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# NAFTA



## Situation and Outlook Series

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## Foreword

NAFTA is best viewed as a continuing process of economic integration among the three member countries: Canada, Mexico, and the United States. As NAFTA begins its sixth year, it is clear that the agreement has significantly affected all three countries. At the end of 1998, U.S. agricultural exports to Canada and Mexico were 47 percent above the pre-NAFTA (1993) level. In 1997 and 1998, U.S. agricultural exports to its NAFTA partners were up 3.3 and 10.0 percent, respectively, compared with exports to the rest of the world, which declined 7.3 and 14.6 percent. From 1993 through 1998 U.S. agricultural imports from Canada and Mexico were up 69 percent, while those from the rest of the world were up 38 percent.

NAFTA is one of many factors that influence the integration of North American agricultural markets. Some of these factors, such as economic conditions and weather, have partially masked some of NAFTA's benefits. NAFTA-induced structural changes take time to work through the economy, so the complete effects of NAFTA will not be felt until the agreement is fully implemented and markets have adjusted to the new trade environment.

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# Executive Summary

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## Introduction

As the North American Free Trade Agreement (NAFTA) enters its sixth year, its influence on U.S. agriculture is more apparent than ever. NAFTA's ambitious process of trade liberalization has been accompanied by substantially larger volumes of trade in a wide variety of agricultural commodities and food products between the United States, Canada, and Mexico.

NAFTA is composed of three bilateral accords, one between the United States and Canada, a second between the United States and Mexico, and a third between Canada and Mexico. The first accord incorporates the Canada-U.S. Free Trade Agreement (CFTA), which took effect in 1989 and has completed its 10-year implementation phase. NAFTA eliminated many tariffs and quantitative restrictions between the United States and Mexico on January 1, 1994, the day on which the agreement was implemented, and provides for the progressive elimination of remaining tariffs and other trade barriers between the two countries over a 15-year period.

## Expanded Trade Ties

U.S. agricultural trade with its NAFTA partners (Canada and Mexico) is growing in size and importance. U.S. agricultural exports to Canada and Mexico increased from \$9.0 billion in 1993 to a record \$13.2 billion in 1998. At the same time, U.S. agricultural imports from these countries grew from \$7.4 billion to \$12.5 billion.

In addition, NAFTA is facilitating a process in which U.S. exporters and importers focus more on the North American market. Canada and Mexico are the destination for roughly one-fourth of U.S. agricultural exports and the origin of about one-third of U.S. agricultural imports. In 1990, the two countries accounted for 17 percent of U.S. agricultural exports and 25 percent of U.S. agricultural imports.

During 1994-98, U.S. agricultural exports to NAFTA partners expanded at an annual rate of 8.1 percent, in contrast to 2.6 percent for exports to the rest of the world. U.S. agricultural imports from Canada and Mexico grew 11.1 percent *per annum* during this period, while such imports from the rest of the world grew only 6.7 percent a year. Even though U.S. exports to countries outside NAFTA dropped 15 percent between 1997 and 1998, exports to Canada and Mexico increased by 3 and 10 percent respectively. Between 1993 and 1998, U.S. agricultural exports to Mexico increased by \$2.5 billion to \$6.2 billion. Seven commodities—soybeans, cotton, corn, beef and veal, sorghum, poultry meat, and wheat—accounted for 51 percent of the total.

During the same period, U.S. agricultural exports to Canada grew by \$1.7 billion to \$7.0 billion. Canada imports a broader array of agricultural commodities from the United States. The top seven products—beef and veal, poultry meats, coffee, soybean meal, lettuce, orange juice, and cotton—account for only 18 percent of the total. It takes at least another 40 commodities to reach the 50-percent mark.

Between 1993 and 1998, U.S. agricultural imports from Mexico increased at an average annual rate of 12 percent, reaching a record \$4.7 billion in 1998. Ten commodities—tomatoes, coffee, peppers, cattle and calves, sugar, grapes, cucumbers, onions, cauliflower, and broccoli—accounted for slightly more than 50 percent of the total.

At the same time, U.S. agricultural imports from Canada grew an average of 10.8 percent per year, climbing to \$7.8 billion in 1998. Nine commodities—cattle and calves, beef and veal, swine, pork, cocoa, potatoes, biscuits and wafers, sugar and related products, and wheat—accounted for slightly over 50 percent of the total.

## Assessing the Trade Impacts of NAFTA

In the livestock sector, beef and pork trade have benefited greatly from NAFTA. U.S. beef exports to Canada may be twice as high as they would have been without CFTA/NAFTA, and NAFTA tariff changes boosted U.S. pork exports to Mexico by an estimated 5-10 percent above what would have occurred otherwise. In contrast, NAFTA has had very little direct impact on hog and poultry trade. Cattle trade with Canada has been influenced more by the exemption of Canadian beef from the U.S. Meat Import Law than by CFTA/NAFTA tariff changes. However, U.S. cattle exports to Mexico have grown an estimated 15-25 percent because of NAFTA tariff changes.

U.S. corn exports to Mexico are somewhat higher due to NAFTA than they would have been otherwise. However, the strong growth in corn exports in recent years is primarily due to other factors such as domestic policy reforms in Mexico and a severe drought there in 1995. At the same time, NAFTA has limited the reduction in U.S. sorghum exports to Mexico, even as Mexican livestock producers have tended to switch from sorghum to corn feed. The impact of NAFTA on U.S.-Canadian corn trade has been small.

Tariff reductions under CFTA/NAFTA have increased U.S. wheat imports from Canada above what would have occurred without these agreements. However, sharp rises in U.S. wheat imports, such as those that occurred in 1994, have mainly stemmed from weather-related events. U.S.

wheat exports to Canada in the form of grain have been insignificant despite CFTA/NAFTA tariff reductions. The United States and Canada negotiated an agreement on wheat trade regulations in 1998 that should improve U.S. access to Canadian markets.

NAFTA's impact on trade in oilseeds and related products is substantially different for U.S.-Canadian trade than for U.S.-Mexican trade. With respect to U.S.-Canadian trade, NAFTA has contributed to increased two-way trade in processed goods such as vegetable oil and soybean meal. With respect to U.S.-Mexican trade, NAFTA has led to increased U.S. exports of soybeans and soybean oil but decreased U.S. exports of soybean meal, as trade more closely reflects the relative prices of the commodities.

NAFTA's trade impacts on other field crops are small relative to other factors but still important. Through reduced U.S. and Mexican tariffs on cotton and rules of origin that favor textiles and apparel manufactured by a NAFTA member from yarn and fiber produced by a NAFTA member, NAFTA has stimulated U.S. cotton exports to Canada and Mexico. However, during much of the 1990's, the U.S. textile and apparel industry also benefited from the decreasing competitiveness of Asian textile and apparel producers.

NAFTA also has slightly loosened the quota and tariff restrictions that govern North American sugar trade. The United States and Mexico are gradually moving toward liberalized trade in this area. NAFTA established a formula based on the difference between projected production and projected domestic consumption that has allowed expanded duty-free quotas for U.S.-Mexican sugar trade.

North American trade in fruits and vegetables has generally flourished under NAFTA. U.S. exports of such products to Canada and Mexico grew from \$1.9 billion in 1990 and \$2.3 billion in 1993 to an average of \$2.7 billion during 1994-98. U.S. fruit and vegetable imports from its NAFTA partners have averaged \$2.7 billion since 1994, compared with \$1.8 billion in 1993 and \$1.5 billion in 1990. However, developments in this trade are primarily due to factors other than NAFTA, including changing consumer preferences, strong U.S. demand, adverse weather conditions, and the peso devaluation and subsequent Mexican recession in late 1994 and 1995.

NAFTA tariff reductions were expected to raise U.S. tomato imports from Mexico 8-15 percent from what would have occurred without the agreement. However, the reductions have been blunted by a minimum import price agreement between principal Mexican and U.S. growers. U.S. potato imports from Canada are estimated to be about 5-10 percent larger under CFTA/NAFTA tariff reductions than what would have occurred without the agreements.

With respect to fruits, there are many examples of NAFTA's positive influence on trade. U.S. grape exports to Mexico

have benefited from the end of Mexican import licensing. U.S. exports of fresh pears to Mexico have expanded under NAFTA, in part due to tariff reductions that have been relatively larger than reductions for other fruits such as apples. ERS analysts estimate that U.S. imports of Mexican cantaloupe are some 17-25 percent larger than they would have been without the Uruguay Round agreement and the tariff changes under NAFTA.

## Sanitary and Phytosanitary Measures

In conjunction with NAFTA, there is a growing emphasis on resolving conflicts related to sanitary and phytosanitary (SPS) measures. Some efforts in this area have taken place within the trilateral NAFTA Committee on SPS Measures. In addition, producers in all three NAFTA countries have strived to meet higher health and safety standards and to participate actively in the formulation of new standards.

When these efforts have been successful, they have increased agricultural trade. Efforts to inspect and approve at the regional level, and in some instances at the level of individual producers, have opened the door to new markets across international borders. Examples of this approach include: U.S. imports of avocados from certain approved growers in the Mexican state of Michoacán, the lifting of Mexico's ban on citrus from Arizona and areas in Texas that are not regulated for fruit flies, and U.S. recognition of the Mexican state of Sonora as being free of hog cholera. When SPS efforts stumble, trade tends to suffer, as happened with the inspection process originally established for U.S. apple exports to Mexico.

## Employment

NAFTA has had a small, positive effect on employment in U.S. agriculture. The effects are most visible in horticulture, veterinary medicine, and landscaping. Employment in crop and livestock production has also increased slightly (1.3 percent) since NAFTA took effect. At the same time, employment opportunities are narrowing in some agriculture-related industries, such as textiles and apparel, in which the United States is less competitive. These structural changes generally predate NAFTA, but the accord appears to have reinforced these long-term trends.

The NAFTA Transitional Adjustment Assistance (TAA) Program was established to provide job training, career counseling, and financial allowances to workers who lose their jobs or whose hours of work and wages are reduced as a result of trade with Canada and Mexico. Of the 1,794 certifications that were issued between 1994 and 1998, only 19 were in agriculture.

## Investment

There were concerns that capital investment in the U.S. farm sector might decline once the NAFTA was adopted. This has

not been the case. Between 1993 and 1997, nominal capital expenditures in U.S. agriculture grew from \$13.9 billion to \$16.2 billion. Real capital expenditures increased in 1996 and 1997, after declining in 1994 and 1995.

NAFTA has facilitated the flow of investments in agricultural production and food processing within North America. U.S. investment in the Mexican food processing industry grew from \$2.3 billion in 1993 to \$5.0 billion in 1997, while accumulated U.S. investment in Mexican agricultural production equaled \$45 million between 1994 and 1997. Similarly, U.S. investment in the Canadian food processing industry has more than doubled since 1990. Preliminary evidence indicates that increases in U.S. foreign direct investment in Mexico complement trade in agricultural products.

### **Beyond the Farm Gate**

The benefits to agriculture from NAFTA depend, in part, on advances that take place beyond the farm gate, such as in the food distribution and transportation systems in the three countries. Such changes lower the costs of doing business and become catalysts to enhanced trade.

The Mexican food distribution system is undergoing major structural change. Supermarket chains are rapidly gaining

market share. Moreover, as the distribution systems of North America become more closely integrated, one anticipates more strategic alliances between Canadian, Mexican, and U.S. retail chains; harmonization of standards, contracts, and dispute resolution; and greater complementary trade.

Improving infrastructure also facilitates trade. The Mexican government appears committed to improving its transportation infrastructure. It has made significant investments in road construction, embarked on the final phase of railway privatization, and made substantial advances in privatization of sea and air transportation. These activities are expected to provide significant dividends to agricultural trade among partners during the next decade.

### **Trade Frictions in the NAFTA Era**

On occasion, frictions have accompanied the increased trade fostered by NAFTA. NAFTA provides several dispute settlement mechanisms, but most disputes are resolved at earlier stages. There has been a strengthening of the institutional capacity of the three NAFTA countries to resolve conflicts through government negotiations, private sector negotiations, technical committees, and the provision of technical assistance.

Summary table 1--U.S. Agricultural Trade with NAFTA (Mexico and Canada), 1990 and 1992-98 1/

Commodity	1990	1992	1993	1994	1995	1996	1997	1998
	\$ million							
Agricultural exports to world	39,517	43,132	42,911	46,244	56,348	60,445	57,245	51,829
Exports to NAFTA								
Agriculture -- Total	6,784	8,741	8,946	10,169	9,351	11,593	11,979	13,179
Animals and animal products	1,478	2,164	2,139	2,411	1,879	2,180	2,739	2,906
Grains and feeds	1,536	1,873	1,770	2,188	2,094	3,198	2,360	2,909
Fruits & preparations, ex. juice	747	785	839	871	794	809	881	880
Fruit juices, including frozen	141	166	170	184	210	227	229	256
Nuts and preparations	125	170	171	169	179	198	204	206
Vegetables and preparations	1,029	1,227	1,321	1,515	1,372	1,486	1,701	1,918
Oilseeds and products	613	1,001	1,024	1,179	1,189	1,557	1,765	1,620
Other	1,116	1,356	1,511	1,652	1,635	1,937	2,100	2,483
Forestry 3/	1,217	na	1,587	1,611	1,546	1,526	1,871	1,906
Total (Agriculture and Forestry)	8,001	na	10,533	11,780	10,897	13,119	13,850	15,085
Total Exports (Agric. & Non-Agric.)	112,000	na	142,025	165,282	173,518	189,345	221,502	233,162
Agricultural imports from world	22,910	24,790	25,165	27,074	30,336	33,655	36,300	37,073
Imports from NAFTA								
Agriculture -- Total	5,784	6,521	7,388	8,198	9,470	10,564	11,569	12,488
Bananas and plantains	31	103	94	59	47	44	63	57
Coffee, including products	370	290	281	385	660	640	742	649
Animals and animal products	1,951	2,227	2,470	2,329	2,742	2,802	3,056	3,135
Cattle - live	978	1,245	1,341	1,151	1,409	1,121	1,119	1,144
Grains, products, & feeds	566	828	1,008	1,372	1,403	1,669	1,862	1,707
Fruits & preparations	305	391	380	438	570	616	639	808
Fruit juices, incl frozen	105	37	42	66	94	88	90	107
Vegetables & preparations	1,238	1,072	1,379	1,491	1,746	2,066	2,201	2,727
Tomatoes	374	139	310	326	423	618	576	668
Sugar and related products	157	244	253	310	304	354	389	451
Beverages, ex fruit juices	336	373	387	460	494	607	715	865
Oilseeds and products	285	360	440	663	641	819	804	875
Cotton exc linters	0	0	0	0	2	16	0	0
Seeds - field & garden	43	59	65	78	79	94	117	113
Cut flowers	17	16	19	21	31	30	39	41
Nursery stock, bulbs, etc.	79	90	103	110	131	155	185	227
Other	300	430	468	418	526	562	666	728
Forestry 3/	3,708	na	6,539	7,771	7,400	9,026	9,908	10,067
Total (Agriculture and Forestry)	9,492	na	13,927	15,969	16,870	19,590	21,477	22,555
Total Imports (Agric. & Non-Agric.)	121,600	na	151,133	177,899	207,032	229,469	253,881	269,553
Trade balance								
Agriculture with world	16,607	18,343	17,746	19,170	26,011	26,790	20,945	14,756
Agriculture with NAFTA	1,000	2,220	1,558	1,970	-119	1,030	410	691
Forestry with NAFTA	na	na	-4,952	-6,160	-5,854	-7,500	-8,037	-8,161
Total (Agric. and Forestry) with NAFTA	-1,491	na	-3,394	-4,190	-5,973	-6,470	-7,627	-7,470
Total (Agric. & Non-Agric.) with NAFTA	-9,600	na	-9,108	-12,617	-33,514	-40,124	-32,379	-36,391

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Summary table 1--U.S. Agricultural Trade with NAFTA (Mexico and Canada), 1990 and 1992-98 1/--Continued

Commodity	Change from year to year 2/						
	90--93	93--94	94--95	95--96	96--97	97--98	93--98
	Percent						
Agricultural exports to world	2.8	7.8	21.8	7.3	-5.3	-9.5	3.8
Exports to NAFTA							
Agriculture -- Total	9.7	13.7	-8.0	24.0	3.3	10.0	8.1
Animals and animal products	13.1	12.7	-22.1	16.0	25.6	6.1	6.3
Grains and feeds	4.8	23.6	-4.3	52.7	-26.2	23.3	10.4
Fruits & preparations, ex. juice	3.9	3.8	-8.8	1.9	8.8	-0.1	1.0
Fruit juices, including frozen	6.4	8.1	14.2	8.5	0.8	11.7	8.5
Nuts and preparations	11.1	-1.2	5.5	10.9	3.0	1.1	3.8
Vegetables and preparations	8.7	14.6	-9.4	8.3	14.5	12.8	7.7
Oilseeds and products	18.6	15.1	0.8	31.0	13.4	-8.2	9.6
Other	10.6	9.3	-1.0	18.4	8.4	18.3	10.4
Forestry 3/	9.3	1.5	-4.0	-1.3	22.6	1.9	3.7
Total (Agriculture and Forestry)	9.6	11.8	-7.5	20.4	5.6	8.9	7.4
Total Exports (Agric. & Non-Agric.)	8.2	16.4	5.0	9.1	17.0	5.3	10.4
Agricultural imports from world	3.2	7.6	12.0	10.9	7.9	2.1	8.1
Imports from NAFTA							
Agriculture -- Total	8.5	11.0	15.5	11.5	9.5	8.0	11.1
Bananas and plantains	45.2	-37.8	-20.0	-5.8	41.7	-9.3	-9.7
Coffee, including products	-8.8	37.0	71.5	-3.0	15.9	-12.6	18.2
Animals and animal products	8.2	-5.7	17.7	2.2	9.0	2.6	4.9
Cattle - live	11.1	-14.2	22.4	-20.4	-0.1	2.2	-3.1
Grains, products, & feeds	21.3	36.1	2.3	18.9	11.6	-8.4	11.1
Fruits & preparations	7.6	15.2	30.3	8.1	3.7	26.5	16.3
Fruit juices, incl frozen	-26.5	59.5	41.3	-6.3	2.6	18.4	20.7
Vegetables & preparations	3.7	8.1	17.1	18.4	6.5	23.9	14.6
Tomatoes	-6.0	4.9	30.0	45.9	-6.8	16.0	16.6
Sugar and related products	17.2	22.4	-1.7	16.5	9.8	15.7	12.2
Beverages, ex fruit juices	4.8	18.9	7.5	22.9	17.8	21.0	17.5
Oilseeds and products	15.5	50.6	-3.3	27.7	-1.8	8.8	14.7
Cotton exc linters	-75.1	49.5	282,683.0	588.2	-97.6	-68.7	192.5
Seeds - field & garden	14.4	19.8	1.5	19.0	24.7	-3.3	11.8
Cut flowers	2.3	14.2	45.0	-3.6	30.4	5.8	17.1
Nursery stock, bulbs, etc.	9.1	6.5	20.0	18.1	19.3	22.3	17.1
Other	16.0	-10.7	25.8	6.9	18.5	9.3	9.2
Forestry 3/	20.8	18.8	-4.8	22.0	9.8	1.6	9.0
Total (Agriculture and Forestry)	13.6	14.7	5.6	16.1	9.6	5.0	10.1
Total Imports (Agric. & Non-Agric.)	7.5	17.7	16.4	10.8	10.6	6.2	12.3
Trade balance							
Agriculture with world	na	na	na	na	na	na	na
Agriculture with NAFTA	na	na	na	na	na	na	na
Forestry with NAFTA	na	na	na	na	na	na	na
Total (Agric. and Forestry) with NAFTA	na	na	na	na	na	na	na
Total (Agric. & Non-Agric.) with NAFTA	na	na	na	na	na	na	na

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Summary table 1--U.S. Agricultural Trade with NAFTA (Mexico and Canada), 1990 and 1992-98 1/--Continued

Commodity	Share of world						
	1990	1993	1994	1995	1996	1997	1998
	Percent						
Agricultural exports to world	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Exports to NAFTA							
Agriculture -- Total	17.2	20.8	22.0	16.6	19.2	20.9	25.4
Animals and animal products	22.1	26.5	26.0	17.1	19.4	23.9	27.2
Grains and feeds	10.7	12.6	16.1	11.2	15.3	15.4	20.8
Fruits & preparations, ex. juice	37.2	35.9	33.5	29.9	30.5	31.6	34.6
Fruit juices, including frozen	38.2	36.9	34.7	32.8	35.8	34.6	39.0
Nuts and preparations	12.8	16.8	14.9	15.1	15.4	14.5	12.7
Vegetables and preparations	46.2	43.7	42.0	37.7	38.9	41.0	45.4
Oilseeds and products	10.7	14.1	16.4	13.3	14.4	14.6	17.1
Other	na	na	na	na	na	na	na
Forestry 3/	na	na	na	na	na	na	na
Total (Agriculture and Forestry)	na	na	na	na	na	na	na
Total Exports (Agric. & Non-Agric.)	na	na	na	na	na	na	na
Agricultural imports from world	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Imports from NAFTA							
Agriculture -- Total	25.2	29.4	30.3	31.2	31.4	31.9	33.7
Bananas and plantains	3.3	8.8	5.5	4.1	3.7	5.1	4.7
Coffee, including products	19.3	18.4	15.5	20.2	23.0	19.1	18.9
Animals and animal products	34.8	41.8	40.4	45.5	45.9	46.9	45.1
Cattle - live	100.0	100.0	100.0	99.7	100.0	99.6	100.0
Grains, products, & feeds	67.6	57.0	59.6	60.7	62.8	62.9	59.3
Fruits & preparations	24.8	27.6	29.6	35.2	32.1	31.7	37.0
Fruit juices, incl frozen	10.6	6.4	10.1	14.9	9.6	10.9	16.1
Vegetables & preparations	53.4	54.9	53.1	54.7	58.6	59.4	62.3
Tomatoes	99.0	95.4	94.7	94.0	91.9	88.8	88.1
Sugar and related products	13.0	22.4	26.0	22.8	18.8	21.0	26.8
Beverages, ex fruit juices	17.4	19.0	20.7	20.2	20.8	21.1	22.8
Oilseeds and products	30.1	37.3	42.8	35.6	38.2	35.9	39.6
Cotton exc linters	7.3	0.1	0.0	22.3	5.7	12.4	0.9
Seeds - field & garden	29.4	31.1	33.4	32.6	30.2	31.4	26.6
Cut flowers	5.3	4.8	5.0	6.0	5.2	6.5	6.6
Nursery stock, bulbs, etc.	37.5	37.9	37.5	37.9	40.9	45.3	48.6
Other	na	na	na	na	na	na	na
Forestry 3/	na	na	na	na	na	na	na
Total (Agriculture and Forestry)	na	na	na	na	na	na	na
Total Imports (Agric. & Non-Agric.)	na	na	na	na	na	na	na
Trade balance							
Agriculture with world	na	na	na	na	na	na	na
Agriculture with NAFTA	na	na	na	na	na	na	na
Forestry with NAFTA	na	na	na	na	na	na	na
Total (Agric. and Forestry) with NAFTA	na	na	na	na	na	na	na
Total (Agric. & Non-Agric.) with NAFTA	na	na	na	na	na	na	na

na or -- = not available or does not apply.

1/ Data for U.S. exports to Canada from 1990 forward are from Canadian import data.

2/ Compound growth rate.

3/ Data from FAS BICO reports.

Source: ERS FATUS.



Summary table 2--U.S. Agricultural Trade with Mexico, 1990 and 1992-98 1/

Commodity	1990	1992	1993	1994	1995	1996	1997	1998
	\$ million							
Agricultural exports to world	39,517	43,132	42,911	46,244	56,348	60,445	57,245	51,829
Exports to Mexico								
Agriculture -- Total	2,560	3,802	3,619	4,593	3,540	5,447	5,184	6,163
Animals and animal products	665	1,259	1,178	1,364	826	1,091	1,540	1,677
Grains and feeds	960	1,061	887	1,228	1,062	2,069	1,165	1,639
Fruits & preparations, ex. juice	45	77	111	185	85	95	117	128
Fruit juices, including frozen	3	7	8	12	6	7	8	15
Nuts and preparations	17	37	37	44	33	45	44	47
Vegetables and preparations	185	158	172	250	141	249	281	432
Oilseeds and products	324	716	655	850	832	1,098	1,191	1,155
Other	361	488	571	661	555	792	838	1,069
Forestry 3/	270	na	474	413	249	250	292	368
Total (Agriculture and Forestry)	2,830	na	4,093	5,006	3,789	5,697	5,476	6,531
Total Exports (Agric. & Non-Agric.)	28,300	na	41,581	50,843	46,292	56,761	71,378	79,010
Agricultural imports from world	22,910	24,790	25,165	27,074	30,336	33,655	36,300	37,073
Imports from Mexico								
Agriculture -- Total	2,615	2,379	2,720	2,895	3,836	3,765	4,112	4,691
Bananas and plantains	31	103	94	59	47	44	63	57
Coffee, including products	338	252	251	333	592	570	664	511
Animals and animal products	466	375	460	388	602	174	231	273
Cattle - live	419	341	430	352	546	122	177	206
Grains, products, & feeds	28	53	60	85	105	128	158	156
Fruits & preparations	244	321	314	358	475	508	530	676
Fruit juices, incl frozen	101	26	31	58	80	74	65	91
Vegetables & preparations	1,002	809	1,058	1,125	1,306	1,499	1,485	1,792
Tomatoes	371	133	304	315	406	580	517	567
Sugar and related products	23	31	38	69	91	121	129	158
Beverages, ex fruit juices	169	169	186	219	275	360	484	631
Oilseeds and products	43	42	29	27	32	37	33	52
Cotton exc linters	0	0	0	0	2	16	0	0
Seeds - field & garden	5	7	8	7	9	11	18	14
Cut flowers	13	12	14	15	23	20	24	25
Nursery stock, bulbs, etc.	6	7	8	6	8	10	11	13
Other	146	173	169	147	187	194	217	243
Forestry 3/	213	na	318	300	304	393	440	407
Total (Agriculture and Forestry)	2,828	na	3,038	3,195	4,140	4,158	4,552	5,098
Total Imports (Agric. & Non-Agric.)	30,200	na	39,917	49,493	61,684	72,963	85,830	94,709
Trade balance								
Agriculture with world	16,607	18,343	17,746	19,170	26,011	26,790	20,945	14,756
Agriculture with Mexico	-54	1,423	899	1,698	-296	1,682	1,072	1,472
Forestry with Mexico	na	na	156	113	-55	-143	-148	-39
Total (Agric. and Forestry) with Mexico	3	na	1,055	1,811	-351	1,539	924	1,433
Total (Agric. & Non-Agric.) with Mexico	-1,900	na	1,664	1,350	-15,392	-16,202	-14,452	-15,699

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Summary table 2--U.S. Agricultural Trade with Mexico, 1990 and 1992-98 1/--Continued

Commodity	Change from year to year 2/						
	90--93	93--94	94--95	95--96	96--97	97--98	93--98
	Percent						
Agricultural exports to world	2.8	7.8	21.8	7.3	-5.3	-9.5	3.8
Exports to Mexico							
Agriculture -- Total	12.2	26.9	-22.9	53.9	-4.8	18.9	11.2
Animals and animal products	21.0	15.8	-39.5	32.2	41.1	8.9	7.3
Grains and feeds	-2.6	38.4	-13.5	94.7	-43.7	40.8	13.1
Fruits & preparations, ex. juice	34.9	66.6	-53.7	11.3	23.5	9.2	3.0
Fruit juices, including frozen	38.4	56.9	-51.4	18.6	6.7	96.2	13.6
Nuts and preparations	30.4	18.0	-23.8	34.6	-1.0	5.3	4.8
Vegetables and preparations	-2.4	44.9	-43.6	77.1	12.5	54.1	20.2
Oilseeds and products	26.5	29.8	-2.2	32.1	8.4	-3.0	12.0
Other	16.5	15.7	-16.0	42.8	5.8	27.6	13.4
Forestry 3/	20.6	-12.9	-39.7	0.4	16.8	26.0	-4.9
Total (Agriculture and Forestry)	13.1	22.3	-24.3	50.4	-3.9	19.3	9.8
Total Exports (Agric. & Non-Agric.)	13.7	22.3	-9.0	22.6	25.8	10.7	13.7
Agricultural imports from world	3.2	7.6	12.0	10.9	7.9	2.1	8.1
Imports from Mexico							
Agriculture -- Total	1.3	6.4	32.5	-1.8	9.2	14.1	11.5
Bananas and plantains	45.2	-37.9	-19.9	-5.8	41.7	-9.3	-9.7
Coffee, including products	-9.4	32.5	77.9	-3.7	16.5	-23.0	15.3
Animals and animal products	-0.4	-15.7	55.1	-71.0	32.8	17.9	-9.9
Cattle - live	0.8	-18.1	55.1	-77.7	45.0	16.7	-13.7
Grains, products, & feeds	29.8	40.9	23.8	21.5	23.7	-1.6	20.9
Fruits & preparations	8.8	14.0	32.9	6.9	4.2	27.7	16.6
Fruit juices, incl frozen	-32.8	89.5	38.4	-8.1	-11.3	38.4	24.3
Vegetables & preparations	1.8	6.3	16.1	14.7	-0.9	20.7	11.1
Tomatoes	-6.4	3.7	28.7	42.9	-10.9	9.7	13.3
Sugar and related products	18.2	79.9	32.5	32.3	6.7	22.3	32.7
Beverages, ex fruit juices	3.2	17.6	25.7	31.0	34.4	30.2	27.7
Oilseeds and products	-12.6	-5.2	17.9	14.6	-12.2	58.7	12.3
Cotton exc linters	--	-100.0	--	587.9	-98.5	-65.8	172.6
Seeds - field & garden	19.6	-20.4	34.4	20.3	67.8	-22.1	11.0
Cut flowers	1.2	10.3	50.9	-15.8	21.1	6.5	12.6
Nursery stock, bulbs, etc.	9.4	-17.3	27.8	20.6	15.9	14.1	11.0
Other	5.0	-12.9	27.0	3.7	11.9	12.2	7.6
Forestry 3/	14.3	-5.7	1.3	29.3	12.0	-7.5	5.1
Total (Agriculture and Forestry)	2.4	5.2	29.6	0.4	9.5	12.0	10.9
Total Imports (Agric. & Non-Agric.)	9.7	24.0	24.6	18.3	17.6	10.3	18.9
Trade balance							
Agriculture with world	na	na	na	na	na	na	na
Agriculture with Mexico	na	na	na	na	na	na	na
Forestry with Mexico	na	na	na	na	na	na	na
Total (Agric. and Forestry) with Mexico	na	na	na	na	na	na	na
Total (Agric. & Non-Agric.) with Mexico	na	na	na	na	na	na	na

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Summary table 2--U.S. Agricultural Trade with Mexico, 1990 and 1992-98 1/--Continued

Commodity	Share of world						
	1990	1993	1994	1995	1996	1997	1998
	Percent						
Agricultural exports to world	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Exports to Mexico							
Agriculture -- Total	6.5	8.4	9.9	6.3	9.0	9.1	11.9
Animals and animal products	9.9	14.6	14.7	7.5	9.7	13.4	15.7
Grains and feeds	6.7	6.3	9.0	5.7	9.9	7.6	11.7
Fruits & preparations, ex. juice	2.2	4.7	7.1	3.2	3.6	4.2	5.0
Fruit juices, including frozen	0.8	1.7	2.3	0.9	1.1	1.2	2.3
Nuts and preparations	1.7	3.6	3.8	2.8	3.5	3.1	2.9
Vegetables and preparations	8.3	5.7	6.9	3.9	6.5	6.8	10.2
Oilseeds and products	5.7	9.0	11.8	9.3	10.2	9.9	12.2
Other	na	na	na	na	na	na	na
Forestry 3/	na	na	na	na	na	na	na
Total (Agriculture and Forestry)	na	na	na	na	na	na	na
Total Exports (Agric. & Non-Agric.)	na	na	na	na	na	na	na
Agricultural imports from world	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Imports from Mexico							
Agriculture -- Total	11.4	10.8	10.7	12.6	11.2	11.3	12.7
Bananas and plantains	3.3	8.8	5.5	4.1	3.7	5.1	4.7
Coffee, including products	17.6	16.5	13.4	18.1	20.4	17.1	14.9
Animals and animal products	8.3	7.8	6.7	10.0	2.9	3.6	3.9
Cattle - live	42.9	32.0	30.6	38.6	10.9	15.7	18.0
Grains, products, & feeds	2.3	3.4	3.7	4.6	4.8	5.3	5.4
Fruits & preparations	19.8	22.8	24.2	29.4	26.5	26.2	30.9
Fruit juices, incl frozen	10.2	4.7	8.8	12.7	8.1	7.9	13.6
Vegetables & preparations	43.2	42.1	40.0	41.0	42.5	40.1	41.0
Tomatoes	98.1	93.4	91.7	90.1	86.3	79.7	74.9
Sugar and related products	1.9	3.4	5.8	6.9	6.4	7.0	9.4
Beverages, ex fruit juices	8.8	9.1	9.8	11.2	12.4	14.3	16.6
Oilseeds and products	4.6	2.5	1.8	1.8	1.7	1.5	2.3
Cotton exc linters	--	0.1	--	22.3	5.6	8.0	0.6
Seeds - field & garden	3.4	4.1	2.9	3.8	3.5	4.9	3.4
Cut flowers	4.1	3.6	3.7	4.5	3.4	4.0	4.1
Nursery stock, bulbs, etc.	2.7	2.8	2.1	2.3	2.5	2.7	2.7
Other	na	na	na	na	na	na	na
Forestry 3/	na	na	na	na	na	na	na
Total (Agriculture and Forestry)	na	na	na	na	na	na	na
Total Imports (Agric. & Non-Agric.)	na	na	na	na	na	na	na
Trade balance							
Agriculture with world	na	na	na	na	na	na	na
Agriculture with Mexico	na	na	na	na	na	na	na
Forestry with Mexico	na	na	na	na	na	na	na
Total (Agric. and Forestry) with Mexico	na	na	na	na	na	na	na
Total (Agric. & Non-Agric.) with Mexico	na	na	na	na	na	na	na

na or -- = not available or does not apply.

1/ Data for U.S. exports to Canada from 1990 forward are from Canadian import data.

2/ Compound growth rate.

3/ Data from FAS BICO reports.

Source: ERS FATUS.

Summary table 3--U.S. Agricultural Trade with Canada, 1990 and 1992-98 1/

Commodity	1990	1992	1993	1994	1995	1996	1997	1998
	\$ million							
Agricultural exports to world	39,517	43,132	42,911	46,244	56,348	60,445	57,245	51,829
Exports to Canada								
Agriculture -- Total	4,224	4,938	5,327	5,575	5,812	6,146	6,795	7,016
Animals and animal products	813	905	962	1,047	1,053	1,089	1,198	1,229
Grains and feeds	576	812	883	960	1,032	1,130	1,195	1,270
Fruits & preparations, ex. juice	702	708	728	686	709	714	763	752
Fruit juices, including frozen	138	159	162	171	204	220	222	241
Nuts and preparations	108	133	134	126	145	154	160	160
Vegetables and preparations	843	1,068	1,149	1,265	1,231	1,237	1,420	1,485
Oilseeds and products	289	286	369	328	357	459	574	465
Other	754	868	940	991	1,080	1,144	1,262	1,414
Forestry 3/	947	na	1,113	1,198	1,297	1,276	1,579	1,538
Total (Agriculture and Forestry)	5,171	na	6,440	6,773	7,109	7,422	8,374	8,554
Total Exports (Agric. & Non-Agric.)	83,700	na	100,444	114,439	127,226	132,584	150,124	154,152
Agricultural imports from world	22,910	24,790	25,165	27,074	30,336	33,655	36,300	37,073
Imports from Canada								
Agriculture -- Total	3,169	4,142	4,668	5,303	5,634	6,798	7,456	7,797
Bananas and plantains	0	0	0	0	0	0	0	0
Coffee, including products	33	38	30	52	68	70	78	137
Animals and animal products	1,485	1,852	2,009	1,941	2,140	2,628	2,824	2,862
Cattle - live	559	903	911	799	863	999	943	938
Grains, products, & feeds	538	775	948	1,287	1,298	1,541	1,704	1,551
Fruits & preparations	62	70	66	80	95	108	109	132
Fruit juices, incl frozen	4	11	11	9	14	14	25	16
Vegetables & preparations	236	263	322	366	439	568	716	936
Tomatoes	3	6	6	10	17	37	59	101
Sugar and related products	134	213	214	241	213	234	260	293
Beverages, ex fruit juices	166	204	201	241	219	247	231	235
Oilseeds and products	242	318	411	636	609	782	771	823
Cotton exc linters	0	0	0	0	0	0	0	0
Seeds - field & garden	38	53	56	71	70	83	98	99
Cut flowers	4	4	5	6	7	10	15	16
Nursery stock, bulbs, etc.	73	83	95	103	124	146	174	214
Other	154	257	299	271	339	368	449	485
Forestry 3/	3,495	na	6,221	7,471	7,096	8,633	9,468	9,660
Total (Agriculture and Forestry)	6,664	na	10,889	12,774	12,730	15,431	16,924	17,457
Total Imports (Agric. & Non-Agric.)	91,400	na	111,216	128,406	145,348	156,506	168,051	174,844
Trade balance								
Agriculture with world	16,607	18,343	17,746	19,170	26,011	26,790	20,945	14,756
Agriculture with Canada	1,054	797	659	272	178	-652	-662	-781
Forestry with Canada	na	na	-5,108	-6,273	-5,799	-7,357	-7,889	-8,122
Total (Agric. and Forestry) with Canada	-1,494	na	-4,449	-6,001	-5,621	-8,009	-8,551	-8,903
Total (Agric. & Non-Agric.) with Canada	-7,700	na	-10,772	-13,967	-18,122	-23,922	-17,927	-20,692

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Summary table 3--U.S. Agricultural Trade with Canada, 1990 and 1992-98 1/--Continued

Commodity	Change from year to year 2/						
	90--93	93--94	94--95	95--96	96--97	97--98	93--98
	Percent						
Agricultural exports to world	2.8	7.8	21.8	7.3	-5.3	-9.5	3.8
Exports to Canada							
Agriculture -- Total	8.0	4.7	4.2	5.8	10.6	3.3	5.7
Animals and animal products	5.8	8.9	0.6	3.4	10.1	2.6	5.0
Grains and feeds	15.3	8.8	7.4	9.5	5.8	6.2	7.5
Fruits & preparations, ex. juice	1.2	-5.7	3.3	0.7	6.9	-1.6	0.6
Fruit juices, including frozen	5.4	5.7	18.9	8.2	0.6	8.8	8.3
Nuts and preparations	7.5	-6.4	15.7	5.5	4.1	-0.1	3.5
Vegetables and preparations	10.9	10.1	-2.7	0.4	14.8	4.6	5.3
Oilseeds and products	8.4	-11.0	8.7	28.5	25.2	-19.0	4.7
Other	7.6	5.5	9.0	5.9	10.3	12.1	8.5
Forestry 3/	5.5	7.6	8.3	-1.6	23.7	-2.6	6.7
Total (Agriculture and Forestry)	7.6	5.2	5.0	4.4	12.8	2.2	5.8
Total Exports (Agric. & Non-Agric.)	6.3	13.9	11.2	4.2	13.2	2.7	8.9
Agricultural imports from world	3.2	7.6	12.0	10.9	7.9	2.1	8.1
Imports from Canada							
Agriculture -- Total	13.8	13.6	6.2	20.7	9.7	4.6	10.8
Bananas and plantains	-27.6	647.8	-78.2	52.3	106.3	-41.7	24.5
Coffee, including products	-3.0	75.2	30.5	3.4	10.9	76.2	35.8
Animals and animal products	10.6	-3.4	10.2	22.8	7.5	1.3	7.3
Cattle - live	17.7	-12.3	7.9	15.8	-5.6	-0.5	0.6
Grains, products, & feeds	20.8	35.8	0.8	18.7	10.6	-9.0	10.3
Fruits & preparations	2.4	20.8	18.5	14.3	1.1	20.6	14.8
Fruit juices, incl frozen	36.0	-23.1	60.9	3.8	74.5	-34.3	8.0
Vegetables & preparations	10.8	13.9	20.0	29.2	26.2	30.6	23.8
Tomatoes	25.0	60.9	69.5	114.9	57.6	70.5	73.5
Sugar and related products	17.0	12.1	-11.5	9.8	11.5	12.4	6.4
Beverages, ex fruit juices	6.5	20.1	-9.0	12.6	-6.4	1.6	3.2
Oilseeds and products	19.3	54.6	-4.3	28.4	-1.3	6.7	14.9
Cotton exc linters	-100.0	--	-63.4	3,049.8	1,316.3	-73.9	na
Seeds - field & garden	13.7	25.8	-1.6	18.8	19.0	0.3	11.9
Cut flowers	6.2	25.9	29.2	34.3	48.5	4.6	27.7
Nursery stock, bulbs, etc.	9.1	8.4	19.5	18.0	19.5	22.8	17.5
Other	24.7	-9.5	25.2	8.7	22.0	7.9	10.1
Forestry 3/	21.2	20.1	-5.0	21.7	9.7	2.0	9.2
Total (Agriculture and Forestry)	17.8	17.3	-0.3	21.2	9.7	3.1	9.9
Total Imports (Agric. & Non-Agric.)	6.8	15.5	13.2	7.7	7.4	4.0	9.5
Trade balance							
Agriculture with world	na	na	na	na	na	na	na
Agriculture with Canada	na	na	na	na	na	na	na
Forestry with Canada	na	na	na	na	na	na	na
Total (Agric. and Forestry) with Canada	na	na	na	na	na	na	na
Total (Agric. & Non-Agric.) with Canada	na	na	na	na	na	na	na

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Summary table 3--U.S. Agricultural Trade with Canada, 1990 and 1992-98 1/--Continued

Commodity	Share of world						
	1990	1993	1994	1995	1996	1997	1998
	Percent						
Agricultural exports to world	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Exports to Canada							
Agriculture -- Total	10.7	12.4	12.1	10.3	10.2	11.9	13.5
Animals and animal products	12.1	11.9	11.3	9.6	9.7	10.4	11.5
Grains and feeds	4.0	6.3	7.0	5.5	5.4	7.8	9.1
Fruits & preparations, ex. juice	34.9	31.2	26.4	26.7	26.9	27.4	29.5
Fruit juices, including frozen	37.4	35.2	32.4	31.8	34.7	33.5	36.7
Nuts and preparations	11.1	13.2	11.0	12.3	11.9	11.3	9.8
Vegetables and preparations	37.9	38.0	35.1	33.9	32.4	34.3	35.2
Oilseeds and products	5.1	5.1	4.6	4.0	4.3	4.8	4.9
Other	na	na	na	na	na	na	na
Forestry 3/	na	na	na	na	na	na	na
Total (Agriculture and Forestry)	na	na	na	na	na	na	na
Total Exports (Agric. & Non-Agric.)	na	na	na	na	na	na	na
Agricultural imports from world	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Imports from Canada							
Agriculture -- Total	13.8	18.5	19.6	18.6	20.2	20.5	21.0
Bananas and plantains	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Coffee, including products	1.7	2.0	2.1	2.1	2.5	2.0	4.0
Animals and animal products	26.5	34.0	33.6	35.5	43.0	43.4	41.1
Cattle - live	57.1	67.9	69.4	61.0	89.1	83.9	81.9
Grains, products, & feeds	65.3	53.5	55.9	56.1	58.0	57.5	53.9
Fruits & preparations	5.0	4.8	5.4	5.8	5.6	5.4	6.0
Fruit juices, incl frozen	0.4	1.7	1.3	2.2	1.6	3.0	2.5
Vegetables & preparations	10.2	12.8	13.0	13.8	16.1	19.3	21.4
Tomatoes	0.9	2.0	3.0	3.9	5.6	9.1	13.3
Sugar and related products	11.0	19.0	20.2	15.9	12.4	14.1	17.4
Beverages, ex fruit juices	8.6	9.8	10.8	9.0	8.5	6.8	6.2
Oilseeds and products	25.6	34.9	41.1	33.8	36.4	34.4	37.2
Cotton exc linters	7.3	--	0.0	0.0	0.0	4.4	0.3
Seeds - field & garden	26.0	27.0	30.5	28.9	26.7	26.5	23.2
Cut flowers	1.2	1.2	1.4	1.5	1.7	2.5	2.5
Nursery stock, bulbs, etc.	34.7	35.1	35.4	35.6	38.4	42.6	45.9
Other	na	na	na	na	na	na	na
Forestry 3/	na	na	na	na	na	na	na
Total (Agriculture and Forestry)	na	na	na	na	na	na	na
Total Imports (Agric. & Non-Agric.)	na	na	na	na	na	na	na
Trade balance							
Agriculture with world	na	na	na	na	na	na	na
Agriculture with Canada	na	na	na	na	na	na	na
Forestry with Canada	na	na	na	na	na	na	na
Total (Agric. and Forestry) with Canada	na	na	na	na	na	na	na
Total (Agric. & Non-Agric.) with Canada	na	na	na	na	na	na	na

na or -- = not available or does not apply.

1/ Data for U.S. exports to Canada from 1990 forward are from Canadian import data.

2/ Compound growth rate.

3/ Data from FAS BICO reports.

Source: ERS FATUS.

# Overview of Developments in Trade, Policies, and Dispute Resolution

## Introduction

The North American Free Trade Agreement (NAFTA) took effect on January 1, 1994. The agreement contains a schedule for the progressive elimination of most barriers to trade and investment between Canada, Mexico, and the United States. It also contains comprehensive provisions regarding the conduct of business in the resulting free trade area. As impediments to trade in agricultural and food commodities have been reduced or eliminated, regional trade and investment have grown, contributing to the goal of a barrier-free North American market.

## The Path Toward Free Trade In North America

NAFTA was designed to foster increased trade and investment among the three signatory countries. It is actually made up of three binational agreements. The accord incorporates the U.S.-Canada Free Trade Agreement (CFTA), which took effect on January 1, 1989. CFTA provided for the phased elimination of most tariffs and non-tariff barriers to trade in goods over a period of 10 years. NAFTA also includes bilateral trade agreements between Mexico and the United States and between Canada and Mexico.

NAFTA eliminates most tariffs and non-tariff trade barriers between its members, facilitates cross-border investment,

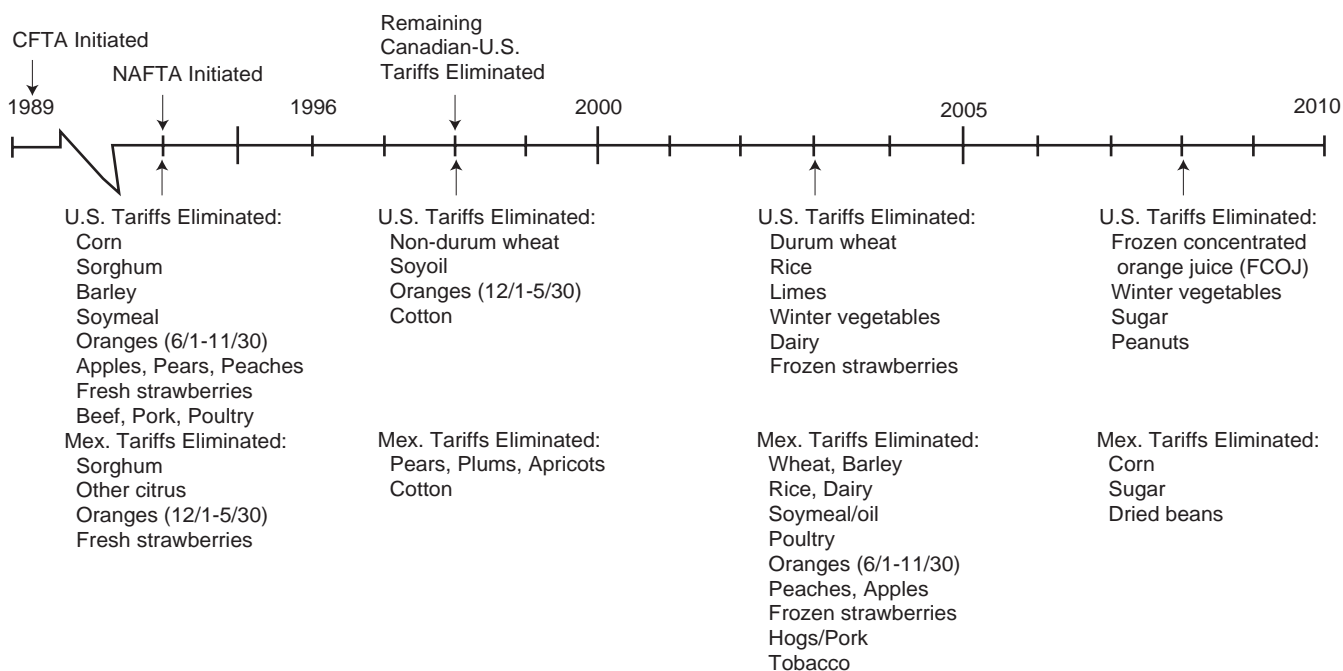
and expands cooperation in areas such as environmental and labor protection. NAFTA also requires that sanitary and phytosanitary measures be scientifically based, nondiscriminatory and transparent, and that they restrict trade in a minimal fashion. NAFTA is not a customs union; therefore each country maintains its own tariff schedule applicable toward countries outside of NAFTA. Under the agreement's rules of origin, products that are not from the NAFTA region are treated as non-NAFTA products when moving between countries that are parties to NAFTA.

The bilateral phase-out of tariffs between Canada and the United States, as outlined in CFTA and incorporated within NAFTA, was completed on January 1, 1998 (fig.1). As a result, all tariffs between the two countries were eliminated, with limited exceptions for U.S. imports of Canadian dairy products, peanuts and peanut butter, cotton, and sugar and sugar-containing products. In addition, NAFTA allows Canada to maintain tariffs on imports of dairy, poultry, eggs, and margarine from the United States.<sup>1</sup> These restrictions, originally specified as quotas, were originally retained under CFTA but later redefined as tariff-rate quotas (TRQ's) to

<sup>1</sup>Canada continues to support poultry, dairy, and eggs through supply management programs that rely on production and import quotas to maintain farm prices at levels based on the costs of production. Because these programs require trade restrictions to be effective, Canada exempted these sectors from free trade under NAFTA.

Figure 1

## Chronology



comply with the Uruguay Round Agreement on Agriculture (URAA). A TRQ is simply a quota for a volume of imports at a favorable tariff. After the quota is filled, a higher tariff is applied on additional imports.

By 2008, NAFTA will eliminate all tariffs and non-tariff barriers for agricultural trade between Mexico and the United States. Many tariffs were eliminated immediately upon the agreement's implementation, with the remainder to be phased out over 5, 10, or 15 years. Any item subject to the 5-year transition period became duty-free on January 1, 1998. Prior to NAFTA, about 25 percent of the value of U.S. agricultural exports to Mexico was subject to licensing requirements. These were immediately converted to either tariffs or TRQ's.

Wheat, tobacco, cheese, evaporated milk, and grapes (shipped during certain periods of the year) are examples of products where licensing requirements were converted to tariffs. In turn, these tariffs are being phased out over a 10-year period. Other products subject to licensing, including corn, dry beans, poultry, barley/malt, animal fats, potatoes, milk powder, and eggs, were converted to TRQ's. The United States converted its import quotas for dairy products, peanuts, cotton, and sugar and sugar-containing products to TRQ's. Under the TRQ arrangement, each country is required to gradually expand each quota, while phasing out the associated over-quota tariff during the transition period. Imports of these products subject to TRQ's are duty-free up to the level of the quota.

Each country also applies special agricultural safeguard provisions for specified products. The safeguard provisions offer added protection against import surges by allowing specified quantities to be imported at preferential NAFTA rates. Excess quantities are assessed tariffs equal to the lower of either the existing tariff rate when NAFTA took effect or the current most-favored-nation (MFN) rate. The tariff assessed on in-quota volumes for special safeguard products is being phased out over a 10-year period. The over-quota tariff will not be phased out until the agreement's tenth year, when both the in-quota and over-quota tariffs will be eliminated. Mexico applies the special safeguard on a calendar year basis to imports of live swine, pork and potato products, fresh apples, and coffee extract. The United States applies special safeguards on a seasonal basis to selected horticultural crops.

Export subsidies are permitted under NAFTA if the importing country agrees to them or if the importer receives subsidized products from other countries. This provision has enabled the United States to continue to use the Dairy Export Incentive Program to promote dairy product exports to Mexico. Both the United States and Canada have used government-guaranteed credits, not considered an export subsidy, in exporting grains and oilseeds to Mexico.

### **Canada-U.S. Free Trade Agreement Subsumed into NAFTA**

The Canada-U.S. Free Trade Agreement (CFTA), signed on January 2, 1988, took effect on January 1, 1989. The agreement committed Canada and the United States to work toward improving market access by removing trade barriers and by harmonizing technical regulations and standards. CFTA established binational dispute settlement panels to rule on cases involving countervailing and antidumping duties. The two countries also agreed to forbid export subsidies in bilateral trade.

Prior to CFTA, Canadian tariff rates on U.S. agricultural products averaged 9.9 percent, compared with the U.S. average of 3.3 percent on imports from Canada. Some tariffs were eliminated immediately, while others were phased out over a 5- or 10-year period. Restrictions on some products, such as sugar, dairy, and poultry, were not eliminated under CFTA and will have to await breakthroughs in future trade negotiations. CFTA also offered special tariff protection for 20 years to the fruit and vegetable trade in the form of a price-based tariff snapback system, which guards against imports from either country depressing domestic prices. Each country may use the snapback provision to reimpose temporary tariffs if certain conditions prevail.

While the NAFTA signatories agreed to specific commitments to liberalize trade, it was left for each member country to make the domestic policy changes necessary for bringing its agricultural sectors into conformity with the commitments. This has not been an easy task, since the close link between domestic agricultural policies and trade barriers makes it difficult to disentangle the two. Recognizing the importance of domestic policies to their respective agricultural sectors and the potential effect of these policies on trade, the three countries agreed to move toward domestic support policies that were minimally trade distorting.

### **Trends in U.S. NAFTA Trade**

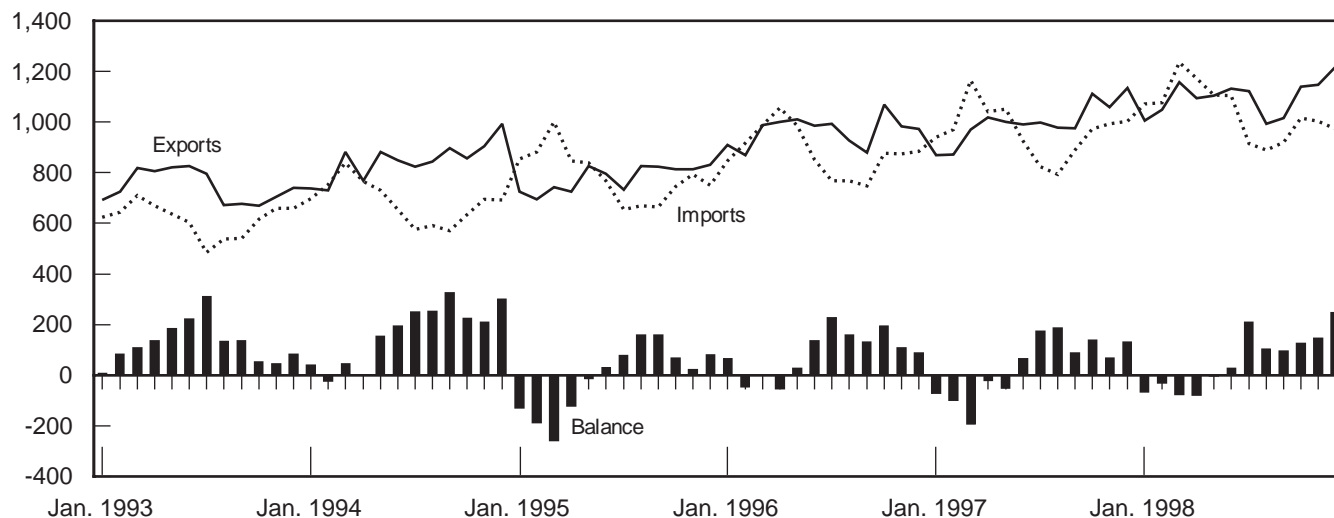
U.S. agricultural trade with its NAFTA partners is growing in size and importance. Canada and Mexico are the destination for roughly one-fourth of U.S. agricultural exports and the origin of about one-third of U.S. agricultural imports. U.S. agricultural exports to the NAFTA countries increased from \$9.0 billion in 1993 to a record \$13.2 billion in 1998. Over the same period, agricultural imports from Canada and Mexico grew from \$7.4 billion to \$12.5 billion. In 1998, the United States had an agricultural trade surplus of over \$691 million with its NAFTA partners.



Figure 2

## U.S. Agricultural Trade with NAFTA (Mexico and Canada) Partners

\$ million



Source: FATUS, ERS.

Between 1993 and 1998, U.S. agricultural exports to NAFTA partners grew at an average annual rate of 8.1 percent, in contrast to 2.6 percent for U.S. agricultural exports to the rest of the world. At the same time, U.S. agricultural imports from Canada and Mexico increased an average of 1.1 percent a year, while such imports from the rest of the world increased only 6.7 percent.

### Exports to NAFTA Partners

Under NAFTA, U.S. agricultural exports to Mexico increased from \$3.6 billion in 1993 to \$6.2 billion in 1998, and the U.S. agricultural trade surplus with Mexico averaged about \$1.7 billion. NAFTA's preferential tariffs have helped U.S. suppliers to solidify, and in some instances expand, their dominant market share. Mexico is a rapidly growing market for U.S. agricultural exports, averaging more than 11 percent growth per year since 1993.

U.S. exporters weathered a relatively brief but intense economic crisis in Mexico. In late 1994, the Mexican peso collapsed, and the difficult recession that followed sharply reduced the purchasing power of Mexican consumers and increased the short-term price competitiveness of Mexican exports. Consequently, U.S. agricultural exports to Mexico dropped sharply in 1995, while Mexican exports to the United States jumped 33 percent. The Mexican economy began a recovery in 1996 that has carried through to 1998. In response, U.S. agricultural exports to Mexico rebounded 75 percent between 1995 and 1998. Seven commodities accounted for 51 percent of U.S. agricultural exports to Mexico: soybeans, cotton, corn, beef and veal, sorghum, poultry meat, and wheat.

U.S. agricultural exports to Canada increased from \$5.3 billion in 1993 to \$7.0 billion in 1998. These exports accounted for 14 percent of U.S. agricultural exports. Even though Canada is a mature market for U.S. exporters, U.S. agricultural exports to Canada have expanded at an average annual rate of 5.7 percent since 1993. Compared with Mexico, Canada imports a much broader array of U.S. agricultural commodities. The top seven products—beef and veal, poultry meats, coffee, soybean meal, lettuce, orange juice, and cotton—account for only 18 percent of the total. It takes at least another 40 commodities to reach the 50-percent mark.

U.S. agricultural suppliers hold dominant market shares in both Canada and Mexico. The U.S. share of Canada's total agricultural imports was 60 percent for 1990-93 and 61 percent for 1994-97. The U.S. share of the Mexican market has increased slightly under NAFTA, from 73 percent for 1990-93 to about 75 percent for 1994-97.

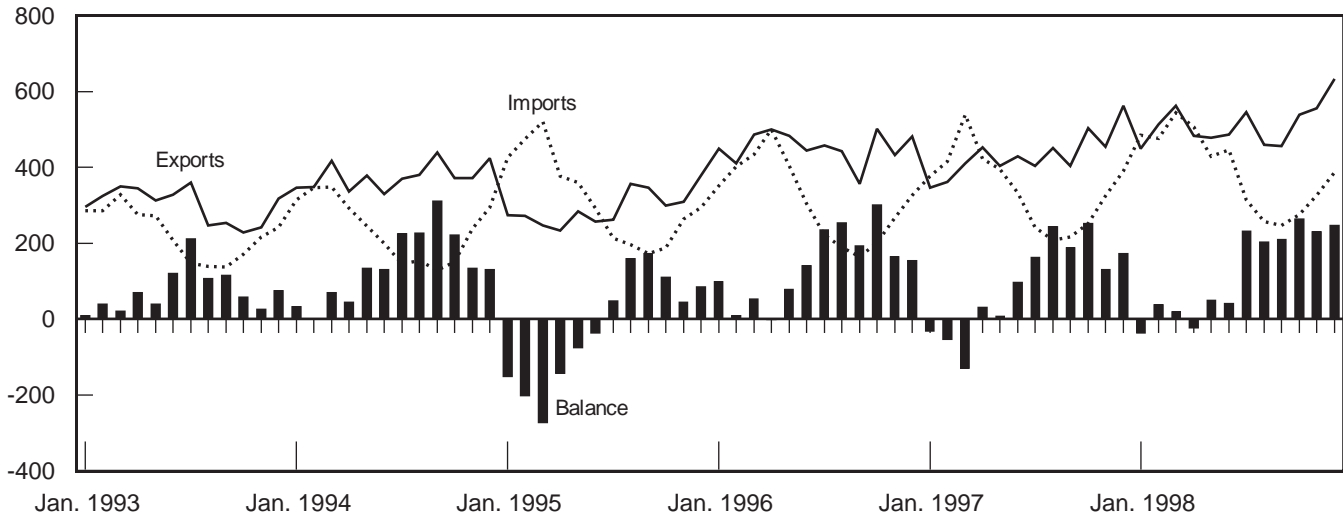
### Imports from NAFTA Partners

Between 1993 and 1998, U.S. agricultural imports from Mexico, which are highly seasonal, increased at an average annual rate of 12 percent, reaching a record \$4.7 billion in 1998. Ten commodities—tomatoes, coffee, peppers, cattle and calves, sugar, grapes, cucumbers, onions, cauliflower, and broccoli—accounted for slightly more than 50 percent of the total.

At the same time, U.S. agricultural imports from Canada grew at an average annual rate of 10.8 percent, climbing to \$7.8 billion in 1998. Nine commodities—cattle and calves, beef and veal, swine, pork, cocoa, potatoes, biscuits and

Figure 3  
**U.S. Agricultural Trade with Mexico**

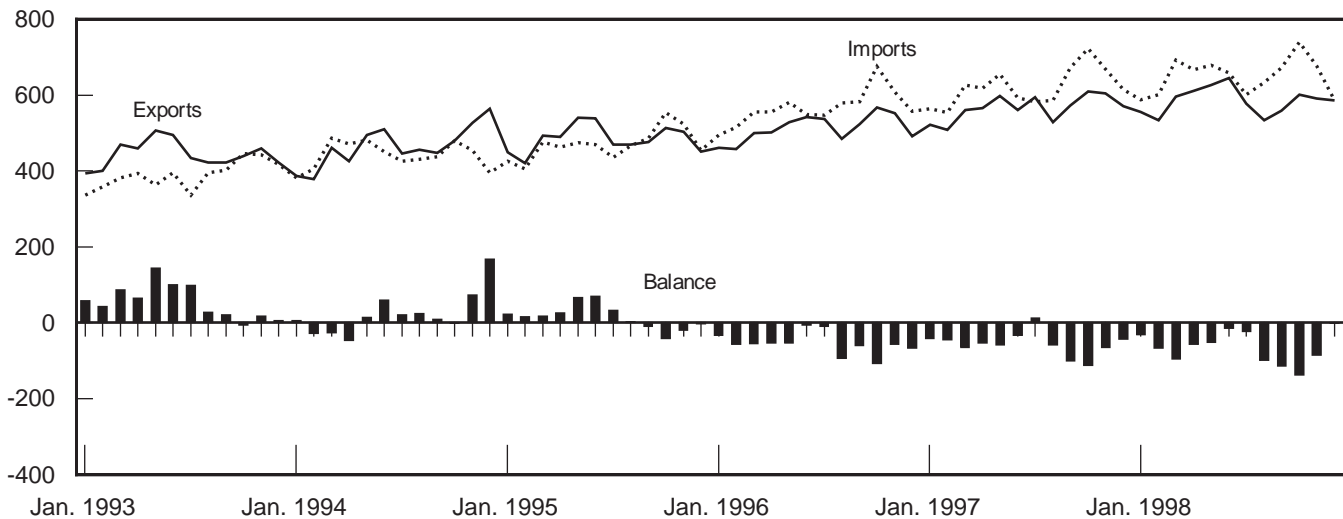
\$ million



Source: FATUS, ERS.

Figure 4  
**U.S. Agricultural Trade with Canada**

\$ million



Source: FATUS, ERS.

wafers, sugar and related products, and wheat—accounted for slightly over 50 percent of the total.

### Changes in Domestic Agricultural Policies

As the North American market has become more integrated, the governments of the three NAFTA countries have altered

their domestic agricultural policies so that they are more compatible with freer regional trade.

In general, the three countries have moved towards policies that provide farmers with lower levels of support while simultaneously “decoupling” this support from production decisions. Programs are decoupled when transfer payments are unrelated to the current and future quantities of the commodity and to the quantity of inputs used in its production.

## Description of Domestic Policy Reforms

In April 1996, the United States adopted the Federal Agriculture Improvement and Reform (FAIR) Act, which fundamentally changed the nature of U.S. farm support. The FAIR Act ended the long-standing, crop-specific program of deficiency payments and supply management that covered grains and upland cotton. In its place, the FAIR Act created a program of fully decoupled, transitional contract payments based on the amount of land enrolled in the former program. Payments were capped at roughly \$36 billion and scheduled to decline from 1996 to 2002. The FAIR Act also eliminated the Acreage Reduction Program (ARP), modified the peanut and sugar programs, and provided for the gradual elimination of dairy price supports.

The FAIR Act significantly reduced government involvement in agricultural markets and is credited with having provided roughly \$4 billion towards the Budget Reconciliation savings target of approximately \$12 billion over 7 years. Further, the contract payments under the FAIR Act have been notified as fully compatible with the WTO's definition of non-trade-distorting support, and therefore qualify as "green box" support.

In 1998, however, severely depressed prices and numerous weather-related disasters led the U.S. Congress to provide a one-time sum of about \$6 billion for additional contract and disaster relief payments. In addition, the U.S. government has made loan deficiency payments (LDP's) approaching \$2.3 billion for the 1998/99 crops. These actions significantly increased government expenditures on the agricultural sector. Because LDP's are linked to prices, they are not considered as decoupled support and therefore are notified to the WTO as "amber box".

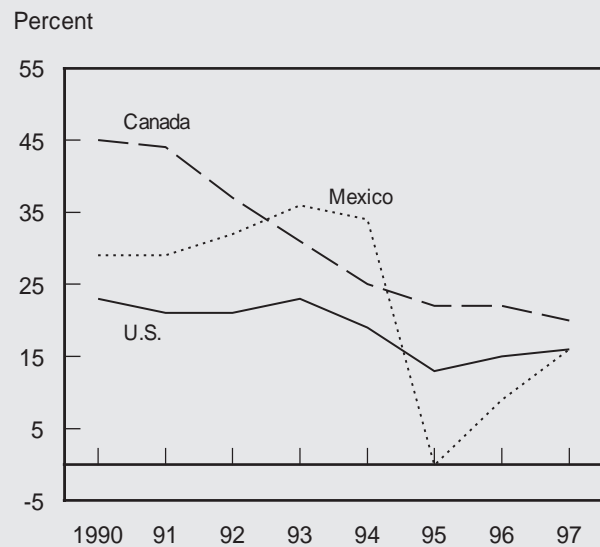
Canada's current generation of farm programs, introduced in 1991 under the Farm Income Protection Act, has undergone considerable reform. The Gross Revenue Insurance Plan (GRIP), a voluntary revenue insurance plan that guaranteed a minimum target revenue for insured crops to producers who chose to pay the premiums, was terminated as a national program in 1996 due to its high costs.

This action left the Net Income Stabilization Account (NISA), introduced as a risk management tool in 1991, as the main income safety net for Canadian farmers. Under NISA, which applies to grains, oilseeds, cattle, hogs, and horticulture, producers can deposit money annually into an interest-bearing account and receive a matching contribution from the government. Federal contributions are fixed at 3 percent, while contributions from provincial governments vary by province. Producer deposits earn an interest bonus of 3 percent over prevailing competitive rates. NISA is a voluntary program designed to help producers stabilize their farming income. In years of low income, producers are permitted

The Producer Subsidy Equivalent (PSE) is used to estimate the effect of government policy by measuring the amount of cash subsidy needed to hold farmers' incomes at current levels if all government agricultural programs were eliminated. PSE's are used to compare different policy tools and their effects on farmer revenue across countries.

The overall level of support for NAFTA countries, as measured by the Organization for Economic Cooperation and Development, has dropped in all three countries due to a decline in market price support, although direct payments have increased. The percent PSE (which expresses the value of support to producers relative to the value of production) for the United States dropped from an average of 22 percent during 1991-93 to an estimated 16 percent in 1997. Likewise, the percentage PSE's in Canada and Mexico dropped from 37 and 32 percent, respectively, to 20 and 16 percent, over the same period.

Figure 5  
**PSEs for Canada, Mexico and the U.S.**



Source: Organization for Economic Co-operation and Development.

to make withdrawals from their individual account. NISA is designed to protect revenue rather than support prices.

In 1995, producer subsidies for grains and oilseeds, provided through freight subsidies under the Western Grain Transportation Act (WGTA), were replaced by two transitional programs: the Western Grain Transition Payments Program and the Western Grain Transition Adjustment Fund. These programs were implemented over a 3-year period in order to cushion the impact of eliminating WGTA and ended as planned in 1997. As a result, direct payments for crops fell by more than 60 percent between 1996 and 1997. In 1998, however, in response to low prices and

depressed farm incomes, the Canadian government pledged Can\$900 million over 2 years to help producers caught in the farm crisis. This sum represents 60 percent of a total package that could reach Can\$1.5 billion if the provinces add an expected 40-percent share. Payments will be made to farmers whose net margin for 1998 fell below 70 percent of their previous 3-year average. Net margin is the difference between cash receipts and cash expenses, not counting such items as depreciation and capital costs. If needed, payments will also be made for 1999.

In 1993, Mexico adopted the Program of Direct Support for the Countryside (*Programa de Apoyos Directos al Campo*), commonly known as PROCAMPO. PROCAMPO is a 15-year program of direct payments that compensate producers for the loss of input subsidies, price supports, and import protection. It was designed to provide transitional, mostly decoupled income support to farmers, while allowing Mexican agriculture to undergo structural change in response to market conditions. Farmers who continue to produce receive annual PROCAMPO payments based on historical acreage for nine specified crops. In 1996, Mexico announced its Alliance for the Countryside (*Alianza para el Campo*), a major initiative to improve agricultural productivity. The Alliance includes PROCAMPO, as well as other programs that primarily relate to infrastructure and extension-type assistance. The most important among these is the *PRODUCE Capitaliza* program, which focuses on three main activities: "ferti-irrigation" (using irrigation canals to deliver liquid fertilizer), mechanization, and the improvement of pasture quality for livestock producers.

In summary, the distortionary effects of each NAFTA member's domestic farm policies have been substantially reduced in recent years. While each country continues to maintain a comprehensive system of government support for agriculture, there has been considerable convergence toward programs that rely less on market price support payments and rely more on decoupled income support payments.

## **Agricultural Trade Disputes In the NAFTA Era**

Since NAFTA's inception, there have been a number of trade disputes among the three signatory countries. Some of the disputes predate the trade agreement. NAFTA has served to create new formal and informal mechanisms for resolving these disagreements and to strengthen the existing mechanisms.

There are four main sources of trade disputes among the NAFTA partners. First, there are ambiguities in the agreement itself that have led to disputes over the interpretation of the agreement. Second, other trade disputes have emerged or intensified with the expansion of trade and the increased integration of regional agricultural markets. With open borders, domestic policies that influence production, prices, or trade have more direct spillover effects into agricultural

markets in other NAFTA countries, occasionally leading to trade disputes.

Third, an increasing number of disputes are related to sanitary and phytosanitary issues, which are particularly complicated because there are three different regulatory frameworks managing disease and pests within the region. Fourth, increased competitive pressure under free regional trade has led some industries to seek protection through trade actions.

## **Dispute Resolution Mechanisms in NAFTA**

NAFTA created formal mechanisms for solving trade disputes. The principal dispute mechanisms are provided in Chapters 11, 14, 19, and 20. Chapter 11 covers disputes related to investment, and Chapter 14 covers disputes related to services. Chapter 19 concerns the application of anti-dumping and countervailing duty laws. Chapter 20 covers disputes that relate generally to the interpretation or application of NAFTA.

So far, agricultural trade disputes have been addressed under Chapters 19 and 20. These mechanisms are characterized by: the right to establish a panel; rosters of experts to serve on panels in their personal capacity and not as government representatives; a quasi-judicial panel process of written submissions, counter-submissions, oral hearings, and cross-examination within the context of a legal framework of rights and obligations; the establishment of firm timelines governing the establishment and operation of the panel; and the acceptance that no party to a dispute is allowed to block the adoption of a report (Gifford, 1997).

Under CFTA and NAFTA, the United States has been involved in four agricultural disputes concerning anti-dumping and countervailing duty measures: U.S. exports of refined sugar and products to Canada, Canadian exports of live swine to the United States, Mexican exports of fresh cut flowers to the United States, and Mexican anti-dumping duties on U.S. exports of high-fructose corn syrup (HFCS). There have been two agricultural cases involving the United States under Chapter 20 of NAFTA: the interpretation of Canadian TRQ's on poultry and dairy products, barley, and margarine; and the legality of U.S. safeguard duties on broom corn brooms from Mexico. Dispute settlement under NAFTA has intersected with dispute settlement under the World Trade Organization (WTO). In addition to using NAFTA mechanisms, the United States has taken the Canadian dairy export subsidies and milk TRQ's into dispute settlement at the WTO and has requested a WTO panel review of Mexico's HFCS duties.

National anti-dumping (AD) and countervailing duty (CVD) investigations and duty assessments have been a mechanism for NAFTA countries to address trade disputes by taking independent action to address perceived unfair trade prac-

tices. AD duties may be imposed if imports are being sold at less than fair value and causing or threatening to cause material injury to a domestic industry. CVD duties may be imposed on imported goods to offset subsidies provided to producers or exporters by the government of the exporting country. CVD duties must also meet an injury test. NAFTA does not prevent the application of AD or CVD measures, nor does it provide for harmonized procedures or criteria for determining whether dumping has occurred or when and how countervailing duties should be set. Consequently, differences in national AD and CVD laws have led to Chapter 19 disputes.

Dispute resolution under the formal NAFTA mechanisms and AD and CVD actions represent only a very small part of the dispute resolution process that has occurred and is strengthening under NAFTA. Indeed, the referral of disputes to these venues is generally considered a sign of failure in bilateral relations. Most disputes are being addressed in ear-

lier stages through consultation and negotiation in the several other venues that exist for their resolution. By fostering greater communication among parties engaged in trade, these other mechanisms may also help to prevent trade disputes from occurring. There are three other trade dispute resolution mechanisms, in addition to the NAFTA dispute panels and the AD and CVD actions: governmental negotiations, private industry negotiations, and technical level working groups and assistance (table 1).

Government negotiations offer a venue for resolving disputes before they reach the litigation or investigation stage. Ad hoc governmental negotiations have addressed trade disputes as they occur, and some negotiations are conducted in standing committees. The NAFTA Sanitary and Phytosanitary Standards (SPS) Committee is a standing committee whose role has been to facilitate technical cooperation between NAFTA partners and to enable consultation on SPS measures. The committee has provided a venue for resolving and

Table 1--Examples of resolving trade disputes through NAFTA

Dispute resolution mechanism	Selected examples
NAFTA dispute resolution panels	Chapter 19 panels considered Mexican AD duties on U.S. HFCS exports, U.S. refined sugar and product exports to Canada, Canadian swine exports to United States, and Mexican fresh cut flower exports to United States. Chapter 20 panels considered Canadian TRQ s on poultry, dairy, barley and margarine, and U.S. safeguards on broom corn brooms from Mexico.
National CVD or AD actions	Mexico investigated or implemented duties on HFCS, hogs, beef, apples and wheat from United States and wheat from Canada. United States investigated or implemented duties on tomatoes, cattle and beef from Mexico, and cattle and beef from Canada. Canada investigated and placed duties on apples, refined sugar, and potatoes from United States.
Government negotiations	Regulatory management has addressed hog cholera, exotic Newcastle disease (poultry), avocado fruit fly, and karnal blunt in Mexico and United States; resolved disputes over U.S.-Canadian animal health inspection regulations. Market management by United States and Mexico established minimum price agreements for U.S. apples and Mexican tomatoes, and negotiated outcomes for U.S.-Canadian trade in beef, pork, and wheat. Policy management has modified Mexico s dry bean quota auction system, U.S.-Canadian sugar trade.
Industry negotiations	U.S. and Mexican grape industries resolved dispute over Mexican labeling regulations. Mexican and U.S. cattle industry negotiations prevented Mexican AD. Advisory Committee on Private Commercial Disputes Regarding Agricultural Goods is established.
Technical assistance	NAFTA SPS Committee facilitates regional technical cooperation. United States and Mexico established bilateral Plant Health Working Group and Karnal Blunt Team. Two countries also are cooperating in development of Mexican national grading and standards system for perishable commodities.

preventing disputes related to SPS measures, which have grown significantly in recent years. One achievement of the working group has been the implementation of "regionalization." Regionalization refers to the process in which certain regions of countries are declared to be free of pests or disease, thus permitting some trade to take place, even though disease or pests are present in other parts of the country. This is an example of trilateral *regulatory management*.

Government negotiations have also resolved disputes through *market management and policy management*. Market management may be necessary to help sensitive sectors adjust to increased competition under free trade, by stipulating temporary market conditions such as minimum prices. The U.S.-Mexican agreement on tomatoes, although partly a response to a U.S. AD action, was ultimately resolved through a bilateral agreement to set temporary minimum prices on Mexican tomato exports to the United States. The 1994 U.S.-Canadian agreement to place temporary U.S. TRQ's on wheat imports from Canada is a second example of market management.

Government negotiations have led to policy management in cases where one country's domestic policy directly affects producers in other NAFTA countries. While the scope of NAFTA does not extend to domestic programs, subsequent government negotiations have resolved cases in which domestic programs had significant trade impacts and helped smooth out differences in incompatible policies and regulations. One example of policy management is the negotiated changes in Mexico's dry bean auction system.

Private industry has begun to play a larger role in dispute resolution within NAFTA. In two recent disputes over grapes and cattle, producer groups in Mexico and the United States worked jointly to resolve differences arising from regulatory incompatibilities and allegations of dumping. To minimize litigation by strengthening private dispute resolution capacity, the NAFTA governments established the Advisory Committee on Private Commercial Disputes Regarding Agricultural Goods. The creation of a voluntary, tri-national organization is supported by growers and shippers of fresh fruit and vegetables. It would allow these individuals to settle private commercial disputes largely on their own and in accordance with mutually recognized standards that are built into the organization's by-laws and contracts.

Incompatible national regulatory frameworks sometimes result from differing national capacity to set and enforce standards. Technical assistance provides a mechanism for resolving or preventing disputes by building scientific and institutional capacity. The NAFTA SPS Committee has been one avenue for facilitating regional technical cooperation. Other programs have been established to provide scientific

cooperation and assistance relating to specific SPS concerns. Technical assistance and cooperation in developing agricultural statistics and strengthening analytical capacity can also contribute to the reduction of trade tensions by improving information and communication.

## Potential Areas of Conflict

A number of trade disputes will require resolution in the near future. Late last year, the United States investigated unfair cattle pricing by Canada and Mexico in the U.S. market. In January 1999, the U.S. International Trade Commission ruled that there was sufficient evidence that Canadian cattle shipments pose a threat to U.S. industry to justify continuing the probes, but did not find evidence that Mexican cattle shipments were a threat. In March 1999, the Department of Commerce determined that Canadian practices have minimal impacts on U.S. producers.

Mexico initiated an anti-dumping investigation against U.S. slaughter hogs, cattle, beef, and other edible meat offals in the fall of 1998. In February 1999, the Mexican Secretariat of Commerce and Industrial Promotion (SECOFI) announced a compensatory duty, effective immediately, on the import of slaughter hogs. The Mexican government also claims that imports of live cattle, beef, and edible beef offals from the United States have been sold in the Mexican market at less than fair value. In early August 1999, Mexico announced that it was putting preliminary tariffs on U.S. beef imports and that it would conduct further investigations to produce a definitive ruling.

In June 1999, Mexico began requiring importers to make a cash payment to customs authorities if the invoice value of an imported good is lower than an official reference price. Since 1993, Mexico has had an estimated pricing system. This rule will affect many U.S. manufactures and includes some agricultural commodities: apples, beer, processed foods, wood products, and possibly wine.

The U.S. sugar industry has asked that molasses imports from Canada be reclassified so that they fall under the sugar TRQ. Sugar extracted from the "stuffed" molasses imported from Canada is said to be approaching 100,000 tons a year.

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# NAFTA's Impact on U.S. Agricultural Trade: An Overview

NAFTA's influence on U.S. agricultural trade varies according to commodity and trade partner. For some product-partner combinations, NAFTA has had a tremendous impact, contributing to a dramatic change in U.S. trade.

For most combinations, however, NAFTA has generated a more modest effect. Through the elimination of numerous trade barriers, Canada, Mexico, and the United States are enabling economic agents (i.e., producers and consumers) throughout North America to respond more efficiently to changing economic conditions and to benefit more fully from their relative strengths. Thus, U.S. agricultural trade with Canada and Mexico has generally grown somewhat more under NAFTA than it would have otherwise. These expanded trade ties offer the three NAFTA economies additional insulation from the adverse effects of weather-related emergencies, localized economic downturns, and other factors.

At the same time, NAFTA is helping U.S. exporters and importers devote greater attention to the Canadian and Mexican markets. During 1994-98, 21 percent of the total value of U.S. agricultural exports was destined for either Canada or Mexico. This is the same as in 1993, but is substantially higher than the 1990 level of 17 percent. Under NAFTA, Canada and Mexico have supplied 32 percent of U.S. agricultural imports. This share equaled 29 percent in 1993 and only 25 percent in 1990.

Obviously, not all of the changes in U.S. agricultural trade with Canada and Mexico that have taken place since NAFTA's implementation may be attributed to the agreement. Adverse weather conditions, exchange rate movements, macroeconomic performance, evolving consumer preferences, population growth, and technological change are but a few of the factors that have affected U.S. agricultural trade over the past 5 years (table 2).

More changes are likely. First, the transition period for NAFTA's ambitious project of trade liberalization is only one-third complete. Second, in conjunction with NAFTA, there has been an increased emphasis on resolving conflicts related to sanitary and phytosanitary (SPS) standards. Some efforts in this arena have taken place within the trilateral NAFTA Committee on Sanitary and Phytosanitary Measures. In addition, producers in all three NAFTA countries have strived to meet higher quality standards and to participate actively in the formulation of new standards.

These efforts hold the promise of further increasing agricultural trade within North America. Efforts to inspect and approve produce at the regional level, and in some instances at the level of individual producers, have opened the door to new markets across international borders. Examples of this

approach include U.S. imports of avocados from certain approved growers in the Mexican state of Michoacán, the lifting of Mexico's ban on citrus from Arizona and certain areas in Texas that are not regulated for fruit flies, and U.S. certification of the Mexican state of Sonora as a low-risk region for hog cholera.

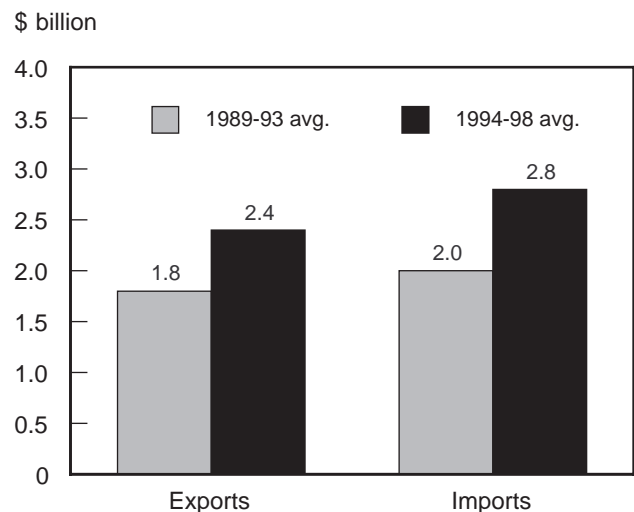
## Animals and Animal Products

U.S. trade with Canada and Mexico in animals and animal products has continued to grow under NAFTA. Since NAFTA's implementation in 1994, U.S. exports to Canada and Mexico in this category have averaged \$2.4 billion, compared with \$2.1 billion in 1993 and \$1.5 billion in 1990. U.S. imports of animals and animal products from its two NAFTA partners averaged \$2.8 billion during 1994-98, up from \$2.5 billion in 1993 and \$2.0 billion in 1990.

Canada and Mexico's combined share of U.S. imports of animals and animal products has increased under NAFTA, but their share of U.S. exports reveals no clear trend. Since 1994, Canada and Mexico have supplied 45 percent of U.S. imports of animals and animal products, compared with 42 percent in 1993 and 35 percent in 1990. Canada and Mexico have been the destination for 23 percent of U.S. exports in this category since 1994. This share equaled 27 percent in 1993 and 22 percent in 1990.

In 1998, beef and veal accounted for 24 percent of U.S. animal and animal product exports to Canada and Mexico, while poultry meat and dairy products accounted for 16 and

Figure 6  
**Animals and Animal Products: U.S. Trade with Canada and Mexico**



Source: FATUS, ERS.

Table 2--Estimated change in U.S. agricultural trade with Canada and Mexico due solely to NAFTA, 1994-98

Product	U.S. exports to		U.S. imports from	
	Canada	Mexico	Canada	Mexico
<b>Grains and products</b>				
Corn	Increase--Low	Increase--Low	Increase--Low	Little trade
Sorghum	Little trade	Increase--Medium	Little trade	Little trade
Barley	Little trade	Increase--Low	Increase--Low	Little trade
Oats	Little trade	Little trade	Negligible effect	Little trade
Wheat & wheat products	Increase--Medium	Increase--Low	Increase--Low	Little trade
Rice	Increase--Low	Negligible effect	Little trade	Little trade
<b>Oilseeds and products</b>				
Oilseeds	Negligible effect	Increase--Low	Decrease--Low	Little trade
Meals and oilcakes	Increase--Low	Negligible effect	Increase--Low	Little trade
Vegetable oils	Increase--Medium	Increase--Medium	Increase--Low	Little trade
<b>Animals and animal products</b>				
Cattle and calves	Negligible effect	Increase--High	Decrease--High	Increase--Low
Beef and veal	Increase--High	Increase--Medium	Increase--High	Little trade
Hogs	Little trade	Increase--Low	Negligible effect	Little trade
Pork	Increase--Low	Increase--Medium	Negligible effect	Little trade
Poultry meats	Increase--Low	Increase--Low	Increase--Low	Little trade
Dairy products	Negligible effect	Increase--High	Negligible effect	Little trade
<b>Other crops</b>				
Peanuts	Negligible effect	Negligible effect	Negligible effect	Increase--High
Dry beans	Little trade	Negligible effect	Little trade	Little trade
Cotton	Increase--Medium	Increase--Medium	Little trade	Negligible effect
Sugar	Negligible effect	Negligible effect	Negligible effect	Increase--High
<b>Fruits and vegetables</b>				
Fresh tomatoes	Increase--Medium	Little trade	Increase--Medium	Increase--Medium
Processed tomatoes	Increase--High	Little trade	Little trade	Increase--Medium
Bell peppers	Negligible effect	Little trade	Increase--Low	Increase--Low
Cucumbers	Increase--Low	Little trade	Little trade	Increase--Low
Squash	Increase--Low	Little trade	Little trade	Negligible effect
Eggplant	Increase--Low	Little trade	Little trade	Increase--Low
Snap beans	Increase--Low	Little trade	Little trade	Increase--Low
Fresh and processed potatoes	Increase--Low	Increase--Low	Increase--Medium	Little trade
Frozen broccoli and cauliflower	Little trade	Little trade	Little trade	Increase--Low
Fresh citrus	Negligible effect	Little trade	Little trade	Increase--Low
Orange juice	Increase--Low	Little trade	Little trade	Increase--Low
Apples	Negligible effect	Increase--High	Negligible effect	Little trade
Pears	Negligible effect	Increase--High	Little trade	Little trade
Peaches	Negligible effect	Little trade	Little trade	Little trade
Grapes	Negligible effect	Increase--Low	Little trade	Negligible effect
Cantaloupe	Negligible effect	Little trade	Little trade	Increase--Medium
Watermelon	Negligible effect	Little trade	Little trade	Increase--Low

Estimates reflect changes in trade due solely to NAFTA and are based on assessment of ERS analysts:

Increase--Low = 2 to 5 percent higher during 1994-98 than would have occurred without NAFTA

Increase--Medium = 6 to 15 percent higher due to NAFTA

Increase--High = More than 15 percent higher due to NAFTA

Decrease--Low = 2 to 5 percent lower due to NAFTA

Decrease--Medium = 6 to 15 percent lower due to NAFTA

Decrease--High = More than 15 percent lower due to NAFTA

Negligible effect = Less than 2 percent change due to NAFTA

Little trade indicates little to no trade



11 percent. Since 1994, Mexico has been the destination for 53 percent of U.S. animal and animal product exports to NAFTA countries. During 1996-98, the United States supplied 93 percent of Mexico's meat imports, while Canada supplied 3 percent.

With respect to U.S. imports of animals and animal products from its NAFTA partners, cattle occupied the largest share in 1998, with 36 percent. The shares for beef and veal and for pork were 24 and 13 percent, respectively. Since 1994, Canada has accounted for 88 percent of the animals and animal products imported by the United States from its NAFTA partners.

North American beef trade has benefited greatly from NAFTA. The elimination of Mexican tariffs on U.S. beef has given a sizable boost to U.S. beef exports to Mexico, probably on the order of 10-15 percent. During 1994-98, these exports averaged \$236 million, compared with \$116 million in 1993 and \$81 million in 1990. Although small in total value, Mexican beef exports to the United States have tripled under NAFTA—expanding from \$3 million in 1990 and 1993 to an average of \$9 million during 1994-98.

NAFTA, which subsumed CFTA, has had an especially powerful effect on U.S.-Canadian beef trade. The removal of import quotas from this trade likely had the greatest impact. In addition, NAFTA provides the United States and Canada much greater access to the other's beef market than before CFTA or the general levels afforded by the Uruguay Round Agreement on Agriculture (URAA).

U.S. imports of Canadian beef have grown steadily under CFTA and then NAFTA, climbing from \$191 million in 1990 to \$736 million in 1998. Over the last 5 years, U.S. beef exports to Canada have trended downward, from \$365 million in 1994 to \$285 million in 1998. This shifting trade balance is partially due to increased U.S. investment in Canadian meat processing. For instance, U.S. firms own the two largest slaughter plants in Canada. However, U.S. beef exports to Canada are perhaps twice as high as they would be otherwise due to the greater market access secured by NAFTA relative to pre-CFTA and general URAA levels.

ERS analysts estimate that NAFTA tariff changes increased U.S. cattle exports to Mexico by some 15-25 percent from what would have occurred in absence of the agreement. These tariff reductions turned out to be very important, as poor pasture conditions and a depressed economy forced Mexican producers to liquidate their herds in 1994 and 1995. Under NAFTA, U.S. cattle exports to Mexico have averaged \$77 million, roughly half the 1992 level of \$150 million but above the 1993 level of \$63 million. With respect to U.S.-Canadian cattle trade, the exemption of Canadian beef from the U.S. Meat Import Law has had a greater impact than the tariff changes secured by CFTA and subsumed into NAFTA.

NAFTA has also had a tremendous impact on pork trade. U.S.-Canadian pork trade is now completely duty-free and tends to follow a geographic logic in which U.S. producers serve consumers in eastern Canada and producers in western Canada supply pork to the U.S. west coast. U.S. pork exports to Canada averaged \$72 million during 1994-98, compared with \$32 million in 1993 and \$26 million in 1990. U.S. pork imports from Canada have shown no clear trend during the 1990's. Since 1994, these imports have averaged \$440 million, well above the 1993 level of \$307 million but somewhat below (in real terms) the 1990 level of \$428 million. However, NAFTA has had little effect on North American hog trade, as the health measures and various duties that restrict this trade are not directly related to the agreement.

Under NAFTA, U.S. pork exports to Mexico have averaged \$69 million, in contrast to \$59 million in 1993. ERS analysts estimate that NAFTA tariff reductions boosted these exports 5-10 percent above what would have occurred otherwise. This would account for roughly 30-60 percent of the increase between 1993 and the 1994-98 average.

Substantial two-way trade in poultry and poultry products exists between Canada and the United States. During 1994-98, the United States exported an average of \$264 million in such products to Canada, compared with \$232 million in 1993 and \$187 million in 1990. U.S. imports of Canadian poultry and poultry products have averaged \$45 million under NAFTA, up from \$34 million in 1993 and \$40 million in 1990.

The potential also exists for similar two-way trade between Mexico and the United States. Currently, U.S. imports of Mexican poultry and poultry products are virtually non-existent due to U.S. health restrictions. However, the United States and Mexico are working together to determine if certain Mexican states are free from harmful poultry diseases so that those areas can export poultry and products to the United States. In May 1999, USDA issued a proposal to ease restrictions on importing poultry and poultry products from the Mexican states of Sinaloa and Sonora. Under the proposal, these imports would be subject to documentation that the poultry was indeed from those states and had not been in contact with poultry with exotic Newcastle disease. Since NAFTA's implementation, U.S. poultry and poultry product exports to Mexico have averaged \$244 million. These exports equaled \$225 million in 1993 and \$73 million in 1990.

For both Canada and Mexico, it is difficult to assess NAFTA's impact on U.S. poultry trade. Canada maintains a "permanent" tariff-rate quota (TRQ) for poultry that will not be eliminated under NAFTA, but Canada has consistently allowed imports above the quota. In fact, prior to CFTA, the Canadian government would often offer supplemental permits for chicken imports in excess of existing quotas. Similarly, Mexico has not enforced the quantitative limits of

its TRQ on U.S. poultry, so it is possible that the Mexican government would have waived its licensing requirement for U.S. poultry had NAFTA not been implemented.

NAFTA probably hasn't had much effect on U.S.-Canadian dairy trade, as CFTA did not substantially address the quantitative restrictions that govern this trade. But NAFTA has expanded U.S. access to the Mexican dairy market. For instance, the Mexican TRQ for non-fat milk is about 25 percent higher than the average volume licensed for import during 1991-93. Still, factors other than NAFTA have worked to limit U.S. dairy exports to Mexico. These include higher international prices and the peso devaluation and subsequent Mexican recession during late 1994 and 1995. Under NAFTA, U.S. dairy exports to Mexico have averaged \$155 million, much less than the \$252 million in 1993 but substantially more than 1990's \$63 million.

## Grains and Feed

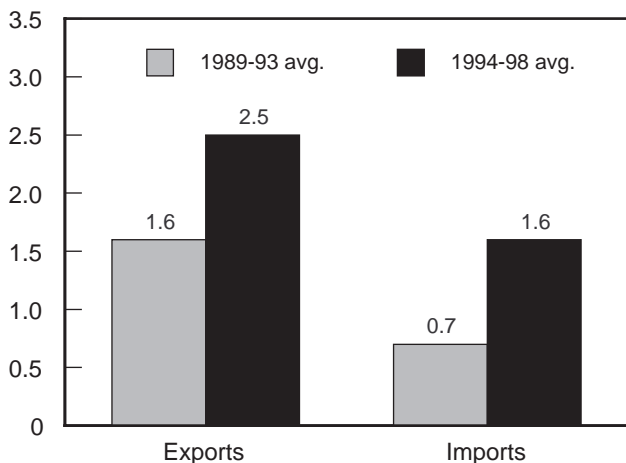
For most grains and grain products, the impact of NAFTA on U.S.-Canadian and U.S.-Mexican trade is small compared with comparison to the influence of other factors. Instead, NAFTA has generally amplified expansions in trade that would have occurred without the agreement. In addition, NAFTA has also tempered reductions in trade, such as those stemming from Mexico's severe recession in 1995.

Under NAFTA, the Canadian and Mexican markets have grown in importance to U.S. grain and feed traders. During 1994-98, 16 percent of all U.S. grain and feed exports went to Canada and Mexico, compared with 13 percent in 1993 and 11 percent in 1990. Canada and Mexico's share of U.S. imports in this category averaged 61 percent during 1994-98—a dramatic increase from the 57 percent in 1993 and 48 percent in 1990.

Figure 7

### Grains and Feed: U.S. Trade with Canada and Mexico

\$ billion



Source: FATUS, ERS.

Two-way trade in grains and feed between Canada and the United States has long been a feature of the North American economy. Each country is a major supplier of these commodities to the world, and each counts the other as one of its most important export markets. This somewhat unusual situation, in which the world's number-one grain exporter (the United States) is the second largest market for the world's number-two grain exporter (Canada), has led to friction between the two countries. However, this two-way trade has continued to grow under NAFTA. U.S. grain and feed exports to Canada averaged \$1.1 billion during 1994-98, up from \$960 million in 1993 and \$576 million in 1990. U.S. imports of Canadian grain and feed averaged \$1.5 billion during 1994-98, in contrast to \$948 million in 1993 and \$538 million in 1990.

U.S. exports constitute the vast majority of U.S.-Mexican trade in grains and feed. During 1994-98, these exports averaged \$1.4 billion, compared with \$887 million in 1993 and \$960 million in 1990. The United States is a key supplier of cereals to Mexico, accounting for 90 percent of Mexican imports over the past 3 years. Canada supplies 10 percent. U.S. imports of Mexican grains and feed averaged \$158 million during 1994-98, more than twice the 1993 level of \$60 million and five times the 1990 level of \$28 million.

In 1998, the most important U.S. grain and feed exports to Canada and Mexico were corn (24 percent of the total), sorghum (12 percent), and wheat (7 percent). The major subcategory of feeds and fodder (excluding oilcakes) accounted for 25 percent. On the import side, the commodities with the largest share were wheat (16 percent), oats (6 percent), and barley (5 percent). Biscuits and wafers accounted for 22 percent.

With respect to corn, NAFTA's most visible change is Mexico's replacement of import licensing with a TRQ, which itself will be eliminated in 2008. This reform guarantees U.S. access to the Mexican corn market while allowing supply and demand to more fully determine the price and quantity of U.S. corn exports. Although this change probably yielded gains in efficiency, it should be noted that the Mexican government usually allowed enough corn to be imported to meet domestic demand. Since NAFTA's inception, Mexico has consistently—except for 1997—allowed imports of U.S. corn to surpass the TRQ without applying the high over-quota tariff.

Under NAFTA, U.S. corn exports to Mexico have averaged \$521 million, in contrast to a low of \$35 million in 1993 and \$400 million in 1990. Recent export growth is due primarily to reforms in Mexico's domestic agricultural policies and a severe drought in 1995.

NAFTA has had a small effect on U.S.-Canadian corn trade, which just entered its second year of being completely free from tariff restrictions. U.S. corn exports to Canada averaged \$114 million during 1994-98, in contrast to \$80 mil-

lion in 1993. U.S. corn imports from Canada averaged \$33 million during the same period, up from \$30 million in both 1992 and 1993.

The reduction of Mexican tariffs under NAFTA tempered the decline of U.S. sorghum exports to Mexico during 1995-97—a period in which many livestock producers in Mexico switched from sorghum to corn feed. Without these tariff reductions, sorghum would likely have been less price-competitive against corn and imports would have declined even further.

NAFTA has facilitated long-term growth in U.S. wheat imports from Canada and U.S. wheat product exports to Canada. Since the 19th century, wheat has been one of Canada's primary exports, and NAFTA has enabled U.S. food processors and consumers to more fully benefit from Canada's strength in this area. During 1994-98, U.S. imports of Canadian wheat averaged \$276 million, up from \$210 million in 1993 and \$80 million in 1990. U.S. wheat product exports to Canada averaged \$42 million under NAFTA, in contrast to \$27 million in 1993 and \$12 million in 1990.

Before CFTA, Canadian grain flows often moved in an East-West direction that was artificially imposed by trade barriers and transportation subsidies. Now, these flows are more likely than in the past to move from north to south, in keeping with the expectations of location economics.

NAFTA has helped boost U.S. wheat exports to Mexico to record highs. Licenses for wheat trade are no longer required, and Mexico has also lowered its tariffs on U.S. wheat. These exports have averaged \$190 million under NAFTA, compared with \$134 million in 1993 and \$51 million in 1990. As Mexican farmers respond to market incentives by devoting more planting area to crops other than wheat, NAFTA may be indirectly contributing to increased U.S. wheat exports to Mexico as well.

## Oilseeds and Oilseed Products

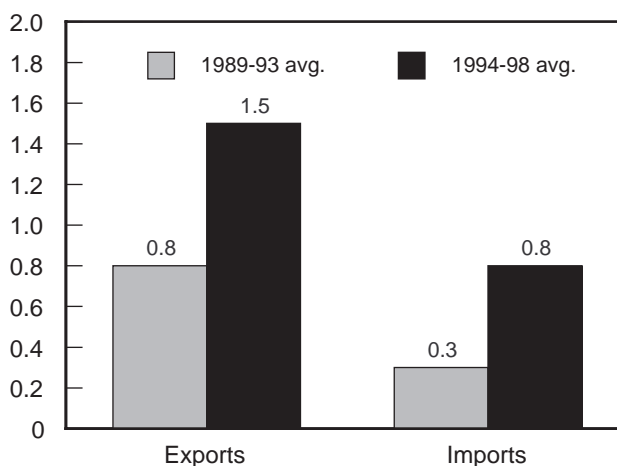
NAFTA's impact on U.S.-Canadian trade in oilseeds and related products is substantially different from its impact on U.S.-Mexican trade. With respect to U.S.-Canadian trade, NAFTA has contributed to increased two-way trade in processed goods such as vegetable oil and soybean meal. With respect to U.S.-Mexican trade, NAFTA has led to increased U.S. exports of soybeans but decreased U.S. exports of other oilseeds, as trade more closely reflects the relative prices of the two commodity types.

As it has for agricultural trade as a whole, NAFTA is facilitating a process in oilseeds and oilseed products in which U.S. trade with its NAFTA partners occupies a greater share of total U.S. trade. During 1994-98, Canada and Mexico were the destination for 15 percent of U.S. oilseed and oilseed product exports, in contrast to 14 percent in 1993 and 11 percent in 1990. In 1998, these exports were valued

Figure 8

## Oilseeds and Products: U.S. Trade with Canada and Mexico

\$ billion



Source: FATUS, ERS.

at \$1.6 billion. Since 1994, Canada and Mexico's combined share of U.S. oilseed and oilseed product imports has averaged 38 percent, up from 37 percent in 1993 and 30 percent in 1990. These imports totaled \$875 billion in 1998.

During 1994-98, over 70 percent of U.S. oilseed and oilseed product exports to NAFTA countries went to Mexico. In 1998, soybeans, soybean meal, and sunflower oil accounted for 48, 12, and 6 percent of U.S. oilseed and oilseed product exports to Canada and Mexico combined. Rapeseed oil and rapeseed respectively accounted for 38 and 12 percent of U.S. imports of such products from NAFTA countries.

The United States currently supplies 85 percent of total Canadian oilseed imports, down from the early 1980's but above the average for the early 1990's. In Mexico, oilseed and oilseed product imports have shifted from suppliers such as Brazil and Argentina to its NAFTA partners. For the past 3 years, 65 percent of Mexican soybean imports have come from the United States, with Guatemala supplying much of the rest.

U.S.-Canadian oilseed trade was relatively free of restrictions before CFTA. Thus, NAFTA probably did not greatly affect this trade. However, the tariff reductions secured by CFTA and incorporated within NAFTA have boosted two-way trade in vegetable oil between the two countries. During 1994-98, U.S. vegetable oil exports to Canada averaged \$166 million, in contrast to \$100 million in 1993 and \$57 million in 1990. U.S. imports of Canadian vegetable oils (including waxes) have averaged \$379 million since 1994, up from \$213 million in 1993 and \$89 million in 1990. In addition, CFTA and NAFTA may have exerted a slight, positive effect on the volume of U.S. soybean meal exports to Canada. These exports averaged \$171 million

during 1994-98, up from \$159 million in 1993 and \$126 million in 1990.

NAFTA has contributed to higher U.S. soybean exports to Mexico. These have averaged \$676 million under NAFTA, in contrast to \$416 million in 1993 and \$200 million in 1990. Mexican imports of other oilseeds have declined slightly because of the relatively lower protection offered to soybeans under NAFTA.

ERS analysts estimate that NAFTA tariff reductions for soybean oil increased U.S. soybean oil exports to Mexico by some 5-10 percent above what would have occurred otherwise. During 1994-98, these exports averaged \$40 million, up from \$15 million in 1993. Thus, NAFTA perhaps was responsible for as much as \$4 million of the \$25-million increase. In contrast, NAFTA likely had little impact on the volume of U.S. soybean meal exports to Mexico.

## Other Field Crops

NAFTA has had an important impact on U.S. trade in several other crops. Two noteworthy examples are cotton and sugar.

NAFTA affects U.S. cotton trade via two routes. First, NAFTA is paving the way for duty-free cotton trade within North America. The United States and Mexico have completed the first half of their 10-year transition to eliminating restrictions on U.S.-Mexican cotton trade. (Canada did not levy a tariff on imported cotton prior to CFTA.) Second, NAFTA's rules of origin provide for virtually unlimited access to the U.S. market for textiles and apparel manufactured by a NAFTA member from yarn and fiber produced by a NAFTA member. Ultimately, NAFTA will assure free trade within North America not only for cotton but also for many products manufactured from cotton.

These changes have combined with more powerful developments, including the peso devaluation and various difficulties facing Asian textile exporters, to boost U.S. cotton exports to its NAFTA partners. During 1994-98, these exports (including linters) averaged \$420 million, in contrast to \$250 million in 1993 and \$112 million in 1990. In 1998, they reached \$736 million. NAFTA countries accounted for 29 percent of U.S. cotton imports in 1998 (excluding linters), up from 4 percent in 1990 and 16 percent in 1993.

NAFTA has somewhat loosened the quota and tariff restrictions that govern North American sugar trade, particularly with respect to the United States and Mexico. The two countries are moving toward liberalized sugar trade by using a complicated formula, based on the difference between projected production and projected domestic consumption, to calculate the duty-free quotas for this trade. This process is occurring over a lengthy transition period (1994-2007). So far under NAFTA, U.S. imports of Mexican cane and beet sugar have grown from \$64,000 in 1993 to \$23 million in 1998.

Regarding U.S.-Canadian sugar trade, the United States initially interpreted CFTA as meaning that any U.S. imports of Canadian sugar in excess of the U.S. TRQ should be subject to the low CFTA tariff rather than the prohibitive second-tier tariff associated with the TRQ. This action greatly stimulated these imports during 1990-94. But in 1995, the United States began to apply the most-favored-nation tariff to over-quota imports, in accordance with URAA.

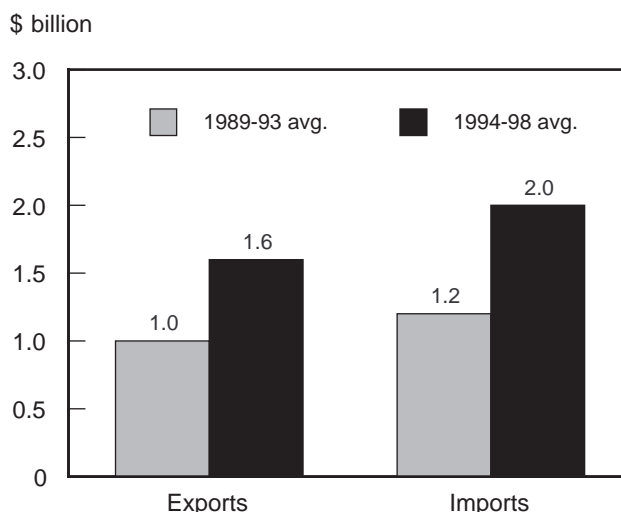
## Vegetables

North American vegetable trade has continued to flourish under NAFTA. U.S. vegetable exports to Canada and Mexico (including dried beans, dried peas, and dried lentils) averaged \$1.6 billion during 1994-98, compared with \$1.3 billion in 1993 and \$1.0 billion in 1990. U.S. vegetable imports from its NAFTA partners have grown from \$1.2 billion in 1990 and \$1.4 billion in 1993 to an average of \$2.0 billion since 1994. In 1998, this trade encompassed \$1.9 billion in exports and \$2.7 billion in imports.

Together, Canada and Mexico were the destination for 41 percent of U.S. vegetable exports during 1994-98. This share is substantially less than in previous years. For instance, NAFTA's share was 44 percent in 1993 and 46 percent in 1990. In 1998, however, this share rebounded to 45 percent. U.S. vegetable imports from Canada and Mexico have increased from 53 percent in 1990 and 55 percent in 1993 to an average of 58 percent since the agreement began.

Mexico has long been a major supplier of vegetables to the U.S. market. However, imports from Canada have risen in recent years. During the first 3 years of NAFTA, Mexico supplied three-fourths of U.S. vegetable imports from NAFTA. However, in 1997-98, Mexico's share declined to two-thirds while Canada's increased to one-third. Tomatoes,

Figure 9  
**Vegetables and Preparations: U.S. Trade with Canada and Mexico**



Source: FATUS, ERS.

potatoes, and peppers respectively accounted for 24, 12, and 11 percent of U.S. vegetable imports from Canada and Mexico in 1998. Commodities with a large share of total U.S. vegetable exports to Canada and Mexico in 1998 include lettuce (7 percent), tomatoes (6 percent), and potatoes (4 percent).

The United States has traditionally been the major supplier of vegetables to Canada, and its market share climbed from 70 percent in the 5-year period before CFTA (1984-88) to 80 percent during 1996-98. Mexico accounts for 9 percent of Canadian vegetable imports, even as it provides 41 percent of U.S. vegetable imports. The United States supplied Mexico with 85 percent of its vegetable imports during 1996-98, while Canada supplied 11 percent.

U.S. imports of Mexican tomatoes expanded from \$304 million in 1993 to an average of \$477 million during 1994-98. NAFTA tariff changes likely raised these imports about 8-15 percent from what would have occurred without the agreement. Thus, NAFTA may be responsible for as much as 26 percent of the total increase in U.S. tomato imports from Mexico. However, one must remember that NAFTA's tariff effects on U.S.-Mexican tomato trade have been tempered by a series of price floors imposed by principal Mexican and U.S. growers.

The value of U.S. tomato exports to Canada has fluctuated under CFTA and NAFTA. During 1994-98, these exports averaged \$103 million, up from \$80 million in 1990 but down from \$111 million in 1993. ERS analysts estimate that NAFTA tariff changes (initiated by CFTA) would have caused U.S. tomato exports to Canada to be 14 to 18 percent higher than what they would have been otherwise, all else being equal.

In a major development, U.S. (and Mexican) tomatoes now face increased competition from Canada, due to a rapidly growing greenhouse industry in that country. U.S. imports of Canadian tomatoes have ballooned from \$3 million in 1990 to \$101 million in 1998.

U.S. imports of Canadian potatoes (fresh and frozen) averaged \$221 million during 1994-98, in contrast to \$104 million in 1990 and \$129 million in 1993. Holding U.S. and Canadian tariffs at pre-NAFTA levels would have reduced U.S. potato exports about 1 percent and imports by 5-10 percent.

Under NAFTA, U.S. imports of Mexican peppers have averaged \$184 million. These imports equaled \$135 million in 1993. ERS analysts attribute the strong performance of Mexican pepper exports to factors other than NAFTA, such as heightened U.S. demand, the devaluation of the Mexican peso, and adverse weather conditions during certain periods.

## Fruits and Fruit Juices

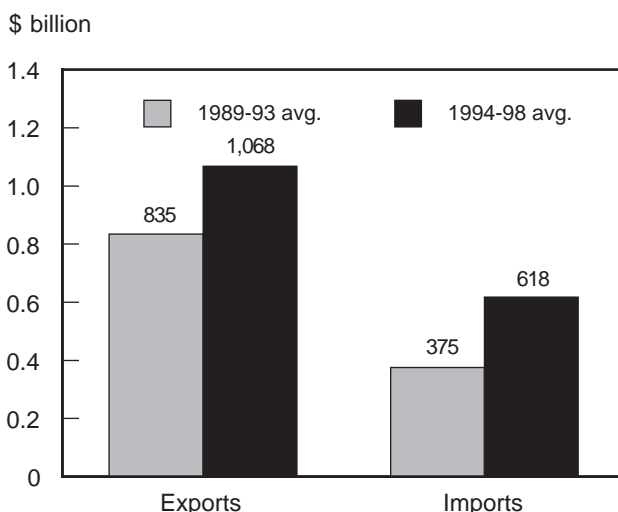
Overall, U.S. fruit trade with Canada and Mexico has grown substantially under NAFTA. U.S. imports of fruits and prepared fruits (including juice) from its NAFTA partners have grown from \$305 million in 1990 and \$380 million in 1993 to an average of \$614 million during 1994-98. U.S. exports of such products to Canada and Mexico have averaged \$1.1 billion under NAFTA, in contrast to \$888 million in 1990 and \$1.0 billion in 1993.

U.S.-Canadian trade in fruits and prepared fruits is well established. Excluding juices, U.S. exports of such products have not demonstrated a clear trend during the 1990's, fluctuating between \$686 million in 1994 and \$763 million in 1997. In contrast, U.S. juice exports to Canada have gradually increased under CFTA and then NAFTA. During 1994-98, these exports averaged \$212 million, in contrast to \$162 million in 1993 and \$138 million in 1990. Orange juice accounts for about half of these exports. U.S. orange juice exports to Canada averaged \$118 million during 1994-98. In 1990 and 1993, these exports equaled \$83 million.

U.S. imports of Canadian fruits and prepared fruits have grown steadily during the 1990's. During 1994-98, these imports (excluding juices) averaged \$105 million, up substantially from \$66 million in 1993 and \$62 million in 1990. Berries other than strawberries constitute more than half of this trade. U.S. imports of Canadian fruit juice are relatively small, averaging \$16 million during 1994-98.

Trade data clearly show the deleterious consequences of the peso devaluation and subsequent recession on U.S. exports of fruits and prepared fruits to Mexico. Total exports in this category (including juice) plummeted from \$197 million in 1994 to \$91 million in 1995. During 1994-98, these exports

Figure 10  
**Fruits and Fruit Juices: U.S. Trade with Canada and Mexico**



Source: FATUS, ERS.

averaged \$132 million, in contrast to \$119 million in 1993 and \$48 million in 1990.

As the Mexican economy recovered, U.S. exports in this category began expanding again. In 1998, U.S. exports of fruits and prepared fruits (including juice) rebounded to \$143 million, a sign of the probable long-term opportunities in Mexico for U.S. fruit exporters.

U.S. exports of fresh grapes to Mexico averaged \$17 million under NAFTA, in contrast to \$9 million in 1993 and \$2 million in 1990. This trade has particularly benefited from the end of Mexican licensing requirements for U.S. grapes.

U.S.-Mexican apple trade has faced many challenges since NAFTA's inception, ranging from the Mexican economic crisis of late 1994 and 1995 to difficulties in securing an inspection process that facilitated trade while addressing phytosanitary concerns. Under NAFTA, U.S. apple exports have fluctuated between \$40 million in 1995 to \$87 million in 1994, with an average of \$50 million during 1994-98. These exports equaled \$57 million in 1993 and \$7 million in 1990. Holding all other factors constant, NAFTA tariff changes would have increased U.S. apple exports to Mexico an estimated 51 percent from what would have occurred otherwise.

Mexico's economic crisis also limited U.S. exports of fresh pears to that country. These exports averaged only \$16 mil-

lion during 1995-97, compared with \$20 million in 1993, \$30 million in 1994, and \$27 million in 1998. Ultimately, NAFTA tariff reductions should have a greater impact on U.S.-Mexican pear trade than on apple trade, since Mexico's tariffs have changed relatively more for pears than for apples.

U.S. imports of Mexican fruits and prepared fruits have averaged \$583 million under NAFTA, up from \$344 million in both 1993 and 1990. The growth reflects expanding consumer demand associated with the strong U.S. economy, changing consumer preferences in the United States, and, to a lesser extent, changes in trade restrictions under NAFTA.

U.S. mango imports from Mexico climbed from \$73 million in 1993 (and only \$52 million in 1990) to an average of \$94 million under NAFTA. U.S. imports of Mexican grapes averaged \$91 million during 1994-98, in contrast to \$55 million in 1993 and \$19 million in 1990.

U.S. melon imports from Mexico averaged \$108 million during 1994-98, in contrast to \$51 million in 1993 (when adverse weather conditions damaged Mexican melon production) and \$88 million in 1990. Holding all other factors constant, the tariff changes under NAFTA and URAA would have increased Mexican cantaloupe exports to the United States by some 17-25 percent from what would have occurred in the absence of these agreements.

# Employment in U.S. Agriculture and Related Industries

## Introduction

NAFTA has likely had a small, positive effect on employment in U.S. agriculture. By opening the door to new export opportunities and allowing for a more efficient allocation of productive resources across economic sectors and geographic areas, NAFTA should increase opportunities for employment in agriculture, a sector in which the United States enjoys a clear comparative advantage. At the same time, employment opportunities are narrowing in some agriculture-related industries in which the United States is less competitive, such as textiles and apparel. These structural changes generally predate NAFTA, but the accord reinforces these long-term trends.

Because U.S. agriculture is generally not labor-intensive, NAFTA's influence on employment in the sector has been relatively small to date. Over the long run, however, NAFTA may alter appreciably the composition and size of U.S. agricultural employment. This would especially be the case if Mexico further specializes in labor-intensive agricultural activities while the United States and Canada intensify their focus on capital-intensive ones. NAFTA-related flows of agricultural products are quite large compared with total

U.S. agricultural trade, so the agreement is likely to play an important role in sharpening this process.

This section uses employment data from the Current Population Survey (CPS) to identify important labor-market developments in agriculture and its related industries that coincided with the first 5 years of NAFTA (1994-98). These figures are placed in the context of each sector's contribution to gross domestic product (GDP) and foreign trade in order to draw inferences about the agreement's effects on employment. In addition, the section compares the unemployment rate and the growth of employment in counties with and without agriculture-related certifications under the NAFTA Transitional Adjustment Assistance (NAFTA-TAA) Program.

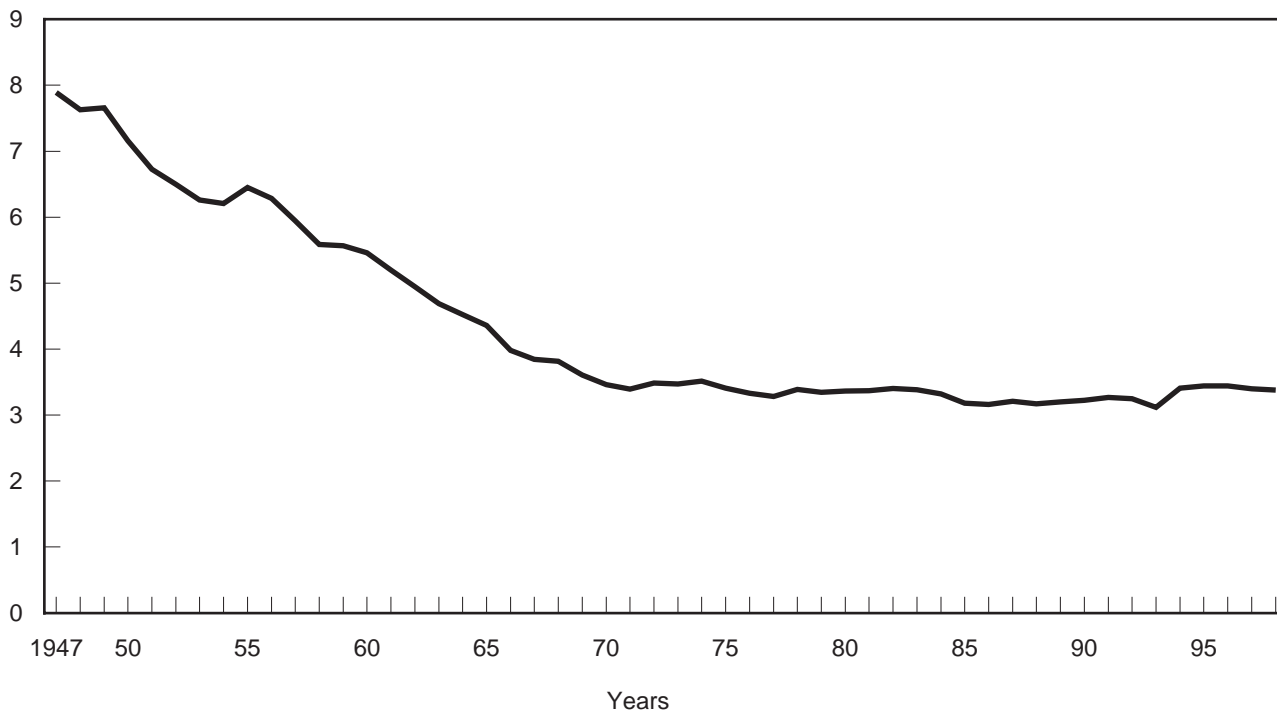
## Sectoral Employment Levels

Agricultural employment in the United States increased during 1994-98 (fig.11). During this period, employment in agriculture (excluding forestry, fishing, and food and kindred products) averaged 3.414 million, compared with the 1985-93 average of 3.197 million. Much of this change is due to increased employment in veterinary medicine, landscaping, and horticulture (table 3). Employment in crop and livestock

Figure 11

### U.S. Agricultural Employment, Age 16 and Older, 1947-98

Million



Source: Bureau of Labor Statistics, Department of Labor.

Table 3--Employed persons by selected industry, age 16 years and over

Industry	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
	Thousand										
<b>Total</b>	114,968	117,342	118,793	117,718	118,477	120,259	123,060	124,900	126,708	129,558	131,463
<b>Agriculture</b>	3,169	3,199	3,223	3,269	3,250	3,115	3,409	3,440	3,443	3,399	3,378
Agricultural production, crops	1,096	1,028	1,000	1,023	1,005	925	1,011	1,046	1,030	987	1,014
Agricultural production, livestock	1,207	1,228	1,207	1,236	1,225	1,158	1,319	1,304	1,217	1,206	1,094
Veterinary services	n.a.	n.a.	n.a.	n.a.	156	165	164	170	198	199	206
Landscape and horticultural services	556	624	682	698	703	697	750	743	803	813	881
Agricultural services, n.e.c.	n.a.	n.a.	334	312	162	170	165	177	196	n.a.	n.a.
<b>Lumber and wood products, except furniture</b>	758	792	789	721	689	712	732	816	795	820	863
Logging	139	151	156	143	138	140	145	169	158	154	133
Sawmills, planing mills, and millwork	395	426	418	367	338	352	386	411	403	413	442
Wood buildings and mobile homes	71	60	63	62	59	76	60	87	82	82	102
Miscellaneous wood products	153	156	152	149	154	144	141	150	153	170	186
<b>Furniture and fixtures</b>	685	664	694	631	608	634	662	645	661	661	675
<b>Farm machinery and equipment</b>	119	96	106	111	115	99	114	114	106	105	117
<b>Food and kindred products</b>	1,701	1,821	1,856	1,752	1,764	1,797	1,749	1,701	1,708	1,698	1,655
Meat products	422	456	482	473	489	482	475	442	461	470	439
Dairy products	187	208	177	144	158	156	161	142	125	122	124
Canned, frozen, and preserved fruits and vegetables	227	239	252	217	210	231	220	223	220	227	208
Grain mill products	115	147	142	145	138	141	141	144	145	154	161
Bakery products	229	233	239	226	206	233	240	235	219	224	230
Sugar and confectionary products	100	111	108	114	125	107	104	99	98	102	102
Beverage industries	206	219	242	230	204	220	203	211	232	208	192
Miscellaneous and not specified	216	209	213	202	236	228	204	207	208	191	199
<b>Tobacco manufactures</b>	58	54	47	59	52	54	50	53	49	59	52
<b>Textile mill products</b>	714	688	705	700	652	632	643	670	619	634	595
Knitting mills	130	127	114	113	105	133	108	112	97	101	97
Carpets and rugs	n.a.	63	75	60	50	53	67	96	83	81	85
Yarn, thread, and fabric mills	455	427	446	452	416	372	403	398	364	365	329
<b>Apparel and other finished textile products</b>	1,182	1,172	1,108	1,073	1,053	1,033	1,009	1,011	954	945	825
Apparel and accessories, except knit	993	1,008	953	916	895	877	834	827	791	789	678
Miscellaneous fabricated textile products	189	164	154	157	157	157	175	185	163	156	147
<b>Paper and allied products</b>	735	749	737	740	733	723	703	723	668	683	683
Pulp, paper, and paperboard mills	323	349	332	328	314	292	293	299	275	265	251
Miscellaneous paper and pulp products	225	197	200	197	203	208	194	216	199	206	229
Paperboard containers and boxes	188	203	205	214	216	222	217	207	193	212	203
<b>Leather and leather products</b>	140	152	140	139	136	123	135	144	140	127	108
Footwear, except rubber and plastic	84	89	90	83	81	65	71	74	67	70	56
<b>Forestry and fisheries</b>	157	179	171	160	172	185	177	152	127	139	131
Forestry	86	98	89	81	93	102	112	71	68	71	67
Fishing, hunting, and trapping	71	81	82	79	80	83	65	81	60	68	64

n.a. = not available, n.e.c. = not elsewhere classified.

Sources: Annual averages from household data in U.S. Department of Labor, Bureau of Labor Statistics (BLS), *Employment and Earnings*, various issues; supplemented with updates from BLS.

production has also increased slightly under NAFTA. On average, 1.018 million people were employed in crop production from 1994 to 1998, compared with 1.001 million during 1987-93. Corresponding employment numbers for the livestock sector are 1.228 million and 1.216 million.

Figure 12 depicts employment levels from 1976 to 1998 in nine agriculture-related industries: food and kindred products, forestry and fisheries, lumber and wood products (except furniture), furniture and fixtures, tobacco manufactures, textile manufactures, apparel and other finished textile products, paper and allied products, and leather and leather products.

In some industries, forces other than NAFTA may outweigh the agreement's impact on employment. For instance,

decreased domestic consumption of a particular sector's output or a reduction in that sector's exports to countries outside NAFTA could reduce employment within that sector, even if exports by the sector to Canada and Mexico expand. Therefore, it is imperative to evaluate the employment data for 1994-98 within the context of each industry's GDP and participation in foreign trade.

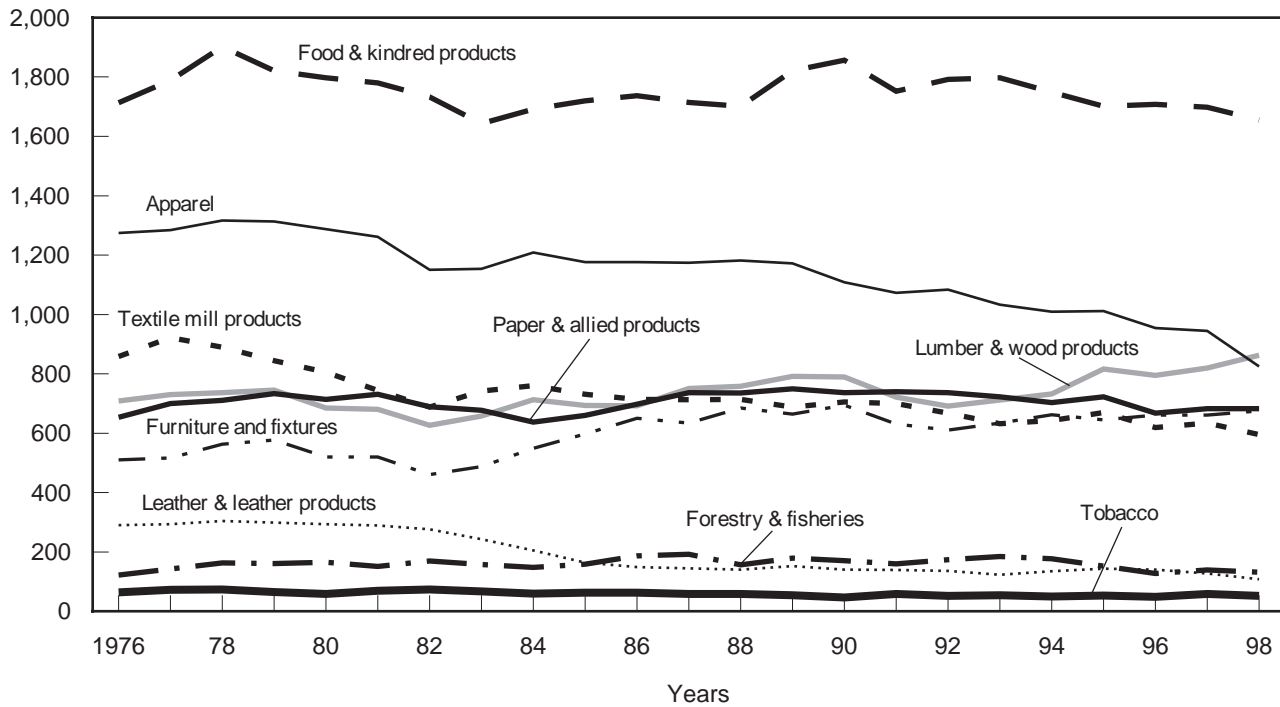
Employment in food and kindred products has been decreasing since 1990. Total employment in the sector fell from 1.856 million in 1990 to 1.655 million in 1998 (table 3). This decline is likely related to continuing consolidation within certain subsectors of the industry, such as meat and dairy products, and not to the sector's trade performance. Although the sector has grown somewhat slower than the



Figure 12

**U.S. Employment in Agriculture-Related Industries, 1976-98**

Thousand



Source: Bureau of Labor Statistics, Department of Labor.

rest of the economy in recent years, its rate of export growth slightly exceeds that of total U.S. exports (table 4). With respect to NAFTA, U.S. exports of food and kindred products to Canada and Mexico expanded 54.1 percent between 1989-93 and 1994-98, while corresponding imports increased 75.8 percent (table 5).

In the forestry sector, employment has dropped substantially, from 112,000 in 1994 to 67,000 in 1998. This reduction took place even as U.S. forestry exports to NAFTA countries grew substantially. U.S. exports to Canada in this sector were 21.6 percent higher in 1994-98 than in 1989-93. Exports to Mexico jumped 132.0 percent over the same period. One possible explanation of the decline in employment is the limited growth of the industry's total exports. During 1994-98, these exports were only 4.1 percent higher than in 1989-93.

CPS employment figures for the fishing industry also include the hunting and trapping sectors. These data indicate a noticeable reduction in employment for the three sectors combined: from 83,000 in 1993 to 64,000 in 1998. Again, the decline may be linked to the fishing industry's overall export performance. In 1994-98, total exports of fish and marine products were 3.5 percent less than in 1989-93. Mexican producers have offered increased competition, as imports from that country increased 56.7 percent between 1989-93 and 1994-98. Imports from Canada, however, dropped 16.2 percent during the same period.

The lumber and wood products industry exemplifies how employment can increase in the face of heightened import competition. Between 1993 and 1998, U.S. imports in this sector increased from \$8.9 billion to \$14.1 billion. More than two-thirds of the increase is due to increased imports from Canada, which have climbed almost steadily since CFTA's implementation in 1989. During the first 5 years of NAFTA, total U.S. exports of lumber and wood products rose only 6.4 percent, although exports to Canada jumped 46.6 percent. Nevertheless, employment in lumber and wood products has generally expanded since 1992. In 1995, the sector's employment surpassed the milestone of 800,000 for the first time in many years. Strong domestic demand is likely to be responsible, as the sector has more than kept pace with the rest of the economy.

During 1994-98, employment in the U.S. furniture and fixtures sector averaged 661,000, somewhat higher than the 1986-93 average of 650,000. Expansion in this sector has almost matched that of the rest of the economy, and both exports and imports have grown substantially. NAFTA has brought U.S. producers in this industry both heightened import competition and greater export opportunities, so the agreement's net effect on employment in the sector is difficult to discern. U.S. imports from Canada and Mexico of furniture and fixtures more than doubled between 1989-93 and 1994-98. At the same time, U.S. exports to the two countries increased 66.4 percent.

Table 4--Employment, output, and trade in agriculture and related industries: 1994-97 versus 1990-93

Industry	Employment			GDP			Total Exports		
	Average		Change	Average		Change	Average		Change
	1990-93	1994-97		1990-93	1994-97		1990-93	1994-97	
	Thousand		Percent	\$ billion		Percent	\$ billion		Percent
<b>Total</b>	118,812	126,057	6.1	6,558.1	7,497.3	14.3	431.99	602.91	39.6
<b>Agriculture plus food and kindred products</b>	5,007	5,137	2.6	176.2	201.2	14.2	42.30	56.29	33.1
<b>Agriculture</b>	3,214	3,423	6.5	73.0	84.4	15.6	23.53	29.65	26.0
Agricultural production, crops	988	1,019	3.1	n.a.	n.a.	n.a.	22.62	28.62	26.5
Agricultural production, livestock	1,207	1,262	4.6	n.a.	n.a.	n.a.	0.91	1.02	12.5
<b>Agriculture-related industries</b>	5,993	5,816	-3.0	381.9	430.1	12.6	55.37	75.52	36.4
Food and kindred products	1,792	1,714	-4.4	103.2	116.8	13.2	18.77	26.64	41.9
Forestry and fisheries	172	149	-13.5	106.1	122.7	15.6	3.11	3.02	-2.9
Forestry	91	81	-11.8	n.a.	n.a.	n.a.	0.29	0.29	2.5
Fishing, hunting, and trapping	81	69	-15.4	n.a.	n.a.	n.a.	2.82	2.73	-3.4
Lumber and wood products	728	791	8.7	34.6	40.3	16.5	6.89	7.44	7.9
Furniture and fixtures	642	657	2.4	17.7	20.1	13.7	2.40	3.39	41.5
Tobacco products	53	53	-0.5	15.2	17.3	13.5	4.60	5.24	13.9
Textile mills products	672	642	-4.6	25.5	25.0	-1.9	4.35	6.17	41.8
Apparel and other textile products	1,067	980	-8.2	27.4	27.7	1.0	4.32	7.98	84.6
Paper and allied products	733	694	-5.3	47.7	55.5	16.2	9.44	13.79	46.1
Leather and leather products	134	137	1.9	4.5	4.8	6.1	1.48	1.84	24.2
	NAFTA Exports			Total Imports			NAFTA Imports		
	Average		Change	Average		Change	Average		Change
	1990-93	1994-97		1990-93	1994-97		1990-93	1994-97	
	\$ billion		Percent	\$ billion		Percent	\$ billion		Percent
<b>Total</b>	125.75	188.24	49.7	523.93	768.19	46.6	132.18	217.17	64.3
<b>Agriculture plus food and kindred products</b>	8.72	11.60	32.9	25.50	33.03	29.6	7.20	10.99	52.7
<b>Agriculture</b>	4.00	5.27	31.9	9.10	12.82	40.9	3.63	5.34	47.0
Agricultural production, crops	3.65	4.91	34.4	7.24	10.49	44.9	2.12	3.47	64.2
Agricultural production, livestock	0.34	0.36	5.6	1.86	2.34	25.4	1.51	1.86	23.0
<b>Agriculture-related industries</b>	14.48	21.49	48.4	92.64	128.03	38.2	23.08	37.70	63.3
Food and kindred products	4.73	6.33	33.8	16.40	20.21	23.2	3.57	5.66	58.5
Forestry and fisheries	0.42	0.53	24.5	5.51	7.43	34.7	1.14	1.19	4.2
Forestry	0.05	0.08	51.0	0.94	1.64	74.6	0.03	0.04	11.3
Fishing, hunting, and trapping	0.37	0.45	20.8	4.57	5.78	26.5	1.11	1.15	4.0
Lumber and wood products	1.49	1.72	15.7	6.63	11.67	76.0	4.71	8.70	84.9
Furniture and fixtures	1.59	2.19	37.3	5.52	9.04	63.9	1.98	3.97	101.1
Tobacco products	0.02	0.05	152.6	0.33	0.28	-14.2	0.24	0.05	-80.8
Textile mills products	1.64	2.67	62.7	5.64	7.33	29.9	0.49	1.25	154.8
Apparel and other textile products	1.36	2.89	112.2	30.78	43.37	40.9	2.23	5.47	145.6
Paper and allied products	2.89	4.61	59.4	10.90	14.55	33.5	8.35	10.77	29.1
Leather and leather products	0.34	0.52	52.8	10.93	14.15	29.4	0.38	0.63	66.4

GDP figures for forestry and fisheries include some agricultural services as well.

Sources: For employment, U.S. Department of Labor, Bureau of Labor Statistics; for GDP, U.S. Department of Commerce, Bureau of Economic Analysis; for trade, U.S. Bureau of the Census.

Table 5--U.S. trade in agriculture and agriculture-related industries, 1989-98

Industry/SIC Code	\$ billion										Averages		Change Percent
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1989-93	1994-98	
<b>Agriculture, food, &amp; kindred products (01, 02, 20)</b>													
Total exports	40.745	40.380	40.478	44.357	44.004	47.340	57.484	61.785	58.547	53.162	41.993	55.664	32.6
NAFTA exports	5.316	7.461	8.345	9.431	9.660	10.931	10.115	12.416	12.934	14.178	8.043	12.115	50.6
Exports to Canada	2.549	4.887	5.319	5.617	6.006	6.347	6.661	7.032	7.772	8.017	4.876	7.166	47.0
Exports to Mexico	2.767	2.574	3.027	3.814	3.654	4.584	3.454	5.384	5.163	6.161	3.167	4.949	56.3
Total imports	23.065	24.900	24.678	26.227	26.182	28.593	30.968	34.777	37.788	38.910	25.010	34.207	36.8
NAFTA imports	5.758	6.509	6.653	7.403	8.239	9.105	10.433	11.666	12.775	13.759	6.912	11.548	67.1
Imports from Canada	3.377	3.754	4.008	4.866	5.378	6.060	6.454	7.723	8.478	8.885	4.277	7.520	75.8
Imports from Mexico	2.380	2.754	2.645	2.537	2.861	3.045	3.979	3.943	4.296	4.874	2.636	4.027	52.8
<b>Agriculture, including livestock (01, 02)</b>													
Total exports	25.369	24.056	22.738	24.230	23.112	23.874	31.114	34.136	29.463	25.275	23.901	28.773	20.4
NAFTA exports	2.684	3.766	3.768	4.242	4.205	4.716	4.528	6.114	5.720	6.290	3.733	5.474	46.6
Exports to Canada	1.199	2.323	2.348	2.381	2.546	2.503	2.699	2.731	2.942	2.959	2.159	2.767	28.1
Exports to Mexico	1.485	1.444	1.419	1.861	1.659	2.213	1.828	3.383	2.777	3.331	1.573	2.706	72.0
Total imports	7.524	8.567	8.955	9.297	9.580	10.797	12.257	13.470	14.769	14.666	8.785	13.192	50.2
NAFTA imports	2.869	3.368	3.353	3.688	4.112	4.456	5.324	5.601	5.963	6.203	3.478	5.509	58.4
Imports from Canada	1.208	1.446	1.512	2.003	2.157	2.445	2.565	3.072	3.302	3.239	1.665	2.925	75.6
Imports from Mexico	1.661	1.922	1.840	1.684	1.955	2.011	2.760	2.529	2.661	2.964	1.813	2.585	42.6
<b>Agricultural products (01)</b>													
Total exports	24.521	23.197	21.737	23.302	22.264	22.894	30.151	33.140	28.312	24.154	23.004	27.730	20.5
NAFTA exports	2.458	3.479	3.386	3.857	3.880	4.319	4.271	5.793	5.238	5.833	3.412	5.091	49.2
Exports to Canada	1.087	2.138	2.167	2.205	2.342	2.274	2.486	2.510	2.697	2.683	1.988	2.530	27.3
Exports to Mexico	1.371	1.341	1.218	1.652	1.538	2.045	1.785	3.283	2.541	3.150	1.424	2.561	79.8
Total imports	6.224	6.955	7.311	7.262	7.423	8.751	9.815	11.099	12.285	12.194	7.035	10.829	53.9
NAFTA imports	1.983	2.068	2.017	2.034	2.344	2.840	3.318	3.736	4.001	4.234	2.089	3.626	73.5
Imports from Canada	0.610	0.573	0.541	0.696	0.824	1.185	1.114	1.341	1.528	1.485	0.649	1.331	105.0
Imports from Mexico	1.373	1.495	1.476	1.339	1.520	1.655	2.204	2.394	2.473	2.749	1.441	2.295	59.3
<b>Livestock and livestock products (02)</b>													
Total exports	0.848	0.859	1.001	0.928	0.848	0.980	0.964	0.997	1.151	1.121	0.897	1.043	16.3
NAFTA exports	0.226	0.287	0.382	0.385	0.324	0.397	0.257	0.320	0.481	0.457	0.321	0.383	19.3
Exports to Canada	0.111	0.184	0.181	0.176	0.204	0.229	0.214	0.221	0.245	0.276	0.171	0.237	38.3
Exports to Mexico	0.114	0.102	0.201	0.209	0.121	0.168	0.044	0.099	0.236	0.181	0.149	0.146	-2.5
Total imports	1.300	1.612	1.644	2.035	2.157	2.046	2.442	2.371	2.484	2.472	1.750	2.363	35.1
NAFTA imports	0.886	1.300	1.336	1.653	1.767	1.616	2.007	1.866	1.962	1.969	1.389	1.884	35.7
Imports from Canada	0.598	0.873	0.972	1.308	1.332	1.260	1.451	1.731	1.774	1.755	1.016	1.594	56.8
Imports from Mexico	0.288	0.427	0.364	0.346	0.435	0.355	0.556	0.135	0.188	0.215	0.372	0.290	-22.1

--Continued

Table 5--U.S. trade in agriculture and agriculture-related industries, 1989-98--Continued

Industry/SIC Code	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Averages		Change Percent
	\$ billion											1989-93	
<b>Food and kindred products (20)</b>													
Total exports	15.376	16.324	17.740	20.127	20.892	23.466	26.370	27.649	29.084	27.887	18.092	26.891	48.6
NAFTA exports	2.633	3.695	4.578	5.189	5.455	6.215	5.587	6.302	7.215	7.888	4.310	6.641	54.1
Exports to Canada	1.350	2.564	2.970	3.237	3.460	3.844	3.961	4.301	4.829	5.058	2.716	4.399	61.9
Exports to Mexico	1.282	1.131	1.607	1.953	1.995	2.371	1.626	2.001	2.385	2.830	1.594	2.243	40.7
Total Imports	15.540	16.333	15.723	16.930	16.602	17.796	18.711	21.306	23.019	24.244	16.226	21.015	29.5
NAFTA imports	2.888	3.141	3.300	3.715	4.127	4.649	5.109	6.065	6.812	7.556	3.434	6.038	75.8
Imports from Canada	2.169	2.308	2.495	2.863	3.221	3.615	3.890	4.651	5.176	5.646	2.611	4.596	76.0
Imports from Mexico	0.719	0.832	0.805	0.852	0.906	1.034	1.219	1.414	1.636	1.910	0.823	1.443	75.3
<b>Forestry products (08)</b>													
Total exports	0.254	0.260	0.286	0.307	0.293	0.284	0.297	0.293	0.300	0.283	0.280	0.291	4.1
NAFTA exports	0.050	0.050	0.053	0.055	0.050	0.068	0.077	0.079	0.091	0.084	0.052	0.080	54.0
Exports to Canada	0.039	0.039	0.036	0.034	0.035	0.041	0.042	0.041	0.050	0.049	0.037	0.044	21.6
Exports to Mexico	0.011	0.011	0.018	0.020	0.016	0.028	0.035	0.038	0.041	0.035	0.015	0.035	132.0
Total imports	1.235	0.896	0.846	0.956	1.068	1.209	1.936	1.806	1.627	1.447	1.000	1.605	60.5
NAFTA imports	0.037	0.034	0.032	0.030	0.036	0.031	0.031	0.038	0.047	0.051	0.034	0.040	16.7
Imports from Canada	0.025	0.026	0.022	0.020	0.025	0.022	0.022	0.027	0.034	0.036	0.024	0.028	18.7
Imports from Mexico	0.012	0.008	0.010	0.010	0.011	0.009	0.009	0.012	0.013	0.015	0.010	0.012	12.3
<b>Fish and other marine products (09)</b>													
Total exports	2.078	2.660	2.829	3.073	2.736	2.789	2.952	2.723	2.448	1.999	2.675	2.582	-3.5
NAFTA exports	0.219	0.352	0.388	0.363	0.378	0.411	0.447	0.471	0.458	0.466	0.340	0.451	32.6
Exports to Canada	0.190	0.333	0.356	0.319	0.333	0.358	0.413	0.435	0.416	0.420	0.306	0.409	33.4
Exports to Mexico	0.029	0.020	0.032	0.044	0.045	0.053	0.034	0.036	0.042	0.046	0.034	0.042	25.3
Total imports	4.617	4.336	4.584	4.570	4.796	5.512	5.613	5.525	6.479	6.764	4.581	5.979	30.5
NAFTA imports	1.483	1.229	1.208	0.985	1.012	1.099	1.110	1.131	1.273	1.322	1.183	1.187	0.3
Imports from Canada	1.118	0.979	0.956	0.778	0.745	0.776	0.680	0.702	0.810	0.865	0.915	0.767	-16.2
Imports from Mexico	0.365	0.249	0.252	0.207	0.267	0.323	0.429	0.429	0.463	0.457	0.268	0.420	56.7

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Table 5--U.S. trade in agriculture and agriculture-related industries, 1989-98--Continued

Industry/SIC Code	\$ billion										Averages		Change Percent
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1989-93	1994-98	
<b>Lumber and wood products (24)</b>													
Total exports	6.091	6.601	6.645	6.896	7.437	7.336	7.519	7.505	7.407	6.047	6.734	7.163	6.4
NAFTA exports	0.903	1.265	1.409	1.604	1.667	1.696	1.623	1.598	1.959	1.995	1.370	1.774	29.5
Exports to Canada	0.673	0.988	1.018	1.085	1.183	1.273	1.361	1.342	1.659	1.619	0.990	1.451	46.6
Exports to Mexico	0.230	0.277	0.390	0.519	0.484	0.423	0.262	0.256	0.300	0.376	0.380	0.323	-14.9
Total imports	5.892	5.533	5.311	6.766	8.921	10.546	10.394	12.214	13.545	14.057	6.485	12.151	87.4
NAFTA imports	4.117	3.729	3.662	4.822	6.609	7.871	7.539	9.227	10.156	10.370	4.588	9.033	96.9
Imports from Canada	3.898	3.515	3.415	4.527	6.288	7.567	7.231	8.829	9.712	9.958	4.328	8.660	100.1
Imports from Mexico	0.220	0.214	0.247	0.295	0.322	0.303	0.308	0.399	0.444	0.412	0.259	0.373	43.8
<b>Furniture and fixtures (25)</b>													
Total exports	1.068	1.662	2.212	2.629	3.078	3.176	3.145	3.314	3.919	4.220	2.130	3.555	66.9
NAFTA exports	0.550	1.085	1.504	1.784	1.998	2.181	2.068	2.050	2.446	2.769	1.384	2.303	66.4
Exports to Canada	0.308	0.749	0.954	1.143	1.269	1.504	1.537	1.523	1.796	1.980	0.885	1.668	88.5
Exports to Mexico	0.242	0.336	0.550	0.641	0.728	0.678	0.531	0.527	0.650	0.789	0.499	0.635	27.2
Total imports	5.113	5.174	5.067	5.565	6.265	7.524	8.305	9.326	11.014	13.140	5.437	9.862	81.4
NAFTA imports	1.711	1.779	1.706	2.021	2.398	3.050	3.493	4.242	5.106	5.968	1.923	4.372	127.3
Imports from Canada	1.172	1.188	1.042	1.228	1.489	1.909	2.276	2.703	3.203	3.698	1.224	2.758	125.4
Imports from Mexico	0.539	0.592	0.665	0.793	0.909	1.141	1.218	1.538	1.903	2.271	0.699	1.614	130.8
<b>Tobacco products (21)</b>													
Total exports	3.646	5.045	4.588	4.519	4.253	5.421	5.264	5.269	5.012	4.842	4.410	5.162	17.0
NAFTA exports	0.013	0.011	0.017	0.022	0.033	0.061	0.043	0.059	0.047	0.040	0.019	0.050	160.0
Exports to Canada	0.011	0.009	0.014	0.015	0.011	0.020	0.019	0.021	0.024	0.029	0.012	0.023	91.2
Exports to Mexico	0.002	0.003	0.004	0.007	0.022	0.042	0.023	0.038	0.023	0.011	0.007	0.027	270.8
Total imports	0.112	0.121	0.221	0.366	0.602	0.162	0.185	0.280	0.498	0.484	0.284	0.321	13.1
NAFTA imports	0.037	0.042	0.142	0.271	0.509	0.054	0.043	0.037	0.052	0.043	0.200	0.046	-77.3
Imports from Canada	0.032	0.038	0.138	0.268	0.506	0.049	0.037	0.026	0.026	0.032	0.196	0.034	-82.6
Imports from Mexico	0.005	0.004	0.004	0.003	0.004	0.004	0.006	0.011	0.025	0.010	0.004	0.011	185.9
<b>Textile mill products (22)</b>													
Total exports	2.900	3.737	4.236	4.602	4.827	5.285	5.839	6.330	7.225	7.337	4.060	6.403	57.7
NAFTA exports	0.832	1.374	1.530	1.739	1.914	2.222	2.383	2.764	3.295	3.786	1.478	2.890	95.6
Exports to Canada	0.515	0.951	1.090	1.158	1.272	1.422	1.588	1.728	2.004	2.089	0.997	1.766	77.1
Exports to Mexico	0.317	0.423	0.440	0.581	0.643	0.800	0.796	1.036	1.292	1.697	0.481	1.124	133.9
Total imports	7.355	4.929	5.439	5.945	6.258	6.614	7.035	7.240	8.435	8.849	5.985	7.635	27.6
NAFTA imports	0.349	0.393	0.443	0.521	0.609	0.777	1.047	1.403	1.782	1.933	0.463	1.388	199.9
Imports from Canada	0.266	0.290	0.322	0.411	0.490	0.630	0.756	0.919	1.088	1.211	0.356	0.921	158.6
Imports from Mexico	0.083	0.103	0.120	0.109	0.119	0.147	0.291	0.484	0.694	0.722	0.107	0.468	337.3

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Table 5--U.S. trade in agriculture and agriculture-related industries, 1989-98

Industry/SIC Code	\$ billion										Averages		Change Percent
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1989-93	1994-98	
<b>Apparel and other textile products (23)</b>													
Total exports	2,451	2,980	3,876	4,812	5,616	6,356	7,444	8,438	9,674	9,885	3,947	8,360	111.8
NAFTA exports	0,690	0,892	1,190	1,520	1,854	2,208	2,583	3,038	3,748	4,270	1,229	3,169	157.8
Exports to Canada	0,192	0,365	0,471	0,558	0,687	0,774	1,007	1,047	1,239	1,304	0,455	1,074	136.2
Exports to Mexico	0,499	0,527	0,718	0,962	1,167	1,435	1,575	1,990	2,509	2,966	0,775	2,095	170.5
Total imports	23,016	26,994	27,594	32,908	35,626	38,701	41,301	43,156	50,320	55,923	29,227	45,880	57.0
NAFTA imports	1,327	1,525	1,867	2,455	3,067	3,665	4,662	5,854	7,709	9,391	2,048	6,256	205.5
Imports from Canada	0,336	0,323	0,378	0,492	0,616	0,788	0,987	1,187	1,435	1,703	0,429	1,220	184.4
Imports from Mexico	0,991	1,203	1,489	1,962	2,451	2,877	3,675	4,667	6,274	7,688	1,619	5,036	211.1
<b>Paper and allied products (26)</b>													
Total exports	8,241	8,754	9,362	10,141	9,518	11,119	15,139	14,225	14,695	13,929	9,203	13,821	50.2
NAFTA exports	1,788	2,414	2,721	3,109	3,314	3,926	4,577	4,719	5,204	5,598	2,669	4,805	80.0
Exports to Canada	0,904	1,516	1,690	1,827	1,938	2,213	2,801	2,897	3,141	3,301	1,575	2,870	82.3
Exports to Mexico	0,884	0,898	1,031	1,282	1,376	1,713	1,776	1,822	2,063	2,298	1,094	1,934	76.8
Total imports	11,886	11,703	10,514	10,467	10,896	11,784	16,769	14,786	14,849	15,870	11,093	14,811	33.5
NAFTA imports	9,349	9,138	8,216	7,986	8,053	8,670	12,555	11,028	10,845	11,191	8,548	10,858	27.0
Imports from Canada	8,974	8,946	8,093	7,863	7,945	8,531	12,249	10,789	10,570	10,876	8,364	10,603	26.8
Imports from Mexico	0,375	0,193	0,123	0,123	0,108	0,139	0,306	0,240	0,275	0,315	0,184	0,255	38.2
<b>Leather and leather products (31)</b>													
Total exports	1,153	1,419	1,454	1,575	1,489	1,679	1,715	1,897	2,088	2,017	1,418	1,879	32.5
NAFTA exports	0,235	0,295	0,306	0,365	0,383	0,445	0,472	0,513	0,631	0,669	0,317	0,546	72.4
Exports to Canada	0,126	0,185	0,189	0,199	0,217	0,245	0,256	0,270	0,311	0,309	0,183	0,278	51.6
Exports to Mexico	0,109	0,110	0,117	0,165	0,165	0,200	0,216	0,243	0,320	0,360	0,133	0,268	101.0
Total imports	9,906	10,665	10,347	10,907	11,816	13,057	13,699	14,285	15,566	15,766	10,728	14,475	34.9
NAFTA imports	0,343	0,348	0,326	0,399	0,447	0,506	0,575	0,674	0,776	0,736	0,373	0,653	75.3
Imports from Canada	0,089	0,099	0,073	0,080	0,100	0,135	0,141	0,153	0,167	0,147	0,088	0,149	69.0
Imports from Mexico	0,254	0,250	0,254	0,319	0,347	0,371	0,433	0,521	0,609	0,589	0,285	0,505	77.3

Source: U.S. Bureau of the Census.

Employment in tobacco manufactures averaged 53,000 during 1994-98, slightly less than the 1987-93 average of 55,000. Exports are extremely important to this sector, but trade in tobacco manufactures between the United States and the other NAFTA countries is relatively small. During 1994-97, U.S. trade with Canada and Mexico in tobacco manufactures (the sum of both exports and imports) equaled less than 1 percent of industry GDP. Thus, NAFTA probably had a minimal impact on employment in this sector.

Employment in paper and allied products is declining, a trend that precedes NAFTA by 4 years. Employment fell from a relative high of 749,000 in 1989 to 683,000 in 1998. Nevertheless, U.S. exports in this sector to NAFTA countries have increased substantially. Between 1989-93 and 1994-98, exports to Canada climbed 75.4 percent, and exports to Mexico increased 76.8 percent. Imports from Canada and Mexico increased far more modestly, only slightly exceeding the overall growth rate of the U.S. economy. Therefore, NAFTA probably slowed the decrease in employment in this sector.

In the textile and apparel industries, U.S. employment continues to experience a sustained decline. Between 1993 and 1998, textile employment decreased 6.4 percent to 595,000. In the apparel sector, the decline has been even more severe. During 1993-98, employment dropped about 20 percent to 825,000. In 1998 alone, employment in the apparel sector fell 12.7 percent. The two sectors also have experienced limited output growth since 1994. Between 1990-93 and 1994-97, GDP for the apparel sector grew only 1.0 percent, and the textile industry's GDP actually contracted 1.9 percent.

Although U.S. employment in these sectors has decreased, NAFTA has enabled North American producers to expand their share of the U.S. market. In terms of millions of square meter equivalent, Mexico and Canada were the first and second largest exporters of textiles and apparel to the United States in 1998 (Green, 1999). Between 1989-93 and 1994-98, annual average Mexican textile and apparel exports to the United States surged from \$1.7 billion to \$5.5 billion. Over the same period, annual average Canadian exports of such products to the United States jumped from \$0.8 billion to \$2.1 billion.

These developments may have helped U.S. textile and apparel industries retain jobs that would have relocated to other parts of the world in the absence of NAFTA. As part of a more integrated North American textile and apparel sector, U.S. exports of textiles and apparel to NAFTA countries increased from an average of \$2.7 billion during 1989-93 to \$6.1 billion during 1994-98.

Finally, the leather and leather products sector has experienced slow output growth and offsetting increases in total exports and imports since 1994. In 1994-97, the industry's GDP was just 6.1 percent higher than in 1990-93. Total U.S. exports of leather and leather products in 1994-98 were 32.5

percent higher than in 1989-93, and total imports grew 34.9 percent. In this setting, employment in the industry decreased from 144,000 in 1995 to 108,000 in 1998. The sharp reduction is a marked departure from the slow, downward trend in employment that had prevailed in the sector since 1985.

## NAFTA-TAA Certifications

The NAFTA Transitional Adjustment Assistance (NAFTA-TAA) Program was established by the North American Free Trade Agreement Implementation Act of 1993. The program provides job training, career counseling, and various financial allowances to workers "who lose their jobs or whose hours of work and wages are reduced as a result of trade with Canada or Mexico" (U.S. Department of Labor, 1999). Employers, labor unions, community-based organizations, and groups of three or more workers are allowed to submit petitions for NAFTA-TAA.

A few researchers have mistakenly interpreted the estimated number of affected workers listed in the certification records as a measure of the number of jobs lost due to NAFTA. However, the estimate is actually an indication from the NAFTA-TAA Program to the state governments of the maximum number of workers associated with each certification who might require assistance through the program. Instead of focusing on this number, this section profiles the distribution of certifications by state and economic sector and examines the labor-market conditions in counties where certified agriculture-related firms are located.

Hardly any certifications have occurred in agriculture itself. Of the 1,794 certifications that were issued between 1994 and 1998, only 19 were in agriculture. Of these, 12 were in crop production, six were in livestock production, and one was in agricultural services. The 19 agricultural certifications authorize assistance for an estimated 3,990 workers. Table 6 summarizes these certifications, as well as those in the related industry of food processing.

Far more certifications have been issued in industries related to agriculture. During 1994-98, 873 certifications were issued in the nine agriculture-related sectors identified above, and another 47 were issued in cases involving agriculture-related firms in other sectors (table 7). An estimated 148,182 workers were included in the 873 certifications. About half of these workers are associated with the apparel and finished textiles sector.

About three-fourths of the agriculture-related certifications occurred in two sectors: apparel and other textile products (532 certifications), and lumber and wood products (133 certifications). In these two sectors, several states had more than 20 certifications (table 6). In apparel, the states are Alabama (21), California (21), Georgia (51), North Carolina (59), Pennsylvania (56), Tennessee (50), Texas (87), and

Table 6--NAFTA-TAA certifications in agriculture and food processing, 1994-98

**Certifications in agriculture**

Year	Firm's location	Product(s)	SIC
1998	California	Tomatoes	0161
	Iowa	Beans	0119
	Minnesota	Beef processing	0211
	Oregon	Seedings	0721
1997	Florida	Tomatoes, pickles, squash	0161
	Florida	Bell peppers, tomatoes	0161
	Florida	Green beans	0161
	Florida	Tomatoes	0161
	Georgia	Baby chicks	0254
1996	California	Vegetable manufacturing	0161
	Florida	Yellow crook-neck squash and zucchini	0161
	New York	Beef	0212
	North Carolina	Turkey hatching eggs	0253
	Oregon	Mushrooms	0182
1995	California	Onion fields	0161
	Pennsylvania	Fresh cut flowers	0181
1994	California	Table grapes	0172
	Florida	Tomatoes (fresh)	0161
	Washington	Beef	0211

**Certifications in food processing**

Year	Firm's location	Product(s)	SIC
1998	Massachusetts	Canned fruit	2037
	Illinois	Beef carcasses	2011
	New York	Packaging frozen fruits and vegetables	2037
	Arizona	Dry pasta	2099
1997	Idaho	Frozen potatoes	2099
	Idaho	Frozen processed potato products	2099
	Maine	Sardines	2091
	Michigan	Frozen potato products	2037
	New York	Frozen unbaked sweet goods	2053
1996	Oregon	Vegetable oils for cooking	2079
	Pennsylvania	Chocolate candy	2064
	Pennsylvania	Food colorings and sauces	2035
	Wisconsin	Beer	2082
	Wisconsin	Beer	2082
1995	California	Ready to eat cereal	2041
	New Jersey	Compressed yeast	2099
	New York	Beer	2082
	Ohio	Dry soup noodles	2034
	Ohio	Muffins	2053
	Texas	Candy	2064
	Texas	Guacamole	2033
	Washington	Yeast	2099
1994	California	Beverage flavor concentrates	2087
	Texas	Commercial shrimp production	2092
	Texas	Commercial shrimp production	2092
	Texas	Commercial shrimp production	2092
	Washington	Processed pork and meat products	2013
	Washington	Snack foods, corn chips, tortilla chips	2096

Source: U.S. Department of Labor, Employment and Training Administration.



Table 7--NAFTA-TAA certifications by State and selected two-digit SIC codes, 1994-98

	Total	Agricultural production -- crops (01)	Agricultural production --livestock (02)	Agricultural services (07)	Food and kindred products (20)	Textile mill products (22)	Apparel and other textile products (23)	Lumber and wood products (24)	Furniture and fixtures (25)	Paper and allied products (26)	Leather and leather products (31)	Other agriculture-related certifications	All other certifications
United States	1,794	12	6	1	28	68	532	133	16	41	55	47	855
Alaska	3	0	0	0	0	0	0	0	0	3	0	0	0
Alabama	30	0	0	0	0	2	21	0	0	0	0	0	7
Arizona	24	0	0	0	1	1	4	0	1	0	0	3	14
Arkansas	41	0	0	0	0	0	18	1	0	2	5	0	15
California	101	4	0	0	2	2	21	1	2	1	3	2	63
Colorado	22	0	0	0	0	0	2	2	0	0	0	0	18
Connecticut	8	0	0	0	0	0	2	0	0	0	0	0	6
Delaware	0	0	0	0	0	0	0	0	0	0	0	0	0
District of Columbia	0	0	0	0	0	0	0	0	0	0	0	0	0
Florida	33	6	0	0	0	0	11	0	0	0	1	0	15
Georgia	90	0	1	0	0	9	51	1	1	0	1	0	26
Hawaii	0	0	0	0	0	0	0	0	0	0	0	0	0
Idaho	35	0	0	0	2	0	1	24	0	0	0	1	7
Illinois	40	0	0	0	1	0	1	2	1	0	0	1	34
Indiana	48	0	0	0	0	0	5	0	0	3	0	0	40
Iowa	6	0	1	0	0	0	0	0	0	0	0	0	5
Kansas	8	0	0	0	0	0	0	0	0	1	0	0	7
Kentucky	20	0	0	0	0	0	6	0	0	0	0	0	14
Louisiana	13	0	0	0	0	0	9	0	0	0	0	0	4
Maine	10	0	0	0	1	0	1	0	0	2	3	0	3
Maryland	3	0	0	0	0	0	0	0	0	0	0	0	3
Massachusetts	29	0	0	0	1	1	4	0	0	2	1	1	19
Michigan	54	0	0	0	1	5	1	8	1	1	1	0	36
Minnesota	12	0	1	0	0	0	1	0	0	0	0	0	10
Mississippi	1	0	0	0	0	0	0	0	0	0	0	0	1
Missouri	50	0	0	0	0	2	13	1	0	2	15	1	16
Montana	20	0	0	0	0	0	5	6	0	0	0	0	9
Nebraska	2	0	0	0	0	0	0	0	0	0	0	0	2
Nevada	6	0	0	0	0	0	0	0	1	0	0	2	3
New Hampshire	5	0	0	0	0	0	0	0	0	1	1	0	3
New Jersey	52	0	0	0	1	1	5	0	0	1	0	6	38
New Mexico	9	0	0	0	0	1	2	0	0	1	0	0	5
New York	107	0	1	0	3	6	19	0	0	3	2	0	73
North Carolina	114	0	1	0	0	14	59	1	4	0	1	2	32
North Dakota	2	0	0	0	0	0	0	0	1	0	0	0	1
Ohio	43	0	0	0	2	0	3	1	0	0	0	0	37
Oklahoma	9	0	0	0	0	0	1	0	0	0	2	0	6
Oregon	69	1	0	1	1	0	4	40	0	2	1	2	17
Pennsylvania	153	1	0	0	2	9	56	1	0	3	2	4	75
Puerto Rico	2	0	0	0	0	0	2	0	0	0	0	0	0
Rhode Island	0	0	0	0	0	0	0	0	0	0	0	0	0
South Carolina	36	0	0	0	0	4	15	0	0	0	0	1	16
South Dakota	3	0	0	0	0	0	0	0	0	0	0	0	3
Tennessee	90	0	0	0	0	5	50	0	0	2	4	4	25
Texas	189	0	0	0	5	5	87	1	0	2	11	7	71
Utah	9	0	0	0	0	0	2	0	0	0	0	0	7
Vermont	3	0	0	0	0	0	1	0	0	0	0	0	2
Virginia	45	0	0	0	0	1	31	1	2	1	0	0	9
Washington	74	0	1	0	3	0	5	38	1	2	0	7	17
West Virginia	18	0	0	0	0	0	9	0	1	1	0	1	6
Wisconsin	38	0	0	0	2	0	3	3	0	5	1	2	22
Wyoming	15	0	0	0	0	0	1	1	0	0	0	0	13

No certifications occurred in tobacco manufactures (21).

Source: U.S. Department of Labor, Employment and Training Administration.

Virginia (31). In lumber and wood products, the states are Idaho (24), Oregon (40), and Washington (38).

Using county-level employment and unemployment data for 1987-97, we compare the rates of employment growth and unemployment in four types of counties:

- (1) nonmetro counties with agriculture-related certifications (296 counties),
- (2) nonmetro counties without such certifications (2,008 counties),
- (3) metro counties with such certifications (180 counties), and
- (4) metro counties without such certifications (656 counties).

Counties with agriculture-related certifications tended to experience higher rates of unemployment and slower rates of employment growth during NAFTA's early years. However, these differences also existed prior to NAFTA, suggesting that some agriculture-related sectors were already restructuring when the agreement got underway.

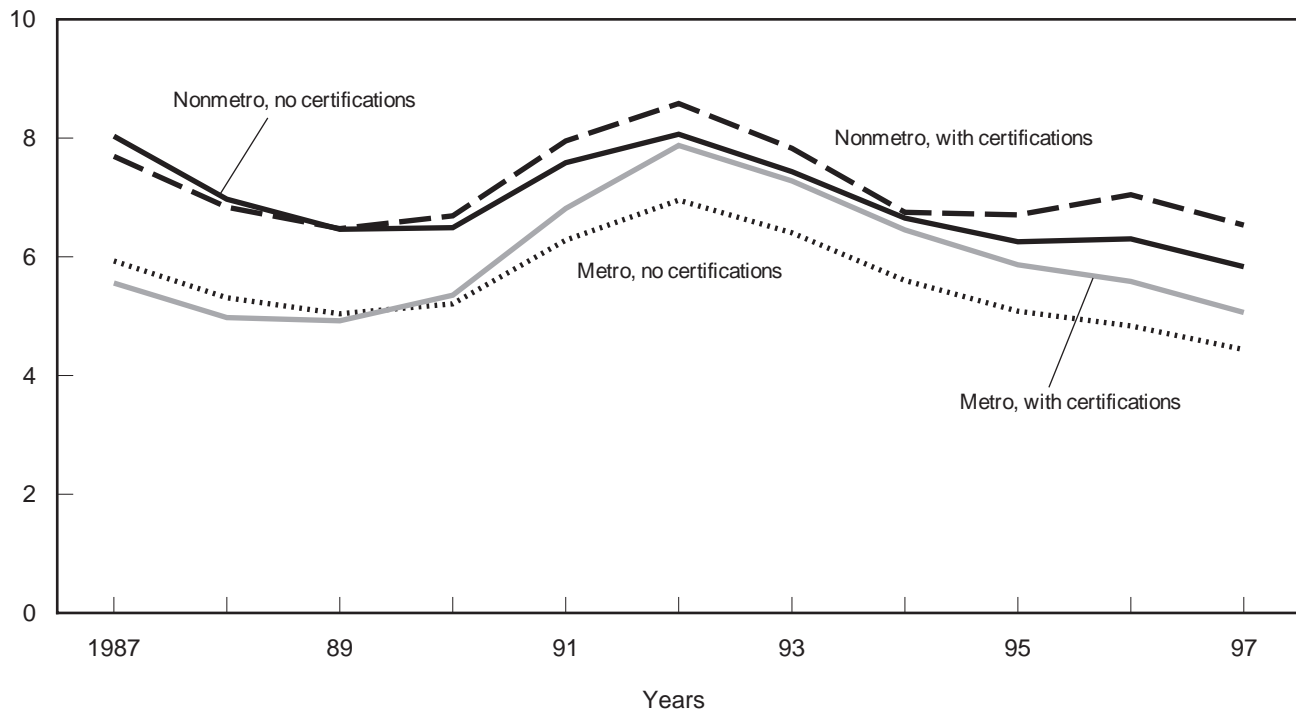
Since 1992, unemployment rates have declined dramatically in all four types of counties (fig. 13). However, for both nonmetro and metro areas, unemployment rates were

generally higher in counties with agriculture-related NAFTA-TAA certifications. For nonmetro counties, this trend extends back to 1989. Also, the unemployment rate in nonmetro areas increased slightly in 1996. This increase was felt more sharply in non-metro counties with agriculture-related certifications.

As the U.S. economy recovered from the 1991 recession, employment growth accelerated from negative 0.9 percent in 1991 to 2.3 percent in 1994. Employment growth then slowed in 1995 and 1996, before experiencing a spurt of 2.0 percent in 1997. All four types of counties followed this general pattern, but counties with agriculture-related certifications experienced lower rates of employment growth (fig. 14). In nonmetro areas, this difference was most noticeable in 1993, 1996, and 1997, when the gap ranged between 0.24 and 0.31 percent.

In metro areas, the rate of job loss during the 1991 recession was far more pronounced in counties with agriculture-related certifications. As was the case in nonmetro areas, employment rebounded more slowly between 1992 and 1994 in metro counties with agriculture-related certifications than in other metro counties. In 1997, employment growth in metro counties with certifications finally exceeded that in other metro areas.

Figure 13  
**Unemployment Rates in Selected Types of Counties, 1987-97**  
 Percent

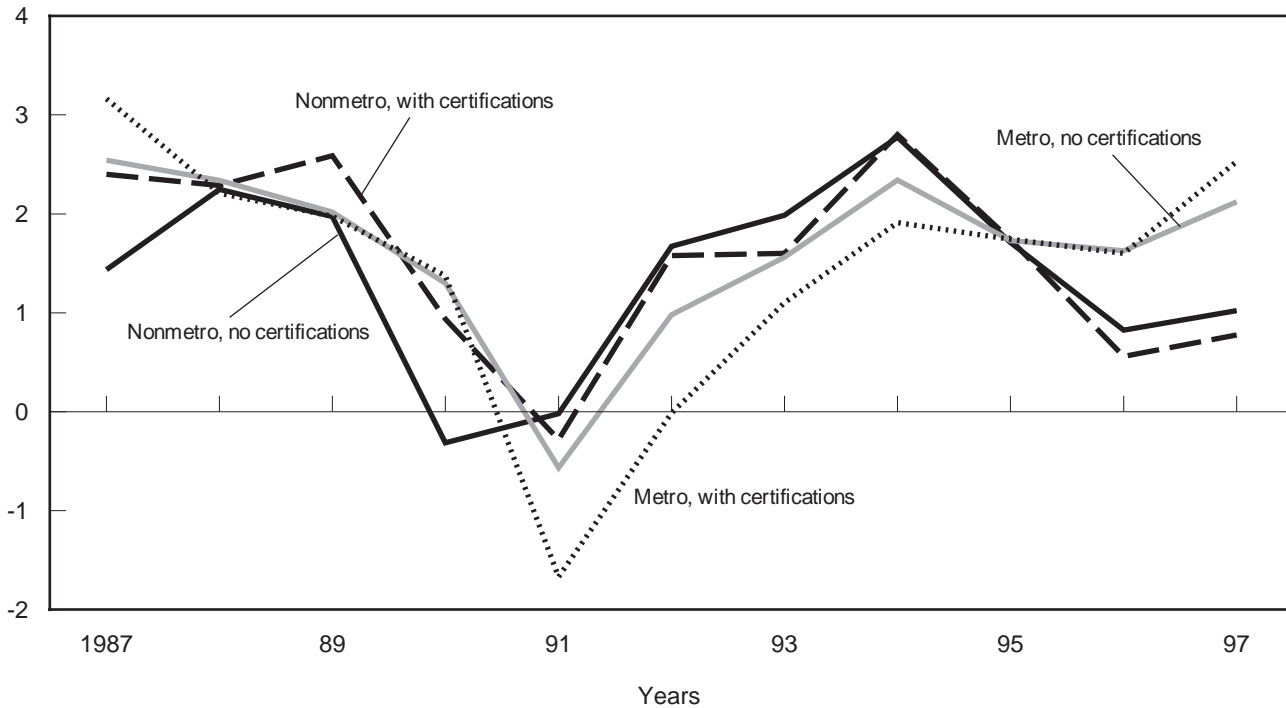


Source: Bureau of Labor Statistics, Department of Labor.

Figure 14

**Employment Growth in Selected Types of Counties, 1987-97**

Percent



Source: Bureau of Labor Statistics, Department of Labor.

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# Investment in Agriculture and Food Processing

## Introduction

Before NAFTA, there was some concern about the agreement's potential impact on agricultural investment. Some people thought that capital investment in U.S. agriculture might decline due to the agreement, especially if investments flowed to Canada and Mexico instead of the United States.

This scenario is not borne out by the available data. Between 1993 and 1997, nominal capital expenditures in U.S. agriculture increased from \$13.9 billion annually to \$16.2 billion, well above the pre-NAFTA level (fig. 15). In real terms, farm capital expenditures increased in 1996 and 1997, surpassing their 1993 level after dipping in 1994 and 1995.

In addition, NAFTA has spurred companies in each signatory country to increase their foreign direct investment (FDI) in the food processing sectors of the other NAFTA countries. The \$18 billion in sales generated by U.S. FDI in the processed food industries of Mexico and Canada exceed U.S. exports of processed food products to these countries by three to one. Some \$12 billion of these sales took place in Canada, and \$6 billion occurred in Mexico.

## U.S. Farm and Food-Processing Investment

### Farm Capital Expenditures

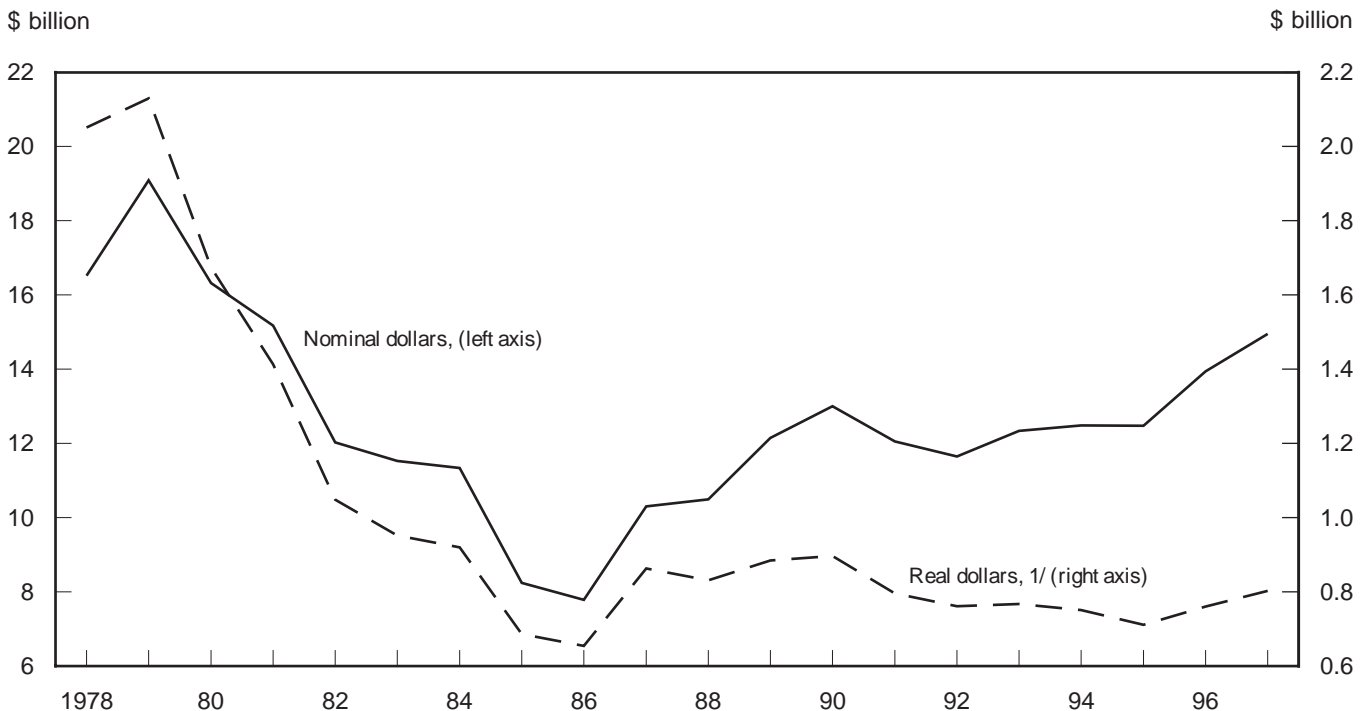
It is difficult to assign capital expenditure patterns to pre- and post-NAFTA eras. Negotiations for the agreement began in 1991, and the accord was approved in 1993 and became effective January 1, 1994. Many investment decisions were made well before NAFTA's adoption, as farmers and other investors appraised the potential effects of the agreement even as it was being negotiated.

Farmers may have taken a second look at their capital investment decisions as they discovered that the effects of NAFTA were more favorable than some had anticipated. In 1994, farm capital expenditures (as defined by ERS) increased slightly in nominal terms but decreased in real terms. However, these expenditures increased from 1994 to 1997 in both real and nominal terms.

Capital expenditures in all regions of the U.S. farm economy increased following NAFTA (table 8). Corn Belt farmers, with nearly one-fifth of the total, boosted their capital

Figure 15

### Farm Business Capital Expenditures



1/ ERS deflator (1935-39=100).

Source: Economic Research Service, USDA.

Table 8--Capital expenditures in U.S. agriculture, 1991-97

Year	Total	North- east	Lake	Corn Belt	Northern Plains	Appalachia	South- east	Delta	Southern		
									Plains	Mountain	Pacific
Million dollars											
1991	13,140	970	1,644	2,920	1,451	1,219	691	735	1,224	906	1,377
1992	12,616	929	1,826	2,636	1,412	1,292	755	659	1,159	791	1,154
1993	13,868	863	1,846	2,975	1,653	1,250	858	790	1,323	944	1,303
1994	13,880	930	1,910	2,986	1,613	1,224	871	727	1,193	1,061	1,361
1995	13,776	1,098	1,873	2,891	1,621	1,512	1,014	694	1,396	1,230	1,525
1996	15,196	1,174	1,960	2,915	1,862	1,625	957	770	1,233	1,213	1,481
1997	16,244	1,134	2,113	3,209	1,958	1,590	1,043	819	1,469	1,278	1,627

Source: Compiled from ERS information.

expenditures 10.1 percent in 1997, following a brief decline in 1995 and modest increases in 1994 and 1996. The Mountain and Northeast regions experienced the greatest proportionate increase between 1993 and 1997, with capital expenditures rising 35.4 percent and 31.4 percent respectively. Expenditures increased the least in the Delta States. In the Pacific States, capital expenditures declined in 1996 but were 24.1 percent higher in 1997 than in 1993.

In States bordering Mexico, some producers initially thought that they might lose markets due to NAFTA. Fruit and vegetable growers in the Pacific States, particularly California, feared that competition from Mexico would lower their economic returns. Florida fruit and vegetable producers shared this concern. However, export opportunities in NAFTA countries and other parts of the world, such as the Pacific Rim, were more robust than anticipated, providing farmers with the confidence to make greater capital expenditures.

### **Capital Stock in U.S. Agriculture And Food Processing**

In nominal terms, the capital stock in U.S. agriculture (defined as fixed reproducible tangible wealth) increased in 1994 and gradually declined over 1995-97 (fig. 16). This continues a period of relative stability in the capital stock's nominal value that dates back to 1990. NAFTA, together with transition payments under the FAIR Act, may have sustained this period of stability.

In real terms, the capital stock in U.S. farms continued to slide during the first 4 years of NAFTA, a trend that has existed since 1979. This means that much capital stock, whether in farm buildings or farm equipment, has not been fully replaced. There are many reasons for this, including the consolidation of farms and the more efficient use of machinery and equipment, resulting in economies of scale.

In contrast, investment in food processing has grown in both nominal and real terms since NAFTA's implementation. The U.S. food and beverage industry increased its capital stock in real terms by nearly 7 percent from 1993 to 1997 (U.S. Department of Commerce, 1998). Fixed private capital

investment in the total U.S. economy increased 10 percent over the same period.

### **The Different Roles of Capital in Agriculture and Food Processing**

NAFTA probably did not significantly affect the capitalization of U.S. agriculture. The agricultural sector competes with other sectors for available capital investment and must have higher relative returns to capital in order to attract capital. Except for 1996, recent price signals have not lured factors to enter the sector. Still, the declining real capital stock in agriculture has not constrained agricultural production. Gopinath, Roe, and Shane (1996) noted that the increase in capital contributed less than 3 percent to the growth of U.S. agricultural output during 1959-91. In sharp contrast, the increase in capital accounted for roughly one-third of output growth in the food processing industry over the same period. Arnade and Gopinath (1998) demonstrated that rapid structural adjustment has taken place in the processed food industry, while agricultural capital has behaved almost like a fixed factor of production. Technological change, rather than capital growth, has been the major contributor to agricultural growth during the postwar period.

The agricultural sector is unique because production depends on weather and involves longer time lags. If capital adjusts faster in other sectors of the economy, these sectors may use relatively newer capital equipment, giving them a productivity advantage. This would make investment in agriculture relatively less attractive.

### **NAFTA and Foreign Direct Investment**

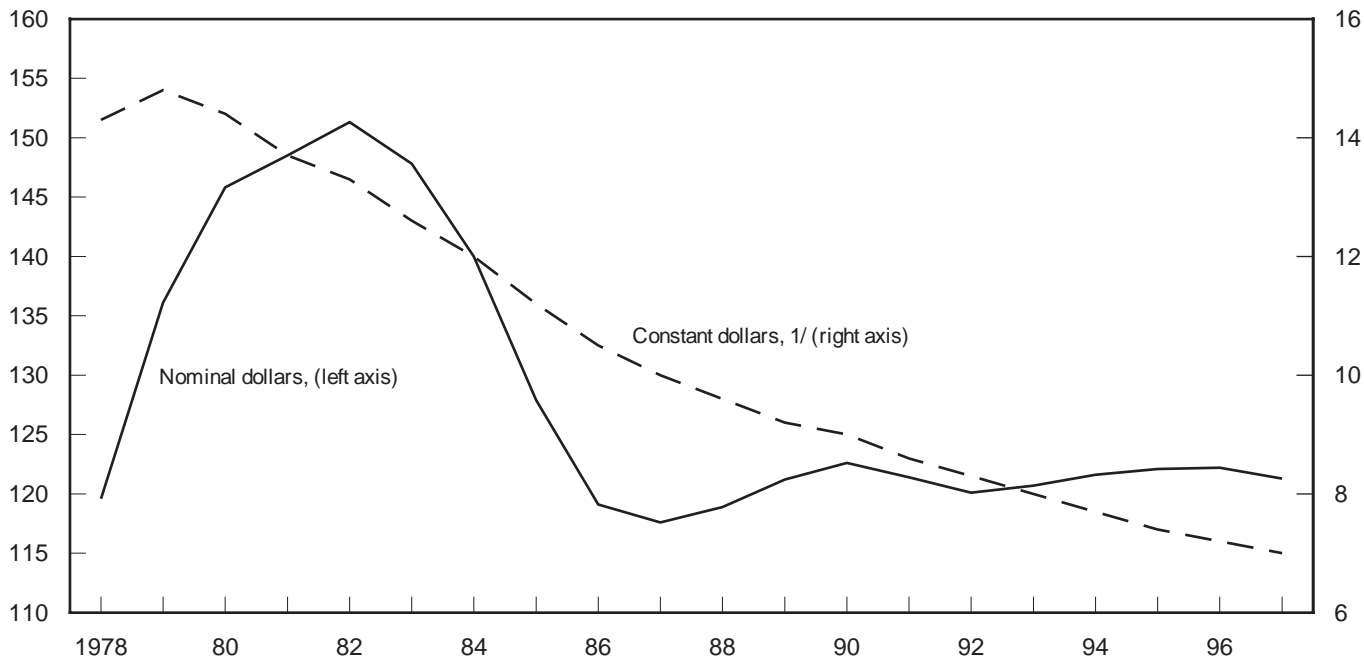
Given NAFTA's strong emphasis on trade liberalization, it is sometimes forgotten that the agreement contains important rules governing FDI. These rules generally strengthen the rights of foreign investors to get back their initial investment and profits. They also grant equal treatment to foreign and domestic investors alike under the laws of each NAFTA country and prohibit new laws that would change the status of foreign investments, once they are established.

Figure 16

**Total Capital Stock, Excluding Operator Dwellings**

\$ billion

\$ billion



1/ ERS deflator (1935-39=100).

Source: Economic Research Service, USDA.

This combination of trade liberalization and investment reform has stimulated two-way FDI in the North American food processing industry, with capital being provided by U.S., Canadian, and to a lesser extent, Mexican firms. For producers, FDI has meant greater dissemination of new technology and accompanying efficiency gains. For consumers, it has meant lower food costs, expanded choices in food and beverages, and greater uniformity in food quality. Other benefits include an increase in employment attributable to U.S. affiliates in Mexico and Canada, as well as to Mexican and Canadian affiliates in the United States, and an increase in earnings from U.S. investments abroad.

**U.S. Direct Investment in Mexico's Processed Food Industry**

U.S. investment in Mexico's \$21-billion processed food industry increased from \$2.3 billion in 1993 to \$5.0 billion in 1997. This trend began in the late 1980's, when the Mexican government changed many of its rules governing FDI. The enactment of NAFTA further increased investor confidence in Mexico, creating a synergy between investment and trade. Mexico is the third largest host country for U.S. FDI in processed foods and beverages.

Nearly three-fourths of U.S. FDI in the processed food industries is concentrated in highly processed products. Examples include mayonnaise and salad dressing, concen-

trates and flavorings, confectionery products, pasta and related products, and canned and frozen meats. Only 5 percent is in processed fruits and vegetables. Another 15 percent is in beverages, and about one-tenth is in grain mill or bakery products.

**U.S. Direct Investment in Mexico's Production Agriculture**

U.S. companies have invested to a much lesser extent in Mexico's production agriculture, since the type of irrigated land that would be most profitable to growing higher-value commodities—particularly fruits and vegetables—is relatively scarce in Mexico. Between 1994 and 1997, accumulated U.S. investment in Mexico's crop and livestock production equaled \$45 million, or 78 percent of total FDI in Mexican agriculture. U.S. investments in the agricultural sector center on vegetables and flowers (64 percent), fruits (12 percent), livestock (5 percent), and poultry (3 percent).

Contract farming, in which processors or distributors sign production contracts with growers, is often combined with U.S. FDI in Mexico. The poultry industry, for instance, features both contract farming and direct investment. In the vegetable industry, FDI has focused on packing sheds, where U.S. firms often provide boxes, packing equipment, and technical advice.

## **U.S. Direct Investment in Canada's Processed Food Industry**

U.S. investment in Canada's \$40-billion processed food industry increased from \$2.5 billion in 1990 to \$5.2 billion in 1997. This marks the continuation of a trend that began prior to CFTA and NAFTA and reflects the complementarity of U.S. and Canadian food processing in many areas. Canada is the second largest host country for U.S. FDI in processed foods, following the United Kingdom.

U.S. investment in the Canadian food and beverage industry is principally in grain milling and bakery products (35 percent) and beverages (20 percent). Processed fruits and vegetables account for only about 8 percent of the total, and dairy products account for about 3 percent.

Two large U.S.-owned flour milling companies control about 75 percent of Canada's wheat milling capacity. U.S. multinationals account for 70 percent of Alberta's total federally inspected cattle slaughter, and this represents 60 percent of Canada's total. Most of the large beverage companies are U.S. affiliates. Other countries, particularly the United Kingdom, also have considerable direct investment in Canada's processed food industry.

## **Mexican Direct Investment in the U.S. Processed Food Industry**

Mexican firms have also increased their investments in U.S. food companies. In 1997, Mexican FDI in the U.S. processed food and beverage industry totaled \$313 million. Beginning as foreign suppliers to Hispanics in the United States, GIBSA, a major bread baking company, and Gruma, a major tortilla maker, have the largest Mexican interests in the U.S. processed food industry. Minsa, with six corn milling plants in Mexico, has purchased two corn milling operations in Texas and Iowa. The Mexican industrial group DESC has acquired Authentic Mexican Food Incorporated, a Mexican-style food company based in Texas. Some Mexican companies use FDI in the United States to guarantee that sudden changes in the exchange rate do not make crucial imports prohibitively expensive. This has been particularly important for companies like GIBSA that import most of their inputs and sell their output in the Mexican market.

## **Canadian Direct Investment in the U.S. Processed Food Industry**

Canada has an even larger presence in the U.S. processed food industry. Canadian FDI in this sector reached \$7.6 billion in 1997. Large investments have come from Canada's brewing and frozen food industries. Because Canada's population is small relative to that of the United States, Canadian food processors have relocated some plants to the United States as a means of entering the U.S. market and obtaining economies of scale.

The lowering of tariffs between the United States and Canada makes a North-South orientation even more appealing to Canadian food processors. For instance, a plant in Ontario may be better able to serve the northeast United States than companies in British Columbia, and companies in British Columbia may be better positioned to serve the northwest United States than companies in Ontario. Bolling, Neff, and Handy (1998) offer many real-life examples of this phenomenon.

## **Conclusion**

NAFTA has coincided with rising capital expenditures in the U.S. farm economy and real increases in the capital stock of the U.S. food processing industry. The increased capital expenditures in production agriculture are somewhat striking, given the tendency of agricultural capital to adjust slowly in response to changing economic conditions.

In addition, NAFTA has enhanced growth in foreign direct investment between the United States, Canada, and Mexico, creating a synergy between investment and trade and paving the way for a stronger, more dynamic regional food system. Instead of replacing trade, FDI has often fostered it, making the combination of trade and FDI one of NAFTA's success stories.

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# Beyond the Farm Gate

## Introduction

NAFTA is the most recent in a long series of measures to facilitate agricultural trade in North America. Much of the analysis of NAFTA has focused on how the agreement has influenced the subsequent volume of trade between NAFTA countries and the impact of this trade on employment, investment, and incomes. But future benefits to agriculture from NAFTA will depend, in part, on advancements that take place beyond the farm gate. These changes would lower the costs of doing business among the three countries, facilitate trade, and create new trade opportunities.

This section examines two aspects of this process. The first is the evolution of food retailing in Mexico and how the rapid growth of supermarkets is changing the country's entire food supply network. The second aspect is U.S.-Mexican transportation, including new policy initiatives and investments.

## Supermarkets: The Revolution in Mexican Food Distribution

The Mexican food distribution system is undergoing major structural change. Small, specialized shops and stalls account for the bulk of consumer food and produce purchases, but supermarket chains are rapidly gaining market share. The number of supermarkets has leapt from less than 700 in 1993 to 3,850 in 1997. These developments are changing the way in which food makes its way from the farm to the Mexican consumer. Mexican firms are constructing state-of-the-art supermarket chains that are challenging the capacity of the distribution network. This is particularly so for perishable products such as produce, meats, and other products that require an integrated cold chain. The rapid rate of innovation at the retail level is forcing changes in the distribution chain. Truck fleets, wholesale markets, processors, packers and shippers, and farmers are all trying to adapt to new demands.

Supermarkets have existed in Mexico for decades, but until the 1980's, they were few in number and catered principally to upper-income households and expatriates. The recent expansion of the Mexican supermarket sector is the result of extending the customer base to lower-income households. However, the likelihood that one shops regularly at a supermarket increases with income and education (table 9). The propensity to patronize supermarkets also varies by region and city. Supermarkets are the dominant venue along the U.S. border and in northern cities such as Monterrey, but supermarkets are rare in the poorer southern states and in most rural areas.

Table 9--Primary store types patronized by Mexican shoppers, January 1996

Characteristic of respondent	Self service supermarket	Corner store	Market
Income			
\$2,000 or less	47	14	39
\$2,000 to 4,000	76	13	12
\$4,000 or more	82	4	12
Education			
Primary	42	16	42
Secondary	53	22	25
Post-secondary	67	10	23
College or more	90	4	4
Location			
Mexico City	56	9	35
Guadalajara	35	41	23
Monterrey	89	8	4
Gender			
Male	72	10	16
Female	57	14	29
All	59	13	27

Source: "Trends in Mexico: Consumer Attitudes and the Supermarket, 1996", Food Marketing Institute.

## Forging a New Supply Chain

Changes in consumer behavior and the growth of supermarkets are forcing changes in the supply chain. The Mexican supply chain is following the path charted by the United States, Canada, and Western Europe, but it is evolving at a much faster pace.

The development of supermarket chains in the United States and Europe in the 1950's and 1960's was spurred in part by infrastructure development. The U.S. interstate highway system and the growth of refrigerated truck transportation freed suppliers from dependence on railroads and allowed deliveries to facilities outside central market districts. This enabled chain stores to build their own distribution centers and to accommodate a high volume of direct shipments from producers under central inventory control.

In the United States and Europe, supermarkets gained retail market share in dairy, meats, and produce by contracting directly with cooperatives, growers' sales agents, or brokers located in production areas to deliver directly to their private distribution centers. Money is saved and margins enhanced by internalizing wholesale services within the firm. As direct procurement by chains expands, the share of fresh product flowing through central wholesale markets contracts. Indeed, the wholesale share in Mexico is declining.

## **Farm-level Adjustments**

The rise of supermarkets and direct contracting has implications at the farm level. The universal pattern of industrialization is that most small farmers move off the land and into manufacturing and service occupations. Many countries, including Mexico, have tried to moderate this difficult transition through agricultural and rural development policies. Still, the supermarket revolution is likely to hasten the process of rural differentiation. For instance, there are substantial scale economies in sorting and packing. The equipment required is expensive and only profitable at high volumes. Thus only larger, well-capitalized operations are able to deliver consistent quality to supermarkets in the volume needed. Smaller farms are at an increasing disadvantage as the demand for quality expands. Marketing cooperatives, common in the United States and Europe, have not emerged in Mexico, nor has incorporation been common among smaller farms. The Mexican Ministry of Agriculture, Livestock, and Rural Development (SAGAR) is developing programs to help smaller farmers adapt to the new demands of the retail sector and the rapid modernization of the supply chain.

The growing demand for produce quality in Mexico is likely to attract investment by independent packers and shippers. But uncertainty about dispute settlement between farmers and shippers may be inhibiting investment at this critical link in the supply chain. In the United States, the Perishable Agricultural Commodities Act (PACA), originally passed by Congress in 1930, requires commercial buyers and sellers of fruits and vegetables to be licensed and makes contract disputes subject to arbitration. Licenses are revoked if traders do not honor their commitments. In Mexico, business is often conducted with a handshake. Because commerce over longer distances makes one's word of honor vulnerable to opportunism, the use of formal contracts will likely expand further into the countryside. Mexico is currently examining options for establishing a PACA-like system.

## **U.S.-Mexican Transportation**

NAFTA has spurred trade and liberalized rules for cross-border investment. But it has also committed member governments to adopt and implement administrative and regulatory changes. Such changes are apparent in the transportation sector.

### **Trucking**

Trucks are the primary mode of transporting merchandise across the U.S.-Mexican border. In 1996, trucks carried 77 percent of Mexican exports to the United States and 85 percent of Mexican imports from the United States. For agricultural products, trucks handle 98 percent of northbound and 68 percent of southbound shipments. Rail, principally for U.S. grains, accounts for almost all of the remainder, as little U.S.-Mexican trade is by sea or air.

Prior to NAFTA, U.S. trucks and drivers were not permitted to operate in Mexico, and Mexican trucks and drivers were not allowed to operate in the United States beyond the commercial zones of border cities. NAFTA provides for eventual free cross-border trucking from any point in the United States to any point in Mexico by trucking companies from both countries. Implementation of this provision of NAFTA has been delayed, but it is under review by the United States and Mexico.

Even with delayed implementation, innovation in cross-border trucking continues. Article 512 of NAFTA states that Canada, Mexico, and the United States should cooperate to facilitate the flow of trade, the harmonization of documentation and customs procedures, the standardization of coding, and the exchange of data.

The North American Trade Automation Prototype (NATAP) is a tangible example of cooperative progress. Businesses commonly use Electronic Data Interchange (EDI) to relay order information to suppliers and to track shipments en route. NATAP signals the adoption of EDI by NAFTA customs services. It replaces customs paperwork with radio or Internet messages. Customs is alerted by radio when shipments with electronically filed documents approach the border. By the time the shipment reaches the border, customs has the documents displayed on its terminal. If all is in order, the shipment can be waved through; there is no need to stop. As this process is adopted beyond the experimental stage, it will greatly reduce the cost and uncertainty of shipping within NAFTA.

### **Mexico Invests in Upgrading Roads**

Mexico's tight finances in the 1980's meant that highway maintenance was deferred and road conditions deteriorated. According to a recent Transportation Ministry study, 46 percent of Mexico's 41,731-kilometer highway system is in poor condition and only 23 percent is in good condition. The government hopes to raise the proportion of good highways to 50 percent within the next few years. Despite recent budget restrictions, the Mexican government has made significant investments in road construction and upgrades. During the past 4 years, it has completed 2,236 kilometers of road construction, and there is now a special fund to finance highway improvements.

### **Privatization of Mexico's Railways**

Privatization of many state-owned industries in Mexico began in the mid-1980's. NAFTA has helped accelerate privatization. At the end of 1998, almost 97 percent of Mexican railway cargo was handled by the private sector.

Mexico has three major rail lines. All have been privatized in the last 2 years. The Northeast Railway, which links Mexico City and Monterrey to Laredo, Texas, was purchased in June 1997 by Transportación Ferroviaria Mexicana (TFM) and the Kansas City Southern. The

Northeast Railway now forms part of a seamless route linking Canada to Mexico. The second major railroad, the North Pacific Line, was sold in February 1998 to Grupo Ferroviario Mexicano (Ferromex), a consortium of Grupo Mexico, Union Pacific, and ICA, a Mexican construction company. Finally, the Southern Railway and several short lines, such as Coahuila-Durango, Tijuana-Tecate, and the Southeast Line, were also privatized in 1998.

Privatization has injected much-needed capital into a system that was all but abandoned. An estimated \$700 million was invested in railway modernization in 1998, and more improvement is anticipated. For example, Mexico has approved expansion of the railyard in Nuevo Laredo. This will increase the capacity for receiving U.S. railcars and expedite border-crossing.

Similar privatization is occurring in Mexico's sea and air transport sectors. Many subsidies have been eliminated and transportation rates have been deregulated. This has helped reduce cargo movement costs by 35.5 percent since 1991, and

container movement costs by 20 percent. Private investment in port services increased threefold between 1995 and 1997.

## Conclusion

The supermarket boom in Mexico and the demands it places on the Mexican food marketing system pose new challenges for farmers, policymakers, and analysts. As the supply chains of North America become more closely integrated, one anticipates more strategic alliances between U.S., Canadian, and Mexican firms; a fully integrated truck and rail network; harmonization of product standards, contracts, and dispute resolution; and greater complementary trade.

The direct effect of NAFTA was to reduce tariffs and other government-imposed barriers to trade. An indirect effect of NAFTA is, by increasing the volume of trade, to spur institutional innovations that reduce natural barriers to trade, such as transportation and other transaction costs. As volume increases and procedures harmonize, transactions become more predictable and less costly. The result is a cycle of innovation and integration.

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