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NAFTA at 13

Implementation Nears Completion

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Abstract

Implementation of the North American Free Trade Agreement (NAFTA) is drawing to a close. In 2008, the last of NAFTA's transitional restrictions governing U.S.-Mexico and Canada-Mexico agricultural trade will be removed, concluding a 14-year project in which the member countries systematically dismantled numerous barriers to regional agricultural trade. During the implementation period, the agricultural sectors of Canada, Mexico, and the United States have become much more integrated. Agricultural trade within the free-trade area has grown dramatically, and Canadian and Mexican industries that rely on U.S. agricultural inputs have expanded. U.S. feedstuffs have facilitated a marked increase in Mexican meat production and consumption, and the importance of Canadian and Mexican produce to U.S. fruit and vegetable consumption is growing.

Keywords: North American Free Trade Agreement, NAFTA, Canada-U.S. Free Trade Agreement, CUSTA, Canada, Mexico, United States, trade, investment, transportation.

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Approved by USDA's World Agricultural Outlook Board

Foreword

This is the fifth report on NAFTA's effects on U.S. agriculture and the rural economy to be submitted to the U.S. Congress in accordance with the North American Free Trade Agreement Implementation Act. The legislation requires that the Secretary of Agriculture submit a biennial report on this subject, starting in 1997 and ending in 2011. This edition covers trade data through 2005 and economic and policy developments through 2006.

Introduction

Implementation of the North American Free Trade Agreement (NAFTA) is nearly complete. Since the start of the process in 1994, Canada, Mexico, and the United States—the member countries of NAFTA—have gradually and systematically removed thousands of barriers that had restricted agricultural trade among the three countries. Just a handful of the agricultural trade barriers scheduled to be phased out under NAFTA remain, and these are scheduled for elimination in 2008. With less than a year remaining in this process, it is time to assess NAFTA's achievements and prospects.

One of NAFTA's main accomplishments is advancing the integration of North America's agricultural markets. Market integration is the extent to which one or more formerly separated markets have combined to form a single market. Many agricultural sectors in the NAFTA countries have made big strides toward becoming one North American market, and this process is still ongoing, even though the agreement is almost fully implemented. Agricultural trade among the NAFTA countries continues to grow across an increasingly broad range of products, additional cross-border investments are taking place in the region's processed food industry, and supply chains and productive activities across international borders are undergoing further restructuring. Because the architects of NAFTA deliberately avoided the creation of strong supranational institutions to assure the continuation of this process, the member countries will have to exercise their national autonomy individually or in concert in order to take further steps toward market integration. This edition of the NAFTA report discusses what could be and is being done to facilitate further integration among the NAFTA countries, while emphasizing developments in market integration over the past 2 years.

What Is NAFTA?

NAFTA is a comprehensive economic and trade agreement that establishes a free-trade area encompassing Canada, Mexico, and the United States. Much of NAFTA is structured as three separate bilateral agreements, one between Canada and the United States, a second between Mexico and the United States, and a third between Canada and Mexico. The first accord is the Canada-U.S. Free Trade Agreement (CUSTA), which took effect on January 1, 1989, and was subsumed by NAFTA. The second and third agreements are found in NAFTA itself, which took effect on January 1, 1994.

Today, almost all agricultural trade within the NAFTA region is free of tariff and quota barriers. Tariff elimination for the items addressed by CUSTA concluded on January 1, 1998, and liberalization of U.S.-Mexico agricultural trade (and Canada-Mexico) is nearly complete. Numerous restrictions were eliminated immediately upon NAFTA's implementation, while others were phased out over periods of 4 or 9 years. However, trade restrictions on a handful of agricultural commodities (such as U.S. exports to Mexico of corn, dry edible beans, and nonfat dry milk and Mexican exports to the United States of sugar, cucumbers, and sprouting broccoli) will not be removed until 2008. Similar but not identical restrictions on Canada-Mexico trade also will be removed in 2008.

Table 1 provides more detail about the main restrictions that will be lifted from U.S.-Mexico agricultural trade in 2008. With respect to U.S. exports to Mexico, corn and dry edible beans are the most prominent commodities covered by the remaining restrictions. These crops are traditional staples of the Mexican diet, and they are cultivated in Mexico by a heterogeneous group of producers, ranging from large commercial operations to very small-scale farmers with less than 5 hectares (about 12 acres) of farmland. To facilitate adjustment to free trade, NAFTA established transitional tariff-rate quotas (TRQs) for these commodities that gradually have become less restrictive over a 14-year period (1994-2007).[1] These TRQs, along with additional actions taken by the Mexican Government, have allowed for a substantial amount of trade growth, and the last step of the agreement's implementation by itself is unlikely to generate a much larger impact.

[1]A TRQ is a quota for a volume of imports at a favorable tariff. After the quantitative limit is reached, a higher tariff is applied on additional imports.

With respect to U.S. imports from Mexico, the main commodity of interest is sugar. In July 2006, Mexico and the United States forged an agreement that paves the way for free trade in sugar and sweeteners between the two countries, starting in 2008 (Haley, 2006). Still unknown are the domestic sugar programs that Mexico and the United States will implement to complement unfettered bilateral trade. Removal of NAFTA's other remaining transitional restrictions on U.S. imports from Mexico are unlikely to have a major impact on trade, production, or policy, as most of the remaining U.S. restrictions on Mexican produce have ad valorem values of 2 percent or less.

Despite the sweeping nature of NAFTA's trade reforms, the agreement contains several important exceptions to the process of agricultural trade liberalization. CUSTA exempted the following products from Canada-U.S. trade liberalization: U.S. imports of dairy products, peanuts, peanut butter, cotton, sugar, and sugar-containing products and Canadian imports of dairy

Table 1

Only a handful of agricultural commodities traded between Mexico and the United States have yet to be liberalized under NAFTA

Commodity	Transitional restriction for 2007	Trade in 2005	
		Value	Volume
		$U.S. million	*Thousand metric tons*
U.S. exports to Mexico:			
Nonfat dry milk	Duty-free quota of 58,741 metric tons; over-quota tariff equals the greater of 11.8 percent or $98 per metric ton	231	109
Dry edible common beans	Duty-free quota of 73,427 metric tons; over-quota tariff equals the greater of 11.8 percent or 4 cents per kilogram	63	39
Corn	NAFTA specifies a duty-free quota of 3,671,334 metric tons; the over-quota tariff equals the greater of 18.2 percent or 1.7 cents per kilogram. In recent years, Mexico has customarily issued additional quotas for corn imports from any country with most-favored-nation status in Mexico. As of March 2007, Mexico had issued additional duty-free quotas of this type for 2007 totaling 450,000 metric tons for white corn and 2,450,000 metric tons for yellow corn.	650	5,842
Sugar	Duty-free quota of at least 7,258 metric tons, raw value[1]	35	85
High fructose corn syrup	Duty-free quota of at least 250,000 metric tons during FY 2007 and at least 175,000 metric tons during the first 3 months of FY 2008[1]	36	106 (dry basis)
Chicken leg quarters	Duty-free quota of 104,600 metric tons plus duty-free access to border region; over-quota tariff of 19.8 percent[2]	111	126
U.S. imports from Mexico:			
Sprouting broccoli	Tariff of 1.67 percent, January 1 to May 31; otherwise duty-free	38	77
Cucumbers	Tariff of 0.44 cents per kilogram, March 1 to May 31 and October 1 to November 30; otherwise duty-free	246	343
Asparagus	Tariff of 1.1 percent if entered during the month of January and 1.67 percent if entered between February 1 and June 30; otherwise duty-free	98	46
Cantaloupe	Tariff of 2.33 percent, May 16 to July 31 and September 16 to November 30; otherwise duty-free	8	16
Melons other than cantaloupe, watermelon, Ogen, and Galia	Tariff of 2.33 percent, June 1 to November 30; otherwise duty-free	38	79
Sugar, raw or refined	Duty-free quota of up to 250,000 metric tons (raw value) for FY 2007; duty-free quota of at least 175,000 metric tons during first 3 months of FY 2008[1]	130	289
Orange juice—			
Frozen	Tariff, 1.572 cents per liter	41	212 million liters
Not concentrated and not made from a juice with a degree of concentration of 1.5 or more	Tariff, 0.353 cents per liter	4	10 million liters

Notes: The fiscal year (FY) of the U.S. Federal Government runs from October through September. FY 2007 began on October 1, 2006, and will end on September 30, 2007.

[1]These amounts were specified as part of a bilateral agreement in July 2006.

[2]This restriction was specified as part of a bilateral agreement in January 2003.

Sources: NAFTA Tariff Schedule; USDA, Foreign Agricultural Service (2007); Haley (2006); Juarez (2007a, 2007b).

products, poultry, eggs, and margarine. The quotas that once governed bilateral trade in these commodities were redefined as TRQs to comply with the Uruguay Round Agreement on Agriculture (URAA), which took effect on January 1, 1995. Similarly, NAFTA exempted dairy and poultry products from Canada-Mexico trade liberalization.

NAFTA covers much more than tariffs and quotas. An important element of the agreement is the establishment of key principles regarding the treatment of foreign investors. These principles include a firm commitment from each NAFTA country to treat foreign investors from the other member countries no less favorably than it treats its own domestic investors. In addition, the accord prohibits the application of certain performance requirements on foreign investors, such as a minimum amount of domestic content in production. These provisions reinforce similar changes that Mexico made to its foreign investment laws prior to NAFTA. Although the agreement specifies certain exceptions to its investment reforms, only a few of these exceptions directly concern agriculture. For example, Canada's farm credit agency retains the right not to lend to non-Canadians, and the Mexican Government retains the right to prohibit direct foreign ownership of farmland, instead allowing foreigners to own up to 49 percent of special shares of investments in such land.

Like the URAA, NAFTA requires that sanitary and phytosanitary (SPS) measures are scientifically based, nondiscriminatory, and transparent, and that these measures restrict trade in a minimal fashion. The agreement also establishes the NAFTA Committee on Sanitary and Phytosanitary Measures to facilitate technical cooperation between the NAFTA countries in developing, applying, and enforcing such measures. To fulfill these responsibilities, the NAFTA governments have engaged in a sustained, concerted effort to fine-tune their SPS measures in ways that facilitate trade.

NAFTA also created several formal mechanisms for the resolution of disputes concerning the agreement's investment and services provisions, the application of national antidumping and countervailing duty laws, and the general interpretation and application of the agreement. Moreover, the private sector assumed an active role in defusing many trade tensions before they took the form of formal, full-blown disputes. These mechanisms, along with the agreement's other investment provisions, provided a strong assurance that the NAFTA region was safe and secure for cross-border economic activity.

Overview of Trade, Employment, Investment, and Policy

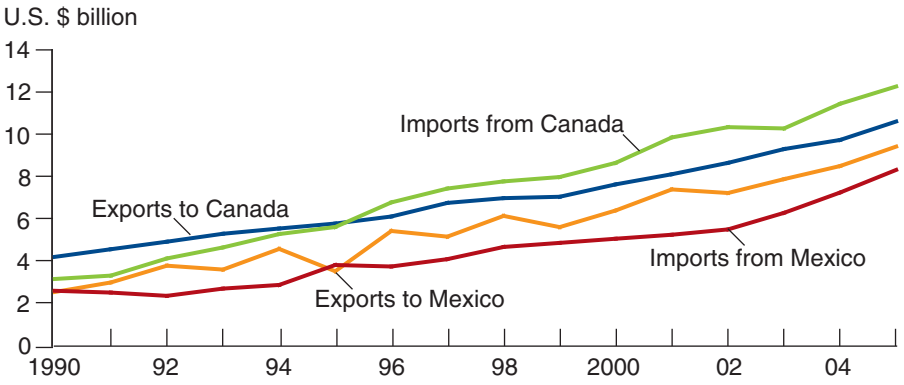
Trade

U.S. agricultural trade with Canada and Mexico has more than doubled since the start of NAFTA's implementation in 1993 (fig. 1). Determining how much of this increase should be attributed to CUSTA and NAFTA, however, is not an easy task for several reasons. First, the trade barriers dismantled by the agreements vary greatly by commodity and trade partner. Second, NAFTA's general establishment of an economic policy environment conducive to cross-border business provides additional stimulus to regional agricultural trade beyond that obtained from the removal of tariffs and quotas. Third, factors other than CUSTA and NAFTA (for example, population and economic growth, exchange-rate movements, and advances in agricultural technologies, communication, transportation, and logistics) affect the size, direction, and composition of North American agricultural trade.

Most economic analysis of NAFTA's trade effects has focused on Mexico and the United States, largely because Canada-U.S. trade liberalization was well underway by the time of NAFTA's negotiation. One of the more recent assessments of NAFTA's impact on Mexico-U.S. trade was prepared for the Congressional Budget Office (Arnold). It suggests that the impact has risen gradually with the agreement's implementation. The study estimated that NAFTA boosted U.S. exports to Mexico (agricultural and nonagricultural) by 11.3 percent in 2001 and U.S. imports from Mexico by 7.7 percent. Given the value of bilateral agricultural trade in 2001, these percentages would correspond to an additional $751 million in agricultural exports to Mexico and an additional $376 million in agricultural imports from Mexico in that year alone.

NAFTA has enabled Mexico and the United States to benefit more fully from a complementary pattern in agricultural trade in which the two countries tend to export different products to each other. Grains, oilseeds, meat,

Figure 1
U.S. agricultural trade with its NAFTA partners increased by nearly 150 percent between 1993 and 2005



Source: USDA, Foreign Agricultural Service (2007).

and related products make up about three-fourths of U.S. agricultural exports to Mexico in terms of value, while beer, vegetables, and fruit account for roughly three-fourths of U.S. agricultural imports from Mexico (app. tables 1 and 2). Mexico does not produce enough grains and oilseeds to meet internal demand, so the country's food and livestock producers import sizable volumes of these commodities to make value-added products, primarily for the domestic market. In turn, U.S. fruit and vegetable imports from Mexico are closely tied to Mexico's expertise in producing a wide range of produce, along with its favorable climate and a growing season that largely complements the U.S. growing season. Successful efforts to market specific brands of Mexican beer in the United States have made that product Mexico's leading agricultural export to the United States. In 2005, U.S. beer imports from Mexico surpassed $1.3 billion, compared with just $163 million in 1993.

In contrast, Canada-U.S. agricultural trade is marked by a substantial amount of intra-industry trade, particularly in value-added products (app. tables 3 and 4). Within the broad category of grains and feeds, for instance, intra-industry trade encompasses numerous processed foods—including dog or cat food for retail sale; mixes and dough; pastries, cake, bread, and pudding; breakfast cereal; and uncooked pastas. Beef and pork are prominent examples of intra-industry trade outside the grain and feed sector. Trade liberalization under CUSTA and NAFTA has facilitated the expansion of intra-industry trade, and the two agreements have exerted an especially strong influence on bilateral trade in wheat products and beef (Zahniser and Link). The two agreements also give Canadian consumers much freer access to U.S. and Mexican fresh produce. In 2005, U.S. fruit and vegetable exports to Canada exceeded $2.9 billion, with fresh produce accounting for about three-fourths of this amount.

Employment

Agricultural trade with the NAFTA countries is an important generator of U.S. employment. Input-output analysis suggests that U.S. agricultural exports to Canada and Mexico supported about 268,000 jobs throughout the U.S. economy in 2005.[2] This number is quite small, however, when compared with the size of the U.S. workforce (about 140 million) (U.S. Department of Labor, Bureau of Labor Statistics) and the number of U.S. farm operators (3.2 million) (Hoppe and Banker, p. 3).

NAFTA's net impact on U.S. agricultural employment is also likely to be small. One computable general equilibrium model indicated that U.S. rural employment in 1996 was 0.7 percent larger than it would have been in the absence of CUSTA and NAFTA (Crawford and Link). An input-output analysis of similar vintage concluded that there was "little net impact on [U.S.] employment" associated with NAFTA agricultural trade (Schluter and Gale). These results, although dated, are broadly consistent with a more recent study of NAFTA's impact on the U.S. economy as a whole, which indicated that the agreement had contributed several hundredths of 1 percent to U.S. gross domestic product (Arnold).

Strong productivity growth coupled with the sheer size of the U.S. agricultural sector help to explain why CUSTA and NAFTA's impact on U.S. agricultural employment is so small. As an example, consider the U.S. soybean

[2]This figure is calculated by multiplying the trade multiplier for U.S. agricultural exports in 2004 (13,402 jobs per $1 billion in exports) by the value of U.S. agricultural exports to Canada and Mexico in that year ($18.3 billion). As with all trade multipliers, care must be taken in the interpretation of the resulting estimate because it does not account for price changes or structural changes in the economy since 1997, the year for which the benchmark table was constructed. The ERS Agricultural Trade Multiplier (Edmonston) enables users to work with predefined multipliers and to create their own multipliers.

sector, for which export sales to Canada and Mexico combined have more than tripled during the CUSTA-NAFTA period. In terms of soybean equivalent, U.S. exports to these countries of soybeans, soyoil, and soymeal increased from an annual average of 87 million bushels during marketing years (MYs) 1983/84 to 1987/88 to 286 million bushels during MYs 2001/02 to 2005/06—an increase of 226 percent. Yields increased by 26 percent over the same period—from 31 to 39 bushels per acre. When the yield increase is multiplied by the average number of acres harvested with soybeans during MYs 1983/84 to 1987/88, one gets an additional 503 million bushels of soybeans—more than enough to cover the additional 198 million bushels of soybeans, soyoil, and soymeal exported to Canada and Mexico.

Employment continues to decline in the U.S. textile and apparel sector, an agriculture-related industry in which the United States is less competitive due to the availability of cheaper labor in developing countries. The start of this decline predates NAFTA by almost 2 decades, but the accord reinforced this long-term trend by fostering the development of a more integrated North American textile and apparel industry in which capital-intensive operations in the United States were complemented by labor-intensive operations in Mexico. With implementation of the World Trade Organization's (WTO's) Agreement on Textile and Clothing, this integrated industry has faced intense competition from China and other countries outside NAFTA. Since the start of NAFTA's implementation, U.S. textile and apparel employment decreased from 1,662,000 in 1993 to less than 900,000 in 2005 (U.S. Department of Labor, Bureau of Labor Statistics). Nonmetro counties in the Southeast have taken the brunt of these job losses, with some rural communities hit especially hard. Compared with displaced workers in other industries, textile and apparel workers were more likely to exit the labor force, and those who found new jobs took longer to do so, with three-fourths earning less in their new jobs (MacDonald and Hamrick).

Foreign Investment

NAFTA has fostered additional foreign direct investment (FDI) in Mexico's food and beverage industries, as the agreement contains important provisions designed to facilitate these capital flows (Burfisher, Robinson, and Thierfelder; Vollrath; Worth). More than 13 years after the start of NAFTA's implementation, Mexico's agricultural, food, and beverage industries continue to attract additional FDI. According to Mexican statistics, these industries received net inflows of $11.7 billion in additional foreign investment between January 1999 and June 2006 (Secretaría de Economía, Dirección General de Inversión Extranjera). Roughly half of this capital came from the United States.

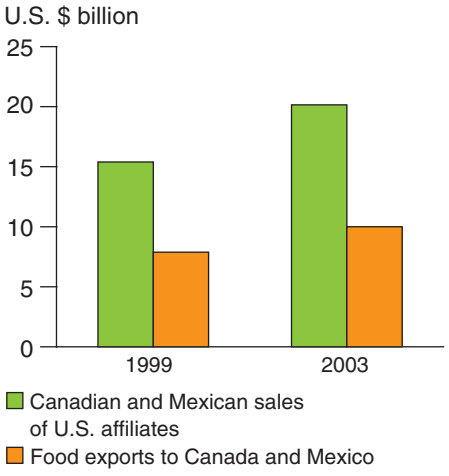
U.S. statistics indicate that U.S. firms are responsible for most of the FDI in the North American processed food sector, which does not include the beverage industry or production agriculture. In 2005, the stock of U.S. direct investment in the Canadian and Mexican processed food industries equaled $3.4 billion and $2.9 billion, respectively (app. table 5). In contrast, the stock of Canadian and Mexican direct investment in the U.S. processed food industry was about $1.6 billion for Canada and roughly $1.0 billion for Mexico.[3] U.S. authorities do not routinely report similar statistics for the beverage industry and production agriculture, mainly to protect the

[3]The figure of $1.0 billion is for 2001. The stock of Mexican direct investment in the U.S. processed food industry for 2002-05 is suppressed in order to avoid the disclosure of data of individual companies. Also, U.S. statistics on the stock of foreign investment and Mexican statistics on the flow of foreign investment are not directly comparable, since they measure different concepts (stock versus flow) and do not cover the same sectors of the economy.

confidentiality of individual companies and producers. The stock of intra-NAFTA direct investment probably runs in the billions of dollars for the beverage industry and the hundreds of millions for crop and livestock production.

Food sales in Canada and Mexico associated with U.S. direct investment are substantial. In 2003, Canadian and Mexican affiliates (majority-owned) of U.S. multinational food companies had sales of U.S. $14.1 billion and U.S. $6.1 billion, respectively. Together, these sales are more than twice the size of U.S. processed food exports to Canada and Mexico (fig. 2). Major U.S. brands of finished products are sold throughout Canada and Mexico, and some Canadian and Mexican brands are prominent in the United States, giving consumers in the region access to a wider variety of products. In intermediate product markets, U.S. direct investment plays an important role in Canadian and Mexican flour milling, grain trading, and meat processing. Through direct investments in the other NAFTA countries, several large companies from Canada and Mexico have reinvented themselves as larger, stronger, and more viable firms. In some instances, the resulting operations outside the home country rival the operations in the home country in size and importance (Doan et al.).

Figure 2
Food sales of U.S.-owned affiliates in Canada and Mexico greatly exceed U.S. processed food exports to those countries



Notes: Affiliate sales are those of nonbank majority-owned U.S. affiliates and do not include sales in the beverage industry. Food exports consist of those products that made up SIC 20 of the old Standard Industrial Classification system, minus the following beverages: fluid milk; malt beverages; wines, brandy, and brandy spirits; distilled and blended liquors; and bottled and canned soft drinks and carbonated waters.

Sources: U.S. Department of Commerce, Bureau of Economic Analysis (2007) (affiliate sales) and USDA, Economic Research Service (2004) (exports).

Agricultural Policy

NAFTA generally preserves the autonomy of each member country to define and implement its own domestic agricultural policies. The member countries are exercising this authority as they contemplate additional changes to their farm programs. U.S. policymakers are working on the successor to the Farm Security and Rural Investment Act of 2002 (2002 Farm Act), which provides the legal framework for U.S. farm programs through 2007 crops. In 2005, USDA solicited extensive public comments about the possible direction of this legislation, and in January 2007, it released a set of comprehensive proposals for new farm programs. The Mexican Congress is considering a legislative proposal that would create a new multiannual framework for the country's farm programs, and the country's new president, inaugurated in December 2006, may chart a new course for Mexico's agricultural and rural policies. The Canadian Government is evaluating whether to

reform or replace the centerpiece of its agricultural policy—a subsidized savings account for producers called the Canadian Agricultural Income Stabilization Program (CAIS)—which was introduced just 4 years ago (Meilke, Rude, and Zahniser). Policy changes resulting from these efforts could enhance the ongoing process of market integration, or they could create new obstacles to that process.

Despite the many unique features of each country's agricultural programs, some aspects of the member countries' farm policies have moved together during the NAFTA period. Each member country provides decoupled income payments (farm income support that not tied to prices or production) to its agricultural producers. Also, each country has institutionalized counter-cyclical programs that provide income support to farmers when commodity prices (or net farm revenue, in the case of Canada) fall below a certain level. This legislative innovation follows a period during the late 1990s and early 2000s when Canada and the United States operated ad hoc programs of this type in response to a downturn in commodity prices. As part of the 2002 Farm Act, the United States created a new program of countercyclical payments for 15 commodities based on historical areas and yields. Similarly, Canada incorporated disaster assistance within its CAIS program, and Mexico instituted the Subprogram of Direct Payments for Target Income for grain and oilseed producers, which provides countercyclical support in a manner somewhat akin to the U.S. marketing loan program.

Sectoral Analysis

Corn

Corn is the only grain that is still subject to transitional trade restrictions under NAFTA. Until 2008, Mexico is entitled to apply TRQs to U.S. and Canadian corn, but the Mexican Government has generally pursued a more liberal trade policy toward corn than NAFTA requires so that the country can benefit more fully from the integrated grain market. In 2005, Mexico authorized import permits (cupos) for about 8.2 million metric tons of corn, far more than the roughly 3.5 million metric tons of duty-free access provided by the NAFTA TRQ for U.S. corn (table 2). Not all of these permits were used: Mexican imports of U.S. corn (not counting cracked corn and seed corn) totaled about 5.8 million metric tons in 2005. In recent years, the Mexican Government has elected to apply a tariff of just 1 percent to over-quota imports of yellow corn. This rate is much lower than NAFTA's transitional over-quota tariff on U.S. corn (18.2 percent for 2007). As the agreement's restrictions on corn trade draw to a close, the composition of U.S. grain exports to Mexico is likely to shift more toward corn and away from sorghum (USDA, Office of the Chief Economist, p. 78).

The opening of the Mexican market boosted U.S. corn exports (including cracked corn) to about 35 percent of Mexican production during 2001-05, compared with 15 percent during 1984-93—the decade that preceded NAFTA. Mexican corn production has generally increased during the NAFTA era (fig. 3). During the first half of the 1990s, the annual level of irrigated production rose by about 5 million metric tons—a 70-percent increase—compared with irrigated production during 1985-89. This increase was bolstered by new hybrids that provided yields comparable to those in the United States. Much of this expansion took place in the northwestern State of Sinaloa. Rainfed production of corn also has increased over the course of NAFTA's implementation, as yields for nonirrigated corn have improved as well.

Table 2
Mexican import policy toward U.S. corn, 2005

Commodity/policy	Volume contemplated	Actual import volume	Applicable tariff
	----------Metric tons----------		*Percent*
Corn, other than seed corn		5,841,835	
Duty-free quota provided by NAFTA	3,460,585		0
Import permits (cupos) requested and assigned	3,179,784		
Supplemental quota: import permits assigned	4,982,969		1 (yellow); 54.5 (white)
Total quotas assigned[1]	8,162,753		
Cracked corn[2]		2,680,086	0
Seed corn[3]		9,248	0

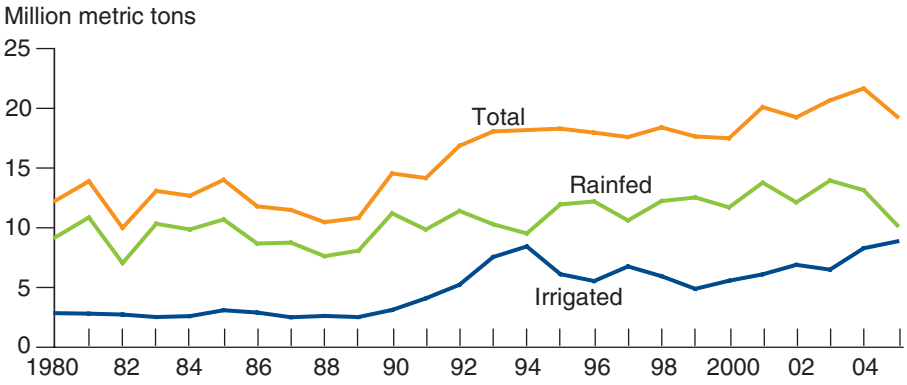
[1]Any imports of U.S. corn not covered by these quotas would have been subject to a tariff of 54.5 percent, the over-quota tariff specified by NAFTA.
[2]U.S. cracked corn exports to Mexico have been free of tariff and quota restrictions since 2003, as provided by NAFTA.
[3]U.S. seed corn exports to Mexico were free of tariff and quota restrictions at the start of NAFTA's implementation, as provided by the agreement.

Sources: Secretaría de Economía, as cited by Juarez, Trejo, and Nawn (import policy); and USDA, Foreign Agricultural Service (2007) (trade data).

Yellow corn, which is used primarily in Mexico as animal feed or to manufacture starch, makes up the bulk of U.S. corn exports to Mexico (fig. 4). White corn, used mainly to make tortillas and other corn-based foods for direct human consumption, accounts for less than 5 percent of these exports. The Mexican Government has favored domestic white corn production by providing marketing payments to certain commercial producers and by applying NAFTA's over-quota tariff for corn to white corn. In addition, diversification of the Mexican diet has dampened white corn consumption. Over the past decade (1996-2006), annual per capita consumption of tortillas in Mexico dropped from about 90-95 kilograms to 70 kilograms (Carrizales). In this context, U.S. white corn exports have declined almost without interruption since 2000.

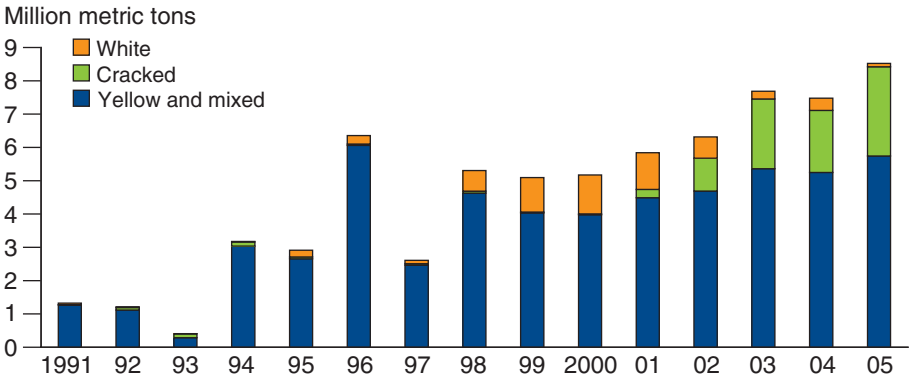
Cracked corn is an important component of U.S. corn exports to Mexico, although trade statistics do not count it as such. The commodity is formally classified as a milling product. Thus, cracked corn from the United States

Figure 3
Mexican corn production, agricultural years 1980-2005



Source: Secretaría de Agricultura, Gandería, Desarrollo Rural, Pesca y Alimentación, Servicio de Información y Estadística Agroalimentaria y Pesquera (2006b).

Figure 4
U.S. corn exports to Mexico still consist primarily of yellow corn



Note: Yellow and mixed corn exports are calculated by subtracting white corn exports from total corn exports. Cracked corn (broken or ground kernels) is defined as a distinct commodity from corn. Like yellow corn, it is primarily used as animal feed.

Sources: USDA, Foreign Agricultural Service (2007) (total corn and cracked corn exports); USDA, Agricultural Marketing Service (1991-2005, 2006) (white corn exports).

and Canada is not covered by the transitional cupo system that regulates conventional corn imports and has enjoyed unrestricted access to the Mexican market since 2003. Over the past several years, Mexico has imported large volumes of U.S. cracked corn (2.7 million metric tons in 2005), as some buyers sought to bypass the cupo system that regulates Mexican corn imports. Following the end of NAFTA's transitional restrictions in 2008, cracked corn imports are likely to be replaced almost in their entirety by conventional imports of corn.

A key topic of interest is how the growth of the U.S. ethanol sector will affect the Canadian and Mexican industries that rely on U.S. corn exports. A comparison of the 2006 and 2005 USDA Agricultural Baseline projections suggests that some of the corn needed to increase U.S. ethanol production will be diverted from the export market (Baker and Zahniser). Thus, the expansion of U.S. ethanol production may create new opportunities for feed grain producers in Canada and Mexico and raise the input costs of industries that currently rely on U.S. corn.

Dry Edible Beans

Among fruit and vegetables, dry beans are the main commodity that is still subject to transitional restrictions under NAFTA. For the period 1994-2007, the agreement specifies gradually less restrictive TRQs for Canadian and U.S. exports to Mexico of dry beans that belong to the species *Phaseolus vulgaris*, or "common" beans, for short. Common beans encompass many varieties, including black, pinto, kidney, navy, Great Northern, small white, pink, cranberry, and small red beans, but not Adzuki beans. For 2007, the duty-free quotas are roughly 73,000 metric tons for U.S. product and 2,000 metric tons for Canadian product, with an over-quota tariff of 11.8 percent. Other varieties of U.S. and Canadian dry beans, such as garbanzo, lima, blackeye, and Adzuki, already enjoy duty- and quota-free access to the Mexican market under NAFTA.

NAFTA has enabled U.S. dry beans to become a steadier portion of Mexico's dry bean supply (fig. 5), but the U.S. share of the Mexican market has remained about the same. During the NAFTA period (1994-2005), U.S. dry bean exports to Mexico accounted for 6 percent of Mexican production, compared with 5 percent during the decade that preceded the accord (1984-93). Following the removal of NAFTA's transitional restrictions in 2008, U.S. producers are likely to increase their share of the Mexican dry bean market, and Canadian producers are expected to increase theirs, perhaps to a larger degree than U.S. producers. During the 1990s, Canada emerged as a much larger competitor in world dry bean markets, with tremendous production growth in the Province of Manitoba. Relatively few of Canada's dry bean exports have gone to Mexico, however, due to the small size of Canada's duty-free quota under NAFTA. Mexico's dry bean exports to the United States also have increased during the NAFTA period—averaging nearly 8,000 metric tons per year during 2001-05, compared with less than 1,000 metric tons per year during 1989-93.

Mexico's dry bean producers face a number of challenges as 2008 draws near. Of prime concern is the ongoing diversification of Mexican diets away from the traditional staples of white corn and dry beans. Mexican food

disappearance data indicate that the annual per capita supply of dry beans has declined by 13 percent during the NAFTA period, from an average of 14.5 kilograms during 1990-94 to 12.8 kilograms during 2002-06 (Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca, y Alimentación, as cited by Fox Quesada, p. 405). Other challenges include the scarcity and variability of water supplies, along with poor soil quality and disease problems in some growing areas. To address these challenges, the Mexican Government is supporting the technological advancement and marketing efforts of more promising commercial operations, while helping less viable producers to convert to other crops and economic activities (Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca, y Alimentación, Servicio de Información Agroalimentaria y Pesquera, 2006c).

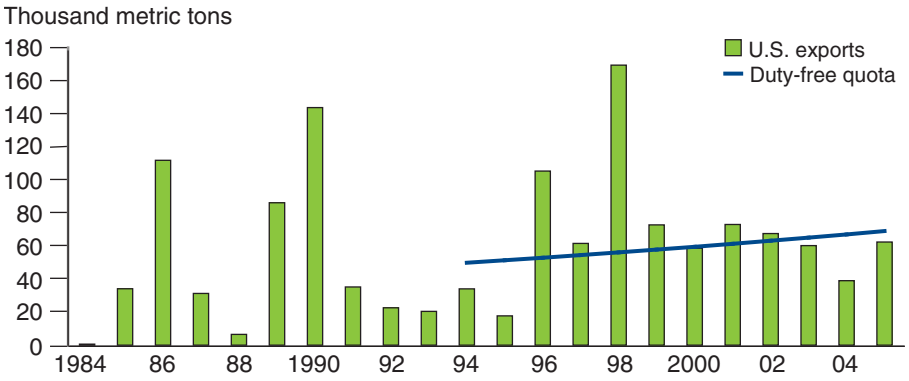
Sugar and Sweeteners

In July 2006, the U.S. and Mexican Governments unveiled an agreement that should pave the way for free bilateral trade in sugar and sweeteners starting in 2008. This agreement contains two main elements. First, the two governments specified the market access for raw and refined sugar that each will give to the other during the remainder of NAFTA's implementation period (table 1). For this transition, the United States has promised Mexico duty-free access for up to 250,000 metric tons (raw value) of sugar in fiscal year (FY) 2007 and at least 175,000 metric tons during the first 3 months of FY 2008.[4] U.S. sugar imports from Mexico reached a record level of 833,000 metric tons in FY 2006.

Second, Mexico made a commitment not to impose duties on U.S. high-fructose corn syrup (HFCS), effective January 1, 2008. Under the agreement, Mexico will provide reciprocal access for U.S. HFCS, including 250,000 metric tons in FY 2007 and at least 175,000 metric tons during the first 3 months of FY 2008 (October 1 through December 31, 2007). For several years, Mexico had levied a sales tax on soft drinks and other beverages that contain any sweetener other than cane sugar, a policy that stifled Mexico's domestic market for HFCS and reduced U.S. HFCS exports to Mexico to a trickle (fig. 6). In March 2006, the WTO's Dispute Settlement

[4]The fiscal year of the U.S. Federal Government runs from October to September. FY 2007 began on October 1, 2006, and will end on September 30, 2007.

Figure 5
U.S. dry bean exports to Mexico, 1984-2005



Note: Data for 1989-2005 measure only common beans, while the preceding data cover all dry beans.
Sources: USDA, Foreign Agricultural Service (2007) and NAFTA tariff schedule.

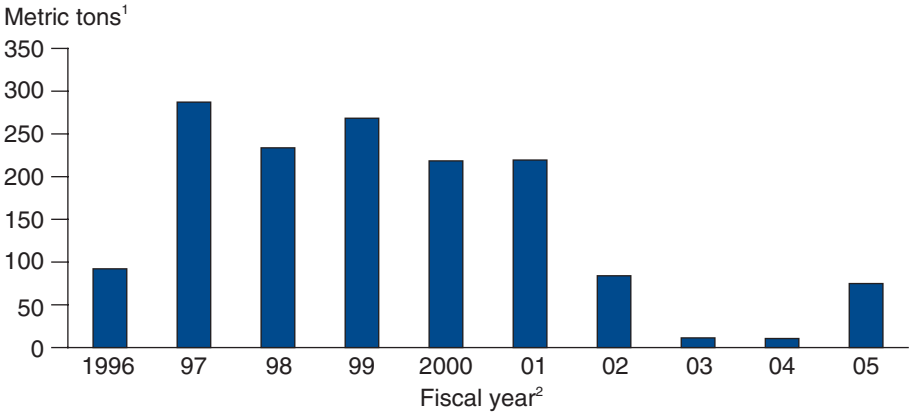
Body ruled that the tax was illegal on the grounds that taxes on comparable domestic and imported articles need to be applied in a nondiscriminatory manner, in conformance with Article II of the 1994 General Agreement on Tariffs and Trade.[5] Even before this decision, the Mexican Government had taken action to allow some imports of U.S. HFCS. Although the sales tax issue is largely resolved, the World Bank's International Centre for Settlement of Investment Disputes (ICSID) continues to hear two claims against the Mexican Government by U.S. firms that allegedly were harmed by the tax (World Bank). These challenges are taking place in accordance with procedures outlined in Chapter 11 of NAFTA, which governs the treatment of investors by member countries.

[5]The Mexican Congress has since formally terminated the sales tax, effective January 1, 2007 (Flores, 2007).

Still uncertain are what policy changes if any the U.S. and Mexican Governments will need to make in order to accommodate unrestricted bilateral trade in sugar and sweeteners. Some observers have suggested that the United States will find it difficult to operate its sugar price support program at no cost, especially if rising U.S. HFCS exports to Mexico push additional quantities of Mexican sugar into the U.S. market (Abler et al.; Schwedel).

For its part, the Mexican Government (and sugar industry) must contend with two pressing issues. The first is the need to create a new domestic sugar program. The current program determines the price of sugar via an established formula and then entitles cane growers to prices that equal 57 percent of a reference price calculated largely by using the previous year's sugar prices received by the mills. Over the last several years, the Mexican Government made several attempts to replace this policy, but in the end, it left this task for the new Congress and President. The second issue is how to return the approximately 20 remaining sugar mills still in the government's possession to their rightful owners. In 2001, the Mexican Government nationalized 27 sugar mills, many of which were bankrupt, but this action was ruled unconstitutional by Mexico's Supreme Court of Justice (Flores, 2006b; Haley, Jerardo, and Kelch).

Figure 6
U.S. high fructose corn syrup exports to Mexico are recovering with the resolution of the sales tax dispute



[1]Commercial value.
[2]October-September.
Source: Secretaría de Economía, as cited by USDA, Economic Research Service (2006b).

Grains and Oilseeds

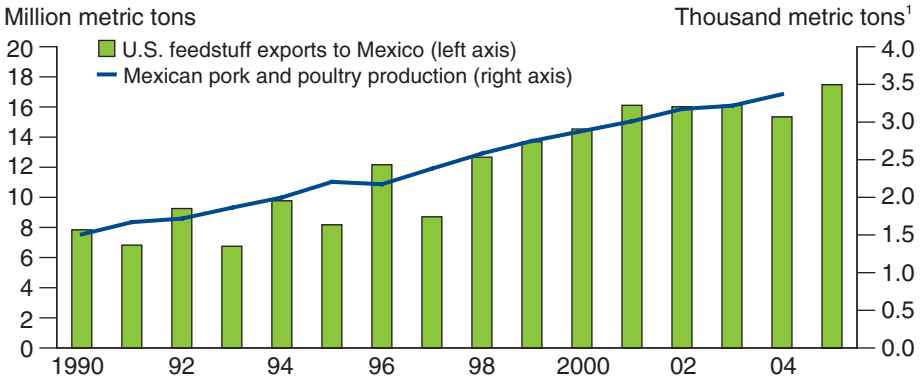
NAFTA has enabled each member country to take much fuller advantage of the supply of grains, oilseeds, and related products that is available throughout the region. In this broad category of agricultural products, U.S. exports to Mexico, Canadian exports to the United States, and U.S. exports to Canada have all increased by 150 percent or more since NAFTA's implementation (app. tables 1-4).

Rising feed demand continues to be a powerful driver of market integration. In Mexico, poultry and hog producers heavily rely on feed imports from the United States as they seek to meet their country's growing demand for meat (fig. 7). For instance, imports account for about half of the feedstuffs used by the Mexican poultry industry (Juarez and Hernandez, p. 17). As a result, U.S. exports to Mexico of feed grains, oilseeds, and related products have more than doubled during the NAFTA period, approaching 17.5 million metric tons in 2005 (fig. 1).[6] U.S. feedstuffs enable Mexican livestock producers to expand output, lower their costs of production, and compete more effectively with meat imports from the United States, Canada, and other countries, and they have made possible a marked increase in Mexican meat consumption. Between 1993 and 2006, Mexico's per capita consumption of broiler meat rose from 16 to 28 kilograms (a 73-percent increase), while per capita pork consumption climbed from 10 to 15 kilograms (a 44-percent increase).[7]

In Canada, expansion of the livestock sector also has had an important effect on grain trade. Increased hog and cattle production in Canada's western Provinces has increased feed demand in those areas. This increase has altered grain-use patterns in Canada and led to greater imports from the United States. Corn and soybean production has expanded outside of the traditional U.S. Corn Belt, and some of this new production—particularly in the Northern Great Plains—is produced for Canadian livestock.

Mexico continues to be the top single-country foreign market for U.S. rice. The preferential access provided by NAFTA to the Mexican market is important to U.S. rice exporters, who have lost market share in recent years

Figure 7
U.S. feedstuffs are crucial to Mexican pork and poultry production



[1]Carcass weight.

Source: USDA, Foreign Agricultural Service (2007) (exports) and Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca, y Alimentación, Servicio de Información Agroalimentaria y Pesquera (2006a) (production).

[6]The years 1989-92 are used as the pre-NAFTA period for purposes of this comparison because U.S. corn exports to Mexico were unusually low in 1993, the last year prior to NAFTA's implementation.

[7]These calculations are made using consumption estimates from USDA, Foreign Agricultural Service (2006) and population estimates from the U.S. Department of Commerce, Bureau of the Census (2006).

to India and Thailand in sub-Saharan Africa and the Middle East (Childs and Livezey).[8] Per capita rice consumption in Mexico is still relatively low, so the country continues to be a potential growth market for U.S. rice producers. In September 2006, the Mexican Government published the final resolution in its antidumping investigation of U.S. long-grain white rice, effectively revoking the duties that had been imposed on this product since 2002. The United States had successfully challenged these duties before a WTO dispute settlement panel.

Trade liberalization reduces the temptation for national governments to micromanage agro-industrial development by favoring a domestically produced commodity over an imported substitute or by discouraging the importation of value-added products. Prior to CUSTA, U.S. and Canadian import policies featured both of these tendencies with respect to oilseeds and related products, with the Canadians protecting rapeseed and the United States shielding soybeans. Most of these restrictions were quite small, but U.S. soybean oil and Canadian rapeseed oil faced tariffs of 7.5 percent. With the liberalization of Canada-U.S. trade, Canada exports significant amounts of rapeseed, rapeseed cake, and rapeseed oil to the United States, and the United States exports large quantities of soybeans and soybean meal to Canada.

Further integration of North America's grain and oilseed markets will depend on the resolution of the fundamental incompatibility of certain national policies. A prime example is the activities of the Canadian Wheat Board (CWB). For many years, the U.S. Government and the U.S. wheat industry have argued that the CWB "takes sales" from U.S. wheat producers through various noncommercial activities. These activities include the cross-subsidization of sales, the sale of wheat with a higher protein content at the price of lower protein product, and the use of its special privileges to generate a "financial cushion" to discount export prices (Goodloe; Schnepf).

Before the Canadian elections of December 2005, it seemed as if concerns about the CWB could be resolved only through multilateral trade negotiations. However, Canada's new government is seeking to end the CWB's status as the sole buyer and marketer of Canadian wheat and barley. In October 2006, a task force assembled by the government outlined several possible approaches that would give wheat and barley farmers in western Canada the option of marketing their output privately (Migie et al.), and in December 2006, Canada's agriculture and food minister fired the head of the CWB. In early 2007, the Canadian Government held a plebiscite of barley farmers on this issue, the results of which are expected soon (Agriculture and Agrifood Canada).

Some aspects of U.S. agricultural price and income supports also have drawn criticism for being incompatible with market integration. In January 2007, the Canadian Government requested consultations with the U.S. Government at the WTO about the total U.S. level of trade-distorting agricultural support as well as the amount of support given to U.S. corn farmers. If the consultations do not lead to an outcome satisfactory to the Canadians, the Canadian Government then has the option of requesting a WTO dispute settlement panel to address these issues. The request for consultations comes less than a year after the Canadian Government revoked preliminary antidumping and countervailing duties on unprocessed corn from the United States. These duties had

[8]Mexico's import policy toward rice from countries with most-favored-nation status ranges from 9 to 20 percent, depending on the type of rice.

been imposed following an initial determination that Canadian corn producers were being injured by the subsidization of U.S. production. Similarly, many critics of NAFTA in Mexico have cited U.S. farm programs as part of a pattern of unfair competition, and the Mexican Government in return has raised its support of the country's commercially oriented grain and oilseed farmers.

Livestock and Meat

NAFTA's provisions for livestock and meat trade have been fully implemented since January 1, 2003, but the opportunities for regional trade liberalization in livestock and meats are not yet exhausted. A temporary safeguard TRQ governing U.S. exports of chicken leg quarters (CLQs) to Mexico will expire on January 1, 2008,[9] and the liberalization of dairy and poultry trade between Canada and the United States (and between Canada and Mexico) could be achieved through some future agreement.

[9]The safeguard on chicken leg quarters is the result of a bilateral agreement signed in July 2003 between the U.S. and Mexican Governments. It is not one of the transitional restrictions specified by NAFTA.

Greater coordination of sanitary regulations and more effective control of animal diseases have played central roles in the integration of North America's livestock and meat markets, and they hold the key to the further integration of these markets. Both NAFTA and the URAA require, when possible, the regionalization of sanitary and phytosanitary standards. Regionalization of sanitary standards allows exports to flow from regions within a country that are free of dangerous animal diseases, even when diseases are endemic in other parts of that country. Once an outbreak of a specified animal disease is identified, the national government of the importing country makes a risk assessment to determine if trade restrictions can be defined regionally so that international trade may continue.

Regionalization of sanitary regulations has resulted in the removal of testing requirements that were no longer deemed necessary for U.S.-Canada trade in feeder cattle and U.S. hog exports to Canada. As a result, U.S. feeder cattle exports to Canada more than tripled between 1990 and 2003. When bovine spongiform encephalopathy (BSE) was discovered in Canada in May 2003, however, sanitary barriers were erected to prevent the importation of ruminants and ruminant meat from Canada.[10] In the case of hogs, Canada no longer requires that hogs from U.S. States that are free of pseudorabies be tested for the disease. This regulatory innovation has not yet led to increased U.S. hog exports to Canada, however, because U.S. packers have tended to offer higher prices for hogs than Canadian slaughter operations.

[10]Several chronologies detail the economic and policy developments that followed the North American BSE discoveries, including Mathews, Vanderveer, and Gustafson and Green et al.

Before the BSE discoveries in Canada and the United States, the cattle and beef sectors of the two countries were highly integrated, with production systems that crossed international boundaries, important instances of FDI, and substantial two-way trade in both cattle and beef. The BSE discoveries dampened this integration, but bilateral trade is now recovering. In July 2005, the United States allowed for the resumption of cattle imports from Canada, subject to the conditions that the imported animals are immediately slaughtered or sent to a feedlot and then slaughtered and that the animals are less than 30 months of age at the time of slaughter. Cattle under 30 months of age are considered to have a minimal risk of transmitting BSE.

Because of the high degree of market integration that exists among the NAFTA countries, how one member country manages the risks to human

and animal health associated with meat and livestock trade affects the international reputation of the other member countries. For instance, following the detection of the BSE cases in Canada and the United States, Mexico could not depart from the U.S. position on Canadian beef, as that would affect its status in the United States and other countries. Nor could Mexico depart from the position of Asian countries on U.S. beef because that would affect its status with those countries (Green et al., p. 36).

The BSE discoveries also have affected the integration of the Mexican and U.S. markets for cattle and beef. Since the discovery of one animal with BSE in the State of Washington in December 2003, Mexico has allowed very limited numbers of U.S. cattle to be imported, and these imports consist almost exclusively of purebred breeding animals. This situation is likely to improve in the near future. In October 2006, Mexico reopened its borders to U.S. dairy heifers that are "under 24 months of age and are registered with a purebred dairy breed association or the Dairy Herd Improvement Association, a national dairy producer cooperative" (USDA, Office of Communications). In contrast, U.S. cattle imports from Mexico have continued without interruption since the BSE discoveries. In 2005, the United States imported about 1.3 million head of Mexican cattle, almost all of which were feeder animals. U.S. beef exports to Mexico have recovered fully from the disruption of trade experienced in the aftermath of the U.S. BSE discovery. For 2006, these exports are on track to break the record of 207,000 metric tons established in 2002.

Hog production in Canada and the United States is also highly integrated, with Canada exporting increasing numbers of animals to the United States for finishing (the last stage of production) and slaughter. Live hog imports from Canada now account for about 8 percent of commercial hog slaughter in the United States, compared with 1 percent when CUSTA was first implemented in 1989. Canadian hog exports to the United States began to increase after Canada eliminated its grain transportation subsidy in 1995. This reform provided a powerful incentive to produce hogs in western Canada, where much of the country's grain production is located. Structural changes in the U.S. pork industry also helped set the stage for integration. Beginning in the 1980s, many of the smaller, farrow-to-finish producers that traditionally populated the U.S. Corn Belt exited the industry in favor of larger operations that specialize in finishing. In addition, consolidation in packing and processing has led to the emergence of much larger operations that use slaughter capacity more intensively through second shifts and the slaughtering of animals on Saturday. To further use capacity, U.S. packers have bid hog prices higher, effectively drawing Canadian slaughter hogs into the United States (Haley, 2004).

For both the pork and poultry industries in Mexico, trade liberalization under NAFTA has coincided with increased pressures to expand and consolidate. Although Mexican pork production has increased by more than 30 percent during the NAFTA period, imports are expected to account for 28 percent of Mexican pork consumption in 2006, compared with 6 percent in 1996 (Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca, y Alimentación, Servicio de Información Agroalimentaria y Pesquera, 2006; USDA, Foreign Agricultural Service, 2006). Mexico's large technically advanced hog producers are very efficient, but its smaller producers have

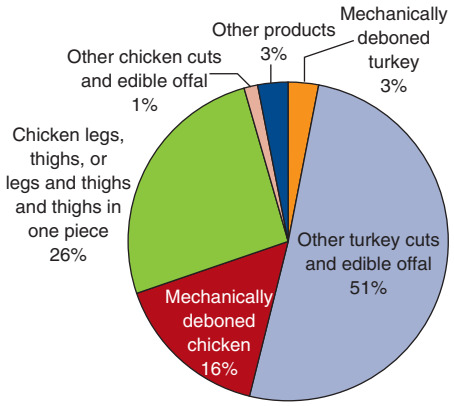
high production costs, primarily because they buy commercial feed rather than manufacture it themselves.

Rising imports and the restructuring of Mexico's hog industry have provided the context for several allegations of dumping concerning U.S. exports to Mexico. From early 1999 to May 2003, Mexico imposed antidumping duties on U.S. hogs—an action that dramatically reduced U.S. hog exports to Mexico. Over the past several years, attention has focused on pork legs. In May 2004, the Mexican Government self-initiated an antidumping investigation concerning imports of this product from the United States, after finding that that the evidence was insufficient in an antidumping petition filed by a Mexican producer organization concerning other pork products (Williams and Trejo). In December 2005, Mexico issued a determination that there was no objective evidence to support the antidumping claim concerning pork legs, but in February 2006, the Mexican Government took the unusual step of requesting a NAFTA arbitration panel to review its own decision. The petition for the arbitration panel was made in response to a request from the same producer organization (Trejo). As of February 2007, the arbitration panel had not yet been formed.

The Mexican poultry industry is highly concentrated and closely integrated with the U.S. industry through foreign investment. Three firms account for about half of Mexico's chicken production, and over the next several years, the industry is expected to consolidate even further (Flores, 2006a). The country's largest chicken producer is a Mexican firm, whereas the second- and third-largest are affiliates of U.S. corporations. These firms are in an excellent position to supply Mexico's retail sector, which is expanding rapidly.

Compared with the Mexican hog industry, the Mexican poultry industry has faced less direct competition from the United States because Mexico's poultry imports consist of either turkey meat or mechanically deboned meat (MDM)—commodities that Mexico does not produce in large quantities (fig. 8). In 2005, about 70 percent of Mexican poultry imports from the United States (in terms of value) consisted of these commodities. MDM is a key ingredient in sausages and cold cuts. Expiration of the safeguard on U.S. CLQ exports to Mexico is expected to allow larger exports of this product into Mexico's interior, although this restriction already has been circumvented to some extent by legal injunctions obtained by individual firms and the underinvoicing of product (Flores, 2006a).

Figure 8
In 2005, about 70 percent of U.S. poultry meat exports to Mexico (in terms of value) consisted of commodities that Mexico does not produce in large quantities



Source: Secretaría de Economía, as reported by Global Trade Information Services.

Although U.S. tariffs on Mexican pork and poultry were eliminated upon NAFTA's implementation,

the United States imports very little Mexican pork and poultry due to sanitary regulations. Regionalization and continued Mexican progress in controlling such animal diseases as Classical Swine Fever (CSF) and Exotic Newcastle Disease (END) are expected to create additional opportunities for Mexico to export pork and poultry meat to the United States and other countries. As of February 2007, the United States considered eight Mexican States—Baja California, Baja California Sur, Campeche, Chihuahua, Quintana Roo, Sinaloa, Sonora, and Yucatán—to be free or of at low risk of CSF and three Mexican States—Campeche, Quintana Roo, and Yucatán—as being free of END (USDA, Animal and Plant Health Inspection Service). Under specific conditions, the United States also permits the importation of fresh poultry meat and other poultry products from Sinaloa and Sonora, even though it does not recognize these States as being free of END. Mexico already is an important supplier of pork to Japan. To take greater advantage of Mexico's poultry health status, the country's leading chicken producer has announced plans to locate a new complex in the northwest border State of Sonora and to upgrade existing facilities in the State of Yucatán (USA Poultry and Egg Export Council).

Integration of the U.S. and Canadian dairy and poultry industries is limited by the exclusion of these sectors from bilateral trade liberalization under CUSTA and NAFTA. Despite this obstacle, U.S. dairy and poultry exports to Canada have managed to grow in some product categories. Canada has a long history of offering supplemental import permits in addition to the duty-free amounts specified by the country's tariff-rate quota for imported poultry, which has enabled U.S. chicken exports to Canada to grow much faster than Canadian production since 1995 (Hahn et al.). However, the lion's share of the supplemental permits is granted to support the making of food products intended for reexport (Chicken Farmers of Canada, p. 10). U.S. exports to Canada of relatively minor dairy-based products, such as food preparations for infant use, have risen during the CUSTA-NAFTA period, largely because these products face no import quotas and now enjoy duty-free status in Canada (app. table 1).

Nonfat dried milk (NFDM) continues to be the leading U.S. dairy export to Mexico. In 2005, U.S. NFDM exports to Mexico reached a record 109,000 metric tons ($231 million). Like corn and dry common beans, NFDM is subject to a transitional TRQ under NAFTA. For 2007 (the last year of the restriction), the TRQ provides duty-free access for 58,741 metric tons of U.S. NFDM exports to Mexico. Exports beyond this amount face an over-quota tariff equal to the greater of 11.8 percent or $98 per metric ton. The Mexican parastatal company LICONSA (Leche Industrializada CONASUPO), which distributes milk to poor families, is responsible for about 40 percent of Mexico's NFDM purchases from the United States. LICONSA also purchases fluid milk, generally from small- to medium-sized producers in Mexico, while many larger producers have direct relationships with milk processors.

Ties between the U.S. and Mexican dairy industries reflect the adoption of new business strategies by international dairy companies. A producer cooperative from outside the NAFTA region, New Zealand's Fonterra, now serves as the marketing agent for much of NFDM exports through its partnership with Dairy Farmers of America, the largest farmer-owned dairy cooperative in the United States (Blayney and Gehlhar, pp. 34-35). In addition, Mexican dairy companies have attracted net inflows of close to $1.2 billion in FDI

between January 1999 and June 2006 (Secretaría de Economía, 2006). About three-fourths of these investments were directed to the manufacture of condensed, evaporated, or powdered milk.

Fruit and Vegetables

An integrated continental market is the logical mechanism for responding on a year-round basis to rising consumer demand in North America for fresh and processed fruits and vegetables. With territory that stretches southward well past the Tropic of Cancer, the NAFTA region features multiple zones for fruit and vegetable production with growing seasons that are scattered across the calendar year.

Mexican growers have been major participants in the expansion of North American fruit and vegetable trade. Since NAFTA's implementation, Mexican fruit and vegetable exports to the United States have more than doubled, reaching an annual average of $3.8 billion during 2003-05. These exports have their roots in the development and growth over the past half century of a vibrant Mexican fruit and vegetable sector that is strongly oriented towards the U.S. market. The last step in phasing out U.S. tariffs toward Mexican fruits and vegetables will take place in 2008. Most of the remaining restrictions of this type are applied on a seasonal basis and are small in value (table 1).

Completion of Canada-U.S. trade liberalization for fruit and vegetables, along with broader application of greenhouse technologies to Canadian vegetable production, has fostered greater integration in the fruit and vegetable markets of the two countries. Canada has emerged as an important supplier to the United States of fresh greenhouse tomatoes, peppers, and cucumbers, as well as fresh-market mushrooms and fresh and frozen potatoes (app. table 4). However, U.S. tariffs toward Canadian vegetables were generally small prior to CUSTA, with the important exception of fresh mushrooms, which faced seasonal restrictions with an ad valorem tariff equivalent of nearly 29 percent on a trade-weighted, annual basis. U.S. growers have been active participants in the Canadian market for some time, with annual fruit and vegetable exports to Canada averaging $3.1 billion during 2003-05. Eliminating the remaining tariffs on Canada-U.S. trade has given Canadian consumers tariff-free access to the full range of U.S. produce—facilitating the growth of U.S. exports of strawberries, cherries, pears, carrots, lettuce, and potatoes, among other commodities.

A major result of the heightened integration of North America's fruit and vegetable market is that imports from the NAFTA countries have become more important to U.S. food supply. In 2004, Mexico and Canada supplied about 8 percent of the fresh or frozen fruit available in the United States and 12 percent of the available fresh or frozen vegetables. In 1990, these shares equaled 5 percent and 6 percent, respectively. Changing diets and the development of off-season supplies of fresh produce outside the United States have fostered a shift in U.S. consumption away from processed fruits and vegetables and toward fresh produce. In 2004, fresh produce accounted for 48 percent of U.S. fruit and vegetable supply, up from 44 percent in 1990 (USDA, Economic Research Service, 2006a; USDA, Foreign Agricultural Service, 2006).

Net imports (i.e., imports minus exports) provide another indicator of the increased reliance on imports to supply U.S. fruit and vegetable consumption (table 3). Prior to NAFTA, net imports from Mexico exceeded 15 percent of U.S. supply for a wide variety of produce—including fresh limes, fresh mangos, fresh papayas, fresh asparagus, bell peppers, broccoli and cauliflower for processing, fresh cucumbers, squash, and fresh tomatoes. Since NAFTA's implementation, a number of these commodities—fresh limes, fresh papayas, bell peppers, squash, and fresh tomatoes—have experienced an increase of at least 10 percentage points in this measure. Net imports from Canada now account for a larger portion of U.S. supply of bell peppers, fresh cucumbers, and fresh tomatoes than they did in the early 1990s. Indeed, Canada has become a net exporter to the United States of fresh cucumbers and fresh tomatoes. Again, U.S. tariffs toward Canadian product were small for these commodities prior to CUSTA.

Expansion of Mexico's supermarket sector is helping to expand ties between the U.S. and Mexican markets for fruit and vegetables. Many U.S. producers already had well-established procurement relationships before NAFTA with the multinational supermarket chains that operate in Mexico, and new relations have emerged between buyers and suppliers since the agreement's implementation (Tropp et al., p. ix). Through advanced procurement and distribution systems, supermarkets are able to exercise greater control over the supply of fresh produce, "reducing handling, speeding delivery, and … reducing post-harvest losses and shrinkage" (Pacific Economic Cooperation Council, p. 16).

Table 3

Net imports from Mexico and Canada now account for a larger share of the availability of certain fruit and vegetables in the United States

Commodity	Net imports divided by U.S. disappearance						Average per capita disappearance	
	Fom World		From Mexico		From Canada			
	1991-93	2003-05	1991-93	2003-05	1991-93	2003-05	1991-93	2003-05
	----------Percent----------						*-----Kilograms-----*	
Selected fruit:								
Grapes, fresh[1]	15	24	4	8	-13	-9	3.4	3.6
Limes, fresh[1]	66	100	82	99	-3	-1	.4	.9
Mangos, fresh[2]	92	100	85	64	-2	0	.4	.9
Papayas, fresh	8	87	27	66	-9	-2	.1	.4
Strawberries, fresh	-8	-6	2	5	-9	-9	1.6	2.5
Watermelon	1	5	5	12	-5	-10	6.3	6.1
Selected vegetables:								
Asparagus, fresh	12	58	30	27	-13	-4	.3	.5
Bell peppers	5	21	18	40	-10	-2	2.5	3.1
Broccoli and cauliflower, processing[3]	66	77	49	57	1	4	1.4	1.4
Cucumbers, fresh	28	47	31	40	-6	3	2.2	2.9
Onions, fresh	-20	0	7	5	-4	-3	7.4	9.4
Squash[4]	23	41	19	35	-1	-1	1.7	2.1
Tomatoes, fresh	9	30	16	29	-7	0	7.1	9.1

[1]For these commodities, marketing years 1990/91, 1991/92, and 1992/93 are compared with marketing years 2002/03, 2003/04, and 2004/05.
[2]Net imports also include mangosteens and guavas and some dried product.
[3]Exports are assumed to equal zero in the net import calculations.
[4]Squash exports are estimated as 5 percent of miscellaneous vegetable exports in the net import calculations.

Sources: Lucier and Jerardo (2006); Pollack and Perez (2006); and USDA, Foreign Agricultural Service (2007) (trade data).

Several U.S. supermarket operators are active in Mexico. In 1997, the Texas supermarket chain H-E-B opened its first store in northern Mexico, and today, it has about 20 stores there. Representatives of the U.S. and Mexican stores sometimes sit down together with suppliers and jointly buy fresh produce, thereby sharing the associated transaction costs (H-E-B). Wal-Mart has been present in Mexico since 1991 and at last count was operating 855 stores in that country, many of which contain full-service supermarkets (Wal-Mart de Mexico). Despite these developments, many Mexicans still prefer to buy fresh produce from traditional food outlets, such as centrales de abasto (public markets), tiendas de abarrotes (mom and pop shops), and tianguis (mobile street vendors) (Schwentesius and Gómez). In 2004, traditional food retailers accounted for an estimated 72 percent of fresh produce sales in Mexico (Acosta Tapia).

Integration of formerly national fruit and vegetable markets requires that the correct incentives be in place in each NAFTA country so that individuals and firms throughout the supply chain adopt appropriate food safety practices. Because some participants in the supply chain opt not to make the investments necessary to implement additional safety standards, one approach that is being pursued is the adoption of mandatory Good Agricultural Practices (GAPs) in the field and Good Manufacturing Practices (GMPs) in packing operations. This approach was applied to green onions following the outbreaks of foodborne illness associated with that product in 2003 (Calvin, Avendaño, and Schwentesius). In addition, the Mexican Government agency in charge of food safety has developed a certification program to identify cantaloupe growers who implement GAPs and GMPs as a way to facilitate access to the U.S. and Canadian markets (Green et al.).

Discussion in the United States revolves around whether GAPs and GMPs should be mandatory or voluntary. In March 2007, handlers of leafy greens grown in California implemented a voluntary marketing agreement in which participants agreed to sell California product only from growers who can show that they follow the Best Practices recognized by the agreement. In contrast, the United Fresh Produce Association adopted a set of principles in January 2007 declaring that for food safety standards to be credible with consumers, they must be mandatory, government approved, and subject to Federal oversight. The stakes of not ensuring the adoption of appropriate food safety practices throughout the supply chain are extremely high. Even if a foodborne illness is traced to just one producer, all growers of the same commodity suffer from the decline in consumer confidence in that product.

The private sector has played an important role in facilitating the integration of the continental fruit and vegetable market. For example, produce and transportation companies from each NAFTA country have joined together to form the Fruit and Vegetable Dispute Resolution Corporation (DRC), a private, nonprofit organization whose “core business” is “dispute resolution that is timely, effective and enforceable to avoid litigation, enable business relationships to continue and respect the confidentiality of the parties” (Fruit and Vegetable Dispute Resolution Corporation). One of the DRC’s main contributions to market integration is the institution of a multi-step dispute resolution system that begins with preventative activities and cooperative problem-solving and then proceeds gradually to more binding measures. In addition, the DRC seeks to serve as a catalyst for other initiatives that

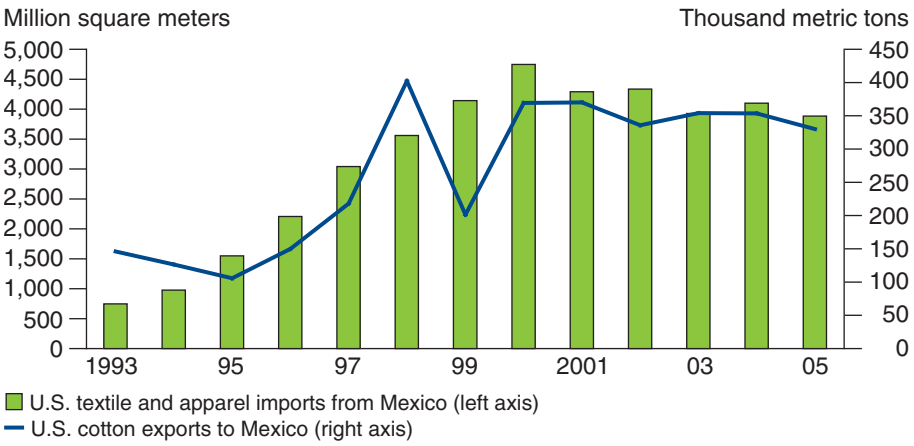
improve the business climate for fresh produce trade in North America. Examples include standardizing destination-inspection services, grading, and good arrival guidelines and establishing a trust to improve the financial security of sellers of fresh produce, along the lines of the U.S. Perishable Agricultural Commodities Act (Whitney). The DRC was established in 1999 in response to Article 707 of NAFTA, which called for an advisory committee on private commercial disputes regarding agricultural goods.

Cotton, Textiles, and Apparel

North America's textile and apparel industry is experiencing intense competition from China and other countries outside NAFTA, following the full implementation of the WTO's Agreement on Textiles and Clothing (ATC) at the end of 2004. The North American industry became highly integrated during NAFTA's first decade, as a division of labor emerged in which the United States supplies raw cotton to Mexican textile and apparel producers and Mexico exports some of its textile and apparel output to the United States (fig. 9).

Since the turn of the century, however, this arrangement has come under duress. Countries outside NAFTA have gained much broader access to the U.S. market, as the ATC gradually dissolved the complex tangle of quotas that formerly restricted international trade in textiles and apparel. As a result, Mexico's textile and apparel industry has struggled greatly, confronted with heightened competition for the U.S. market and rising imports into Mexico from outside NAFTA. Between 2000 and 2005, Mexican textile and apparel exports to the United States fell from U.S. $9.7 billion to U.S. $7.2 billion (U.S. Department of Commerce, Office of Textiles and Apparel, 2006). In addition, employment in Mexico's textile and apparel sector slipped by roughly 30 percent (Encuesta Industrial Mensual, as cited by Instituto Nacional de Estadística, Geografía, e Informática, 2006). U.S. textile and apparel employment also has continued to decline, from 1.2 million workers to less than 900,000 over the same period.

Figure 9
U.S. textile and apparel imports from Mexico have declined sharply since 2000 in the face of heightened competition from non-NAFTA countries



Source: U.S. Department of Commerce, Office of Textiles and Apparel (textile and apparel imports); and USDA, Foreign Agricultural Service (2007) (cotton exports).

Transportation[11]

The events of September 2001 spurred the NAFTA countries to reevaluate their security processes for commercial shipments and implement new approaches to border security. The United States secured "Smart Border" agreements with Canada in December 2001 and with Mexico in March 2002, which laid the groundwork for an ongoing period of collaboration and cooperation in this area. Although the action plans associated with these agreements differ in some respects, the two agreements have in common the goals of secure infrastructure and the secure movement of people and goods.

Two efforts associated with the Smart Border initiatives affect U.S. agricultural imports from Canada and Mexico. The first effort was to create ways for firms active in cross-border trade to have their logistical processes examined and vetted by the U.S. Department of Homeland Security (DHS) in return for expedited processing of their shipments as they entered the United States. To this end, two voluntary programs were created: (1) the Customs-Trade Partnership against Terrorism (C-TPAT), in which manufacturers, importers, and carriers submit an application, agreement, and security profile to DHS; and (2) the Free and Secure Trade (FAST) program, which allows companies established to be of low risk that are shipping low risk materials to receive expedited border processing. As of August 2006, the FAST program was active at 14 ports along the Canada-U.S. border and 13 ports along the Mexico-U.S. border (U.S. Customs and Border Protection).

The second effort was to implement high-tech methods of sensing whether vehicles contain dangerous materials as they enter the United States. All vehicles entering the United States are now examined by sophisticated remote sensing equipment, even though only a fraction of these vehicles are opened for a physical examination. Incorporating new technologies and new work processes has taken time, especially during a period of rapid traffic growth, with major border crossings often requiring significant redesign and expansion.

To date, there is little evidence about how the new border security measures have affected U.S.-Canada agricultural trade, but one study has examined the degree to which these measures have affected transportation times and transport costs for Mexico-U.S. agricultural trade (Hall). This study indicates that, by mid-2006, individual vehicle delays due to security were slight, border crossing infrastructure was much improved, and shippers and carriers had adapted well, with widespread acceptance of both C-TPAT and FAST. However, trade volumes have increased to such an extent that many participants in Mexico-U.S. agricultural trade indicate that total delay times at the border have not improved over the past 5 years.

Physical inspections away from the border can create additional delays for Mexico-U.S. agricultural trade. The Mexican Government operates both law enforcement and agricultural inspection stations within the country's interior. The law enforcement checkpoints, known as Puntos de Revisión Carreteros (PRECOS), are designed to check for drugs assumed to be flowing northbound and firearms assumed to be coming south. In addition, the Mexican agricultural secretariat maintains its own inspection sites throughout Mexico. Both types of checkpoints are usually found on major

[11]Part of this section is drawn from Hall.

highways and near State boundaries. An individual checkpoint may produce queues as long as those encountered at the U.S. border, if not longer.

Crossing the Mexico-U.S. border by rail, which for agricultural trade involves mainly grains and oilseeds traveling south and empty rail cars returning, has become more efficient over the past 5 years. The privatized Mexican railroads now have many technologies and operating practices in common with their U.S. counterparts. Early adoption of electronic documentation by Mexican railroads has decreased processing times. Routine security checks of northbound trains are performed via remote sensing while the train is moving slowly and normally take less than half an hour. Much more important sources of congestion and operating delays are choke points within the U.S. rail system and within Mexican border cities, which when combined can lead to delays of several days to a week or more.

Infrastructural constraints and not security measures are now by far the principal causes of delay for both trucks and trains crossing the U.S.-Mexico border. This situation could change, if some new threat emerges that would require a detailed physical inspection of every vehicle crossing the border. Highway delays within Mexico could be reduced if the Mexican Government incorporated elements of C-TPAT and FAST at interior highway checkpoints.

What Comes After NAFTA?[12]

With the completion of NAFTA's implementation only a year away, many people are thinking about what actions could facilitate additional integration among the member countries. Unlike the European Economic Community when it came into being in 1958, NAFTA did not create trinational institutions with the supranational authority to deepen the evolving economic relationship among the member countries (Harvey). Although the NAFTA countries instituted commissions to implement the agreement's side accords on labor and the environment, they have elected not to make the commitment to establish a new organizational structure, such as a customs union or a common market, that would take integration to the next level.

Instead, Canada, Mexico, and the United States are pursuing what Dobson calls a "strategic bargain," in which they search for ways to deepen market integration and cooperate on security concerns without relinquishing their national sovereignty. In March 2005, the NAFTA governments formalized this effort by signing the Security and Prosperity Partnership of North America (SPP). In this agreement, the signatories pledged to "develop new avenues of cooperation that will make our open societies safer and more secure, our businesses more competitive, and our economies more resilient" (White House, 2005). Ten different working groups operate under the SPP's umbrella, one of which is responsible for food and agricultural issues.

One approach toward further integration that is already underway is to seek regional and bilateral free-trade agreements with countries outside NAFTA. All three NAFTA governments have completed trade agreements of this type, and most of these accords contain meaningful agricultural provisions. For instance, each NAFTA country has secured a free-trade agreement with Chile, an outcome that is similar to what would have resulted had Chile formally joined NAFTA, and at least one free-trade agreement with countries in Central America.[13] However, efforts to negotiate the Free Trade Area of the Americas (FTAA)—an ambitious accord that would encompass nearly all the countries in the Western Hemisphere—and a multilateral WTO agricultural agreement within the context of the Doha Development Round have both stalled. Although NAFTA has eliminated the vast majority of agricultural trade barriers among the NAFTA countries, the three countries could work to address the few remaining exceptions in a subsequent agreement. These exceptions primarily concern Canada's dairy and poultry sectors and the U.S. sugar sector with respect to Canada.

Additional efforts tailored specifically to agriculture could also increase market integration within North America. Three areas in particular stand out: regulatory coordination, trade remedies, and farm labor. First, continued efforts in the area of regulatory coordination will be crucial to further integration. The NAFTA governments have long been aware of the importance of regulatory coordination to agricultural trade. Over the past 13 years, they have fine-tuned many of their sanitary, phytosanitary, and other regulatory measures so that they do not unnecessarily hinder trade. These efforts often involve highly technical matters and are not widely heralded, but they have paid off in numerous small reforms that have opened doors to new trading opportunities. Examples include rules that allow for fresh Hass

[12]Part of this section is drawn from Meilke, Rude, and Zahniser.

[13]Canada has a free-trade agreement with Costa Rica, while Mexico has free-trade agreements with Costa Rica, Nicaragua, and the countries of the Northern Triangle—Guatemala, Honduras, and El Salvador. In 2006, the U.S. Congress approved the Central America-Dominican Republic Free Trade Agreement (CAFTA-DR), which encompasses Costa Rica, Guatemala, Honduras, Nicaragua, and El Salvador, in addition to the Dominican Republic. Costa Rica, however, has yet to ratify CAFTA-DR.

avocados to be the imported from Mexico; the coordinated campaign by all three countries to seek a harmonized approach to mitigating risks of BSE; contingency plans for another outbreak of potato wart in Canada; and the sharing of scientific studies and administrative evaluations among pesticide regulators and scientists in the NAFTA governments (Green et al.). The SPP's Food and Agriculture Working Group features an ambitious agenda for regulatory coordination, including common approaches to food safety, greater coordination and information-sharing among testing laboratories, and increased cooperation with respect to the regulation of agricultural biotechnologies. Many of these initiatives build upon activities started by the NAFTA Committee on Sanitary and Phytosanitary Measures and other NAFTA-related entities.

Second, the processes that allow for the imposition of antidumping duties (ADs) and countervailing duties (CVDs) could be recast so that these trade remedies do not unduly interfere with integration. Although NAFTA created a dispute-resolution mechanism in which national trade remedy decisions can be appealed before binding arbitration panels, the agreement generally preserves the autonomy of each member country to implement its own trade remedy laws. Given that commodity prices are volatile and sometimes fall below the costs of production, some observers have suggested that the current approach to allegations of dumping is inappropriate for agriculture (Knutson, Loyns, and Ochoa, p. 393). Canada and Chile have pursued an innovative course with respect to trade remedies by exempting all of their bilateral trade from ADs as part of the Canada-Chile Free Trade Agreement. Less sweeping reforms could include negotiating time-limited and renewable "holidays" from ADs for specific products or sectors (Hufbauer and Schott, p. 477), specifying higher standards for imposing ADs and CVDs, and requiring mandatory facilitated dialogue among the adverse parties before administrative review of any AD/CVD case (Wainio, Young, and Meilke).

Farm labor is a third area where efforts toward further integration could pay substantial dividends for agriculture. Certain labor-intensive sectors of U.S. agriculture, such as horticultural production, rely heavily on foreign-born workers. In 2006, the number of hired laborers employed by U.S. agriculture ranged from 614,000 in January to 876,000 in July, according to quarterly estimates from USDA's National Agricultural Statistics Service. Roughly half of the hired labor force in crop agriculture is believed to be undocumented (Carroll et al., p.7). Changes that would broaden opportunities for foreign-born workers to work legally in U.S. agriculture would help to assure the continued availability of labor for the sector while eliminating the tremendous dangers associated with entering the United States illegally. President Bush is advancing an immigration agenda that features a temporary worker program and a process by which illegal immigrants who want to stay in the country would need to pay "a meaningful penalty" and also "learn English, pay their taxes, pass a background check, and hold a job for a number of years before becoming eligible to be considered for legalized status" (White House, 2007).

Ultimately, the private sector is likely to determine the size and composition of the economic linkages that will bind the agricultural sectors of the NAFTA countries even closer together in the future. But further integration

will also require a high degree of cooperation and coordination among the NAFTA governments. Successful implementation of NAFTA over the past 13 years, along with the many additional actions that Canada, Mexico, and the United States have taken to support the agreement, demonstrates that further integration is clearly within the grasp of the member countries.

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Appendix table 1

Selected U.S. agricultural exports to Mexico, 1991-93 versus 2003-05

Commodity	Value			Volume			Unit value for period		
	Annual average			Annual average					
	1991-93	2003-05	Change	1991-93	2003-05	Change	1991-93	2003-05	Change
	---$U.S. millions---		*Percent*	*1,000 metric tons*		*Percent*	*U.S. dollars ---per kilogram---*		*Percent*
Total	3,476	8,593	147	—	—	—	—	—	—
Animals and animal products	1,186	2,484	109	—	—	—	—	—	—
Beef and veal	171	513	200	58	149	158	2.95	3.43	16
Beef variety meats	48	265	452	41	123	200	1.17	2.15	84
Pork	68	322	373	32	177	455	2.13	1.81	-15
Pork variety meats	46	122	165	62	117	88	.74	1.04	41
Turkeys, fresh or frozen	66	176	167	46	124	170	1.43	1.41	-1
Nonfat dry milk	55	168	206	33	87	163	1.67	1.94	16
Chickens, fresh or frozen	68	137	101	74	216	191	.92	.63	-31
Tallow, inedible	41	121	195	113	283	151	.36	.43	18
Bovine hides, whole	110	69	-38	—	—	—	—	—	—
Cheese	14	56	286	5	18	236	2.65	3.05	15
Cattle and calves[1]	115	8	-93	179	8	-95	642.46	919.65	43
Other	384	529	38	—	—	—	—	—	—
Grains and feeds	896	2,356	163	6,507	15,826	143	.14	.15	8
Corn	104	667	542	914	5,682	522	.11	.12	3
Wheat, unmilled	78	428	448	563	2,708	381	.14	.16	14
Sorghum	427	325	-24	3,949	2,918	-26	.11	.11	3
Cracked corn	13	275	2,018	68	2,213	3,155	.19	.12	-35
Rice	42	163	287	175	750	329	.24	.22	-10
Dog or cat food, for retail sale	5	60	1,096	6	101	1,578	.83	.59	-29
Other	227	438	93	832	1,455	75	.27	.30	10
Fruits and preparations, excluding juice	81	248	207	143	343	140	.57	.72	28
Apples, fresh	34	76	123	68	122	79	.50	.62	24
Other	47	173	267	75	222	195	.63	.78	24
Nuts and preparations	33	99	196	22	46	109	1.51	2.14	42
Vegetables and preparations	150	732	388	—	—	—	—	—	—
Soups, broths, and preparations thereof, dried	15	196	1,205	7	72	919	2.13	2.73	28
Potatoes, frozen	7	53	704	10	68	590	769	30	-96
Other	128	482	276	—	—	—	—	—	—
Oilseeds and products	633	1,502	137	2,489	5,229	110	.25	.29	13
Soybeans	400	872	118	718	3,400	373	.56	.26	-54
Soybean meal	68	179	163	313	761	143	.22	.23	8
Soybean oil	13	76	482	27	134	396	.48	.57	17
Other	152	376	147	1,431	934	-35	.11	.40	279
Cotton, excluding linters	117	436	273	87	346	298	1.34	1.26	-6
Essential oils	21	64	204	2	6	218	10.39	9.92	-5
Seeds, field and garden	109	212	94	181	305	68	.60	.69	15

See notes at end of table.

Continued—

Appendix table 1

Selected U.S. agricultural exports to Mexico, 1991-93 versus 2003-05—Continued

Commodity	Value			Volume			Unit value for period		
	Annual average			Annual average					
	1991-93	2003-05	Change	1991-93	2003-05	Change	1991-93	2003-05	Change
	---$U.S. millions---		*Percent*	*1,000 metric tons*		*Percent*	*U.S. dollars ---per kilogram---*		*Percent*
Sugar and tropical products	155	271	75	—	—	—	—	—	—
Chocolate and preparations	47	74	57	16	28	73	2.91	2.65	-9
Other	108	198	83	—	—	—	—	—	—
Beverages, excluding juices	51	79	55	—	—	—	—	—	—
Beer[2]	12	54	334	22	78	246	.55	.70	26
Other	39	25	-35	—	—	—	—	—	—
Other	77	208	171	—	—	—	—	—	—

[1]Volume is measured in thousands of head, and unit value is measured in dollars per head.
[2]Volume is measured in millions of liters, and unit value is measured in dollars per liter.

Source: USDA, Foreign Agricultural Service (2007).

Appendix table 2

Selected U.S. agricultural imports from Mexico, 1991-93 versus 2003-05

Commodity	Value			Volume			Unit value for period		
	Annual average			Annual average					
	1991-93	2003-05	Change	1991-93	2003-05	Change	1991-93	2003-05	Change
	---$U.S. millions---		*Percent*	*1,000 metric tons*		*Percent*	*U.S. dollars ---per kilogram---*		*Percent*
Total	2,542	7,298	187	—	—	—	—	—	—
Animals and animal products	408	654	60	—	—	—	—	—	—
Cattle and calves[1]	377	510	35	1,104	1,289	17	.34	.40	16
Other	31	145	366	—	—	—	—	—	—
Grains and feeds	51	295	478	—	—	—	—	—	—
Biscuits and wafers[2]	16	171	978	11	104	857	1.46	1.64	13
Other	35	125	253	—	—	—	—	—	—
Fruits and preparations	322	1,131	251	586	1,360	132	.55	.83	51
Grapes, fresh	59	244	314	40	129	223	1.48	1.89	28
Limes, fresh or dried	20	114	463	87	275	218	.23	.42	77
Avocados, fresh or dried	1	113	11,034	1	69	12,279	1.81	1.63	-10
Avocados, processed	12	64	417	6	35	520	2.16	1.81	-17
Mangoes, fresh[3]	63	102	61	80	178	123	.79	.57	-28
Watermelons, fresh	18	84	367	89	220	148	.20	.38	88
Strawberries, fresh	15	72	379	12	46	282	1.25	1.57	26
Papayas, fresh	4	59	1,354	7	83	1,019	.54	.71	30
Other	129	280	116	265	323	22	.49	.86	77
Nuts and preparations	55	131	138	17	51	194	3.16	2.56	-19
Pecans	53	119	123	14	38	171	3.78	3.10	-18
Other	2	12	587	3	13	294	.54	.95	74
Vegetables and preparations	923	2,691	191	—	—	—	—	—	—
Tomatoes, fresh	229	764	234	312	770	147	.73	.99	35
Peppers, fresh	120	438	265	124	369	197	.97	1.19	23
Cucumbers, fresh	73	249	240	179	340	90	.41	.73	79
Squash, fresh	60	173	188	83	209	152	.72	.83	14
Onions, fresh	92	150	63	178	174	-2	.52	.86	66
Broccoli, frozen	89	160	79	133	197	48	.67	.81	21
Asparagus, fresh	29	79	173	21	40	91	1.38	1.98	43
Other	231	678	194	—	—	—	—	—	—
Sugar and related products	35	344	870	23	334	1,338	1.53	1.03	-33
Confectionery products	23	257	1,038	15	182	1,145	1.55	1.42	-9
Sugar, cane or beet	1	54	4,491	3	123	4,572	.45	.44	-2
Other	12	32	176	—	—	—	—	—	—
Cocoa and cocoa products	20	90	355	14	47	244	1.46	1.93	32
Coffee and coffee products	279	175	-37	182	85	-53	1.53	2.04	33

See notes at end of table.

Continued—

Appendix table 2

Selected U.S. agricultural imports from Mexico, 1991-93 versus 2003-05—Continued

Commodity	Value			Volume			Unit value for period		
	Annual average			Annual average					
	1991-93	2003-05	Change	1991-93	2003-05	Change	1991-93	2003-05	Change
	---$U.S. millions---		*Percent*	*1,000 metric tons*		*Percent*	*U.S. dollars ---per kilogram---*		*Percent*
Beverages, excluding fruit juices	170	1,445	750	—	—	—	—	—	—
Beer[4]	145	1,191	721	179	1,270	610	.81	.94	16
Carbonated soft drinks[4]	15	118	685	19	218	1,048	.79	.54	-32
Other	10	137	1,270	—	—	—	—	—	—
Oilseeds and oilseed products	38	53	40	32	49	55	1.19	1.08	-10
Other	241	289	20	—	—	—	—	—	—

[1]Volume is measured in thousands of head, and unit value is measured in dollars per head.
[2]Includes sweet biscuits, waffles, wafers, pastries, cake, and bread, among other products.
[3]Data for 1991-92 also include guavas and mangosteens.
[4]Volume is measured in millions of liters, and unit value is measured in dollars per liter.

Source: USDA, Foreign Agricultural Service (2007).

Appendix table 3

Selected U.S. agricultural exports to Canada, 1991-93 versus 2003-05

Commodity	Value			Volume			Unit value		
	1991-93	2003-05	Change	1991-93	2003-05	Change	1991-93	2003-05	Change
	---$U.S. millions---		*Percent*	*1,000 metric tons*		*Percent*	*U.S. dollars ---per kilogram---*		*Percent*
Total	4,941	9,890	100	—	—	—	—	—	—
Animals and animal products	909	1,427	57	—	—	—	—	—	—
Pork	29	273	835	9	89	851	3.12	3.07	-2
Beef and veal	363	206	-43	87	47	-45	4.19	4.35	4
Chickens, fresh or frozen	85	161	89	42	88	108	2.02	1.83	-9
Poultry meats, prepared or preserved	54	121	126	12	31	154	4.33	3.85	-11
Eggs	31	61	95	—	—	—	—	—	—
Preparations for infant use, retail sale	4	61	1,297	1	21	1,858	4.13	2.95	-29
Cattle and calves[1]	36	11	-68	71	34	-52	.51	.34	-34
Other	307	533	74	—	—	—	—	—	—
Grains and feeds	779	1,894	143	1,658	4,670	182	.47	.41	-14
Dog or cat food, retail sale	146	297	104	142	269	90	1.03	1.10	7
Corn	60	250	320	600	2,537	323	.10	.10	-1
Pastry, cake, bread, and pudding	94	188	99	58	99	72	1.64	1.89	16
Prepared food from swelling or roasting of cereal or cereal products	36	182	412	19	84	351	1.91	2.16	13
Mixes and doughs	31	133	327	27	95	248	1.14	1.40	22
Rice	56	88	57	142	209	47	.39	.42	7
Cookies, waffles, and wafers	48	85	77	25	85	242	1.93	1.00	-48
Stuffed, canned, and other pasta	30	72	143	14	35	151	2.11	2.05	-3
Pasta, uncooked[2]	21	51	146	19	54	179	1.08	.95	-12
Other	257	546	112	613	1,200	96	.42	.46	8
Fruits and preparations, excl. juice	708	1,107	56	872	1,143	31	.81	.97	19
Grapes, fresh	117	143	22	112	97	-13	1.05	1.48	41
Strawberries, fresh	51	151	198	36	69	92	1.41	2.19	55
Oranges, fresh or dried	80	102	28	154	179	16	.52	.57	11
Apples, fresh	58	92	59	76	107	41	.76	.86	13
Peaches, fresh	46	60	32	50	57	15	.92	1.05	14
Watermelons, fresh	25	52	107	78	171	120	.32	.31	-6
Other	332	506	53	366	463	26	.91	1.09	21
Fruit juices[3]	156	313	100	267	394	48	.59	.80	36
Orange juice[3]	83	165	100	155	222	43	.53	.74	39
Other	73	148	101	111	171	54	.66	.86	31
Wine[3]	41	114	179	32	58	82	1.28	1.97	54
Nuts and preparations	128	249	94	72	107	48	1.77	2.33	32
Almonds, fresh or dried	30	76	154	9	17	92	3.35	4.43	32
Peanuts, raw	45	51	13	51	57	12	.88	.89	2
Other	53	121	130	12	32	171	4.47	3.79	-15

See notes at end of table.

Continued—

Appendix table 3

Selected U.S. agricultural exports to Canada, 1991-93 versus 2003-05—Continued

Commodity	Value			Volume			Unit value		
	1991-93	2003-05	Change	1991-93	2003-05	Change	1991-93	2003-05	Change
	---$U.S. millions---		*Percent*	*1,000 metric tons*		*Percent*	*U.S. dollars ---per kilogram---*		*Percent*
Vegetables and preparations	1,067	2,042	91	—	—	—	—	—	—
Lettuce, fresh	109	243	122	254	343	35	.43	.71	64
Tomatoes, fresh	114	140	23	137	129	-6	.83	1.08	30
Potatoes, fresh[4]	62	64	2	179	189	5	.35	.34	-3
Carrots, fresh	26	88	247	71	118	66	.36	.75	109
Peppers, fresh	45	80	78	69	66	-4	.65	1.21	85
Tomato sauces, other than ketchup	36	81	128	35	93	167	1.03	.88	-15
Onions and shallots, fresh	42	64	51	103	137	32	.41	.47	14
Broccoli, fresh	41	57	38	72	70	-4	.57	.81	43
Other	592	1,225	107	—	—	—	—	—	—
Oilseeds and products	322	899	180	961	2,326	142	.33	.39	16
Soybean meal	151	260	71	625	1,102	76	.24	.24	-3
Soybeans	37	131	253	154	513	234	.24	.26	6
Other	133	508	282	182	711	290	.73	.72	-2
Cotton, excluding linters	60	89	47	37	62	67	1.61	1.42	-12
Essential oils	46	264	475	4	21	416	11.50	12.81	11
Mixtures of odoriferous substances for use in food and beverage industry	33	243	629	3	18	565	12.34	13.53	10
Other	12	20	62	1	3	102	9.72	7.78	-20
Seeds, field and garden	67	124	85	39	68	76	1.73	1.83	5
Sugar and tropical products	400	949	137	—	—	—	—	—	—
Coffee and coffee products	69	227	230	16	52	231	4.41	4.40	0
Chocolate and preparations	95	267	181	35	91	164	2.75	2.93	6
Sugar confections and sweetmeats without cocoa	61	134	118	30	57	92	2.08	2.37	14
Cocoa	27	90	237	11	27	148	2.45	3.33	36
Other	149	231	56	—	—	—	—	—	—
Nursery and greenhouse products	109	156	43	—	—	—	—	—	—
Beverages, excluding juices	111	186	68	—	—	—	—	—	—
Beer[3]	20	56	179	39	76	95	.52	.74	43
Other	91	130	43	—	—	—	—	—	—
Other	38	78	107	—	—	—	—	—	—

[1]Volume is measured in head, and unit value is measured in dollars per head.

[2]Excludes canned pasta and stuffed pasta.

[3]Volume is measured in millions of liters, and unit value is measured in dollars per liter.

[4]Excludes seed potatoes.

Source: USDA, Foreign Agricultural Service (2007).

Appendix table 4

Selected U.S. agricultural imports from Canada, 1991-93 versus 2003-05

Commodity	Value			Volume			Unit value		
	1991-93	2003-05	Change	1991-93	2003-05	Change	1991-93	2003-05	Change
	---$U.S. millions---		*Percent*	*1,000 metric tons*		*Percent*	*U.S. dollars ---per kilogram---*		*Percent*
Total	4,046	11,336	180	—	—	—	—	—	—
Animals and animal products	1,784	3,651	105	—	—	—	—	—	—
Beef and veal	283	1,094	286	121	326	169	2.34	3.35	44
Cattle and calves[1]	802	307	-62	1,127	357	-68	.71	.86	21
Pork	368	945	157	177	392	121	2.08	2.41	16
Swine[1]	82	507	516	854	8,045	842	.10	.06	-35
Bovine hides, whole	65	56	-13	—	—	—	—	—	—
Other	183	742	305	—	—	—	—	—	—
Grains and feeds	762	2,236	193	—	—	—	—	—	—
Bread, pastry, cakes, biscuits, and puddings	146	420	187	77	210	172	1.89	2.00	6
Wheat, excluding seed	154	147	-5	1,268	1,068	-16	.12	.14	13
Sweet biscuits, waffles, and wafers, not frozen	17	261	1,396	8	105	1,168	2.10	2.47	18
Oats, unmilled	54	145	169	576	1,161	102	.09	.12	33
Mixes and doughs	14	182	1,186	12	140	1,059	1.17	1.29	11
Prepared food from swelling or roasting cereal flakes or products	48	119	149	27	74	172	1.76	1.60	-9
Dog or cat food, retail sale	46	97	111	67	86	29	.69	1.13	63
Pasta and noodles[2]	12	84	588	12	50	304	.99	1.68	70
Cereals other than corn, grain form, precooked or otherwise prepared, not frozen	—	72	—	—	36	—	—	2.02	—
Sweet biscuits, waffles, and wafers, frozen	*	64	38,121	*	35	50,589	2.44	1.84	-25
Wheat or meslin flour	13	60	376	46	175	283	.28	.34	24
Malt, not roasted	3	53	1,655	13	154	1,111	.23	.34	45
Other	254	533	110	—	—	—	—	—	—
Fruits and preparations	68	268	296	98	186	89	.69	1.44	109
Blueberries, frozen	10	72	661	6	33	490	1.72	2.21	29
Other	58	196	236	93	153	65	.63	1.28	103
Vegetables and preparations	281	1,834	553	—	—	—	—	—	—
Potatoes, frozen	54	509	850	99	773	683	.54	.66	21
Tomatoes, fresh	5	254	4,537	4	126	2,891	1.30	2.02	55
Peppers, fresh	5	102	1,853	3	50	1,861	2.04	2.03	0
Potatoes, fresh[4]	33	67	104	189	278	47	.17	.24	39
Mushrooms, fresh or chilled	3	67	2,225	2	24	1,281	1.66	2.79	68
Soups, broths, and preparations, not dried	4	62	1,494	4	41	1,049	1.09	1.51	39
Cucumbers	3	56	1,534	4	48	1,212	.93	1.16	24
Other	173	717	313	—	—	—	—	—	—
Sugar and related products	193	589	204	331	449	36	.58	1.31	—
Confectionery products	59	398	569	35	166	379	1.71	2.40	40
Maple syrup, including blends with sugar	28	89	211	12	24	107	2.47	3.72	50
Other	106	102	-3	285	260	-9	.37	.39	6

See notes at end of table.

Continued—

Appendix table 4

Selected U.S. agricultural imports from Canada, 1991-93 versus 2003-05—Continued

Commodity	Value			Volume			Unit value		
	1991-93	2003-05	Change	1991-93	2003-05	Change	1991-93	2003-05	Change
	---$U.S. millions---		*Percent*	*1,000 metric tons*		*Percent*	*U.S. dollars ----per kilogram---*		*Percent*
Cocoa and cocoa products	148	713	383	78	316	303	1.88	2.26	20
Coffee and coffee products	33	117	254	6	26	352	5.76	4.52	-22
Tea	24	62	163	37	47	28	.64	1.31	106
Beverages, excluding fruit juices	195	353	81	—	—	—	—	—	—
Beer[3]	148	224	52	262	366	40	.56	.61	8
Other	47	129	172	—	—	—	—	—	—
Oilseeds and products	333	899	170	1,276	2,696	111	.26	.33	28
Rapeseed oil	151	343	128	297	520	75	.51	.66	30
Rape or colza seed oilcake	67	182	172	520	1,293	149	.13	.14	9
Rapeseed	13	84	557	55	334	509	.23	.25	8
Other	103	289	181	403	548	36	.25	.53	107
Seeds, field and garden	50	127	153	74	198	168	.68	.64	-6
Nursery stock, bulbs, etc.	85	303	257	—	—	—	—	—	—
Other	91	185	104	—	—	—	—	—	—

*Less than $500,000 in value and 500 kilograms in volume.

[1]Volume is measured in thousands of head, and unit value is measured in dollars per head.

[2]Excludes stuffed pasta and canned pasta.

[3]Volume is measured in millions of liters, and unit value is measured in dollars per liter.

[4]Excludes seed potatoes.

[5]Includes products containing peanuts.

Source: USDA, Foreign Agricultural Service (2007).

Appendix table 5

Foreign direct investment within the NAFTA region's food industry

Origin/destination	Food and kindred products					Food industry						
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
	U.S. million dollars											
U.S. direct investment in Canada	4,021	4,498	4,265	4,649	4,985	3,693	3,431	3,421	4,153	3,964	3,334	3,375
U.S. direct investment in Mexico	2,660	2,929	3,579	4,484	4,723	1,281	1,427	1,250	2,159	2,134	2,235	2,911
Canadian direct investment in the U.S.	5,877	7,199	7,764	10,087	6,684	1,088	1,405	984	983	922	1,195	1,561
Mexican direct investment in the U.S.	(D)	(D)	(D)	306	1,092	1,060	1,058	1,102	(D)	(D)	(D)	(D)

Notes: Data show direct investment position on a historical cost basis. Kindred products refers primarily to beverages.
(D) = Suppressed in order to avoid disclosure of data of individual companies

Source: U.S. Department of Commerce, Bureau of Economic Analysis (2006).