with other producers. Frozen broccoli is exported by truck to the United States through Texas. A large increase in production has reduced the price processors receive. At the same time, costs have increased, partly due to a reduction in government subsidies.

There is a little concern in the Bajio about overdrawing the aquifer and urban encroachment that might limit future agricultural expansion. However, there is a lot of land in production, and crop mixes could change to accommodate more profitable crops. A 1986 study estimated that frozen vegetable processing plants were running at only 66 percent of capacity. There still appears to be excess capacity in the industry.

### **Consumption**

The domestic market is very small. Almost all broccoli produced in Mexico is exported.

### **Policies**

Almost all Mexican subsidies that broccoli producers had in the past have been eliminated.

### **Phytosanitary Requirements**

Mexican broccoli exports to the United States must meet U.S. residue standards.

### **Trade Profile**

Mexico shipped 271,000 cwt of broccoli to the United States in 1990. Mexico accounts for 89 percent of U.S. fresh broccoli imports. U.S. producers shipped 9,086,000 cwt in the same period. Mexican imports represent only 3 percent of the supply available in the United States. However, U.S. imports from Mexico are growing very fast. Fresh broccoli shipments from Mexico increased by 1,413 percent between 1978 and 1986. U.S. broccoli imports from Mexico are distributed throughout the year (fig. 22).

Frozen broccoli exports from Mexico increased 123 percent between 1986 and 1990. The share of all imported frozen broccoli in the U.S. market increased from 5 percent

in 1975 to 61 percent in 1989. Most of the imports are from Mexico. There is a 25-percent tariff on fresh broccoli, and a 17.5-percent tariff on frozen broccoli.

### Effects of Trade Liberalization

Broccoli production in recent years has expanded dramatically in the United States, 90 percent between 1978 and 1986.

Fresh broccoli trade patterns probably would not change during the summer months if the U.S. tariff is reduced. More broccoli would probably be exported to the United States during the winter (table 24).

Figure 22

## U.S. imports from Mexico Broccoli

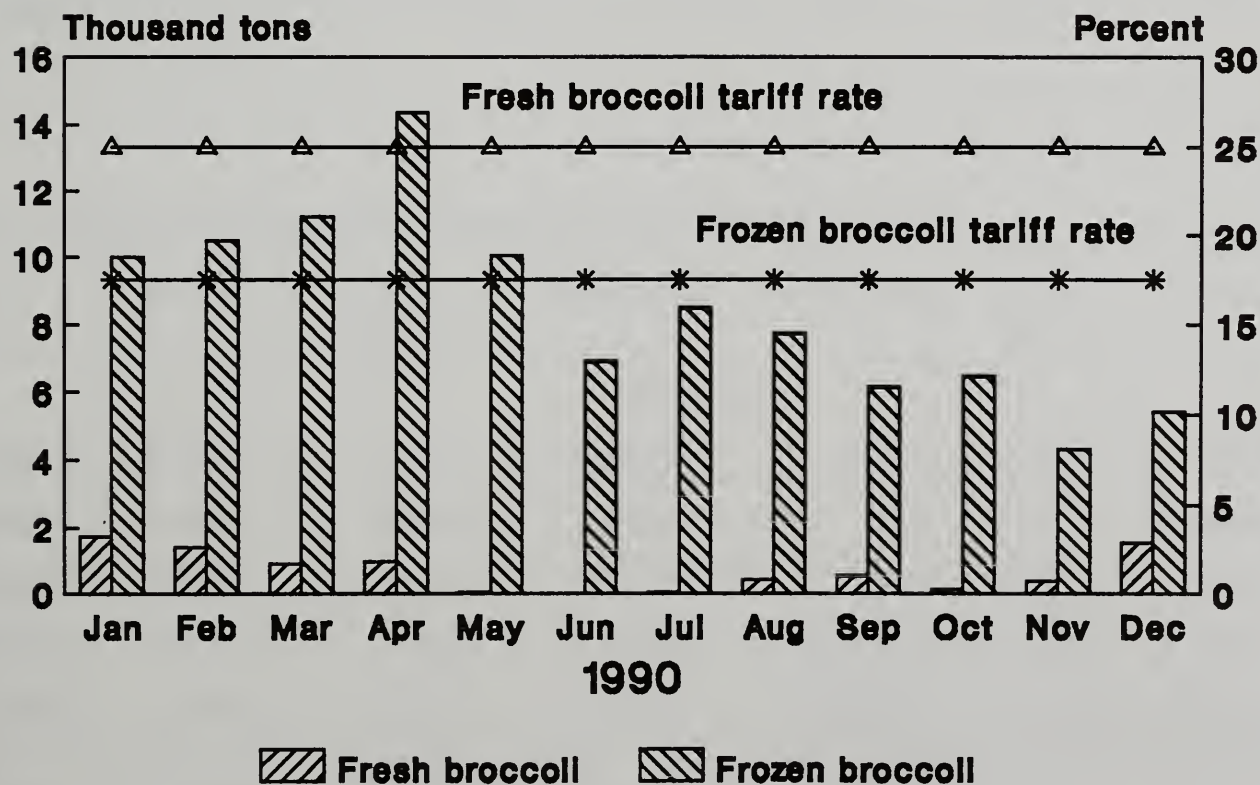


Table 24--Monthly fresh broccoli shipments by origin, 1990

Month	California	Arizona	Texas	United States	Mexico	ROW
1,000 cwt						
January	828	203	1	1,033	68	2
February	639	114	0	753	54	1
March	881	77	4	962	42	1
April	852	8	2	862	27	0
May	872	2	0	874	3	0
June	844	0	0	844	0	0
July	612	0	0	612	0	1
August	586	0	0	586	4	4
September	548	0	0	549	13	21
October	566	5	0	572	3	2
November	623	25	39	688	12	0
December	617	79	53	751	45	0
Total	8,468	513	99	9,086	271	32

Source: Agricultural Marketing Service, USDA.



## Cauliflower

### Production

Mexico produces cauliflower for the fresh and processed markets. Cauliflower is grown in Guanajuato, Aguascalientes, Sonora, Baja California, Nuevo Leon, and Michoacan.

Sonora exports fresh cauliflower from December to March. Fresh cauliflower exports to the United States from Sonora increased 377 percent between marketing years 1985/86 and 1989/90 (table 25). Sonora accounted for 78 percent of fresh cauliflower exports from Mexico in 1989/90.

Most frozen cauliflower exports originate in the central part of the country in the States of Guanajuato and Michoacan. Exports from this area are largest from November through March. Frozen cauliflower exports from Mexico to the United States increased 50 percent between 1986 and 1990. Most frozen cauliflower imports enter the United States during the fall and winter (fig. 23). Imports from all sources had a 46-percent share of the U.S. frozen cauliflower market in 1989.

### Consumption

Statistics on domestic Mexican cauliflower consumption are not available.

### Policies

Almost all Mexican subsidies that cauliflower producers had in the past have been eliminated.

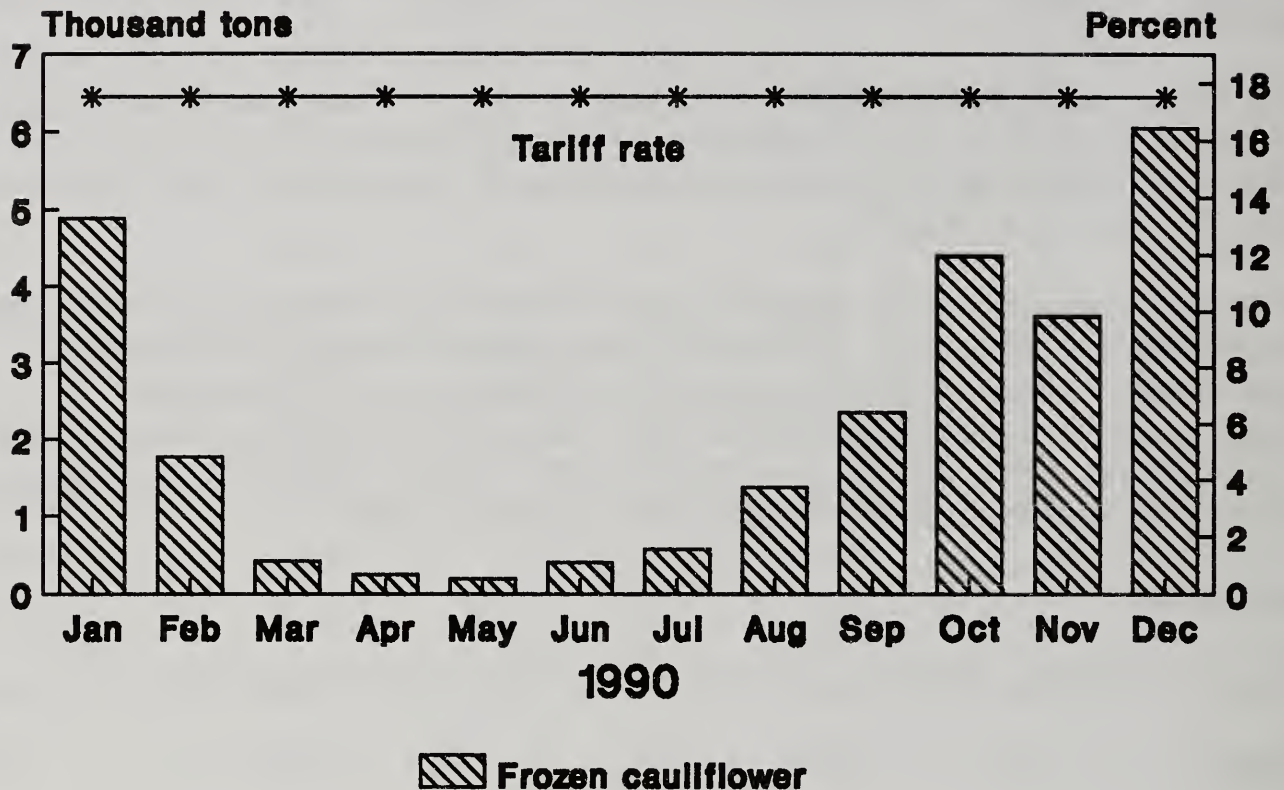
Table 25--Mexican fresh cauliflower exports by State and crop year

Crop year	Sonora	Baja California	Michoacan	Guanajuato	Nuevo Leon	Total
Metric tons						
1989/90	5,575.3	0	1,260.6	209.1	81.8	7,140.6
1988/89	4,798.8	199.4	106.9	82.5	11.9	5,646.9
1987/88	3,738.8	26.7	330.8	530.9	203.6	5,777.3
1986/87	2,538.0	43.0	431.0	2,187.0	115.0	6,183.0
1985/86	1,167.0	27.5	1,133.8	2,335.2	0	5,290.0

Source: Confederacion Nacional de Productores de Hortalizas.

Figure 23

## U.S. imports from Mexico Frozen cauliflower



### Phytosanitary Requirements

Mexican cauliflower must meet U.S. residue standards.

### Trade Profile

Mexico shipped 227,000 cwt of fresh cauliflower to the United States in 1990, mostly during the winter months, accounting for 87 percent of U.S. fresh cauliflower imports. U.S. producers shipped 5,717,000 cwt in the same period (table 26). Imports from Mexico represent less than 5 percent of the fresh supply available in the United States. However, Mexican fresh exports to the United States have increased about 6 percent per year since 1985. Frozen cauliflower imports from all countries accounted for 31.3 percent of U.S. frozen cauliflower supply.

Mexican fresh cauliflower is eligible for GSP between June 15 and October 15, but little product enters during this period. The rest of the year there is a 12.5-percent

Table 26--Monthly fresh cauliflower shipments by origin, 1990

Month	California	Arizona	Florida	United States	Mexico	ROW
1,000 cwt						
January	426	257	0	683	72	0
February	246	134	3	383	52	0
March	412	187	6	605	37	0
April	449	20	5	474	16	0
May	608	0	1	609	0	0
June	508	0	0	508	0	0
July	380	0	0	380	0	6
August	355	0	0	356	0	10
September	368	0	0	368	0	7
October	377	0	0	377	1	10
November	437	19	4	460	11	1
December	361	144	7	514	38	0
Total	4,927	761	26	5,717	227	34

Source: Agricultural Marketing Service, USDA.

tariff on fresh cauliflower. There is a tariff of 17.5 percent on U.S. frozen cauliflower imports (fig. 23).

There are no Federal marketing orders for cauliflower in the United States.

### Effects of Trade Liberalization

The United States produced 7,846,000 cwt of cauliflower in 1989. More than 80 percent of the U.S. crop is sold for fresh market uses. U.S. cauliflower acreage has stabilized in recent years, after expanding steadily between 1975 and 1985.

The percentage of U.S. production going to processing decreased from 20 percent in 1986 to 15 percent in 1989. Mexico's share of the U.S. frozen cauliflower market, however, has increased from 19 percent in 1986 to 30 percent in 1989.

Any increases in Mexican exports of fresh cauliflower to the United States are most likely to occur between October and June when existing tariffs are likely to be reduced under a free trade agreement.



## **Cucumbers**

### **Production**

Cucumbers rank fifth in area harvested (5.8 percent) and production (6.1 percent) of Mexico's horticultural crops, after tomatoes, potatoes, green peppers, and onions. Mexico produces two types of cucumbers: fresh and pickled (pepinillo).

Production of fresh cucumbers grown for the export market is concentrated in the areas of the Culiacan Valley in Sinaloa (90 percent), Sonora (3 percent), and Baja California (3 percent). Other areas producing fresh cucumbers for export include Jalisco, Morelos, Veracruz, and Tamaulipas. Also, Yucatan, although not an important exporting area at the present time, is a successful cucumber growing region. Planting of cucumbers for export occurs between October and December, with harvesting during January through April.

Cucumbers for pickling, grown for the export market, are produced principally in Michoacan (52 percent), Sinaloa (43 percent), and Guanajuato (5 percent). Cucumbers for pickling are planted October through January and are harvested from November through April. Some cucumbers for pickling are grown under contract in Guanajuato during the summer. Fresh cucumbers are also produced during the summer for the domestic market in the Bajio region.

The bulk of cucumbers are grown on irrigated land. Both area planted and yields per hectare of cucumbers have increased in recent years. The increase in area planted is due to increased domestic consumption. The yield during 1985-90 averaged 17.2 tons per hectare compared with 12.1 tons at the beginning of the 1980's, an increase of 42 percent. Yields of cucumbers for the export market differ across States, ranging from 17 tons per hectare in Sinaloa to 6 tons per hectare in Tamaulipas. For cucumbers for the domestic market, yields vary between 6 tons per hectare in Sinaloa to 3 tons per hectare in Tamaulipas.

Most of the increase in yield can be attributed to the use of certified seeds, heavier applications of fertilizer, more frequent irrigations, better control of plant diseases, and increased intensity in production. Pest control accounts for a large part of the cost of production (table 27). Most cucumbers are now produced in the same manner as tomatoes, with large stakes every 8-10 feet, interspersed with several small stakes and a number of cords with which plants are tied for support. The basic insecticides and fungicides are imported, but mixed in Mexico.

Cucumber production has also increased. Total production of cucumbers in Mexico grew at an annual rate of 4.9 percent throughout the 1980's, rising from 191,000 metric tons in 1982 to 280,000 metric tons in 1990. Sinaloa produces a variety of crops: wheat, rice, safflower, sugarcane, and sorghum, but these crops have little effect upon cucumber area. Cucumbers have become the second most important

Table 27--Share of average input costs of cucumbers for export market

Operation costs	Percent of total
Field preparation	6
Planting and transplanting material	6
Fertilization	9
Pest control	21
Cultivation	12
Irrigation	7
Harvesting	11
Miscellaneous	3
Interest on investment	24
Total	100

Source: CNPH, Annual Report, 1990.

crop for many growers in the Culiacan Valley after tomatoes. Mexico cultivates the Ashley, Pointset, Marketer, Triumph, and Stono varieties.

Cucumber production is limited by available water. All growers use ditch irrigation systems, with most of the water supplied by dams. Only a few growers pump water from wells. The irrigation projects on the Humaya and Culiacan Rivers are continually being expanded. The present system is being interconnected, and holding reservoirs are being built to contain the overflow from present dams. An important addition to the irrigation system in Sinaloa will be the new dam on the San Lorenzo River. This dam will open nearly 400,000 hectares (988,000 acres) of land for cultivation. It is not expected to be completed by 1994, but some water from the San Lorenzo is being used now in the Culiacan Valley.

Cucumbers for export are grown on large farms, and most have their own packing houses. Because of size limitations imposed by Mexican law, the size of an individual farm cannot exceed 100 hectares; therefore, several growers producing for the export market will typically form a joint venture of two or three farms to operate a packing house together, thereby reducing costs under economies of scale. There are currently about 40 packing sheds operating in the Culiacan Valley.

Mexican producers of cucumbers for export have financial and marketing arrangements with U.S. firms. Producers of fresh cucumbers for the export market sell the product through private traders and brokers. Fresh cucumbers are consigned



to brokers who, in turn, sell the product to firms in the United States. Producers of cucumbers for the pickling market sell their product directly to processing firms in the United States.

## **Consumption**

All production that does not meet the quality requirements for the export market to the United States is domestically consumed, together with production from Nayarit, Guanajuato, Hidalgo, and Morelos. The Bajio region traditionally produces pickling cucumbers, primarily for consumption in the domestic market. Since 65-85 percent of total production is exported, domestic consumption depends upon changes in the export market.

## **Policies**

Until recently, cucumber producers, as did most vegetable producers, received various subsidies, the most important of which was the irrigation subsidy. The Government constructed an extensive network of irrigation facilities, and producers pay an estimated 30 percent of the market price for irrigated water and less than half of the operational and maintenance costs. Mexican cucumber producers are currently facing reduced input, fertilizer, irrigation, credit, and insurance subsidies.

Vegetable producers, including cucumber producers, have organized themselves into associations. CAADES is primarily oriented toward servicing grain producers, but vegetable growers benefit from their technical assistance.

CNPH restricted entrance of new producers to the export market to limit supply and ensure a certain profit margin for its associates. CNPH was deregulated, and no program for planting was enacted, thus producing a slight increase in area planted for the past season.

## **Phytosanitary Requirements**

All Mexican imports of cucumber seed must meet phytosanitary standards administered under the Mexican Ministry of Agriculture. In addition, Mexican imports of cucumber seed require a certificate of origin.

## **Trade Profile**

Mexico has traditionally exported between 65 and 85 percent of its total cucumber production. The volume of exports has been highly variable, ranging from over 283,000 tons in 1985 to less than 171,000 in 1990, and is linked to variable price levels during the winter, principally in the United States. Two-thirds of cucumber exports have been going to the fresh market in recent years, with the remainder going to the pickling market.



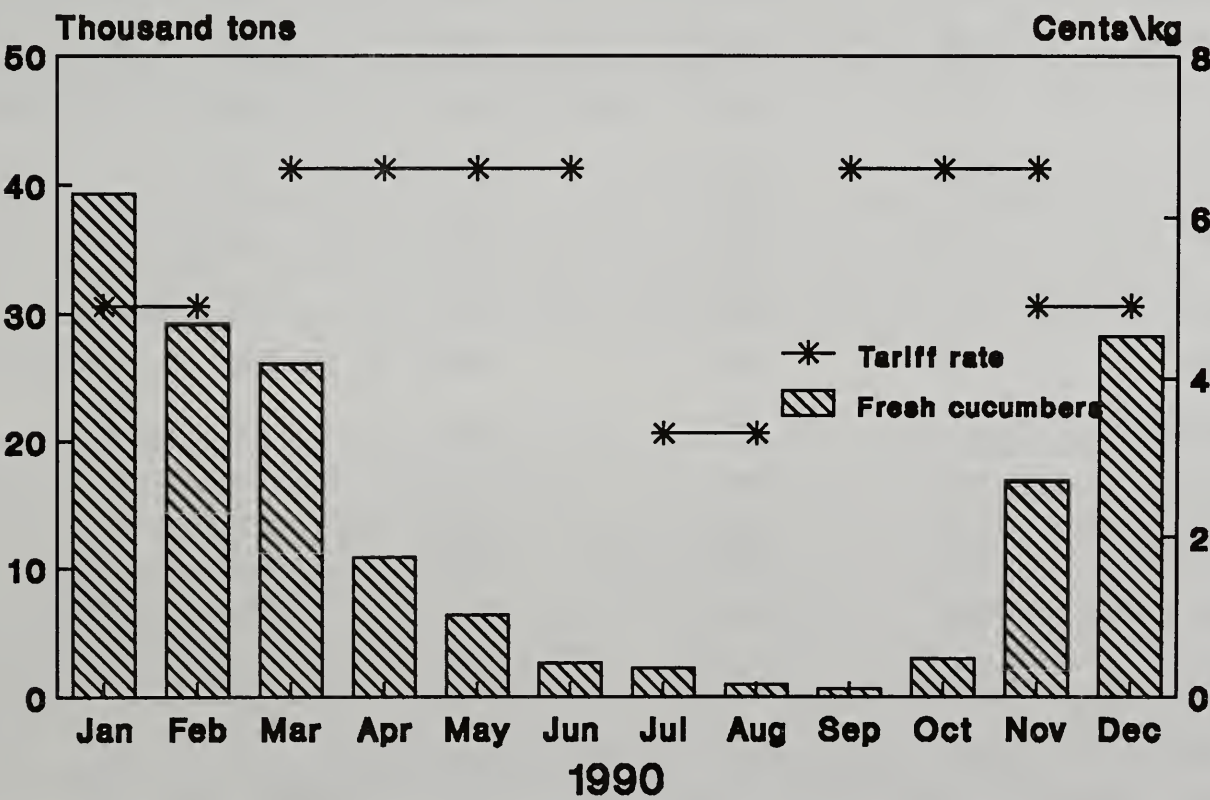
Mexico exports virtually all of its fresh cucumbers and pickles to the United States, with small quantities (5 percent of total exports) being shipped to Europe. Mexican cucumbers account for approximately 95 percent of U.S. imports of fresh and pickled cucumbers. Other exporting countries include Canada, Guatemala, Honduras, the Netherlands, and Spain. Annual U.S. cucumber imports from Mexico averaged over 182,000 tons between 1985 and 1990. U.S. cucumber imports from Mexico were valued at \$64 million in 1990, representing 93 percent of total cucumber imports to the United States, and 7 percent of the value of fresh vegetable imports from Mexico. The volume of cucumber imports from Mexico totaled just over 166,000 metric tons in 1990 (fig. 24).

Both the United States and Mexico are able to harvest and market cucumbers year round. Mexican cucumber exports to the United States were 3.8 million cwt in 1990 (table 28). The bulk of Mexican shipments generally occur over a 6-month period, beginning in November and peaking during January.

Mexican cucumbers face a tariff of 4.9 cents per kg between December 1 and the end of February. Between March 1 and June 30 and between September 1 and

Figure 24

U.S. imports from Mexico  
Fresh cucumbers



November 30, the tariff increases to 6.6 cents per kg. The tariff is 3.3 cents per kg between July 1 and the end of August, when Mexico is eligible for GSP. Mexico applies a 10-percent tariff on imports of fresh cucumbers and pickles.

### Effects of Trade Liberalization

Mexico ships sizable quantities of fresh cucumbers and pickles to the U.S. market and will continue as a major supplier. Over 94 percent of Mexican cucumber exports to the United States occur over the 6-month period of November through May.

Tariffs are an important cost of exporting cucumbers into the United States. Elimination of tariffs under a free trade agreement may shift the cost advantage in cucumbers in Mexico's favor and may result in some cost savings to U.S. consumers.

### Implications for Other Trading Partners

Mexico exports over 95 percent of its total cucumber exports to the United States.

Table 28--Monthly cucumber shipments by origin, 1990

Month	Florida <sup>1</sup>	United States	Mexico	ROW
1,000 cwt				
January	17	18	872	58
February	41	43	638	94
March	466	466	582	22
April	726	807	256	31
May	820	1,036	130	11
June	88	566	59	15
July	4	365	47	17
August	0	697	21	9
September	14	564	14	7
October	295	537	82	5
November	613	646	433	3
December	361	367	711	13
Total	3,445	6,112	3,845	285

<sup>1</sup> Includes some imports repacked and reshipped from Florida.

Source: Agricultural Marketing Service, USDA, FVAS-4, calendar year 1990.

# Onions

## Production

Onions are one of Mexico's major horticultural crops. In 1989, onions ranked fourth among Mexico's horticultural crops in area harvested (10.9 percent) and in production (12.3 percent) after tomatoes, potatoes, and green peppers. Mexico produces green onions (cebollin), and three types of "dry" onions: yellow, red, and white. Available production statistics from SARH do not differentiate between dry and green onions, but of the total area planted to dry onions, 54 percent is planted to white onions, 30 percent to yellow onions, and 16 percent to red onions.

Production is spread throughout the country. The Bajio region (Guanajuato, Jalisco, and Michoacan) accounts for about 31 percent of production. Chihuahua in the north accounts for 26 percent, Tamaulipas in the northeast accounts for about 10 percent, and Morelos in the central region accounts for 11 percent of production. Other regions of onion production include Puebla, Sinaloa, Sonora, Veracruz, and the Baja California Peninsula. The bulk of the onion crop (74 percent) is planted during July-March and harvested during March-October.

Onions are produced by "minifundistas" (farmers who farm very small farms) in plots of less than 1.5 hectares and by small growers in land areas no larger than 20 hectares. Some private traders will also increase their production by leasing land or buying other producers' crop. About 77 percent of total production is harvested in irrigated areas and the remainder in rain-fed land.

The total area planted to onions grew at an annual rate of 5.8 percent throughout the 1980's, rising from 22,155 hectares in 1981 to 34,897 hectares in 1989. Production increased during the same period at a growth rate of 6.5 percent per year, from 329,255 tons in 1981 to 545,000 tons in 1989.

Yields increased at an average rate of 0.7 percent per year during 1981-89. National average yields reached 18.2 tons per hectare in 1989, the highest level during the 1980's. Yields differ widely across States, ranging from 35.1 tons per hectare in Chihuahua (where all of production is grown in irrigated land) to 10.6 tons per hectare in Guanajuato, as reported for 1989.

All green onions come from the Mexicali region in northern Baja California and Caborca in Sonora. There is little overlap in the production of both regions. Green onions are harvested in Baja California during the November-February period and in Sonora during the January-April period. Yields of green onions produced for the export market averaged 13 tons per hectare during 1986-89. The costs of production between the regions are significantly different. Baja California reported the area's cost of production to be \$385 per acre for the 1988/89 green onion crop, lower than the \$460 per acre reported in Sonora. The higher costs of production in Sonora appear to be associated with larger expenses incurred from using irrigation water.



Yellow onions, produced exclusively for export to the United States, are grown in Tampico, Tamaulipas, and around the southeastern region of Veracruz. Yellow onions are harvested in Tamaulipas during the February-March period. Yields are high, around 20 tons per hectare. The costs of production for the 1988/89 yellow onion crop were reported to be around \$650 per acre.

The bulk of white onions are grown in the State of Morelos on irrigated land and in Baja California. White onions are harvested in Morelos during the November-February period, after the Baja California October-December harvesting period. Average yields in 1988-89 were 21 tons per hectare in Morelos and 23 tons per hectare in Baja California. The cost of production for the white onion crop grown in 1988/89 was reported to be around \$520 per acre in Morelos and \$550 per acre in Baja California. White onions produced for export are also grown in Tamaulipas and Sinaloa.

Most of the red onions are grown in the central region of Tamaulipas and in Sinaloa. Red onions are harvested in Tamaulipas in April. Average yields in 1988/89 were 15 tons per hectare. The cost of production for the Tamaulipas crop grown in 1988/89 was reported to be around \$350 per acre.

## **Consumption**

Mexico is able to harvest and market onions throughout the entire year. Domestic consumption varies annually according to domestic production and export commitments. Half of the onions produced for domestic consumption come mainly from Morelos and Guanajuato. Most of the onion producers in these areas sell their crops to a central marketing warehouse.

Mexican onion consumption, although highly variable from year to year, has declined 13 percent over the 1986-89 period, with an increased share of production going to the export market. Domestic consumption in 1989 totaled only 390,905 metric tons. Although imports of onions have grown eight times during the 1986-89 period, they still represent a very small percentage (3 percent) of total onion consumption in Mexico. Imports are conducted mainly by border States.

Per capita onion use in Mexico is about 4.6 kg per year, well above the U.S. per capita consumption of about 1.4 kg per year.

## **Policies**

CNPH, since its creation in 1961, promoted and partially controlled the production and export of horticultural products for the export market under its export product programs. To manage production of a particular product grown in different States, CNPH would define quotas for each State and the State would divide the quotas among its growers. CNPH managed the export supply of horticultural products through the issuance of export certificates from SECOFI.

Table 29--Share of average input and marketing costs for onions

Production costs	Percent of total
Field preparation	6
Planting and transplanting material	11
Fertilization	8
Weed control	3
Pest control	13
Cultivation	6
Irrigation	7
Harvesting	12
Miscellaneous	8
Interest on investment	25
Marketing costs	Percent of total
Producer	32
Packaging	8
Transportation and handling	10
Product losses at wholesale	5
Wholesaler margin	14
Product losses at retail	5
Retailer margin	26

Sources: CNPH, Costos de Produccion, 1989.  
World Bank, unpublished report, 1989.

The Government granted CNPH the power to sell the certificates of origin needed in order to pass through Mexican customs. It was through this mechanism that CNPH could ensure that products were meeting minimum quality standard requirements and that producers would not export more than their allotted quantity.

CNPH, in coordination with SARH, controlled planting of red and white onions in Mexico under the export product program from marketing years 1981/82 through 1988/89. However, not all State associations agreed with CNPH's control of export



volume, as was the case of white onion producers in the State of Morelos, who began getting their certificates of origin directly from SARH in marketing years 1984/85. Yellow and green onions have never been under CNPH export product programs. CNPH controlled about 79 percent of total onion exports in 1989.

As part of the reform process to deregulate exports of agricultural commodities, SARH relinquished CNPH's power to grant and sell certificates of origin in June 1990. This action abolished the monopoly power CNPH was exercising to control planting and exports of horticultural products.

CNPH restricted entrance of new producers into the export market. This action limited supply and ensured a certain profit margin for its associates. As a result of CNPH's deregulation, there was a slight increase in area planted last season.

The Mexican Government has assisted onion producers with input subsidies through low-interest FIRA credits, insurance, fuel, fertilizer, irrigation water, and research and extension programs. There are no price or income support programs. The level of subsidies for agriculture has been substantially reduced over the last 2 years as part of the Mexican Government's efforts to reduce fiscal expenditures. Interest rate subsidies have been reduced to a minimum. The subsidized agricultural insurance program was eliminated. Fertilizer prices have been increased to be comparable with market rates. The price of electricity for agriculture has increased, particularly for pumping water.

### **Phytosanitary Requirements**

All Mexican onion imports must meet phytosanitary standards administered under the Mexican Ministry of Agriculture. In addition, Mexican imports of onion bulbs require a certificate of origin. Mexican onions are subject to inspection by APHIS.

### **Trade Profile**

Mexico is a net exporter of onions. Onion imports historically represent less than 1 percent of total supply. Average annual imports were around 5,000 tons throughout the 1980's and highly variable from year to year. Onion imports in 1990 of 11,522 metric tons were due to shortfalls in Mexican production.

Mexican onion exports grew at an average rate of 13.8 percent per year throughout the 1980's. The growth rate for exports throughout the 1985-90 period was 21 percent for dry onions and 15 percent for green onions.

Total onion exports from Mexico were 165,617 tons in 1989. Green onions have accounted for 36 percent of exports in recent years, white onions for 30 percent, yellow onions for 21 percent, and red onions for 13 percent. Onions for the export market were produced in 12 different States in 1989, with Tamaulipas accounting for 78 percent of the market, followed by Chihuahua (5 percent), Sinaloa (3 percent), Sonora (2 percent), and Baja California (2 percent). The rest of the States



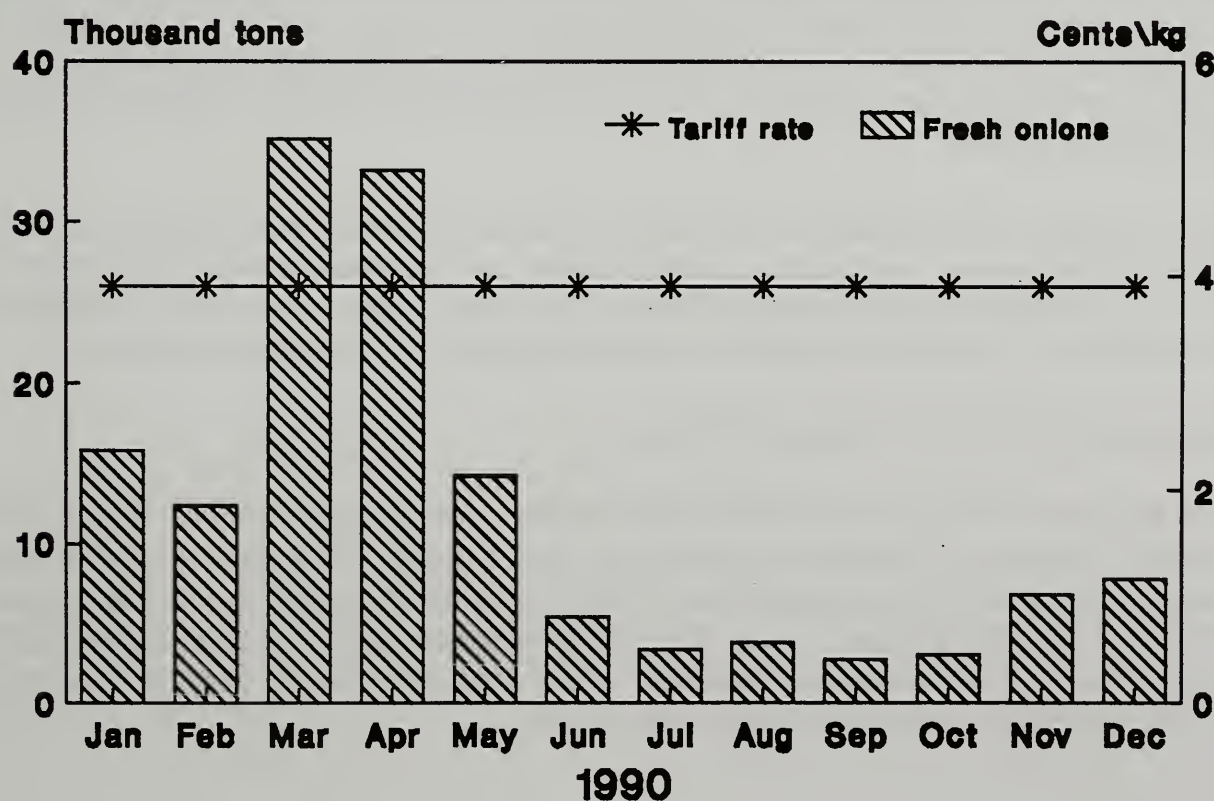
represented minimum quantities. Over 90 percent of Mexican onion exports are destined to the United States. Onions imported from Mexico are subject to the same grade and size standards as outlined in U.S. marketing orders.

Onion imports from Mexico supply a significant part of U.S. supplies for the winter (fig. 25). Annual U.S. onion imports from Mexico, which increased in volume by over 11 percent from 1985 to 1990, averaged 129,324 tons. The value of onion imports from Mexico has also been increasing over the last few years. Annual imports of onions averaged over \$53 million during 1985-90.

U.S. onion imports from Mexico were valued at \$67 million in 1990, representing 88 percent of total onion imports to the United States, and 8 percent of the value of fresh vegetable imports from Mexico. The volume of onion imports from Mexico totaled just over 143,000 metric tons in 1990 (fig. 25).

Figure 25

## U.S. imports from Mexico Fresh onions



USDA's Agricultural Marketing Service (AMS) statistics report that about 52 percent of total onion imports to the United States from Mexico (measured in units of 1,000 cwt) are dry onions, the remainder being green onions. About half of the total U.S. dry onion imports are white varieties. The yellow varieties account for about 40 percent of dry varieties. Imports of red varieties make up the remaining 10 percent.

All U.S. green onion imports come from Mexico. About 77 percent of the dry onion imports originated in Mexico in 1990, and 14 percent in Canada. The rest came from several other countries.

In 1990, over 98 percent of the dry onion imports from Mexico into the United States was shipped during the winter (January-May). Shipments into the U.S. dry onion market peaked during March/April for Mexico (80.3 percent). There is some overlap between Mexico and the United States in the timing of marketing.

The United States shipped a total of 515,000 cwt of green onions in 1990 (table 30). Mexico harvests and markets green onions throughout the year. Over 60 percent of the 1.8 million cwt of green onions imported from Mexico into the United States in 1990 were shipped during the January-May period. There is a minimal trade overlap in the case of green onions.

The U.S. import duty is 1.3 cents per kg for green onions and 3.9 cents per kg for other onions all year round. Mexico applies a 10-percent tariff on all onion imports.

### **Effects of Trade Liberalization**

Mexico is the source of 100 percent of the green onions and 77 percent of the dry onions imported by the United States. With the elimination of U.S. tariffs, a free trade agreement is expected to increase Mexican onion exports to the United States. Tariff elimination should reduce prices for U.S. consumers, stimulating demand for both green and dry onions.

Mexican exports will increase to the degree that U.S. consumption increases and/or production decreases. Although potential areas for increased production include Baja California and Sonora and although Mexico has lower labor costs, the elimination of input subsidies to Mexican production will likely affect their ability to expand.

### **Implications for Other Trading Partners**

Mexico exports over 90 percent of its total onion exports to the United States, with the remainder shipped to Colombia, Guatemala, and Europe. The United States imported 17 percent of its dry onion requirements from Canada and Chile in the November-May 1990 period, and 80 percent of the dry onions available in the United States during this period came from Mexico. Proximity to the market provides Mexican producers with a transportation cost advantage over Chile.

Table 30--Monthly green onion shipments by origin, 1990

Month	California	Arizona	Texas	Florida	United States	Mexico
1,000 cwt						
January	19	5	1	0	25	214
February	13	4	1	0	18	204
March	16	2	1	1	20	234
April	14	1	1	1	17	219
May	32	0	0	1	33	217
June	58	0	0	0	58	132
July	74	0	0	0	74	57
August	80	0	0	0	80	64
September	62	0	0	0	62	56
October	66	3	0	0	69	67
November	27	7	1	0	35	156
December	14	7	3	0	24	194
Total	475	29	8	3	515	1,814

Source: Agricultural Marketing Service, USDA, FVAS-4, calendar year 1990.



# Peppers

## Production

Peppers have become the third most important horticultural crop in Mexico. Peppers rank third among Mexico's horticultural crops in area harvested (20.6 percent) and in production (14.1 percent) after tomatoes and potatoes. Mexico produces several types of peppers, but the primary ones include bell (or sweet) and hot pepper varieties (chili, anaheim, red, and jalapenos). Available production statistics from SARH do not differentiate between the types of peppers. However, CNPH statistics indicate that, of the total area planted to peppers, approximately 23 percent is planted to bell peppers and the remaining land is dedicated to the hot pepper varieties. Almost all bell peppers are grown for export, while chili peppers have a substantial domestic market.

The northern States are the principal producers of bell and hot peppers for export. The main producers of bell peppers for the export market are Sinaloa, accounting for over 90 percent of production; Sonora, 2 percent; and Baja California, 2 percent. Other minor regions of bell pepper production include Tamaulipas, Coahuila, and Jalisco. The bulk of the bell pepper crop (86 percent) is planted between August and December and harvested between November and May.

Hot peppers, the preferred peppers of Mexican consumers, are grown principally in Chihuahua, Zacatecas, Nayarit, and Puebla, and sold to a central marketing warehouse in Mexico City. Hot peppers are planted between September and February, with harvesting between January and June.

Pepper production, especially in Sinaloa around the Culiacan Valley, continues to expand, not so much because of increasing acreage as from larger yields. Increased yields are due to certified seed use and expansion of irrigation facilities from river-reservoir systems. National average yields reached 15 metric tons per hectare in 1989.

Bell pepper yields vary across States, ranging from 23 tons per hectare in Sinaloa to 7 tons per hectare in Coahuila. For chili peppers, yields vary between 20 tons per hectare in Chihuahua to 12 tons per hectare in Coahuila. Pepper production in Mexico grew at an annual rate of 3.1 percent throughout the 1980's, rising from 407,000 metric tons in 1981 to 624,000 metric tons in 1989.

Growing operations, traditionally concentrated in the State of Sinaloa, have recently extended into neighboring Sonora. Since the 1989/90 season, Sonora has gained a larger share of Mexico's pepper production, from 2 percent to 30 percent. Competing crops, such as cotton and wheat in Sonora and sugarcane, wheat, rice, and cotton in Sinaloa, have little effect on pepper acreage.

All pepper growers follow crop rotation methods, especially with tomatoes in Sinaloa. Most of the cultivating and harvesting practices for peppers are the same as those for

tomatoes. Peppers are grown on large farms with an associated packinghouse nearby. Mexican law sets a limit of 100 hectares of irrigated land. Thus, several farmers will associate themselves to operate a packinghouse as a joint venture. Producers of tomatoes and peppers in the export market will often lease land that has been planted in other crops to keep their crop in production throughout the year.

Mexico grows the same type of bell peppers as the United States. California Wonder is the leading sweet variety under cultivation. Other varieties include Yolo Wonder and Early Wonder.

## **Consumption**

Per capita consumption has been estimated at 6.6 kg per year. Mexico is able to supply the domestic market throughout the year. Annual Mexican pepper consumption over the 3-year period prior to 1990 averaged over 447,000 metric tons.

## **Policies**

In the past, the Mexican Government provided assistance to pepper producers through various subsidies, most important of which were the irrigation subsidies. The Government constructed an extensive network of irrigation facilities, and producers pay only an estimated 30 percent of the market price for irrigated water and less than half of the operational and maintenance costs. But, Mexican pepper growers are currently facing reduced input, fertilizer, irrigation, credit, and insurance subsidies.

Vegetable producers, including pepper growers, have organized themselves into associations. CAADES is a confederation of the local associations in charge of providing many of the services usually provided by cooperatives in the United States. CAADES is primarily oriented toward servicing grain producers, but vegetable growers benefit from its technical assistance.

CNPH had regulated the market by restricting entrance of new producers into the export market. After deregulating CNPH, no program for planting was enacted.

## **Phytosanitary Requirements**

All Mexican imports of pepper plants must meet phytosanitary standards administered under the Mexican Ministry of Agriculture. In addition, Mexican imports of pepper plants require a certificate of origin. Mexican peppers are subject to inspection by APHIS.

## **Trade Profile**

Mexican exports of bell peppers have historically been one-third of production and no more than 2 percent of the total value of Mexico's horticultural exports. Bell peppers

Table 31--Share of average input and marketing costs for peppers

Production costs	Percent of total
Field preparation	4
Planting and transplanting material	13
Fertilization	8
Pest control	16
Cultivation	12
Irrigation	5
Cultivation materials	5
Harvesting	7
Miscellaneous	12
Interest on investment	19
<hr/>	
Marketing costs	Percent of total
Producer	32
Packaging	3
Transportation and handling	5
Product losses at wholesale	5
Wholesaler margin	9
Product losses at retail	6
Retailer margin	40

Source: CNPH, Annual Report, 1990.

account for 80 percent of total Mexican pepper exports, with the remainder consisting of varieties of anaheim, red, and jalapenos. The volume of exports has been highly variable due to the variability of U.S. prices, ranging from over 157,000 tons in 1985 to 86,000 tons in 1990.

Mexico ships over 90 percent of its exportable bell peppers to the United States, with the rest sold principally to Canada and Europe.



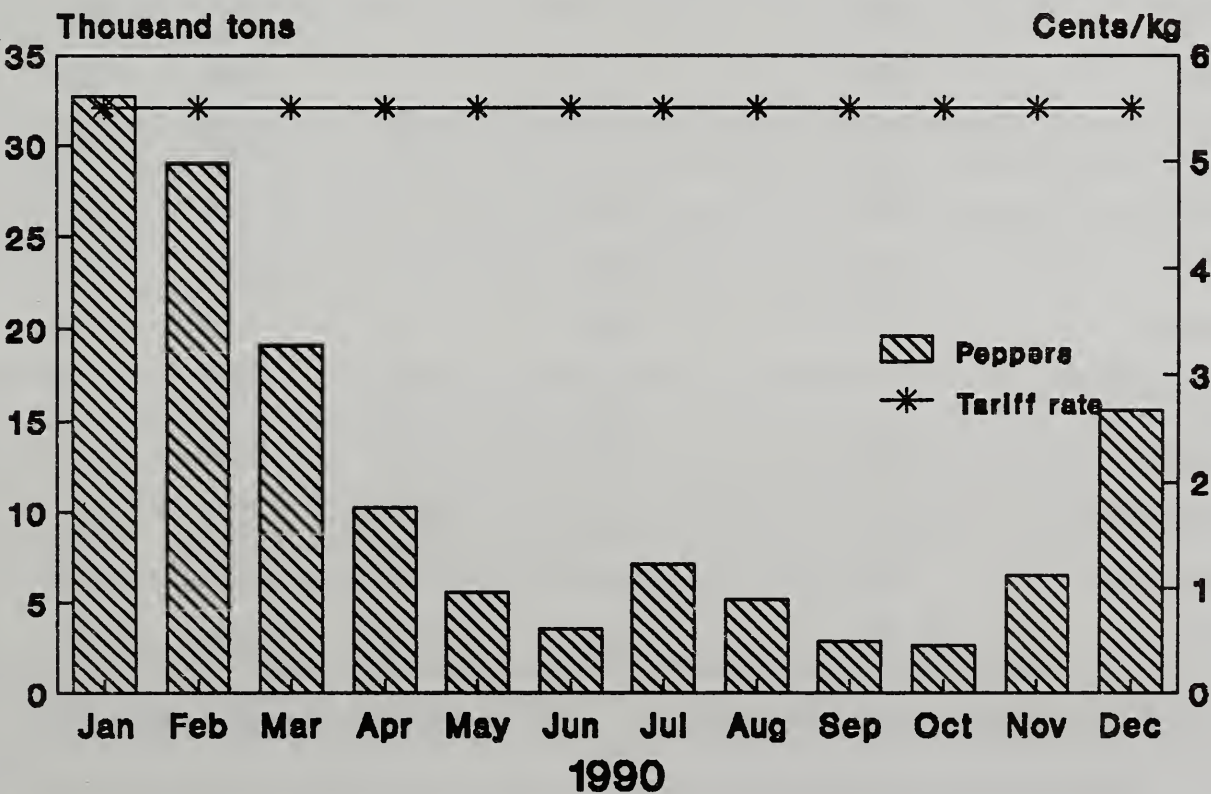
Approximately 95 percent of U.S. pepper imports come from Mexico. Other countries shipping peppers to the United States include Belgium, Canada, Dominican Republic, Jamaica, and the Netherlands. Of the total U.S. pepper imports, two-thirds are bell peppers and one-third other varieties of peppers, predominantly chili.

The volume of Mexican bell peppers imported into the United States increased rapidly throughout the 1980's. From 65 metric tons in 1983, the volume nearly doubled by 1990. During 1985-90, U.S. pepper imports from Mexico averaged over 112,000 tons valued annually at \$79 million. U.S. pepper imports from Mexico were valued at \$136 million in 1990, representing 86 percent of total pepper imports to the United States, and 15 percent of the value of fresh vegetable imports from Mexico. The volume of pepper imports from Mexico totaled just over 126,000 metric tons in 1990 (fig. 26).

Peppers exported from Mexico have become increasingly important in recent years. Imports from Mexico now account for a large share of U.S. consumption during November through May. Mexico exported 2.7 million cartons of peppers into the United States (85 percent of annual shipments).

Figure 26

U.S. imports from Mexico  
Peppers



More than 93 percent of the Mexican shipments of bell peppers to the United States are concentrated in a 5-month period from December through April (fig. 26). Chili pepper imports from Mexico are more evenly spaced throughout the year. The U.S. import tariff for Mexican chili and bell peppers is 5.5 cents per kg year round (fig. 26). Mexico applies a 10-percent tariff rate on imports of bell peppers.

### Effects of Trade Liberalization

Both the United States and Mexico are able to harvest and market bell peppers year round. U.S. producers have increased their product yields through technological investment to become more competitive. Mexico's position in the winter market has helped minimize price volatility for U.S. consumers. The elimination of the seasonal tariffs on peppers could increase competition in winter production. Tariff elimination should reduce prices for U.S. consumers, thus stimulating demand.

Table 32--Monthly bell pepper shipments by origin, 1990

Month	Florida	California	Texas	United States	Mexico	ROW
1,000 cwt						
January	108	0	0	108	617	2
February	59	0	0	59	533	1
March	381	0	0	381	435	3
April	682	2	1	685	138	9
May	744	75	96	933	38	21
June	139	282	23	858	16	29
July	0	395	0	568	13	32
August	0	333	4	412	9	25
September	0	384	26	452	5	23
October	36	431	81	549	10	18
November	221	44	307	572	70	18
December	428	0	81	510	266	2
Total	2,798	1,947	619	6,087	2,150	183

Source: Agricultural Marketing Service, USDA, FVAS-4, calendar year 1990.



## Oranges and Orange Juice

### Production

Mexico was the world's fifth largest orange-producing country in the late eighties. Production averaged 1.96 million metric tons over the 3-year period between marketing years 1986/87 and 1988/89, accounting for 4.6 percent of total world orange production. Of the 24 primary orange-producing countries in the world, only Brazil, the United States, China, and Spain produced more than Mexico. Mexico also ranks as the fifth largest producer of processed orange products in the world, following Brazil, the United States, Italy, and Israel. However, Mexico accounted for an average of only 2.3 percent of the total world production of processed oranges during 1987/88-1989/90 compared with 50.3 and 32.7 percent for Brazil and the United States.

Mexican orange production is concentrated in the areas of (in descending order of importance) Veracruz, San Luis Potosi, Tamaulipas, Tabasco, Sonora, Yucatan, and Nuevo Leon. Veracruz alone is estimated to produce over 40 percent of total Mexican orange production. Although trending upward, Mexican orange production has been erratic over the past decade, partially because growers in the northern areas have suffered setbacks from periodic freezes. Consequently, new tree plantings have been heaviest in the more freeze-resistant southern State of Veracruz and in the Sonora desert region.

Similar to those in the United States, the principal orange varieties grown in Mexico include Valencia, Hamlin, Pineapple, and Navel, among others. The Mexican harvest season varies by region but usually runs between October and August of the following year, generally paralleling that in the United States. In Veracruz, harvest usually runs between January and April.

Strong domestic demand for fresh oranges and strong export demand for orange juice and orange slices continue to stimulate tree plantings in Mexico. The uprooting of trees damaged in the December 1989 freeze reduced area planted and harvested in 1989/90, but area planted and harvested is expected to rebound in 1990/91, with new groves in Veracruz, Sinaloa, and Tabasco reaching bearing age.

Few Mexican orange growers follow modern cultural practices due to lack of knowledge. Although some technological improvements, such as denser plantings and chemical control of fruit flies, are beginning to be made, normal yields in Mexico currently average about 9 short tons per acre compared with 15 short tons in the United States. However, Mexican production and harvesting costs are less than those in the United States because of relatively lower labor costs.

Due to government restrictions on the size of landholdings, orange production in Mexico is characterized by a large number of small growers with groves typically ranging between 2 and 30 acres. An estimated 35,000 Mexican growers are involved in producing oranges, most of whom are ejidatarios who produce oranges on



designated parcels of state-owned land rent-free. Other growers range from small holders to relatively large landowners who produce oranges on private property.

The processing market continues to be a residual market for fresh oranges in Mexico because of strong fresh market demand, particularly in the large Mexico City market. Only about 20 percent of total Mexican production has been used by processors in recent years, unlike in Brazil and the United States where the majority of production is processed. Processors often are required to compete with fresh market buyers who pay relatively higher prices.

Orange juice production levels are highly variable from season to season, depending on fresh orange prices in the domestic market, but relatively higher world orange juice prices in recent years have stimulated interest and growth in Mexico's citrus-processing industry. There are 22 orange juice processing plants in Mexico with an estimated evaporating capacity of about 577,000 pounds of water per hour. There were approximately 17 plants with an estimated processing capacity of about 386,500 pounds of water per hour in 1989/90.

Mirroring the growth in orange production in Veracruz, 45 percent of Mexico's total processing capacity is now located in the State compared with 26 percent in 1989/90. Processing capacity has also more than doubled in Tamaulipas over the past two seasons, while that located in Nuevo Leon has significantly declined as a result of the extreme damage to the State's orange groves following the December 1989 freeze. Processing capacity in Sonora and Yucatan is slowly expanding.

## **Consumption**

The primary forms of orange consumption in Mexico are fresh fruit, fresh squeezed juice (produced at home), and frozen concentrated orange juice. Fresh consumption has grown sharply over the last decade, while processed orange juice consumption has remained flat.

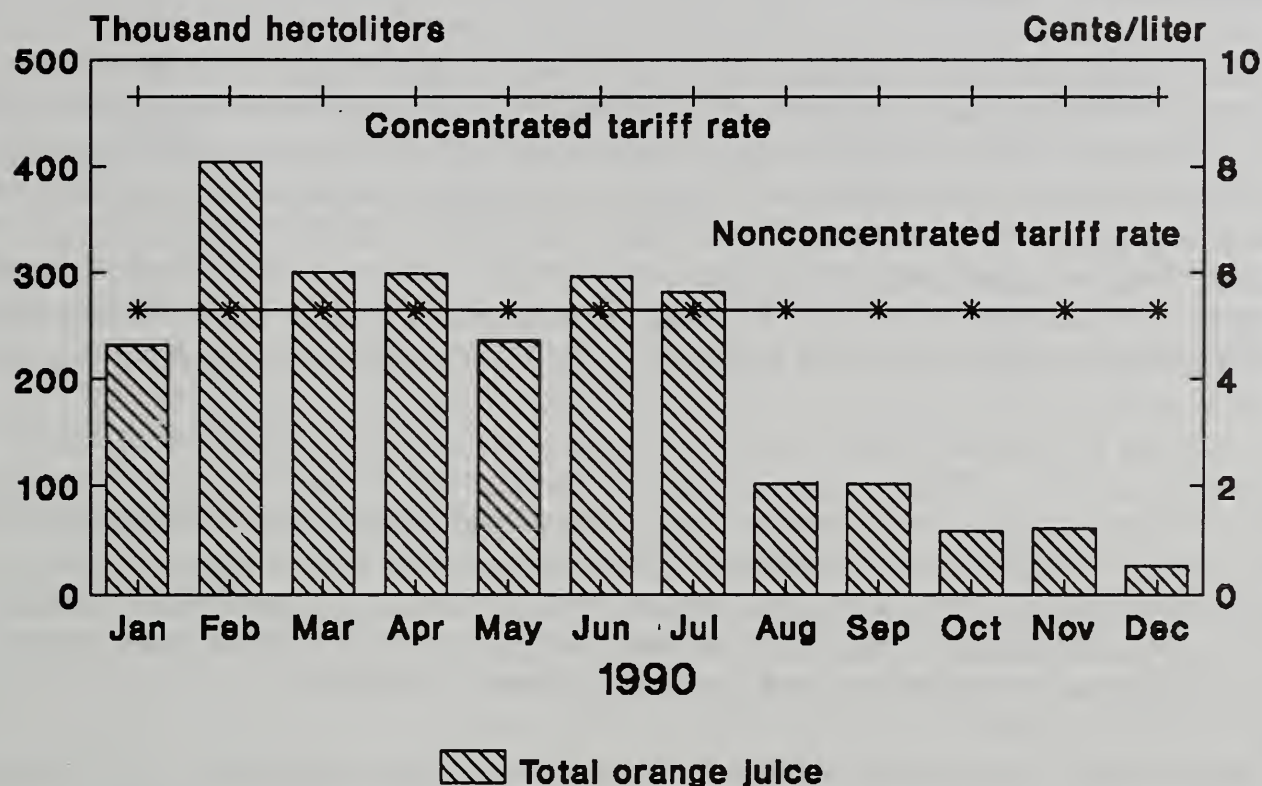
## **Policies**

The Mexican Government assists domestic orange growers by sponsoring research and extension programs, subsidizing irrigation water, and providing access to favorable credit terms. There are no price or income support programs. Several of the major orange-producing States, such as Veracruz, Tabasco, and Tamaulipas, have implemented programs to encourage orange plantings.

Mexico only recently opened its market to fresh orange imports by lifting its import licensing requirement following its entry into the GATT in 1987. Fresh orange imports are subject to a 20-percent tariff and must comply with the phytosanitary regulations described below. Mexican orange juice imports are also subject to a 20-percent value-added import tax. U.S. tariffs on Mexican frozen concentrated orange juice imports are assessed at \$0.0925 per kg (fig. 27).

Figure 27

## U.S. imports from Mexico Orange juice



### Phytosanitary Requirements

Mexican fresh orange importers are required to secure a sanitary authorization issued by SARH before imports are permitted to enter. Mexican growers must fumigate fresh oranges destined for export to the United States (except those shipped from the Sonora Fly Free Zone) according to the sanitary protocol agreed upon by U.S. and Mexican officials in 1985. In addition, Mexican fresh orange exports to the United States must also pass inspection by APHIS inspectors at the packinghouse, with the cost of the inspection borne by the Mexican grower. U.S. regulations to protect against the accidental importation of exotic fruit flies into the United States remain in effect.

### Trade Profile

Mexican consumption of fresh oranges totaled 1.9 million metric tons in 1990, growing at an average annual rate of 2.4 percent since 1980. The majority of Mexican fresh orange consumption is domestically produced and, in the absence of freezing



temperatures that significantly damage production, Mexico is a net exporter. Most orange juice produced in Mexico is exported as Mexican consumers tend to prefer fresh squeezed juice over processed orange juice. Mexican processed orange juice consumption, although highly variable from season to season, has declined at an average annual rate of 12.1 percent since 1985, totaling only 1,750 metric tons (65 degrees Brix) in 1989/90.

Mexican exports of fresh oranges have not shown any significant trend since 1985, but Mexican orange juice exports have grown at an average rate of 14.4 percent per year. Exports of fresh oranges fluctuate from year to year but account for less than 1 percent of total Mexican production. Orange juice exports account for over 96 percent of total orange juice production. The United States is the largest export market for Mexican fresh oranges and orange juice, followed by Canada and Germany for fresh oranges and Germany and Spain for frozen concentrated orange juice (FCOJ). The United States imports most of its Mexican FCOJ from January through June (fig. 27).

U.S. imports of Mexican fresh oranges are highly variable from season to season, depending on U.S. domestic supplies as well as Mexican availability. U.S. imports of Mexican fresh oranges have ranged from a low of 986 metric tons in 1988/89 to 3,488 metric tons in 1989/90, since 1984/85. On the other hand, U.S. imports of Mexican frozen concentrated orange juice have risen in almost every season since 1984/85. U.S. imports of Mexican frozen concentrated orange juice totaled 8.1 million single-strength gallons in 1984/85 and 64.6 million gallons in 1989/90.

No fresh orange imports into Mexico were reported before 1987 because of the import licensing regulation imposed by the Mexican Government. Imports have increased since the Mexican Government abolished the import license requirement for fresh oranges in 1987. U.S. fresh orange exports to Mexico were insignificant before 1989, when the Mexican Government began encouraging imports to boost supplies and drive down prices in a market dominated by only a few sellers. Mexico imported 3,887 metric tons of fresh oranges from the United States in 1990, following the shortfall in domestic production caused by the December 1989 freeze.

Although Mexican imports of fresh oranges currently account for less than 1 percent of domestic consumption, Mexico is expected to continue importing U.S. fresh oranges to help hold down domestic food price inflation and to manage supplies. However, imports will remain a relatively minor portion of total Mexican fresh orange consumption during nonfreeze years because of prospects for increasingly larger domestic production, particularly in Sonora. Sonora supplies the important Mexico City market with high-quality oranges during June and July, the domestic off-cycle months.

### **Effects of Trade Liberalization**

In the absence of price and income support programs for Mexican and U.S. orange producers alike, liberalizing trade in fresh oranges and processed orange products between the two countries will center around tariff elimination. The elimination of the



U.S. tariff on orange juice will allow expanded imports into U.S. processed orange markets. The elimination of Mexican tariffs and import licensing regulations may help U.S. orange growers increase exports of fresh oranges to Mexico.

Elimination of the tariff for U.S. orange juice imports from Mexico will increase Mexico's competitiveness with U.S. imports from Brazil and with U.S. domestic juice. Increased U.S. imports could lower returns slightly for U.S. and Brazilian producers.

While Mexico exports frozen concentrated orange juice to the United States, the closeness of Mexico makes it feasible to ship single-strength, not-from-concentrate orange juice to U.S. markets. Not-from-concentrate orange juice is currently the fastest growing segment of U.S. orange juice consumption, although juice in this form commands a premium price over frozen concentrated orange juice in retail markets. Transportation costs inhibit Brazil from competing in this market segment. Lower transportation costs, in addition to the premium retail prices received, could provide the incentive for Mexico to expand production of not-from-concentrate orange juice for export to the United States.

### **Implications for Other Trading Partners**

The proximity of Mexico to the United States provides Mexican producers with a transportation cost advantage over other Latin American countries supplying U.S. fresh orange and orange juice markets. Relatively lower transportation costs, combined with duty-free status, likely would give Mexican fresh orange shippers a cost advantage over Caribbean Basin Initiative countries exporting to the United States, as well as producers in Chile and Argentina, where orange production is small but expanding.

Canada imports small quantities of nonconcentrated orange juice and frozen concentrated orange juice from Mexico. The United States and Brazil are the major suppliers, each with close to 50 percent of Canada's market. Canada has no tariffs on fresh oranges or on frozen concentrated orange juice because Canada is not a citrus producer. Therefore, a free trade agreement between the United States, Mexico, and Canada would have little effect on Canada.

# **Limes**

## **Production**

Mexico appears to be the world's largest lime-producing country, although data pertaining to world lime production is sketchy. Mexico produced 700,000 metric tons of Persian and Key limes in 1989/90, while Brazil, the next largest lime-producing country for which data are available, produced 564,000 metric tons. In contrast, the United States produced only 45,000 metric tons during the same season.

Mexican lime production has grown at an average annual rate of 4 percent since 1980. Despite damage caused by the December 1989 freeze, Mexican lime production is expected to reach a record 708,000 metric tons in 1990/91 as more new trees reach bearing age. Mexican Key limes are grown primarily in the Pacific Coast States of Colima, Michoacan, Guerrero, and Oaxaca. Persian lime production takes place in a small microclimate that includes parts of Veracruz, San Luis Potosi, Tamaulipas, and Hidalgo.

## **Consumption**

About 70-75 percent of total Mexican lime production is consumed fresh, while the remainder is processed into juice, peel, and oil. Mexican domestic fresh lime consumption has grown at an average annual rate of 4 percent since 1980/81, to reach 521,000 metric tons in 1989/90. Fresh lime consumption is forecast to reach a record 534,000 metric tons in 1990/91 due to population growth and increasing purchasing power. Mexican producers strongly prefer Key limes over Persian. However, Key and Persian limes are viewed as substitutes in the marketplace.

## **Policies**

Mexican lime producers receive relatively little assistance or support from the Government. Lime producers have access to government-sponsored research and extension programs and subsidized irrigation water. There are no price or income support programs in effect.

Mexico opened its market to fresh lime imports in 1987 by lifting its import licensing requirement. Mexican fresh lime imports are assessed a 20-percent value-added import tax. Import duties on U.S. imports of Mexican limes are assessed at \$0.022 per kg. U.S. lime imports must also conform to the same grade and size standards as applied to U.S. producers as set forth in Section 608e of the Federal marketing order legislation.

## **Phytosanitary Requirements**

Mexican fresh lime importers are required to secure a sanitary authorization issued by SARH before imports are permitted to enter. U.S. imports of Mexican Key limes have



been banned since 1983, when APHIS determined that Mexican Key limes might be infected with citrus canker. However, APHIS recently proposed to lift the ban on U.S. imports of Mexican Key limes and peels following its determination that the condition being diagnosed was not citrus canker. Imports would be subject to fumigation for the elimination of fruit flies, however. Mexican Persian lime exports to the United States currently undergo treatment for fruit flies at the packinghouse. These activities are supervised by SARH, although APHIS personnel make periodic inspections to ensure procedures are being followed.

## **Trade Profile**

The majority of Mexican lime production is consumed in the domestic market. Exports averaged only 6 percent of total domestic production between marketing years 1987/88 and 1989/90. There are virtually no imports.

Mexican lime exports have grown at an annual average rate of 9 percent since 1980/81 to reach 50,000 metric tons in 1989/90. The United States and Canada are the largest export markets for Mexican Persian limes, although small amounts are also exported to Japan and Western Europe. U.S. imports of Mexican Persian limes enter year round, but are usually heaviest between May and October (fig. 28). U.S. lime imports are highly variable from season to season but have averaged 44 percent of total U.S. lime consumption since 1985/86.

## **Effects of Trade Liberalization**

In the absence of price and income support programs for Mexican and U.S. lime producers alike, liberalizing trade in limes between the two countries will center around tariff elimination. Mexican growers are more likely to benefit from the elimination of the tariff than U.S. producers because production and harvesting costs in Mexico are less than those in the United States, and relatively higher prices prevail in U.S. markets than in Mexican markets. Moreover, U.S. lime production is constrained to very small areas of Florida and California. Production disruptions in either area can significantly affect prices.

Service and quality factors have allowed Florida lime growers to command a premium price for limes in U.S. markets relative to Mexican limes. However, the large volume of U.S. lime imports from Mexico puts downward pressure on price levels despite the U.S. tariff on imports. Elimination of the U.S. tariff would increase the price received by Mexican growers.

## **Implications for Other Trading Partners**

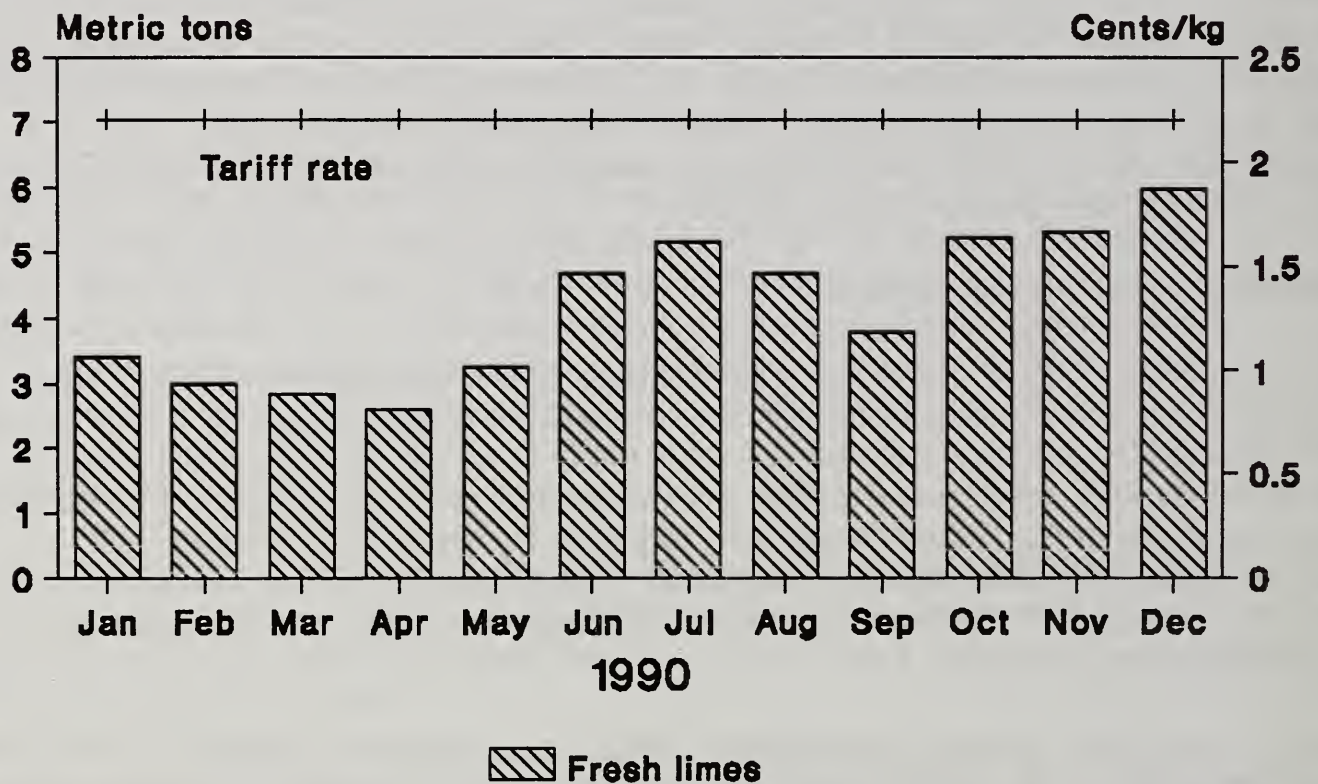
Although Mexican lime exports to the United States are highly variable from season to season, Mexico typically accounts for 90-95 percent of total U.S. lime imports. Other less significant exporters to U.S. fresh lime markets include the Bahamas and Honduras, among others.



As Canada is not a lime producer, a NAFTA would not have an effect on Canada. Limes currently enter the Canadian market duty free. Canada imports limes from Mexico, but the United States remains the dominant supplier, providing about 80 percent of Canada's 1989 imports. There are no tariffs on limes.

Figure 28

## U.S. imports from Mexico Fresh limes



# **Strawberries**

## **Production**

Mexico produced 117,000 metric tons of strawberries in 1990 (table 33). Michoacan, Guanajuato, and Baja California produced 99 percent of the strawberries, with Michoacan producing over half the crop. Production in Baja California began in 1986. Use of drip irrigation and plastic have somewhat mitigated the problem of shortage of high-quality water in the strawberry production area of Baja California. Strawberry production recently began on a small scale in Los Moches, Sinaloa. Strawberries are produced throughout the year. Most strawberries in Baja California go to the fresh market. This area produces a large strawberry that is very similar to that produced in California. Producers in Michoacan and Guanajuato begin to harvest in December when fresh market prices are very high. They export fresh strawberries through Texas. Later they switch to frozen strawberries when the prices fall as other producers enter into the fresh market. Most of the production in Michoacan and Guanajuato goes to the frozen market. The strawberries in this area are small and firm and highly valued for certain products, such as ice cream.

## **Consumption**

Domestic consumption of fresh strawberries was 44 percent of Mexican production in 1990. Fresh exports accounted for 9 percent of domestic production. The processing industry used 47 percent of the domestic harvest for freezing, and about 50 percent of the frozen pack was exported to the United States.

## **Policies**

The planting quota system and the restriction of freezing facilities to Michoacan and Guanajuato were dropped in 1988. Strawberry production and freezing facilities have now expanded into other areas. There may be an unsettled period of industry readjustment to these recent changes in the domestic situation. Strawberry producers, like other agricultural producers, have had to adjust to the almost complete elimination of government input subsidies.

## **Phytosanitary Requirements**

Strawberries entering the United States must meet the residue requirements required for U.S. strawberries. All strawberry root stock imported into Mexico from the United States must be fumigated.

## **Trade Profile**

Mexico exported 10,200 metric tons of fresh strawberries in 1988. March and April are the peak export months. These fresh exports account for only 9 percent of Mexican production. Most Mexican strawberry exports go to the United States.

Mexican fresh strawberry exports accounted for 4 percent of U.S. fresh market consumption in 1989.

Very few fresh strawberries from Mexico enter the United States during June 15 to September 15, when Mexico is eligible for GSP (fig. 29). Almost all Mexican strawberries enter during September 16 to June 14 when there is an import tariff of 1.7 cents per kg.

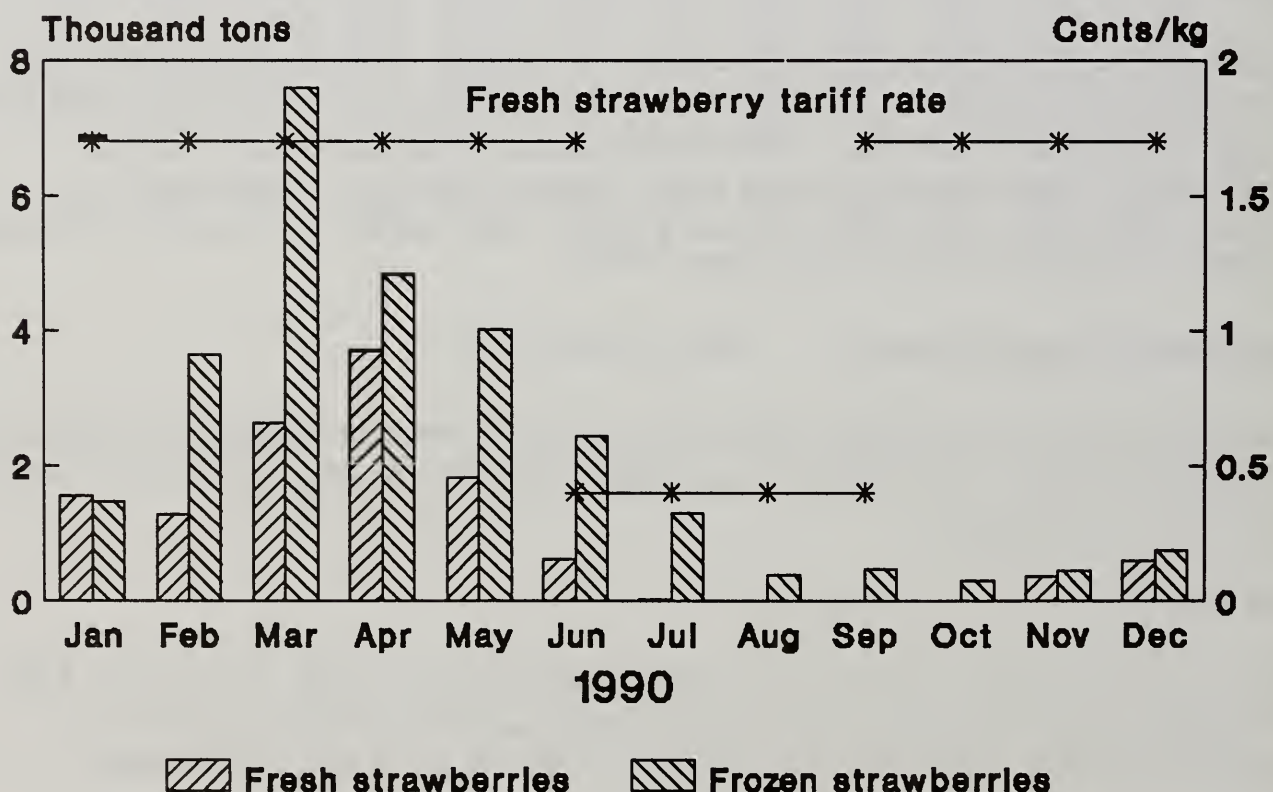
Processed strawberries from Mexico face a 14-percent ad valorem tariff. Processed strawberries from Mexico were 15.3 percent of the U.S. market in the period 1980-84.

### Effects of Trade Liberalization

Trade liberalization will probably have little effect in the U.S. fresh strawberry market because U.S. tariffs are already small or nonexistent. Furthermore, strawberry production requires a lot of capital, good-quality water, and skilled management. Any substantial increase in Mexican production likely would have to involve investment because the capital requirements are so high.

Figure 29

## U.S. imports from Mexico Strawberries





There may be more potential for an increase in Mexican exports of processed strawberries if the 14-percent tariff is eliminated on all U.S. strawberry imports.

### **Implications for Other Trading Partners**

Fresh strawberry imports into the United States from Guatemala and Costa Rica increased from almost nothing to about 10 percent of total fresh imports between 1985 and 1989. Imports into the United States from these countries enter without duty as part of the Caribbean Basin Initiative. It is not clear whether they will be able to compete with Mexico if tariffs are eliminated on all U.S. strawberry imports.

Canada imports only a small amount of its strawberries from Mexico, with the United States providing virtually all imports. Mexico has been a major supplier of frozen strawberries to Canada. Removal of trade barriers would make Mexico more competitive relative to other suppliers.

Table 33--Fresh strawberry production and trade in NAFTA countries, 1990<sup>1</sup>

Item	Canada	Mexico	United States
1,000 metric tons			
Production	30 <sup>2</sup>	117	393
Total exports from:			
	Canada	Mexico	United States
1,000 metric tons			
Total exports	<1	10 <sup>3</sup>	39
To Canada	-	<1 <sup>3</sup>	33
To Mexico	-	-	<1
To U.S.	-	8 <sup>3</sup>	-
To ROW	-	2 <sup>3</sup>	5
Total imports to:			
	Canada	Mexico	United States
1,000 metric tons			
Total imports	34	-	15
From Canada	-	-	<1
From Mexico	<1	-	13
From U.S.	33	-	-
From ROW	<1	-	2
	Canada	Mexico	United States
Kilograms			
Per capita consumption	0.4 <sup>2</sup>	0.6	1.5

<sup>1</sup> Columns may not sum because of preliminary data.

<sup>2</sup> 1988 data.

<sup>3</sup> Inferred from 1988 trade breakout.

- = Not applicable.

Source: U.S. Department of Commerce; Agriculture Canada, Statistics Canada; Foreign Agricultural Service, USDA; Banco de Mexico.

## **Table Grapes**

### **Production**

Mexico produced about 345,000 tons of table grapes in 1990 (table 34). Most production is in Sonora, Baja California Norte, and Zacatecas. Production has increased 24 percent since 1985.

### **Consumption**

In 1990, 91.2 percent of Mexican production was consumed in the domestic market. Domestic demand will probably increase for grapes as income increases in Mexico.

### **Policies**

Grape producers, like other agricultural producers, have had to adjust to the almost complete elimination of government input subsidies. Recent grape production increases are due to several factors. Profitability of grain production has declined as government support prices have decreased, causing diversification into different crops. Increasing water costs have also encouraged expansion into less water-intensive crops, such as grapes.

### **Phytosanitary Requirements**

Grapes must meet U.S. grape residue requirements.

### **Trade Profile**

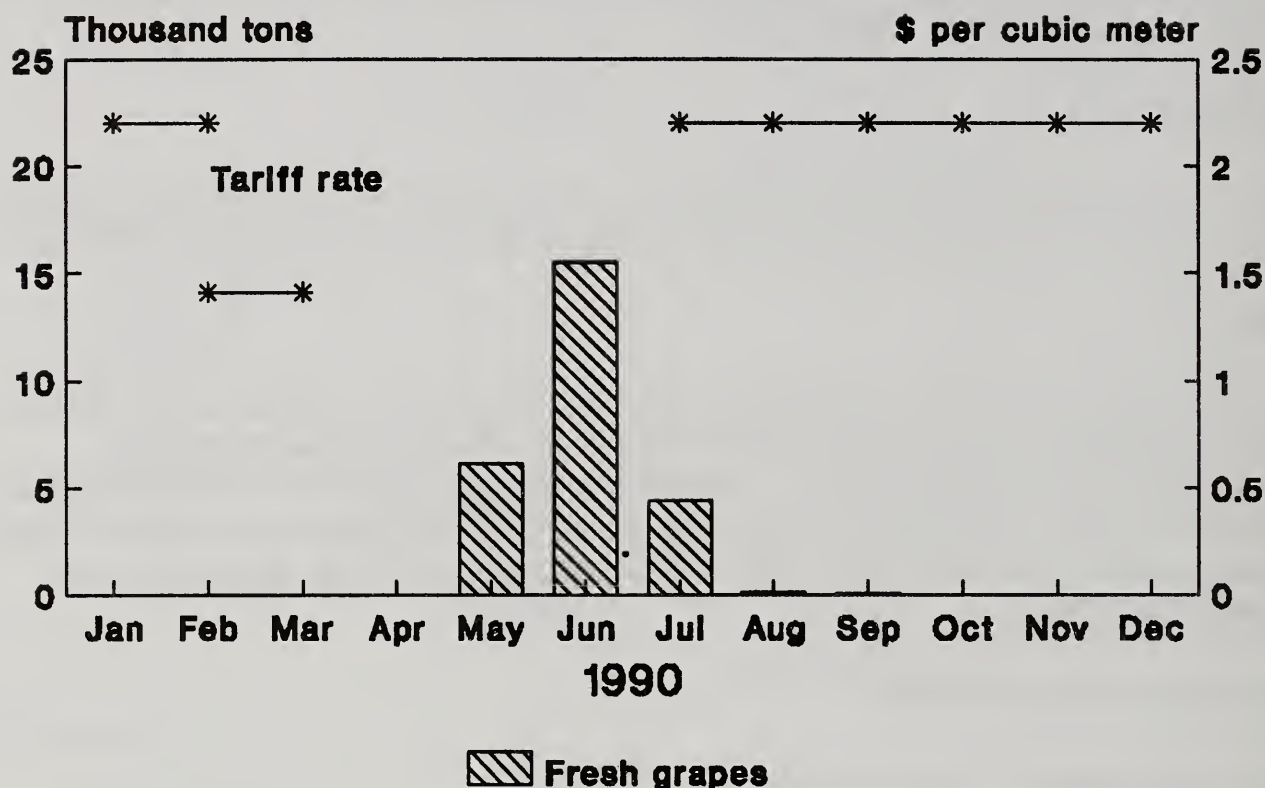
Mexico's harvest season begins slightly before the U.S. harvest season. Virtually all of Mexican grape exports went to the United States in 1989, and nearly all of those exports entered without tariff between April 1 and June 30 (fig. 30). Mexican exports to the United States accounted for 24.7 percent of the U.S. market between April 1 and June 30 (the tariff-free period) and 0.3 percent of the U.S. market during the remainder of the year when a tariff is imposed. A tariff of \$2.12 per cubic meter of grapes is applied on imports between July 1 and February 14, but only 0.9 percent of Mexican grape exports to the United States occur in this period (fig. 30). There is a tariff of \$1.41 per cubic meter (2-percent ad valorem) of grapes from February 15 to March 31. Mexico imports a small amount of table grapes from the United States.

The United States has two grape marketing orders that mandate grade, quality, and size standards for table grapes marketed in the United States by domestic and foreign producers.



Figure 30

## U.S. imports from Mexico Fresh grapes



### Effects of Trade Liberalization

Trade liberalization could benefit the U.S. grape industry. Almost all grapes from Mexico are marketed in a free-market environment; U.S. tariffs are very low. It seems unlikely that Mexico could expand grape production in other regions that could compete with U.S. production in other time periods. U.S. grapes would likely be more competitive in Mexico if the licensing restrictions were eliminated.

### Implications for Other Trading Partners

Chile is a more serious competitor for U.S. producers than Mexico. Fresh Chilean grapes come on the market in January, directly competing with U.S. grapes in the early part of the year.

Mexico provides only 1 percent of Canada's imports, although Mexican exports have been increasing. The United States and Chile are Canada's main suppliers.

Table 34--Table grape production and trade in NAFTA countries, 1990<sup>1</sup>

Item	Canada	Mexico	United States
1,000 metric tons			
Production	85 <sup>2</sup>	345	580
Total exports from:			
	Canada	Mexico	United States
1,000 metric tons			
Total exports	3	32 <sup>3</sup>	205
To Canada	-	<1 <sup>3</sup>	128
To Mexico	0	-	<1
To U.S.	3	31 <sup>3</sup>	-
To ROW	<1	0 <sup>3</sup>	76
Total imports to:			
	Canada	Mexico	United States
1,000 metric tons			
Total imports	180	1 <sup>3</sup>	566
From Canada	-	0 <sup>3</sup>	2
From Mexico	3	-	35
From U.S.	127	1 <sup>3</sup>	-
From ROW	50	0 <sup>3</sup>	530
	Canada	Mexico	United States
Kilograms			
Per capita consumption	1.3 <sup>2</sup>	3.6	3.5

<sup>1</sup> Columns may not sum because of preliminary data.

<sup>2</sup> 1988 data.

<sup>3</sup> Inferred from 1988 trade breakout.

- = Not applicable.

Source: U.S. Department of Commerce; Agriculture Canada, Statistics Canada; Foreign Agricultural Service, USDA; Banco de Mexico.

# **Cantaloupes**

## **Production**

Mexico produced 438,251 metric tons of cantaloupes in 1989. Production of cantaloupes in Mexico increased 24 percent between 1986 and 1989. Major cantaloupe production areas are Sinaloa, Michoacan, Guerrero, Sonora, Colima, and Nayarit. Sonora is the largest exporter of cantaloupes.

## **Consumption**

About 70 percent of Mexican production was consumed in Mexico in 1989.

## **Policies**

Cantaloupe producers, like other agricultural producers, have had to adjust to the almost complete elimination of government input subsidies. Water costs have increased substantially, encouraging farmers to grow less water-intensive crops, such as cantaloupes. And, lower government support for grain crops has encouraged diversification into melons and other crops.

## **Phytosanitary Requirements**

Cantaloupes must meet U.S. cantaloupe residue requirements.

## **Trade Profile**

The United States is a major market for Mexican cantaloupes, but Mexican cantaloupes account for only 20 percent of the U.S. market. Mexico exported 3,014,000 cwt of cantaloupes to the United States in 1989, but the United States consumed 15,818,000 cwt in that year. The Mexican marketing season to the United States runs from October to July and peaks in April just before the primary U.S. marketing season begins (fig. 31). Mexican cantaloupe exports to the United States increased 25 percent between 1986 and 1990.

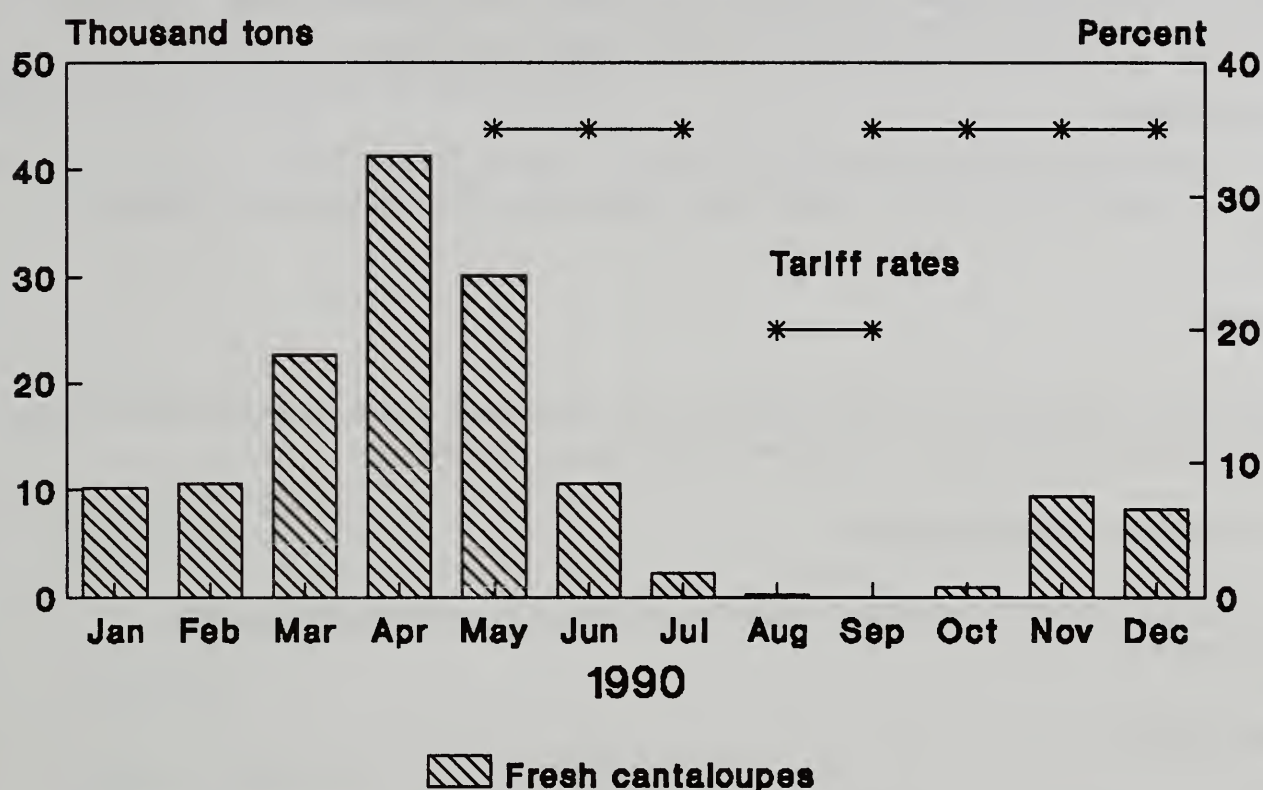
## **Effects of Trade Liberalization**

Mexican cantaloupe exports would probably expand with free trade. Mexican producers face high tariffs during part of the year only: 35 percent between May 16 and July 31; 20 percent between August 1 and September 15; and 35 percent between September 15 and December 31. From January 1 to May 15 in recent years, Mexican cantaloupes have crossed U.S. borders duty free because of a special waiver under U.S. tariff provisions found in Harmonized Tariff Schedule Chapter 99; otherwise, the 35-percent duty would apply.



Figure 31

## U.S. imports from Mexico Fresh cantaloupes



Mexican producers apparently have the potential to export melons to the United States in large volume between May 15 and June 15 when the 35-percent tariff is in effect.

### Implications for Other Trading Partners

Cantaloupes in Honduras, Guatemala, the Dominican Republic, Costa Rica, El Salvador, and Panama have approximately the same season as in Mexico and enter the United States duty free as part of the Caribbean Basin Initiative. They accounted for 35 percent of U.S. imports in 1989. If Mexico also had no tariff barrier, these Caribbean Basin countries might lose market share. Canada imports cantaloupes and other melons from Mexico, but the United States remains the dominant supplier, providing over 80 percent of Canada's 1989 imports. Canada has no tariffs on melons.

# **Watermelons**

## **Production**

Mexican watermelons are grown in large quantities in Nayarit, Sonora, Jalisco, and Sinaloa. Mexico estimated production at 548,830 metric tons in 1989. Sonora, Jalisco, and Sinaloa are the most important exporting States.

## **Consumption**

About 73 percent of Mexican watermelon production was consumed in Mexico in 1989.

## **Policies**

Watermelon producers, like other agricultural producers, have had to adjust to the almost complete elimination of government input subsidies.

## **Phytosanitary Requirements**

Watermelon imports from Mexico must meet the U.S. watermelon residue requirements.

## **Trade Profile**

Mexico exported 3,873,000 cwt to the United States in 1989, accounting for 96 percent of U.S. watermelon imports. In addition, the United States marketed another 21,108,000 cwt of domestically grown melons and another 144,000 cwt of imports. Mexico's total watermelon exports increased 47 percent between 1985 and 1989. Mexican watermelons are a small part of domestic U.S. consumption, but they enter the United States in the early spring when there are few alternative sources of watermelons. Almost all watermelons in the United States are of Mexican origin between December 1 and March 31, when Mexico is eligible for GSP. Mexico accounts for 21 percent of the market in May, competing directly with Florida despite facing a significant U.S. tariff. The United States imposes a tariff of 20 percent from April 1 to November 30. During the tariff season, 63 percent of Mexican watermelon exports enter the United States (fig. 32).

**Effects of Trade Liberalization**

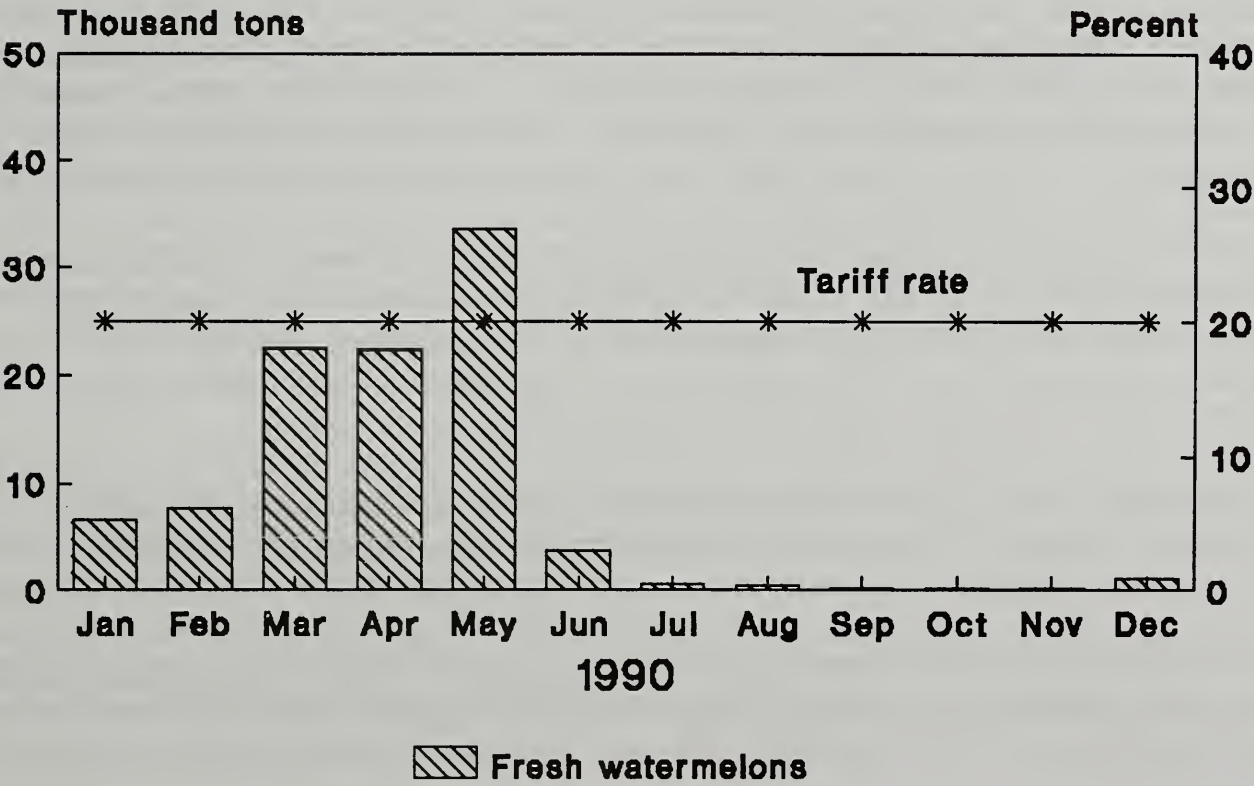
Prices in the United States are not as favorable for Mexican producers in the summer when U.S. production is high, and the Mexicans concentrate most of their marketing on their domestic market. It is not clear whether a reduction in tariff would change that situation.

**Implications for Other Trading Partners**

There do not seem to be any significant implications for other trading partners.

**Figure 32**

**U.S. imports from Mexico  
Fresh watermelons**





## **Deciduous Fruit: Apples, Pears, Peaches, and Nectarines**

### **Production**

Mexico is a relatively small world producer of apples, pears, peaches, and nectarines, most of which are consumed in the Mexican domestic market. Mexico's production of these fruits in recent years has been curtailed by weather and disease. In addition, Mexican producers are being squeezed by a shift in agricultural credit policies, such as generally high interest rates and reduced input subsidies, that favor other commodities.

Apples are produced in several Mexican States, including (in order of importance) Chihuahua, Durango, Nuevo Leon, Coahuila, and Sonora. The total area planted in apples was estimated at 56,330 hectares for 1990, 65 percent of which were in production. The rate of growth of new planted area has declined in recent years due to high interest rates, water scarcity in the apple-producing regions, plantings of high-density orchards to replace old ones, and expected larger Mexican imports of U.S. apples. However, bearing area is expected to expand substantially during the next 3-5 years as new plantings begin to produce.

Bad weather patterns that plagued growers throughout Chihuahua and Coahuila, in addition to reduced input use in light of relatively higher input prices, have constrained Mexican apple yields during the past few seasons. Total Mexican apple production consequently dropped from 624,300 metric tons in marketing year 1988/89 to 473,860 metric tons in 1989/90. However, production is expected to recover to 493,200 metric tons in 1990/91.

Chihuahua is also the largest pear-producing State in Mexico. The State produces primarily Bartlett pears and accounts for an estimated 42 percent of total Mexican table pear production. Fungal disease problems in the State in the last few seasons have forced some growers to uproot orchards. The removal of diseased orchards, water scarcity, and high interest rates have significantly reduced area planted to pears in Mexico and prevented new plantings in Chihuahua over the last 2-3 years. Total area planted to pears in Mexico was estimated at 6,000 hectares in 1990 compared with 6,300 hectares in 1989. In addition, yields have suffered from weather-related factors in addition to the fungal disease problem in Chihuahua. Mexican pear production dropped from 51,100 metric tons in 1988/89 to 44,900 metric tons in 1989/90, and is expected to total only 43,700 metric tons in 1990/91.

Mexico's peach and nectarine production takes place in the States of Sonora, Chihuahua, Zacatecas, Michoacan, Aguascalientes, Guanajuato, and Queretaro. Similar to that of apples and pears, the growth in area planted to peaches has slowed in the face of high interest rates, water scarcity, and rising input costs. Area planted to peaches totaled 37,600 hectares in 1990, up only 100 hectares from the previous year. An increase in new trees reaching bearing age in 1990 expanded bearing area by 200 hectares from 1989's 33,000 hectares. However, areas planted to peaches in

Sonora and Michoacan are declining in favor of other horticultural products like peppers and asparagus.

## **Consumption**

Mexicans consume apples, peaches, and pears in both fresh and processed form, although the majority is consumed fresh. Mexican fresh apple consumption over the 3-year period between 1987/88 and 1989/90 averaged 57 percent of total Mexican supplies. Mexican fresh apple consumption, although highly variable from season to season, is expected to total 268,056 metric tons in 1990/91, up 8 percent from last season. The increase in consumption is primarily in response to rising per capita purchasing power and available high-quality fruit from the United States. Mexican consumption of concentrated apple juice has also increased at an average annual rate of 40 percent since 1984/85, and is expected to reach 1,900 metric tons (70-71 degrees Brix) in 1990/91.

Mexican fresh peach and nectarine consumption accounted for 41 percent of total Mexican production between 1988 and 1990. Rising at an average annual rate of 12 percent since 1983, Mexican fresh peach and nectarine consumption is expected to reach 112,640 metric tons in 1990, barely up from the previous season.

Mexican fresh pear consumption accounted for 95 percent of total Mexican pear supplies between 1988/89 and 1990/91. Rising at an average annual rate of 9 percent since 1983/84, Mexican fresh pear consumption was expected to reach 70,700 metric tons in 1990/91, up 5 percent from the previous season.

## **Policies**

Mexican apple, pear, peach, and nectarine growers face tight credit policies, relatively high interest rates, and reduced input subsidies, which have increased production costs and slowed growth in the industries. There are no income or price support programs for these commodities.

Mexican apple, pear, peach, and nectarine growers must obtain credit from commercial banks. Mexican commercial banks are less flexible on credit and payment terms than the Bank of Rural Development (BANRURAL) or FIRA, the development credit branch of the Bank of Mexico.

The reduction of input subsidies has dramatically increased production costs over the past 3 years. Reported fertilizer prices increased around 100 percent over 1989 levels, the price of insecticides and fungicides rose 42 percent, and the cost of electricity for irrigation jumped 140 percent.

Mexican imports of U.S. fresh apples, pears, peaches, and nectarines were constrained until recently by high tariffs and import licensing requirements. However,



while imports of all four commodities continue to be assessed a 20-percent import tariff, Mexican import licensing requirements on these commodities have been eliminated.

### **Phytosanitary Requirements**

Any fleshy fruit that can be the host for the Caribbean fruit fly is banned from Florida.

Since the removal of import license requirements on these deciduous fruits, U.S. apples, peaches, and nectarines have nevertheless been denied entry into Mexico on phytosanitary grounds. After Mexico's bans were removed following technical negotiations, interceptions and rejections on peaches and nectarines continued, resulting in further disruptions to U.S. exports. Mexican authorities have also notified U.S. authorities that pears may be denied entry in the near future on similar phytosanitary grounds.

### **Trade Profile**

Virtually all Mexican apples, pears, peaches, and nectarines are consumed domestically. Over the 3-year period between 1987/88 and 1989/90, there were no apple and pear exports, and peach and nectarine exports averaged less than 1 percent of total Mexican production. Mexico is not expected to export commercial quantities of fresh apples or pears during the season because of the smaller crops expected in 1990/91. Peach and nectarine exports were expected to total only 360 metric tons in 1990/91, less than half those in 1988/89 and slightly less than the previous season. The United States has been the primary recipient of Mexican noncitrus tree fruit exports.

Imports have been an increasing portion of Mexican fresh apple, pear, peach, and nectarine consumption over the past three seasons due to the shortfalls in Mexican domestic production and strengthening demand. Mexican fresh apple imports, forecast at 12,000 metric tons in 1990/91, are expected to account for 4 percent of Mexican fresh apple consumption during the season, up 2 percent from 1988/89 and the same as in 1989/90. At a forecast of 8,000 metric tons, Mexican fresh peach and nectarine imports will account for 7 percent of total Mexican consumption of these commodities in 1990/91, up 3 percent from 1988/89 and 1 percent from 1989/90 if the forecast is realized.

Most dramatic has been the rise in Mexican fresh pear imports, which at 30,000 metric tons, are expected to account for 42 percent of total Mexican consumption in 1990/91. Mexican fresh pear imports, at 3,500 metric tons, were only 7 percent of Mexican fresh pear consumption in 1988/89.

The United States is the largest foreign supplier of fresh apples, pears, peaches, and nectarines to Mexican markets, although Canada also exports fresh apples and pears to Mexico. U.S. fresh apple exports to Mexico totaled 11,203 metric tons in 1989/90, up 49 percent from the previous season. U.S. peach and nectarine exports to



Mexican markets totaled 8,044 metric tons during 1990, up 43 percent from 1989. U.S. fresh pear exports to Mexico rose a dramatic 142 percent in 1989/90 to reach 27,125 metric tons.

### **Effects of Trade Liberalization**

A NAFTA would likely spur U.S. fresh apple, pear, peach, and nectarine exports to Mexico. Eliminating tariffs would likely lower prices to Mexican consumers and stimulate demand for fresh apples, pears, peaches, and nectarines. Mexican credit policies favoring the production of basic agricultural commodities and other high-value horticultural commodities will continue to constrain growth in the Mexican noncitrus tree fruit industries.

### **Implications for Other Trading Partners**

Mexico also imports a small quantity of fresh apples and pears from Canada. While Mexican imports of U.S. fresh apples and pears would likely expand under a NAFTA, Canada would also have more market opportunities. However, longer distances and associated higher transportation costs for Canada compared with those for the United States would make it more difficult for Canadian producers to compete with U.S. producers in Mexican markets.

Canada exports mainly apples and berries to the United States. Exports to Mexico are very small. But as a potential exporter of some fresh and prepared fruit, Canada has an economic disadvantage unless ensured access to Mexico's markets equal to that given the United States under any trade agreement.

# Sugar

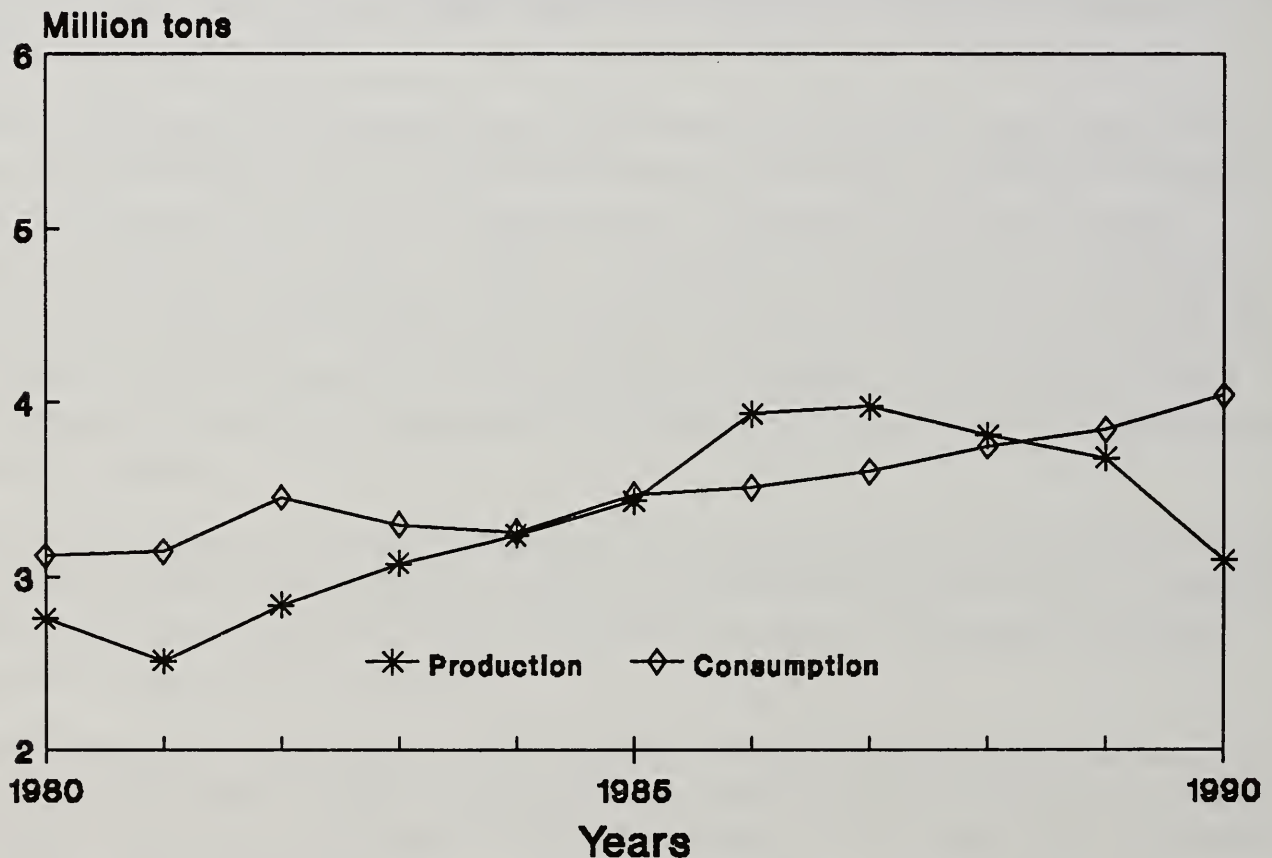
## Production

Mexican sugar production has stagnated the past few years (fig. 33). Mexico ranks fourth in sugar production behind Brazil, Cuba, and the United States in the Western Hemisphere and eighth in the world. Over 75 percent of Mexican sugarcane is grown in Veracruz, Jalisco, San Luis Potosi, Oaxaca, Sinaloa, and Tamaulipas.

Average yields of cane in 1985-89 were almost 70 metric tons per hectare, higher than in the United States, excluding Hawaii, and 12 percent above the world average. Sugarcane yields for marketing year 1990/91 are estimated at 68 tons per hectare. Commercial fertilizers are applied to two-thirds of the cane hectares. Sugarcane land along the Pacific Ocean is irrigated year round, while other sugarcane land is irrigated only during the dry season. Adoption of new technology is currently limited due to the ejido system of landownership and the lack of incentives to invest because of controlled domestic sugar prices. Sugar production for marketing year 1991/92 is expected to be 3.45 million metric tons, up 1.5 percent from the 1990/91 estimates.

Figure 33

## Mexican sugar



Mexican sugar mills are spread across the major sugar-producing States. The average milling capacity of Mexican sugar mills is 5,000 metric tons per day, with average cost of production of 14.5 cents per pound of raw sugar. U.S. raw sugarcane milling capacity is 6,390 metric tons per day, with an average cost of production of 7.9 cents a pound.

## Consumption

Each Mexican annually consumes 48.3 kg of sugar. Mexican sugar consumption reflects higher income growth, government pricing policies, and a lack of alternative sweeteners. About 45 percent of the sugar is used by households, and the remaining 55 percent is used in the soft drink, bakery, and confectionery industries. The soft drink industry alone accounts for about 56 percent of total industrial sugar consumption.

## Policies

The Government of Mexico subsidizes both producers and consumers of sugar. The Government has continued to reduce subsidies to domestic sugar producers by reducing support to sugar mills and by getting out of the domestic marketing of sugar. The Mexican Government recently has begun to privatize the sugar mills that had been nationalized in the 1970's. Most of the 65 sugar mills have been sold to the private sector, and the process is expected to be finished within 2 years. Azucar, S.A.--a public enterprise--is to be liquidated, and a small public office is expected to be maintained to manage sugar prices. Mexico's sugar mills paid sugarcane growers at the official guaranteed price of 58,766 pesos per ton for the 1990/91 crop, based on a sugar yield of 83 kg of sugar per ton of cane. The guaranteed producer price is 11.2 cents per pound. Payment for purchasing sugarcane is based on official guaranteed sugar prices, sugar yield, and sucrose losses in the factory. Fertilizers, herbicides, water rates, diesel fuel, and insurance are subsidized by the Government.

The Government has ended "pan-Mexico pricing" that equalized sugar prices across Mexico. Beginning in February 1990, Mexican retail prices for sugar are modified each month to keep up with changes in exchange rates. For example, the official wholesale raw sugar price was 1,295.9 pesos per kg in April 1991, or 19.68 cents per pound.

Mexico protects domestic production by imposing tariffs on sugar, sugar-containing products, and sugar substitutes, such as glucose, fructose, and molasses. Effective on February 1, 1991, the ad valorem import tariff on all sugar products is calculated monthly according to the following formula:

$$((R_p - I_p) / I_p) * 100 = I_t;$$

where "R<sub>p</sub>" is the reference price, "I<sub>p</sub>" is the import price set by the Mexican Government every month, and "I<sub>t</sub>" is the import tariff rate.



As a result, sugar import tariffs are much higher than those for other commodities. For example, the majority of U.S. sugar exports to Mexico were subject to at least a 55-percent tariff in May 1991.

Mexico's allocation of 7,258 metric tons for import into the United States is less than 1 percent of the amount allowed into the United States from all sources.

Azucar, S.A., had a monopoly on sugar distribution in Mexico until November 1989, and was the sole sugar exporter and importer. The Mexican Government has gotten out of marketing distribution and allowed the private sector to distribute sugar in the country. However, the transition of marketing distribution to private hands has faced many shortcomings. The disruption in the distribution system has created sugar shortages in Mexico.

The privatization process did not adequately handle sugar commercialization, distribution, and storage for the domestic market. As a result, the United States has exported refined sugar to Mexico under the Re-export Program. In 1990, Mexico imported a small amount of high-fructose corn syrup from the United States. In 1991, Mexico overbought raw and refined sugar from the world market, which has caused problems in the marketing of domestically produced sugar. As a result, Mexico sugar stocks have reached unprecedented levels.

### **Trade Profile**

Mexico produced about 3.5 million metric tons, consumed 4.2 million metric tons, and exported 285,000 metric tons of sugar in the 1990/91 marketing year. Mexico also imported 1.4 million metric tons of sugar in the same year. Mexico imports mostly refined sugar, about a fourth of which comes from the United States. Mexican exports are only under the U.S. low-duty sugar import allocation assigned to Mexico. Mexico entered 1990/91 with stocks of 1.2 million metric tons after purchases due to a sugar shortage.

### **Effects of Trade Liberalization**

Mexico is expected to continue to import refined sugar for the next few years because of the privatization process and higher demand for refined sugar. With free trade in sugar, Mexico could be expected to increase its sugar production in the long run if the domestic supply price were to rise.

### **Implications for Other Trading Partners**

Major suppliers of sugar to Mexico are the EC, Colombia, Brazil, Costa Rica, Cuba, Poland, South Korea, and the United States. Canada produces some beet sugar but imports about 90 percent of domestic needs. Canada imports refined sugar from the United States and also exports refined sugar under the U.S. tariff rate quota system. Canada has occasionally exported refined sugar to Mexico (Can \$35 million in 1981).

Table 35--Sugar production and trade in NAFTA countries, 1990/91<sup>1</sup>

Item	Canada	Mexico	United States
	1,000 metric tons		
Production <sup>2</sup>	138	3,450	6,690
	Total exports from:		
	Canada	Mexico	United States
	1,000 metric tons		
Total exports	30	285	573
To Canada	-	0	67 <sup>3</sup>
To Mexico	0	-	250 <sup>3</sup>
To U.S.	23	8	-
To ROW	7	277	256
	Total imports to:		
	Canada	Mexico	United States
	1,000 metric tons		
Total imports	873	1,400	2,574
From Canada	-	0	23
From Mexico	0	-	8
From U.S.	67 <sup>3</sup>	250 <sup>3</sup>	-
From ROW	806	1,150	2,543
	Canada	Mexico	United States
	Kilograms		
Per capita consumption	33.2	48.3	31.8

<sup>1</sup> Columns may not sum because of preliminary data, shipments that are in progress, etc.

<sup>2</sup> Raw value.

<sup>3</sup> Under U.S. re-export program.

- = Not applicable.

Source: U.S. Department of Commerce; Agriculture Canada, Statistics Canada; Foreign Agricultural Service, USDA; Banco de Mexico.

## Cotton

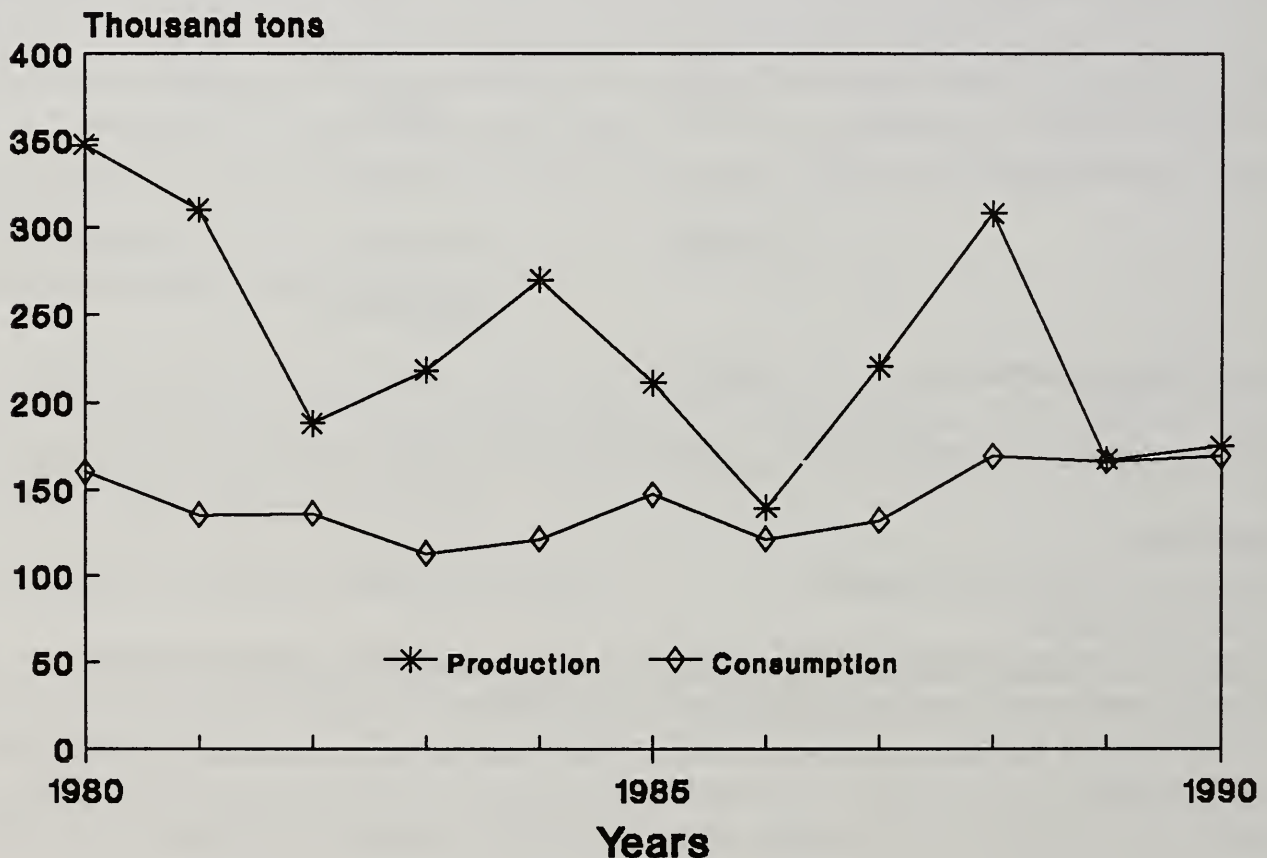
### Production

Mexican cotton production has trended downward the past decade (fig. 34). Cotton grows mostly in Mexico's north and northwest, specifically Sonora, Sinaloa, Chihuahua, and Baja California. Some is grown around Torreon in central Mexico and in Tamaulipas in the northeast. Mexico normally produces a high-grade crop with a staple length of 1-1/16 inches to 1-3/32 inches. Yields are among the highest in the world because approximately 75 percent of cotton is irrigated. Mexican farmers also use certified seed, fertilizers, and pesticides. Mexico does not produce a significant amount of extra-long staple cotton, and extra-long staple production is not expected to increase in the near future.

Cotton is generally produced on land irrigated with water from reservoirs, rather than wells, so producers face some uncertainty regarding the amount of water the Government will supply them from year to year. When water supplies are tight, as they have been over the last 2 years, yields fall, even though planted area might

Figure 34

### Mexican cotton





increase as producers switch from soybeans to cotton. Production was approximately 170,000 metric tons (roughly 780,000 bales) in 1990/91 (table 36).

Private farmers produce approximately half of Mexico's cotton. The other half is produced by ejidatarios and colonos. The large, private farms are located in the northwest. These producers use sophisticated financial management practices to avoid the current high cost of capital. The ejidatarios and colonos, who pool capital for seeds, fertilizer, insecticides, fuel, and ginning, are located in the north central and northeastern regions. Restricted access to government-subsidized credit, which has been increasingly channeled to corn and dry bean producers in recent seasons, has limited these farmers' choices.

Some Mexican cotton is still hand picked, but approximately 70 percent of the crop is machine picked. All cotton is saw ginned.

## **Consumption**

Cotton consumption is a function of fiber and cloth production for Mexico's clothing industry. Mexico's domestic consumption has increased during the past 5 years (fig. 34). Cotton accounts for about 34 percent of total fiber consumption in Mexico.

## **Policies**

Cotton, along with other nonfood agricultural exports, has been exempted from the price controls that have been imposed on many food crops as part of the government anti-inflation campaign.

The Mexican Government provides input subsidies to low-income cotton farmers primarily in the form of credit, fertilizer, and irrigation subsidies. The value of the irrigation subsidy is substantial, given that the Government covers the costs of capital improvements for the large-scale irrigation network and absorbs a significant percentage of the operating costs. The value of credit and fertilizer subsidies together account for less than 1.5 percent of the value of cotton production. The value of credit and fertilizer subsidies as a percentage of the value of cotton production has declined slightly over the past 4 years.

Mexico imposes a 10-percent ad valorem tariff on imports of cotton lintels and most categories of raw cotton. There is, however, one exception: cotton, without seed (ginned) and with fibers less than or equal to 29 millimeters, can be imported into Mexico duty free. No import permits for cotton are required.

The Government of Mexico requires an export permit for one category of cotton: cotton containing seed (not ginned). No permit is required for the rest of Mexico's cotton exports. However, Mexican exporters must declare all earned dollars and convert dollars to pesos at the official exchange rate. Mexican law governing the conversion of dollars to pesos at the lower controlled exchange rate has generally reduced the incentive to produce for the export market, except in years when

international cotton prices were high relative to grains. However, the official exchange rate recently has not differed substantially from the free-market rate, so producers are guided by relative commodity prices when making their planting decisions.

### **Phytosanitary Requirements**

All Mexican cotton imports must meet phytosanitary standards administered under Mexican Secretariat of Agriculture regulations. Mexican cotton imports require a presentation of origin, which states that the cotton is free of selected insects and plant diseases. Cotton bales must be compressed to universal density of not less than 360 kg per cubic meter, or 28 pounds per cubic foot, and the bale must be covered with either new or used cotton cloth. The United States requires that all imported cotton be vacuum fumigated.

### **Trade Profile**

Mexico is a large cotton producer and net cotton exporter, competing directly with the United States in foreign markets. Mexican upland cotton quality is generally equal to that of U.S. upland and, as such, Mexican upland serves the same cotton markets in Asia (Japan, South Korea, Indonesia, and China) as U.S. upland does. Mexico generally exports 25-40 percent of its cotton crop each year. A very large percentage of Mexican cotton for export is transshipped to Asia through U.S. ports in southern California, due to both inadequate port facilities in western Mexico and the reluctance of shipping lines to service Mexican west coast ports.

U.S. raw cotton imports are subject to both tariffs and quotas (tables 37 and 38). Mexico has the largest quota, 18,507 bales. Imports have recently been less than one-third of that allowed from all countries, so in effect, these quotas are nonbinding. Mexico has not filled its quota since 1985/86. More than 60 percent of U.S. cotton import needs were satisfied by Mexico in the last 5 years. The value of U.S. cotton imports from Mexico over the last 5 years has ranged from \$11 million in 1985 (when U.S. cotton prices exceeded world prices by more than 15 cents per pound) to \$0 in 1989.

When Mexico's domestic needs cannot be met completely with its own cotton production, it will import cotton primarily from the United States to mix with and upgrade Mexican cotton quality. Mexico has imported roughly 20 percent of its total cotton consumption in recent years; U.S. cotton exports to Mexico have topped \$20 million during this period.

### **Effects of Trade Liberalization**

Many changes will occur in Mexico's cotton industry over the next few years as the result of unilateral reforms in Mexico's agricultural, trade, and investment policies. The Mexican Government has lowered import tariffs on new and used machinery, thereby reducing the costs of textile production in Mexico. It has also revised its investment laws. It is, therefore, clear that the domestic demand for cotton will continue to



increase. Cotton production will likely expand as well, given that the Government has reduced the incentives for producing soybeans and sorghum.

Mexico will therefore export and import more cotton in the near term as the result of its unilateral reforms. Cotton production will continue to exceed domestic use, but high-quality cotton will be needed by Mexico's expanding textile industry for blending. Most of this higher quality cotton will probably be supplied by the United States, as in the past.

A free trade agreement that lowers bilateral trade barriers would modestly increase Mexico's purchases of U.S. cotton. Mexico's demand for cotton would expand further as the Mexican textile industry expands to compete in the U.S. apparel market that is occupied by some Asian countries.

U.S. cotton producers compete well in domestic and international markets, and increased cotton production in Mexico would probably not challenge U.S. producers in the United States or international markets.

### **Implications for Other Trading Partners**

Canada produces no cotton and imports most of its requirements from the United States without restrictions. Canada occasionally imports small quantities from Mexico. A NAFTA would have no effect on U.S.-Canadian or Canadian-Mexican trade.



Table 36--Cotton production and trade in NAFTA countries, 1990<sup>1</sup>

Item	Canada	Mexico	United States <sup>2</sup>
	1,000 metric tons		
Production	0	170	3,375
	Total exports from:		
	Canada	Mexico	United States <sup>2</sup>
	1,000 metric tons		
Total exports	0	76	16,129 <sup>3</sup>
To Canada	-	0	35 <sup>3</sup>
To Mexico	0	-	44 <sup>3</sup>
To U.S.	0	<1	-
To ROW	0	75	1,550 <sup>3</sup>
	Total imports to:		
	Canada	Mexico	United States <sup>2</sup>
	1,000 metric tons		
Total imports	40	45	<1
From Canada	-	0	0
From Mexico	0	-	<1
From U.S.	35	44	-
From ROW	5	1	<1
	Canada	Mexico	United States <sup>2</sup>
	Kilograms		
Per capita consumption	1.5	1.9	7.4

<sup>1</sup> Columns may not sum because of preliminary data.

<sup>2</sup> Official U.S. estimates for U.S. consumption include raw fiber equivalent.

<sup>3</sup> August 1990 through June 1991.

- = Not applicable.

Source: U.S. Department of Commerce; Agriculture Canada, Statistics Canada; Foreign Agricultural Service, USDA; Banco de Mexico.

Table 37--U.S. cotton tariffs

Cotton staple length	Non-MFN country	MFN-country/ Canada	Israel and Caribbean Basin
		Cents/kg	
Less than 1-1/8"	0	0	0
1-1/8" to 1-11/16"	15.4	4.4/3.9	0
Longer than 1-11/16"	15.4	1.5/1.3	0

MFN = Most favored nation.

Table 38--U.S. quota regulations

Quota	Description	Trigger
Global quota (annual)	Allows 95,000 bales with staple length longer than 1-1/8".	
Country-specific quota (annual)	Allows a total of 30,000 bales with staple length equal to or less than 1-1/8" from specified countries.	
Special limited global quota	Allows imports equal to 21 days' U.S. mill consumption during 90-day period.	If U.S. spot price for SLM 1-1/16" cotton in any month exceeds 130% of previous 36-month average.
New special quota <sup>1</sup> (effective 8/1/91)	Allows imports equal to 1 week's U.S. mill consumption during 90-day period.	If for any consecutive 10-week period, the lowest weekly average U.S. price for M 1-3/32" cotton delivered to Northern Europe exceeds the average of the five lowest priced comparable foreign growths by more than 1.25 cents per pound.

SLM = Strict low middling. M = Middling.

<sup>1</sup> Triggered after other competitive adjustments in U.S. cotton prices have been made.

# **Tobacco**

## **Production**

Tobacco cultivation is a major source of income and employment for the Mexican States of Nayarit and Jalisco. Tobacco is also a large contributor to income, although to a lesser degree, in the States of Chiapas, Oaxaca, and Veracruz. There are 26,000 tobacco producers in Mexico, and the crop provides another 20,000 jobs for seasonal workers. TABAMEX, the tobacco marketing and processing company, employs about 9,200 workers, with about one-third working in the processing plant. There are three cigarette companies in Mexico, employing about 5,000 persons.

The Mexican tobacco industry is a major source of revenue for the Government, providing 9 percent of total taxes received, which amounted to almost a third of the nonpetroleum taxes received.

Total production of Mexican tobacco has actually declined from the levels reached in the late 1970's and early 1980's. Recent tobacco production levels have fallen over 10 percent beneath those reached a decade ago.

Total Mexican tobacco acreage has declined by half since the early 1980's. Yields, while still variable, have improved slightly over the past decade, rising from an average of 1,276 pounds per acre in 1981-83 to 1,335 pounds per acre in 1988-90 (table 39).

There is no price differential paid to farmers on the basis of quality. There has been a buildup of unwanted stocks, resulting in higher storage costs. The imbalance was created by the difference between the type of tobacco contracted for and the types of tobacco required by the cigarette manufacturers.

## **Consumption**

Consumption in Mexico has risen, driven by increased incomes. Mexicans are also shifting to higher quality cigarettes. Cigarette consumption in both Canada and the United States is declining.

## **Policies**

Financial problems have plagued TABAMEX due to poor weather conditions, the requirement that growers receive a fixed price for their tobacco, regardless of quality, and interest-free loans provided to producers.

Mexico has import licenses on manufactured tobacco and cigarettes.



Table 39--North American tobacco production, 1981-90<sup>1</sup>

Years	Canada			Mexico			United States		
	Acreage	Yield	Production	Acreage	Yield	Production	Acreage	Yield	Production
	1,000 acres	Pounds per acre	Million pounds	1,000 acres	Pounds per acre	Million pounds	1,000 acres	Pounds per acre	Million pounds
1981	116.1	2,123.4	249	103.8	1,311.5	301	976.0	1,900.4	1,858
1982	76.6	1,811.2	139	93.9	1,249.1	258	911.8	1,900.4	1,795
1983	116.1	1,900.4	223	98.8	1,266.9	272	788.2	1,632.7	1,285
1984	101.3	1,802.2	181	81.5	1,168.8	209	793.3	1,962.8	1,554
1985	98.8	1,945.0	192	98.8	1,088.5	238	689.4	1,980.7	1,360
1986	76.6	1,730.9	134	113.7	1,338.3	335	580.7	1,793.3	1,045
1987	74.1	1,668.4	121	116.1	892.2	233	588.1	1,829.0	1,074
1988	71.7	1,927.2	139	111.2	1,320.5	326	635.0	1,945.0	1,232
1989	76.6	1,945.0	150	81.5	1,445.4	258	679.5	1,811.2	1,230
1990	69.2	1,829.0	128	54.4	1,240.2	151	733.9	1,998.5	1,462

<sup>1</sup> Dry weight.

Source: Foreign Agricultural Service, USDA.

Mexican stemmed cigarette leaf shipments to the United States face a 20-cent-per-pound duty. However, even at that rate, they still cost less than domestically produced filler. Also, U.S. drawback provisions lower net import duties because refunds can be obtained by importers who re-export tobacco in manufactured or leaf form.

Mexico has tariffs which apply to leaf tobacco, but the high price of U.S. and Canadian tobacco is a greater constraint to imports. Mexico's ad valorem duties for various types of tobacco are (at average prices) slightly higher than U.S. tariffs. Light tobacco for filler is charged 15 percent, and all other unmanufactured and manufactured leaf and tobacco products are charged 20 percent.

## Trade

Leaf trade between the three North American countries is based on quality and price differences. Mexican shipments to the United States were about 5 percent of total Mexican tobacco exports. Lower quality Mexican tobacco is used for filler to reduce manufacturing costs. The United States purchased less than 4 percent of its tobacco imports from Canada and less than 2 percent from Mexico. From 1981 to 1990, Canada purchased 7 percent of U.S. exports (by weight), which represented a little over 50 percent of its total tobacco imports, while Mexican purchases of U.S. tobacco were negligible (table 40).

## Effects of Trade Liberalization

Mexican demand for imported leaf is expected to increase for both flue-cured and burley tobacco as licenses are removed and incomes rise and cigarette quality improves. Any increases in quality of Mexican burley will make it even more desirable to U.S. firms as a low-cost filler. Since most of this filler is of a quality that would be imported anyway, Mexico's share of U.S. imports would rise but total imports would change little. U.S.-Canada trade would likely change little.

Table 40--U.S. leaf trade with North American countries

Item	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Million pounds										
United States to Canada	3.0	4.3	5.2	5.3	2.1	1.3	0.7	0.6	0.6	1.2
United States to Mexico	*	*	0	0	0	0	*	0	*	*
Canada to United States	4.3	9.3	14.2	16.0	16.9	31.5	27.4	16.9	7.7	7.8
Mexico to United States	11.3	8.3	6.5	10.3	5.9	9.4	10.6	14.7	15.9	8.1

\* = Less than 25,000 pounds.

Source: Foreign Agricultural Service, USDA.

Table 41--Cigarette manufacture and trade in NAFTA countries, 1990<sup>1</sup>

Item	Canada	Mexico	United States
Billion pieces			
Production	46.1	52.5	710.3
Total exports from:			
	Canada	Mexico	United States
Million pieces			
Total exports	1,421	8	164,301
To Canada	-	0	204
To Mexico	0	-	114
To U.S.	906	0	-
To ROW	515	8	163,983
Total imports to:			
	Canada	Mexico	United States
Million pieces			
Total imports	204	114	1,415
From Canada	-	0	906
From Mexico	0	-	0
From U.S.	204	114	-
From ROW	0	0	509

<sup>1</sup> Columns may not sum because of preliminary data.

- = Not applicable.

Source: U.S. Department of Commerce; Agriculture Canada, Statistics Canada; Foreign Agricultural Service, USDA; Banco de Mexico.



Table 42--Tobacco production and trade in NAFTA countries, 1990<sup>1</sup>

Item	Canada	Mexico	United States
	Metric tons		
Production	64,205	34,653	737,065
	Total exports from:		
	Canada	Mexico	United States
	Metric tons		
Total exports	18,010	8,985	223,414
To Canada	-	0	526
To Mexico	0	-	4
To U.S.	3,548	3,660	-
To ROW	14,462	5,325	222,879
	Total imports to:		
	Canada	Mexico	United States
	Metric tons		
Total imports	1,554	12,000	187,370
From Canada	-	0	3,548
From Mexico	0	-	3,660
From U.S.	526	4	-
From ROW	1,028	11,096	180,162

<sup>1</sup> Columns may not sum because of preliminary data.

- = Not applicable.

Source: U.S. Department of Commerce; Agriculture Canada, Statistics Canada; Foreign Agricultural Service, USDA; Banco de Mexico.

# **Wine**

## **Production**

Mexico ranked 31st in wine production worldwide in 1988. The United States ranked sixth in the same year. Mexican production has been relatively stagnant in the last 4-5 years. The majority of Mexican wine grapes are produced in the northern part of the Baja California. Grapes are shipped to an area near Mexico City, a major wine area. About 80 percent of wine grapes are used in brandy production, which requires a lower quality of grape. The remaining 20 percent are used in wine production for local consumption. Current estimates of Mexican wine production is about 1 million cases of 750-milliliter bottles (or 2.4 million gallons). Mexico produced 14,699 kiloliters (kL)(1,000 liters), or 3.9 million gallons, of wine in 1988. Two major wine producers dominate the market.

## **Consumption**

Mexican wine sales in 1988 totaled 1.8 million cases. Because of high prices, imported wine is consumed mostly by higher income locals and tourists. Compared with European wine, California table wine captures only a small market share in Mexico. The private sector estimates that Mexican wine consumption could reach 0.5 gallon per capita by the year 2000 compared with 2.1 gallons per capita in the United States.

## **Policies**

The Government of Mexico imposes both tariff and nontariff barriers on wine entering Mexico. Imported wine is currently subject to a 20-percent tariff compared with 100 percent in 1986. In addition, exporters of wine to Mexico have to obtain a Mexican representative registered with the Secretariat of Finance and Public Credit for Import and Export. Exporters are required to pay a registration fee of U.S. \$225 for each wine label proposed for export to Mexico. The Mexican agent must register the wine with the Mexican Secretariat of Health in order to have the wine checked for compliance with Mexican food safety laws and regulations. To comply, importers or agents must provide Mexican public health officials the following documents:

- A certified copy of the importer's articles of Mexican incorporation.
- A photocopy of the importer's current sanitary license.
- A photocopy of the importer's current license to warehouse products.

All documentation required by the Mexican Ministry of Health and the Ministry of Finance of U.S. wine exporters must be notarized by a U.S. notary and then presented to a Mexican consulate for further verification and payments (consularization). This procedure takes at least 4-6 months to complete.

A chemical or physiochemical analysis is required for each wine entering Mexico, including a test for methanol content. An individual analysis is also required to



describe the individual product process, such as sugar levels and storage temperatures during fermentation for each wine to be exported into Mexico. All information must be provided in Spanish and must be certified by the Mexican consulate nearest to exporters. Exporters also have to provide packing and sealing information in Spanish.

An internal liquor tax is applied to both domestic and imported wines. A 25-percent production tax was imposed on importers and domestic producers, and the tax was rebated to domestic producers before January 1990.

### **Trade Profile**

Based on 1988 annual Mexican trade statistics, Mexico imported 6,541 kL in 1988, which gives Mexico a total supply of at least 21,240 kL. Imports accounted for 31 percent of the total. Of the 6,541 kL of imported wine, 5,253 kL came from the EC. Leading non-EC suppliers include the United States (382 kL, or 101,000 gallons) and Chile (336 kL). U.S. census figures show that U.S. wine exports to Mexico jumped dramatically in 1989 to 1,463 kL, or 386,000 gallons, due to greater interest in the market by U.S. wine exporters.

Mexican trade statistics show that 719 kL of wine were exported in 1988. Of this amount, a reported 474 kL, or 66 percent of the total, was exported to the United States. U.S. census data show only 55 kL of wine coming into the United States from Mexico. An explanation for the discrepancy may be that Mexican wine producers in Baja California are using U.S. ports to re-export bulk wine, since adequate facilities aren't available in Baja.

### **Effects of Trade Liberalization**

A free trade agreement could increase U.S. wine exports to Mexico. The price of wine should fall in Mexico if Mexico further reduces its tariff and nontariff barriers. The quantity of wine demanded should increase a great deal as the price of wine declines, given the large value of the price elasticity of demand for wine. If these trade barriers are lowered only for the United States, the market share for California wine could increase at the expense of French, German, or Italian wine. Mexico, however, could also increase its low-quality wine production and export it to the United States.

### **Implications for Other Trading Partners**

The United States is a net exporter of wine to Canada. U.S. wine exports have increased sharply in the 2 years the Canadian Free Trade Agreement has been in effect. In 1990, 26 percent of U.S. wine exports went to Canada. The United States provides about 10 percent of Canada's wine imports (by value). Europe is the largest supplier, but imports from the United States have risen steadily the past 5 years. Demand appears to be increasing for higher quality varietal wines, as reflected by higher import unit values. The Canadian dollar has appreciated steadily over the past 2 years, likely contributing to higher Canadian imports.



## **Cut Flowers**

### **Production**

The total value of reported U.S. cut flower production was over \$500 million in 1990. Roses, carnations, and chrysanthemums represented about 60 percent of this value.

Imports rose sharply from 1980 to 1990 and the import share of U.S. cut flower markets increased from 26 to 42 percent for roses, from 65 to 80 percent for carnations, and from 57 to 80 percent for chrysanthemums.

U.S. production of carnations and chrysanthemums declined sharply during the 1980's. U.S. production of roses increased but most of the growth in the U.S. rose market came from increased imports.

Colombia is the dominant exporter of cut flowers to the United States. In 1990, Colombia accounted for 69 percent of the imported roses, 86 percent of the chrysanthemums, and 93 percent of the carnations. Mexico accounted for 11 percent of the roses, 1.4 percent of the carnations, and less than 1 percent of the chrysanthemums.

The United States imposes an 8-percent ad valorem tariff on all imported roses. All other U.S. imports of fresh cut flowers from Mexico enter duty free under the GSP.

### **Effects of Trade Liberalization**

Mexico has identified cut flowers as a possible growth sector for export. A free trade agreement that would eliminate the 8-percent U.S. tariff on roses for Mexico would add incentive for them to increase production. U.S. imports from Mexico would be higher, while U.S. imports from Colombia and other countries would be somewhat lower.

## Other Crops

Crops not covered elsewhere in this report make up about 20 percent of U.S. cash receipts from crops and 10 percent of the farm marketings listed in table 43. Half of these receipts come from four crops: hay, potatoes, peanuts, and lettuce. Six more categories--mushrooms, cottonseed, almonds, other field crops, sweet corn, and grapefruit--increase coverage to 94 percent of cash receipts. The additional 6 percent of other cash receipts includes over 50 different commodities.

Trade in these commodities is small compared with total trade. However, for a few, trade accounts for a substantial share of production. For example, of the almonds and walnuts produced in the United States, about 60 and 33 percent of production are exported. Very few are shipped to Mexico, however. Small amounts of lemons, which are grown mainly in California, are exported, mostly to the Pacific Rim. Most of the U.S. imports of eggplant, squash, snap beans, and mangoes come from Mexico. Less than 10 percent of total U.S. fresh vegetable utilization came from imports in 1989. The majority of these vegetables entered the United States during the winter and early summer. Pinto beans account for the largest share of U.S. vegetable exports to Mexico.

U.S. Federal marketing orders can affect the terms of trade for certain fruit and vegetable items. Section 8e of the Agricultural Marketing Agreement Act of 1937, as amended, requires that U.S. imports of certain items be subject to the same size, quality, and maturity standards imposed on domestic production by Federal marketing orders. For other crops, that would include imports of fresh potatoes and raisins. U.S. import tariffs are variable, ranging from a low of 2.4 cents per kg for squash to 17.5 cents per kg for dried prunes not soaked in brine. For horticultural crops, U.S. import tariffs averaged 7.6 percent and Mexican import tariffs averaged 15.9 percent in 1990.

Phytosanitary requirements differ for the various commodities. Producers are often able to relatively quickly adapt to changes in regulations. U.S. imports of mangoes dropped in 1986-87 then returned to previous levels when the phytosanitary requirement was changed to eliminate the use of ethylene dibromide (EDB) and require the use of a hot water dip. Avocados are not imported from Mexico because of the presence there of the seed weevil.

Table 43--U.S. average cash receipts from farm marketings, selected commodities, 1988-90

Item	Cash receipts	Share of cash receipts to	
		Total other crops	Total receipts
	Million dollars	-----Percent-----	
Hay	3,295	21.4	2.1
Potatoes	2,213	14.4	1.4
Peanuts	1,164	7.6	0.7
Lettuce	946	6.1	0.6
Mushrooms	623	4.0	0.4
Cottonseed	551	3.6	0.3
Almonds	558	3.6	0.3
Other field crops	493	3.2	0.3
Sweet corn	432	2.8	0.3
Grapefruit	410	2.7	0.3
Plums and prunes	267	1.7	0.2
Lemons	230	1.5	0.1
Carrots	279	1.8	0.2
Pecans	198	1.3	0.1
Walnuts	225	1.5	0.1
Oats	268	1.7	0.2
Sunflower/safflower	221	1.4	0.1
Avocados	217	1.4	0.1
Celery	238	1.5	0.1
Other seed	223	1.4	0.1
Other	2,354	15.3	1.5
Total other crops	15,402	100.0	9.6
Total crops	76,257	-	47.5
Livestock	84,397	-	52.5
Total receipts	160,654	-	100.0

- = Not applicable.

Source: Economic Indicators of the Farm Sector: National Financial Summary 1990. ECIFS 10-1. Economic Research Service, USDA.













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