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# Staff Paper

**MEXICAN AGRICULTURAL POLICIES AND NAFTA:  
IMPLICATIONS FOR U.S. - MEXICAN BEAN TRADE**

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by Elizabeth Bryant and Kandeh Yumkella<sup>1</sup>

**1. Introduction**

Since 1986, Mexican economic policy has undergone a major transformation, amending and at times reversing policies of the past 75 years. This paper reviews Mexican agricultural policies since the 1970s, particularly the effects of these policies on the dry bean subsector. Dry beans are a food staple in Mexico, ranking second in area harvested and fourth in value of production among Mexican field crops (USDA, 1992). This analysis of Mexico's recent economic reforms and trade liberalization in agriculture is followed by an analysis of the possible effect of the North American Free Trade Agreement (NAFTA) on bean production in Mexico and U.S.-Mexican bean trade. The ratification of NAFTA by the U.S. Congress in November 1993 marked the beginning of a new era in U.S.-Mexican trade relations.

**2. Major Changes in Mexican Agricultural Policy, 1970 to 1992**

**2.1. Import Substitution and The SAM Program**

Until the early 1980s, Mexican economic policy emphasized import substitution as a means to achieve rapid industrialization and food self-sufficiency. The policy goal for agriculture during this period was to provide cheap food to workers in the industrial sector and to generate foreign exchange through exports. Mexico became a net exporter of agricultural products by the early 1960s, and agriculture was Mexico's primary generator of foreign exchange until the late 1970s when it was replaced by petroleum exports.

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The 1970s marked a shift from food to export crop production, particularly during the Echeverria presidency (1970-76). State subsidies favored wheat (the staple of urban consumers) over maize, mechanized over non-mechanized agriculture, and irrigated over non-irrigated production. Simultaneously, until 1978, the overvalued peso created implicit subsidies for imported inputs while discriminating against domestic producers (equivalent to an export tax on agricultural products). Also during the 1970s, large irrigated farms diversified production to include horticultural products for export. While accounting for a small (but increasing) amount of total acreage, these crops made major contributions to foreign exchange earnings. In addition, farmers devoted an increasing share of land to crops such as barley, oats and sorghum -- sorghum became the country's foremost cash crop during the 1970s (Sanderson, 1986; Barkin, 1987).

In 1980, primarily as a result of growing reliance on food imports and 1979's poor harvest, the Mexican government under Lopez de Portillo (1976-1982) implemented a new food policy known as the Sistema Alimentario Mexicano (SAM). The goal of SAM was to achieve national food self-sufficiency, with emphasis on corn, beans and wheat. Using a variety of measures, including subsidized inputs, credit and crop insurance, and increasing government guaranteed producer prices, food production increased in the late 1970s. By the early 1980s, however, the government was heavily in debt and could no longer finance the farm and consumer food subsidies. The government adopted stiff austerity measures, abandoned SAM, and reduced total government spending (in real terms) on various programs.

## **2.2. Economic Liberalization**

Beginning with the de la Madrid administration in 1982, the government gradually reduced the number and level of import tariffs (replacing some tariffs with import permits), and

allowed the peso to float. Economic liberalization was accelerated in 1986, through a program of "economic realism" that was promoted by the International Monetary Fund. In exchange for tariff reductions and the devaluation of the peso, part of Mexico's foreign debt was forgiven or financed at lower interest rates as part of an overall "debt for equity" program (Angel and Rossin, 1991). Mexican tariffs for a few key commodities dropped from as much as 100 percent in 1982 to a maximum of 20 percent by 1987 (Banamex, 1991 and 1992). In part, the reduction in tariffs was spurred by Mexico's decision in 1986 to join the General Agreement on Tariffs and Trade (GATT). Mexico exceeded the required 50 percent reduction that the organization stipulated for its new members.

Reacting to the increased imports of food during the 1970s (which peaked in 1982 as a result of a severe drought), agricultural policy during the 1980s sought to increase food production (particularly wheat in non-irrigated areas of northern Mexico) by investing in irrigation and in research for higher yielding varieties. However, government-guaranteed farm prices did not keep pace with inflation though input prices rose dramatically. These combined events created a situation where the agricultural sector was unable to meet the basic food needs of Mexico's expanding population (Calva, 1991).

### **2.3. Privatization and Free Trade**

With the advent of the Salinas administration in 1988, domestic policies were implemented to reverse the decline in the growth of food production during the 1970s and 1980s. Salinas' agricultural policy promoted rural development by increasing subsidies and credit and enhancing the role of extension services. The 1991 budget for Mexico's 1990-94 Programa Nacional de Modernizacion del Campo (The National Agricultural Modernization Program) included a 10.5 percent real (inflation adjusted) increase in spending on rural development, and

the 1992 budget increased spending on the agricultural sector by 20 percent (Bruce, 1992; Sourcemex 1991).

Pricing policies generally benefitted producers of basic grains. In February 1991, the government announced the reinstatement of high guaranteed producer prices for basic commodities (including beans, corn, rice and wheat) in order to compensate farmers for the devaluation of the peso, and reduce the potentially detrimental effects of a Free Trade Agreement with the U.S. (Sourcemex, 2/20/91, 3/6/91). The government also sharply reduced subsidies for fertilizer, electricity, water and seed. Many producers reacted to the combined effect of reduced subsidies and high guaranteed prices for beans and corn by returning to basic grain production -- in spite of recent government encouragement of horticultural production over basic grains (USDA 1991, 1992). Apart from measures to encourage rural development, the Salinas administration sharply reduced public sector intervention in agriculture. In December 1991, plans were introduced to divest from more than 645 state-run agricultural companies, trusts, laboratories, development and livestock breeding facilities, and quarantine centers.

In addition, the 1991 budget for CONASUPO (Compania Nacional de Subsistencias Populares or National Company for Subsistence Products) was reduced drastically, as was its role in the distribution of foodstuffs. This was a major policy shift given the agency's historical role in agriculture. For several decades CONASUPO was the state agency charged with setting domestic production and marketing policies for staple commodities. It was also the sole importer of dry edible beans and corn. One main goal of the agency's establishment was to protect producer income by establishing price support systems for selected commodities including corn, wheat, and dry beans and enforcing strict import controls on these items. It had monopoly authority in the trade of basic grains and staples.

Another important function of CONASUPO was to ensure that low-income consumers could purchase sufficient food at affordable prices. The agency operated as a decentralized public corporation, controlling an elaborate system of retail stores for selling food products at subsidized prices in cities and rural areas. CONASUPO's presence was more pronounced in grain markets, where the agency established subsidiaries responsible for buying grain at guaranteed minimum prices, as well as the import and export of grain, the maintenance of subsidized storage facilities, and wholesale and retail sales of grain through agency-owned retail stores. CONASUPO's role in domestic markets has been declining since the move towards market liberalization in the 1980s. Current government policy is to encourage private participation in domestic commodity markets and trade. However, controls over the imports of beans and corn are still enforced.

Discussions on a free trade agreement started in 1990 between Mexico and the United States. With Canada's entrance in 1991, the discussions were enlarged to a larger North American Free Trade Agreement to create a "free trade area" that would reduce trade barriers between the countries. The agricultural provisions of this agreement will have implications for Mexican agriculture in general, and the highly protected bean subsector in particular. Further, in 1991, the Mexican government approved legislation allowing for the privatization of ejidos, a seemingly inviolate system of land tenure established in 1915. The ejidal system is a land tenure arrangement where land is privately used and bequeathed to heirs but cannot be bought or sold. Because almost one million hectares of land are operated by approximately 26,000 ejidos, the effects of privatization will be profound.

In October 1993, the Salinas government announced a new plan to revamp the current price support program for corn, beans and several grains<sup>2</sup>. One goal of the program is to

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<sup>2</sup>Wall Street Journal and New York Times October 5, 1993.

encourage farmers to diversify agricultural production and minimize dependence on corn and beans for farm income. The new program replaces price supports for these commodities with a direct payment system based on the amount of land the farmer cultivates. This allows farmers to grow crops other than corn and dry beans and still receive government payments. The payments will be phased out over a 15 year period to coincide with schedules for eliminating trade protection for these commodities under NAFTA. This shift in production incentives could cause a decline in commercial dry bean and corn production and increase imports of these commodities from the United States.

### 3. The Dry Bean Subsector in Mexico

Mexico has seven agricultural regions. Five of these are dominated by rainfed agriculture and primarily grow subsistence crops. Only 9 percent of the total area dedicated to agricultural production is of good quality; of this land, around 76 percent is devoted to rainfed agriculture<sup>3</sup>. Between 75 and 90 percent of Mexico's dry beans are grown under rainfed conditions in the southern and central part of the country (USDA, 1992). The central regions -- particularly the states of Zacatecas, Chihuahua and Durango, as well as the southern state of Puebla -- are the principal producers of beans for the fall harvest, the largest of Mexico's two annual harvests. In contrast, 30 percent of the spring harvest is located in the irrigated regions of the north. A significant share of beans are produced under rainfed conditions by large mechanized farms in the central highlands (Fernandez, 1987). Furthermore, since the 1960s, there has been a notable

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<sup>3</sup>Only one-quarter of Mexico's total land area receives sufficient rain for spring and summer cropping during normal years; less than 5 percent of the land receives enough rain to produce winter crops. In general, rainfed agriculture accounts for around half of Mexico's agricultural exports.



shift from rainfed production in the central and southern areas of Mexico to the predominantly commercial and often irrigated-farms in the northwest.

### 3.1. Dry Bean Production

Mexico is the world's second largest producer of dry beans (Lepiz, 1988)<sup>4</sup>. In recent years, dry beans ranked second in area harvested and fourth in production among field crops in Mexico. Several researchers have highlighted the decline in bean acreage and total production relative to other crops (Meilke, 1989; Hall and Livas-Hernandezm, 1990). Production levels have been low, averaging 1.03 million metric tons from 1981 to 1990 (Table 1), with a peak of 1.33 million tons in 1981. Dry bean yields have also been low relative to basic grains. Native bean varieties are fairly well adapted to Mexico's highly variable weather conditions but the discrepancy between irrigated and rainfed production is startling: bean yields under irrigation average around 1,390 kg/ha while non-irrigated areas produce only 240 kg/ha (Kelly, 1987). Moreover, scarce capital and/or poor land quality makes it difficult for many farmers in rainfed areas to diversify their production.

Bean producers are primarily subsistence level farmers, cultivating plots that average three to four hectares (Kelly, 1987; Levy and van Wijnbergen, 1992). These subsistence farmers often raise other traditional crops like corn, which is usually intercropped with beans. Bean production is primarily for home consumption, while outside employment or sale of livestock provides income (Lepiz, 1988; Norton, 1987). Limited land area is one factor preventing most farmers from moving beyond subsistence level production. Other constraints include: using traditional tools rather than adopting new technology; being located in isolated regions far away

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<sup>4</sup>Maize is Mexico's principle staple crop and main source of rural employment.

Table 1. Major food crops in Mexico, 1981-1990 (area/yield/production)

Crop	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	Average
<u>Dry Beans:</u>											
Hvst. area (1,000 ha)	1990.7	1571.1	1957.8	1679.4	1782.3	1860.7	1834.8	1946.7	1396.4	2094	1811.39
Yield (MT/ha)	0.7	0.6	0.7	0.6	0.5	0.6	0.6	0.4	0.4	0.6	0.57
Prod. (1000mt)	1331.3	979.8	1285.2	930.7	911.9	1101.7	1015.9	857.2	602.2	1287.4	1030.33
<u>Corn:</u>											
Hvst. area (1,000 ha)	7668.7	5629.5	7421.3	6892.7	7589.5	6563.8	6887.4	6506.3	6581.6	7343	6908.38
Yield (MT/ha)	1.9	1.8	1.8	1.9	1.9	1.8	1.7	1.6	1.7	2	1.81
Prod. (1000mt)	14550.1	10119.7	13187.7	12788.8	14103.5	11812.8	11618.4	10599.5	11060.2	14669.9	12451.06
<u>Wheat:</u>											
Hvst. area (1,000 ha)	859.8	1008.1	857	1033.9	1217.1	1199.4	987.3	912.3	1148.7	932.8	1015.64
Yield (MT/ha)	3.7	4.4	4	4.4	4.3	4	4.5	4	3.8	4.2	4.13
Prod. (1000mt)	3192	4391.4	3463.3	4505.2	5214.3	4781.2	4409.4	3664.8	4362.3	3930	4191.39

Source: Cramer et. al. 1993 and SARH 1992a.

from markets and roads; and receiving little in the way of extension and credit services. Other reasons for the decline in smallholder bean production include government encouragement of corn production, loss of needed family labor due to migration and lower subsidies during the 1970s (Lepiz, 1988).

The decline in bean production relative to other staples underscores the lower level of subsidies provided for beans. Mielke (1989) has shown that producer subsidy equivalents (PSE) for beans were negative for most of the 1980s and the highest subsidies were provided for sesame seed (an export crop). Though the credit to beans has been lower compared to other competing crops, it has been increasing over time. Favorable government programs (including input subsidies) that encouraged feed grain production also caused a shift in agricultural production away from beans, particularly in the irrigated northern regions with more flexibility to diversify their production. By 1977, 20 percent of irrigated land was devoted to sorghum production, compared with only 4.6 percent for beans and 7 percent for maize (Adelman and Taylor, 1990).

### **3.2. Marketing and Pricing Policies**

Officially, marketing dry beans is almost completely controlled by CONASUPO; in reality, informal markets are ubiquitous. CONASUPO administers both the price support program and consumer subsidy programs. Nominal guaranteed prices for beans have risen continuously since 1978 with dramatic increases (over 100 percent) from 1984-85 and 1989-90 (Table 2). Guaranteed prices for beans under SAM rose by 20 percent in 1980 and by 11.8 percent in 1981 and 1982, in real terms, with a corresponding rise in production acreage and output (Ballenger, 1984). High support prices for beans encouraged their production in the

Table 2. Government-Guaranteed Producer Prices for  
Competing Farm Crops in Mexico, Spring-Summer Cycle,  
1970-90

Year	Dry Beans	Corn	Wheat	Soybeans
	(Dollars Per MT)			
1970	144.0	72.0	64.0	104.0
1971	144.0	72.0	64.0	128.0
1972	144.0	72.0	64.0	144.0
1973	176.0	96.0	72.0	216.0
1974	480.0	120.0	104.0	264.0
1975	384.0	152.0	144.0	280.0
1976	324.0	149.1	116.7	226.8
1977	221.5	128.5	88.6	177.2
1978	272.3	127.4	114.2	241.5
1979	342.0	153.4	131.5	280.6
1980	522.9	191.7	156.9	348.6
1981	652.8	269.3	187.7	440.6
1982	374.1	180.9	134.8	271.3
1983	274.8	159.9	151.6	258.1
1984	314.6	199.0	162.7	333.7
1985	603.3	207.5	155.7	342.5
1986	354.7	156.9	138.9	269.7
1987	380.9	177.8	87.1	296.0
1988	345.6	162.8	136.4	378.3
1989	375.3	176.9	160.5	400.6
1990	657.8	226.1	172.1	302.2

northern states at the expense of cotton, fresh fruits and vegetables (Krissoff & Ballenger, 1987; USDA 1991).

In 1982, Mexico instituted a seasonal price system for most crops benefiting from government-guaranteed prices. In the case of beans, the significantly higher guaranteed prices for spring harvests were a way to induce northern farmers to grow beans during the winter months, to compensate for any annual shortfalls in supply. Hall & Livas-Hernandez (1990) observed that while real prices for fall production fell from 2209 pesos/MT in 1982 to 1,423 pesos/MT in 1989, spring harvest prices actually rose from 2209 pesos/MT to 2283 pesos/MT during the same period. Since 30 percent of the bean production in Mexico is spring harvested is produced on irrigated farms, this suggests that pricing policies for beans during the 1980s discriminated against rainfed producers. Further, as a result of 13 percent average annual inflation during the 1970s and 70 percent during the 1980s, the real prices for beans declined considerably during most of these periods (World Bank, 1992). Inflation also generated a sharp rise in production costs (Mielke, 1989). In addition, subsistence farmers were unable to benefit from the high support prices due to limited access to new technology, credit or information that might have allowed them to expand their production. These inputs were generally targeted to the more successful farmers and irrigated regions in the north (Spalding, 1985; Sanderson, 1986).

### **3.3. Bean Consumption Patterns**

Although bread is becoming the new staple in the diet of urban consumers, beans still supply nearly all the protein consumed by low income consumers (USDA, 1992). The high protein content in beans plays a vital role in combating malnutrition. Since 1970, food production increases have been unable to satisfy the demand of Mexico's growing population,

which grew at a rate of 3.1 percent annually between 1965-80 (World Bank, 1992). In 1992, the per capita production of dry beans was 14.4 kg with an annual per capita consumption of 15 kg (Cramer et al, 1993). Pintos and black beans are the most popular types of beans consumed in Mexico. Consumer subsidies are primarily available in urban areas, and rural consumers also benefit through direct bulk sales. Austerity measures in the 1980s caused a reduction in food subsidies and inflation greatly reduced consumer purchasing power.

### **3.4. Trade Patterns**

Mexico started to import beans in the 1970s primarily due to production shortfalls resulting from high input prices, lack of credit and extension and inadequate infrastructure (particularly for small scale, rainfed producers). These problems, coupled with the vulnerability of rainfed agriculture to climatic variations, forced Mexico to import beans. Imports peaked during the early 1980s, leveled off and increased sharply in 1990 (Figure 1). Surprisingly, imports started rising between 1980-82 -- the years of SAM -- when production was being promoted through high support prices.

In the past, Mexico has imported beans from the United States, Chile and Argentina. Mexico has imported significant (but variable) quantities of dry beans from the United States. For example, Mexican imports from the United States were 361,372 metric tons in 1980-81 fiscal year (54 percent of total U.S. exports) but dropped to 27,197 metric tons in 1991-92 fiscal year (6.9 percent of total U.S. exports) (Figure 2). Significant quantities of pintos and black beans have been imported to meet domestic demand during the past decade. For example, from 1980 to 1991, Mexican pinto bean imports from the United States, on average, accounted for 42 percent of total U.S. pinto bean exports, followed by black beans, which averaged 40 percent of total U.S. black bean exports.

Figure 1. Mexican Net Imports of Dry Beans, 1980-1991

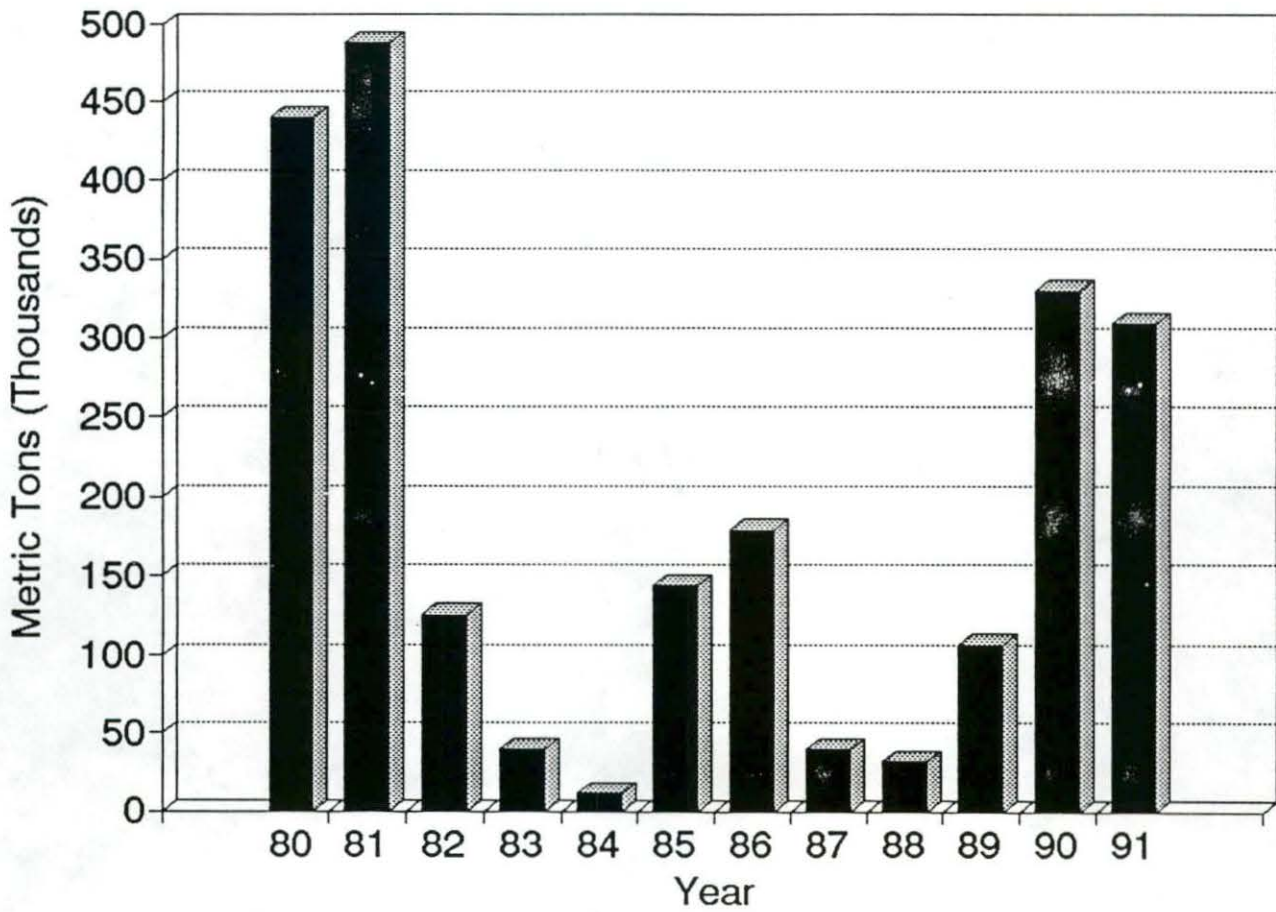
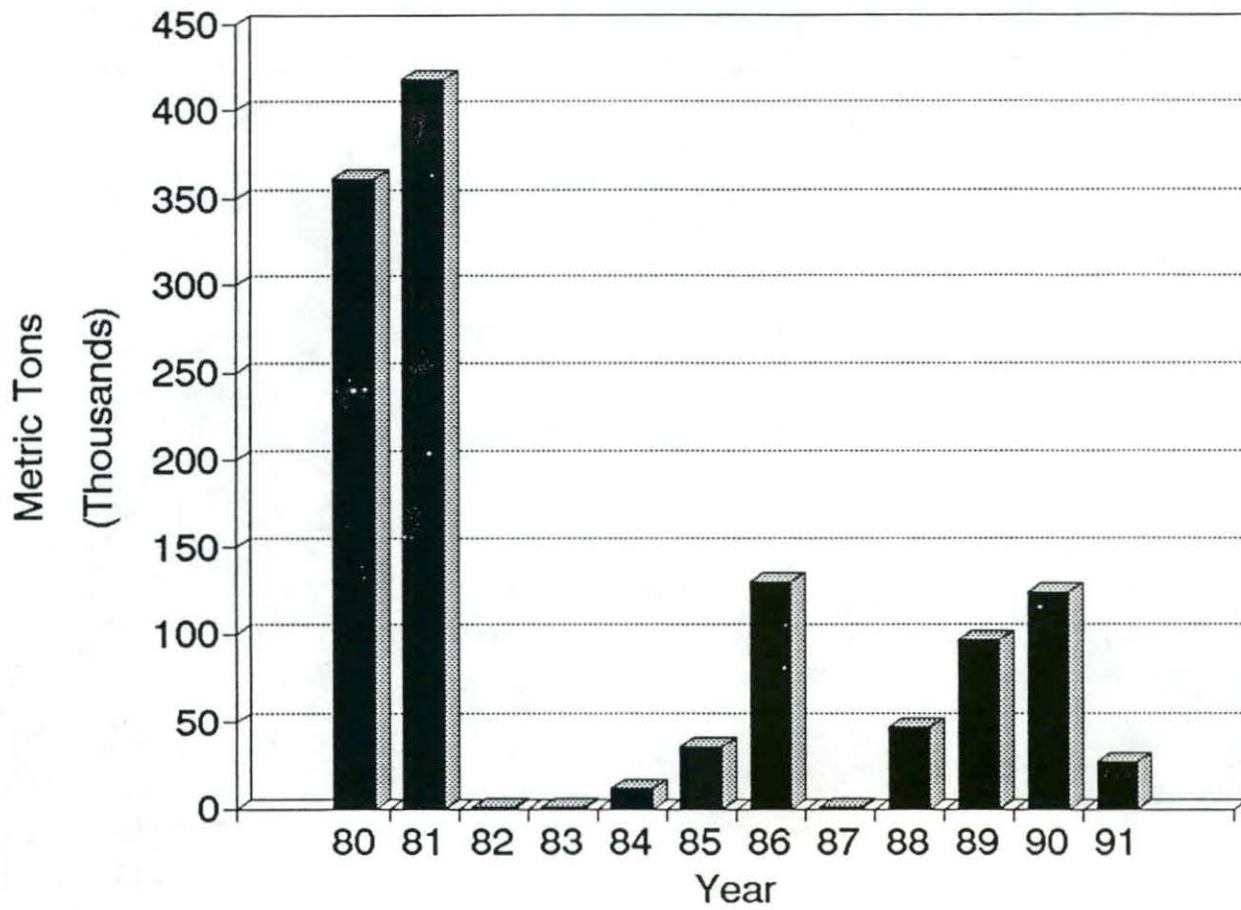


Figure 2. Mexican Dry Bean Imports from the United States, 1980-1991





Although CONASUPO sells both domestic and imported dry beans to packagers and consumers at subsidized prices, domestic consumer prices are higher than world prices due to producer price supports and import licensing measures. In spite of relatively favorable pricing policies, domestic supply in recent years often has lagged behind demand. Most imports occur during the winter/early spring periods when Mexico typically faces a shortage in supply (USDA, 1992). Because the majority of dry bean production remains in rainfed areas, Mexico's volatile weather conditions will continue to profoundly affect bean yields, forcing the country to continue importing beans from abroad during poor harvest years, such as that of 1990. Future imports are expected to be based primarily on the price offered by exporting countries rather than quality (ibid). This is an important factor to consider when examining the preferential trading relationship offered by NAFTA.

### **3.5. Implications of Economic Liberalization and NAFTA for U.S.-Mexican Bean Trade**

As stated earlier, Mexico has accounted for a significant share of total U.S. bean exports in recent years. As a result, U.S. bean producers and shippers have been interested in the prospects for freer trade with Mexico. With the ratification of NAFTA by the U.S. Congress, duties in both countries are to be phased out over a 10- to 15-year period. Once the agreement goes into effect in January 1994, non-tariff barriers to agricultural trade will be immediately abolished in favor of tariffs or tariff-rate quotas (TRQ), which are to expand by 3 percent annually and eventually will be phased out.

Currently no tariffs exist on Mexican imports of almost all bean varieties. However, the current licensing system allows the government to restrict imports. Under NAFTA, the licensing policy will be replaced by a TRQ, with the United States exporting up to 50,000 tons of dry beans to Mexico duty-free in the first year of the agreement. All additional U.S. shipments will

be assessed a tariff of 139 percent. The amount allowed duty-free will be increased by 3 percent a year, while the TRQ will be eliminated after 15 years.

In general, the projected growth of Mexican income resulting from NAFTA and Mexico's domestic economic reform will be major determinants of U.S. agricultural exports to Mexico. Faster income growth will increase demand for U.S. exports of various consumer goods. However, the shift in incentives among commodities arising from the economic reforms will stimulate growth in some sectors at the expense of others. Further, Mexico's population is young and its growth rate is expected to continue to rise during most of this decade. The rising population coupled with cultural ties to bean-based diets will increase per capita bean consumption<sup>5</sup>. In the short-term, NAFTA will not have an immediate effect on U.S. bean exports to Mexico because of the TRQ. However, it will reduce the uncertainty about how much U.S. firms could export into Mexico since the TRQ guarantees a minimum export level.

In the long-term, U.S. exports could rise if Mexico does not increase its bean production rapidly enough to meet its domestic demand. Most trade specialists and bean industry experts suggest that U.S. dry bean exports to Mexico could double by the end of the NAFTA transition (USDA, 1992b). These projections are based on the fact that many factors will limit Mexico's ability to expand bean production. First, bean production will be constrained by the limited availability of land suitable for expanded production and underdeveloped marketing infrastructure. Second, the volatile Mexican weather conditions will continue to limit bean yields since bean production is still concentrated in non-irrigated rainfed areas. Third, the change from price supports to a direct payment system and reform of the ejido system will encourage

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<sup>5</sup>While this may be true, it is reasonable to expect that higher incomes in Mexico resulting from NAFTA may cause some consumers to switch from beans to other products such as bread and meat. Similar shifts in diets from traditional staples as a result of income growth have been observed in Asia in the case of rice (Itto, 1989).

farmers to diversify production and switch from beans to other crops. Finally, bean production could be affected if returns on export crops continue to be more favorable than the production of staples. A key question in the coming years will be whether producers in the main U.S. bean growing states -- North Dakota, Colorado and Michigan -- can profitably produce Mexico's more favored bean varieties (pintos and black beans).

#### **4. Conclusions**

This paper traced the effects of Mexico's key agricultural policy changes from the 1970s to the present on the dry bean subsector. It also examined the economic forces that engendered various policy shifts, especially the move from import substitution industrialization to trade liberalization and subsequently, negotiation of a regional free trade agreement with the United States and Canada. Mexico's enduring crusade to achieve self-sufficiency in food production was not accomplished in the 1970s and it was forced to import agricultural commodities, including beans. Burdened by debt, unemployment and a failing agricultural system, the country abandoned 40 years of import substitution industrialization and began its first steps at trade liberalization during the 1980s.

The Salinas administration intensified efforts to liberalize the Mexican economy and restructure agriculture policy. The reform of land ownership (the ejido system) and the new program of direct payments to farmers (based on cultivated acres rather than price supports) will encourage farmers to diversify production and reduce bean acreage. Protection of Mexican bean production will be gradually phased out over a 15 year period under NAFTA, and CONASUPO's control over imports and marketing of various commodities will continue to decrease. Therefore NAFTA, internal market liberalization and a growing Mexican population, will lead to increased demand for U.S. beans in the long-term.

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