

Chapter 3

Overview of the Agribusiness Sector

3.1 Agribusiness in the National Economies

This section gives an overview of the Arizona-Sonora region in the context of the three NAFTA countries. Table 3.1a compares key economic and agricultural indicators for the US, Mexico, and Canada. The US is by far the biggest of the three economies in terms of total GNP and it also has the highest per-capita GNP.

The US has about 464 million acres of arable land which is about two and half times the combined arable land of Canada and Mexico. More irrigated land resides in the US than in both Mexico and Canada as well. The US has about 52 million acres of irrigated area while Mexico has about 15 million acres. Although Mexico's arable land is about 13 percent of the US, Mexico has 1.7 million more farms indicating that the average farm size in Mexico is much smaller.

Due in part to its larger land base, the US also leads in terms of the value of agricultural production. Total value of all agricultural production in 1995 was \$140 billion (US dollars throughout unless otherwise noted). Mexico's value of agricultural production during the same year was \$45 billion. Although, in terms of value of production, Mexico's agricultural sector is smaller, it contributes to a larger share in the national economy. The contribution of production agriculture to the economy of both the US and Mexico has been declining for a long time. Production agriculture's share of GDP is about 2 percent for the US and 7.4 percent for Mexico. Only 3 percent of the US work force is employed in the production agricultural sector, whereas Mexico's agricultural sector employs 22 percent of its labor force.

All three NAFTA countries have been increasing their dependence on foreign markets as an outlet for domestic production. Trade of all goods is increasing in importance for each country's national economy, ranging from less than 10 percent of GDP for the US to 15 percent of Mexico's GDP. This also helps explain why there are differences in opinions about the importance of trade, trade agreements, etc. among the NAFTA partners.

Table 3.1a. Economic and Agricultural Indicators for NAFTA Countries, 1995.

| | Units | Canada | US | Mexico |
|---|--------------|--------|--------|--------|
| General Economic Indicators: | | | | |
| Population | Million | 28.4 | 263.5 | 93.9 |
| Per capita GNP | US \$ | 19,970 | 24,740 | 3,610 |
| Inflation in 1995 (% change in CPI) | % | 1.7 | 1.9 | 42.3 |
| Agricultural Indicators: | | | | |
| Number of Farms | Million | 0.28 | 2.10 | 3.80 |
| Agricultural Land | Mil. Acres | 180 | 1055 | 245 |
| Arable Land | Mil. Acres | 114 | 464 | 62 |
| Irrigated Land | Mil. Acres | 2.5 | 52 | 15 |
| Arable Land / Agricultural Land | % | 62 | 44 | 25 |
| Arable Land Per Capita | Acres/capita | 4 | 2 | 1 |
| Value of Agricultural Production | Bil. US \$ | 18.3 | 140.0 | 45.0 |
| Share of Production Agriculture in GDP | % | 2.0 | 2.0 | 7.4 |
| Share of Food Processing Industry in GDP | % | 2.0 | 1.5 | 6.2 |
| Share of Labor Force in Agriculture | % | 3 | 3 | 22 |
| Minimum Hourly Wage Rate (Average wage rate using an 8 hour day for Mexico) | US \$ | 4.63 | 4.25 | 0.33 |
| Value of Agricultural Exports | Bil. US \$ | 14.6 | 55.8 | 6.6 |
| Value of Agricultural Imports | Bil. US \$ | 9.7 | 30.0 | 5.3 |
| Trade Surplus in Agriculture | Bil. US \$ | 4.9 | 25.8 | 1.3 |
| Share of Agriculture in Total Exports | % | 7.9 | 9.6 | 8.3 |
| Share of Agriculture in Total Imports | % | 5.9 | 4.0 | 7.3 |

Sources: USDA, ERS, BANCOMEXT, SECOFI, INEGI, FAO, and Canada Statistics.

NAFTA and Agricultural Trade

The North American Free Trade Agreement (NAFTA) was written with the intent to liberalize trade among the three countries. NAFTA was signed into law on December 8, 1993 and implemented on January 1, 1994. Goals of the agreement were to eliminate all tariff and non-tariff barriers of trade between members over 15 years, facilitate cross-border investment, and expand cooperation in other areas such as the environment and labor protection. NAFTA eliminated quotas on trade among the North American countries and replaced quotas with a tariff-based system. For many sensitive products, Tariff-Rate Quotas (TRQ) are in effect, permitting a specific volume of imports at re-

duced or zero tariff, and imposing a higher tariff for greater quantities of imports. Tables 3.1b and 3.1c provide a selected listing of changes in US and Mexican trade policies for specific commodities due to NAFTA.

Agriculture's share of total trade varies with the US and Mexico, but in a less pronounced manner. As shown in table 3.1a, agricultural exports and imports accounted for 7.3 percent and 8.2 percent of Mexico's total trade in 1994, respectively. In spite of the US's large trade deficit for all goods, agriculture has a strong surplus with its exports and imports accounting for 10.2 percent and 4.5 percent of total trade, respectively. Thus, without agricultural exports, the US trade deficit would be much larger.

Table 3.1b. Changes in US Trade Policy Towards Mexican Ag. Products Due to NAFTA

| | Trade policy before NAFTA | Trade policy with NAFTA |
|-------------------|---|--|
| Wheat | *Tariff of 0.77 cents per kilogram *6.3% tariff on wheat seeds | *Tariff on durum phased out over 10 years, tariffs on other wheat phased out over 5 years *Tariff on wheat seeds eliminated immediately |
| Cotton | *Raw cotton quota of about 18,510 bales *4.4% tariff on extra long staple cotton | *Duty-free tariff-rate quota of 46,000 bales, growing 3% per year *Over-quota tariff of 26% for all types of cotton phased out over 10 years |
| Vegetables | *Tariffs, many applied seasonally, range | *Tariffs eliminated immediately or phased out over 5, 10, from zero to more than 30% or 15 years *Special safeguard TRQ of 165,500 tons for fresh tomatoes from 3/1-7/14, up 3% per year. 10-year phase-out of in-quota tariff of 4.6 cents/kg. 4.6 cent/kg over-quota tariff until Year 10. *Special safeguard TRQ of 172,300 tons for fresh tomatoes from 11/15-2/28, up 3% per year. 10-year phase-out of 3.3 cent/kg in-quota tariff until Year 10. *Special safeguard TRQ of 130,700 tons for onions and shallots from 1/1-4/30, up 3% per year. 10-year phase-out of 3.3 cent/kg in-quota tariff. 3.3 cent/kg over-quota tariff until Year 10. *Special safeguard TRQ of 3,700 tons for eggplants from 4/1 to 6/30, up 3% per year. 10-year phase-out of 3.3 cent/kg in-quota tariff. 3.3 cent/kg over-quota tariff until Year 10. *Special safeguard TRQ of 29,900 tons for chili peppers from 10/1 to 7/31, up 3% per year. 10-year phase-out of 2.4 cent/kg in-quota tariff. 2.4 cent/kg over-quota tariff until Year 10. *Special safeguard TRQ of 120,800 tons for squash from 10/1-6/30, up 3% per year. 10-year phase-out of 2.4 cent/kg in-quota tariff. 2.4 cent/kg over-quota tariff until Year 10. *Special safeguard TRQ of 54,400 tons for watermelons from 5/1-9/30, up 3% per year. 10-year phase-out of 20% in-quota tariff. Over-quota tariff of 20% until Year 10 |

Table 3.1b (cont.)

| | Trade policy before NAFTA | Trade policy with NAFTA |
|------------------------|--|--|
| Noncitrus fruit | <ul style="list-style-type: none"> *Most tariffs less than 2% ad valorem *1.7 cents/kg tariff on fresh strawberries *14% tariff on frozen strawberries | <ul style="list-style-type: none"> *Tariffs on pears, apricots, and peaches eliminated immediately *Tariff on fresh strawberries eliminated immediately *Tariff on frozen strawberries phased out over 10 years |
| Grapes | <ul style="list-style-type: none"> *\$1.41/cubic meter tariff 2/15-3/31 | <ul style="list-style-type: none"> *Seasonal tariff on fresh grapes eliminated immediately |
| Citrus | <ul style="list-style-type: none"> *2.2 cents/kg tariff for most fresh citrus *Tariff of 9.25 cents/liter for frozen concentrated orange juice (FCOJ) *Tariff of 5.3 cents/liter on single-strength orange juice (SSOJ) | <ul style="list-style-type: none"> *Tariffs on fresh citrus eliminated immediately or within 5 or 10 years. *TRQ of 151,416,000 liters for FCOJ fixed for 15 years. 4.63 cents/l. tariff phased out starting Year 13. 9.25 cents/l. over-quota tariff reduced 15% first 6 years, phased out Years 11 to 15 *TRQ of 15,379,500 liters of SSOJ fixed for 15 years. 2.65 cents/l. in-quota tariff fixed for 7 years, phased out Years 8 to 15. 5.3 cents/l. over-quota tariff phased out over 15 years |
| Tree nuts | <ul style="list-style-type: none"> *In-shell nuts duties range from 1cent/kg on pistachios to 11 cents/kg on walnuts *Higher tariffs for shelled nuts | <ul style="list-style-type: none"> *Tariffs on in-shell and shelled nuts eliminated immediately |
| Beef | <ul style="list-style-type: none"> *Tariff of 2.2 cents/kg for live cattle *Tariff of 4.4 cents/kg for meat *Imports subject to Meat Import Law | <ul style="list-style-type: none"> *Tariffs eliminated immediately *Meat Import Law no longer applicable |
| Dairy | <ul style="list-style-type: none"> *Imports subject to Section 22 quotas | <ul style="list-style-type: none"> *5,500-ton duty-free cheese TRQ, up 3% per year. 10-year phaseout of 69.5% over-quota rate *366,000-liter duty-free milk/cream TRQ, up 3% yearly, 10-year phaseout of 92-94% over-quota rates *43-ton duty-free dry whole milk TRQ, up 3% yearly. 10-year phaseout of 94-96% over-quota rates *422-ton duty-free nonfat dry milk TRQ, up 3% yearly. 10-year phaseout of 78-83% over-quota rates |

Source: ERS/USDA NAFTA: Situation and Outlook Series.

Table 3.1c. Changes in Mexico's Trade Policy Towards US Ag. Products Due to NAFTA.

| | Trade policy before NAFTA | Trade policy with NAFTA |
|--------------------------|--|--|
| Wheat | *Import license required *10% tariff on durum wheat | *Import license eliminated immediately *15% tariff on all wheat, phased out over 10 years |
| Cotton | *10% tariff | *Tariff phased out over 10 years |
| Vegetables | *10% tariff on most vegetables | *Tariffs phased out within 15 years—some at same rate as US, others faster |
| Noncitrus fruit | *20% tariff on most categories *20% tariff on fresh and frozen strawberries | *Tariffs on pears and apricots phased out over 5 years *Tariffs on apples and peaches phased out over 10 years *Tariff on fresh strawberries eliminated immediately *Tariff on frozen strawberries reduced to 14%, phased out over 10 years |
| Grapes | *Import license required | *20% tariff from June 1 to October 14 phased out over 10 years *Tariff eliminated immediately for rest of year |
| Citrus | *20% tariff on fresh oranges and limes | *Tariffs on fresh oranges eliminated for June 1 to November 30, phased out over 5 years for the rest of year *Mexico will match US tariff reductions for fresh grapefruit *Tariffs eliminated immediately for most other fresh citrus |
| Tree nuts | *20% tariff on walnuts, pistachios, pecans, shelled almonds and hazelnuts *15% tariff on in-shell almonds and hazelnuts | *Tariffs eliminated immediately |
| Beef | *15% tariff on live cattle, 20% on fresh beef, 25% on frozen beef, 20% on edible offal | *Tariffs eliminated immediately *Tariff on edible offal phased out over 10 years |
| Dairy | *Import licenses required *Tariffs up to 20% | *Import licenses eliminated immediately *Duty-free 40,000 ton tariff-rate quota for milk powder, increasing 3% per year |
| Hides & skins | *10% tariff on sheep, goat, and pig skins | *Tariffs eliminated immediately |

Source: ERS/USDA NAFTA: Situation and Outlook Series

The US ships about 6 percent of its farm exports to Mexico and 13 percent of total US agricultural imports are from Mexico (table 3.1d). On the other hand, the US is a very important market and supplier of the Mexican market. Mexico purchased 74 percent of its agricultural imports from the US in 1994. About 82 percent of Mexico's farm exports go to the US. While both countries are highly urbanized and income levels are much higher in the US, the strongest growth for agricultural products will be in Mexico. Mexico's population is young (37 percent of population is under 14 years old) and growing, which means Mexico will remain a good market for the US for many years (USDA, 1996).

Table 3.1d. Role of NAFTA Partners in Total Agricultural Trade, 1994.

| | US | Canada | Mexico | All Other Countries |
|------------------------|-----------|---------------|---------------|----------------------------|
| <u>Imports:</u> | (%) | (%) | (%) | (%) |
| US Share from: | na | 18.5 | 12.6 | 68.9 |
| Canadian Share from: | 58.0 | na | 2.2 | 39.8 |
| Mexican Share from: | 74.4 | 6.1 | na | 19.5 |
| <u>Exports:</u> | | | | |
| US Share to: | na | 10.3 | 6.3 | 83.4 |
| Canadian Share to: | 66.2 | na | 2.8 | 31.0 |
| Mexican Share to: | 81.7 | 0.7 | na | 17.6 |

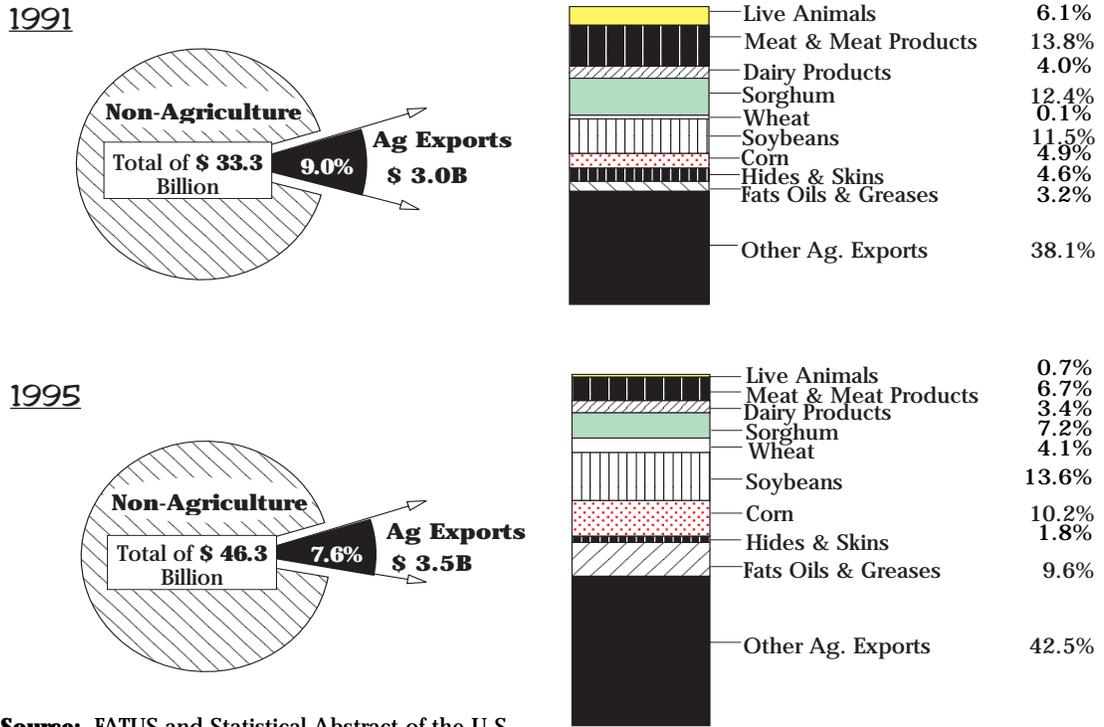
Source: U.N. Food and Agricultural Organization; na indicates not applicable.

Now in its fourth year, NAFTA has produced a mixed agricultural trade picture for the US. The reduction in tariffs and non-tariff barriers contributed to a 13 percent increase in US agricultural exports with NAFTA partners (Mexico and Canada) in 1994. But in 1995, US trade with NAFTA partners fell 8 percent, affected mainly by the deep recession in Mexico following the peso crisis.

Figures 3.1a and 3.1b show the size and composition of agricultural and non-agricultural trade between the US and Mexico. Although total US exports (both agricultural and non-agricultural) to Mexico increased from 1991 to 1995, the share of agricultural exports has decreased slightly from 9.0 percent to 7.6 percent. During this same period, US imports from Mexico have doubled from \$31.3 billion to \$61.7 billion. Agricultural imports from Mexico have also increased between 1991 and 1995 going from \$2.5 billion to \$3.5 billion. Thus, in contrast to previous years, US agricultural imports from Mexico exceeded agricultural exports resulting in a trade deficit for agricultural products with Mexico.

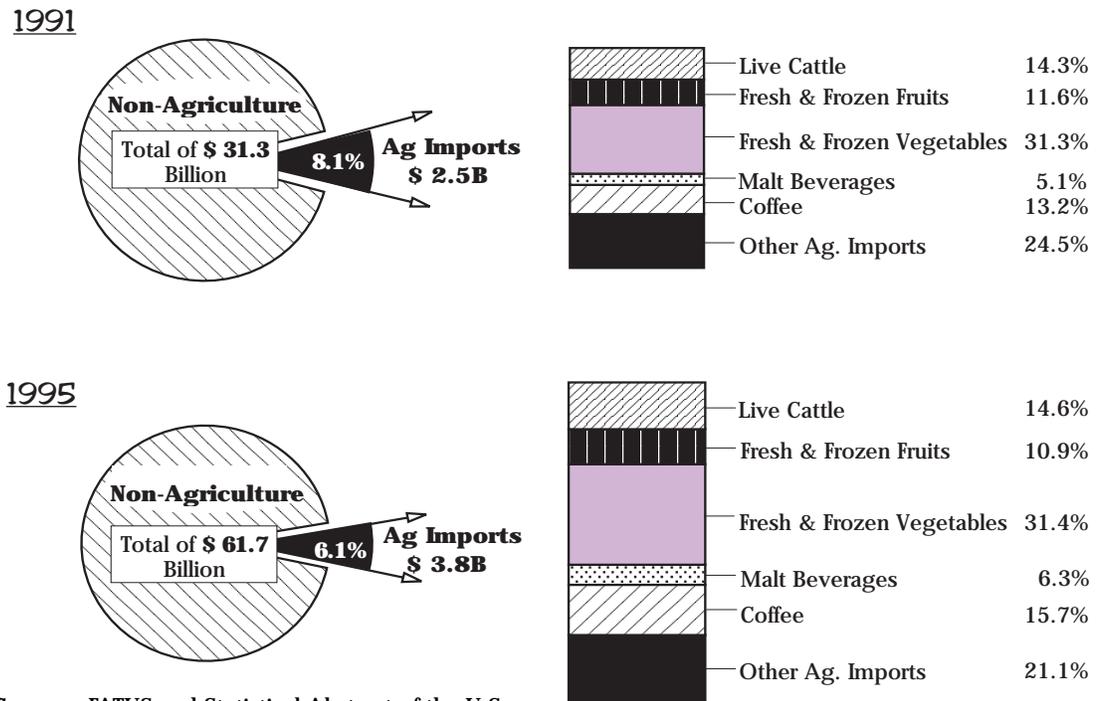
During 1995, US agricultural imports from Mexico increased by 32 percent. This increase in imports was concentrated with a few products (coffee, live cattle, tomatoes) where trade barriers were non-existent or already low before NAFTA. The drop in US exports was due to the financial crisis in Mexico, not NAFTA. Mexico's 1994 peso

Figure 3.1a. US Exports to Mexico, 1991 and 1995.



Source: FATUS and Statistical Abstract of the U.S.

Figure 3.1b. US Imports from Mexico, 1991 and 1995.



Source: FATUS and Statistical Abstract of the U.S.

devaluation triggered their financial collapse and economic recession, sharply reducing demand for most imports in 1995. In fact, the drop in US exports to Mexico would have been steeper without NAFTA, because NAFTA limited import-reducing policy responses Mexico could implement during a recession. NAFTA gave the US and Canada an advantage over other traders in the Mexican market during this difficult period. Although total US exports to Mexico decreased in 1995, US gained Mexican market share.

Trade data for the first nine months of 1996 indicate that US agricultural exports to Mexico have rebounded sharply from 1995 and should end the year with a positive trade balance. During the 1995-96 fiscal year (October-September), US agricultural exports to Mexico totaled \$5.0 billion, a 36 percent increase over the previous fiscal year. During the same period, US imports of Mexican agricultural products remained about the same at \$3.7 billions. Thus, with a more stable peso, the US is again running a n agricultural trade surplus with Mexico. Corn, wheat, soybeans, and fats oils and grease exports to Mexico have gained the most from NAFTA. Overall, it appears that NAFTA has been good for US agricultural trade.

Agricultural trade issues within NAFTA during the past year range from allegations of unfair trade practices to phytosanitary concerns. As tariffs are reduced and eliminated under NAFTA, attention is increasingly focused on non-tariff barriers. Competition is intensifying for specific commodity markets in North America due to trade liberalization and regional specialization. Regional markets are emerging in fruits and vegetables, animals and livestock products as producers are taking advantage of production complementarities and seasonal variations that reach beyond national boundaries.

In summary, the economies of NAFTA will become increasingly integrated through investment, cross border sourcing, and trade as regional markets stretching across national boundaries continue to flourish. Barriers to trade will remain, although they will not be tariff barriers. Administrative barriers to trade such as customs, paperwork, and other red tape will remain. Substantial improvements are possible, particularly at crossing points from Mexico into the US, where long waits in obtaining product clearance raise the cost of doing business. Financial barriers in the form of exchange rate risk will continue to influence trade and investment patterns. Technical barriers such as phytosanitary standards, labeling requirements or product approval procedures will continue to hinder trade, particularly for selling to Mexico, where many of these norms and standards are being developed.

3.2 Agribusiness in Arizona-Sonora Region

In diverse and urbanized economies like Sonora and Arizona, farming and ranching does not represent the largest share of the economy like it once did 75 years ago. However, the total economic impacts of production agriculture and dependent agribusiness are substantial (Leones and Conklin). According to the Bureau of Economic Analysis, production agriculture comprises about 1.4 percent of Arizona's Gross State Product (GSP). If agriculture related services are also included, the share increases to 2.2 percent. This is comparable to the contribution of agriculture for the US. Production agriculture for Sonora contributes a larger share to its economy, just as with their national level. Figures for 1995 indicate that production agriculture (crops, livestock, forestry and fishing) made up about 14 percent of Sonora's Gross State Product.

Table 3.2a presents a regional distribution of employment in agribusiness for Sonora and Arizona. Although production agriculture in Arizona employed only about 3.0 percent of total labor force at the state level, the share of agriculture in total employment varies greatly across regions. While production agriculture employs 5.7 percent of the total labor force for the Colorado River region, agriculture services employ another 9.8 percent bringing the total employment for production agriculture to 15.5 percent. Thus, agriculture is relatively more important for the Colorado River and Southeast Regions of Arizona than the rest of the state.

Figure 3.2a shows the real value (1995 dollars) of crop and livestock sales plus government payments received in Arizona from 1980 to 1995. Total receipts have declined at an average annual rate of 2.1 percent. More traditional commodities like cotton, wheat, hay, and livestock have led the decline, posting a 5.1 to 6.7 percent average decrease. Whereas, lettuce, melons, and other vegetables have posted around a 5.6 percent annual increase. The value of vegetable crops has overtaken cotton as the number one crop by value in recent years. Dairy product sales have increased modestly at 0.7 percent, reflecting an increase in population and more cheese production. Government payments have fluctuated widely over this period for Arizona, but were relatively low for both 1980 and 1995.

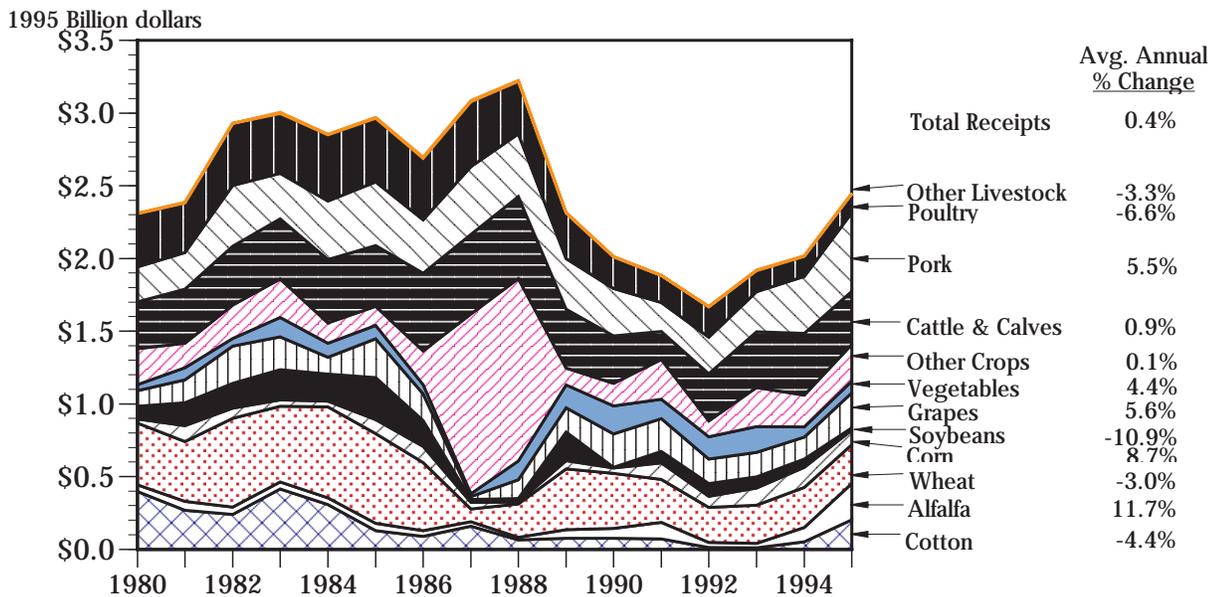
Table 3.2a. Regional Agricultural Employment in Arizona-Sonora, 1994.

| | Number of Workers | | | | Share in Total Workers | | | |
|-------------------------|-------------------|----------------|-----------------------------|--------------------------------------|------------------------|----------------|-----------------------------|--------------------------------------|
| | Production Ag | Ag Services | Food Kindred Products | & Total Ag Business Cluster | Production Ag | Ag Services | Food Kindred Products | & Total Ag Business Cluster |
| Arizona Regions: | | | | | | | | |
| Central Arizona | 15,460 | 21,706 | 7950 | 45,116 | 0.9% | 1.2% | 0.4% | 2.5% |
| Colorado River | 6,198 | 10,770 | 113 | 17,081 | 5.7% | 9.9% | 0.1% | 15.6% |
| Northern Arizona | 3,802 | 1,791 | 359 | 5,952 | 2.2% | 1.0% | 0.2% | 3.4% |
| Southeast Region | 3,841 | 949 | 180 | 4,970 | 5.4% | 1.3% | 0.3% | 7.0% |
| All Arizona | 29,301 | 35,216 | 8,602 | 73,119 | 1.4% | 1.7% | 0.4% | 3.4% |
| All Sonora | | | | 64,861 | | | | 22.0% |

Source: Regional Economic Information System, US Department of Commerce, Economics and Statistics Administration, Bureau of Economic Analysis, 1996.

Total cash receipts and livestock sales for Sonora from 1980 to 1995 are shown in figure 3.2b, in 1995 US dollars that are equivalent to figures for Arizona in figure 3.2a. Peso values were converted to US dollars by first deflating Sonora's cash receipts with Mexico's inflation rate and then converting values to US dollars by using an exchange rate in 1995 of 6.419 peso's for one 1995 US dollar. Using this method, Sonora's production agriculture sales have actually increased 0.4 percent

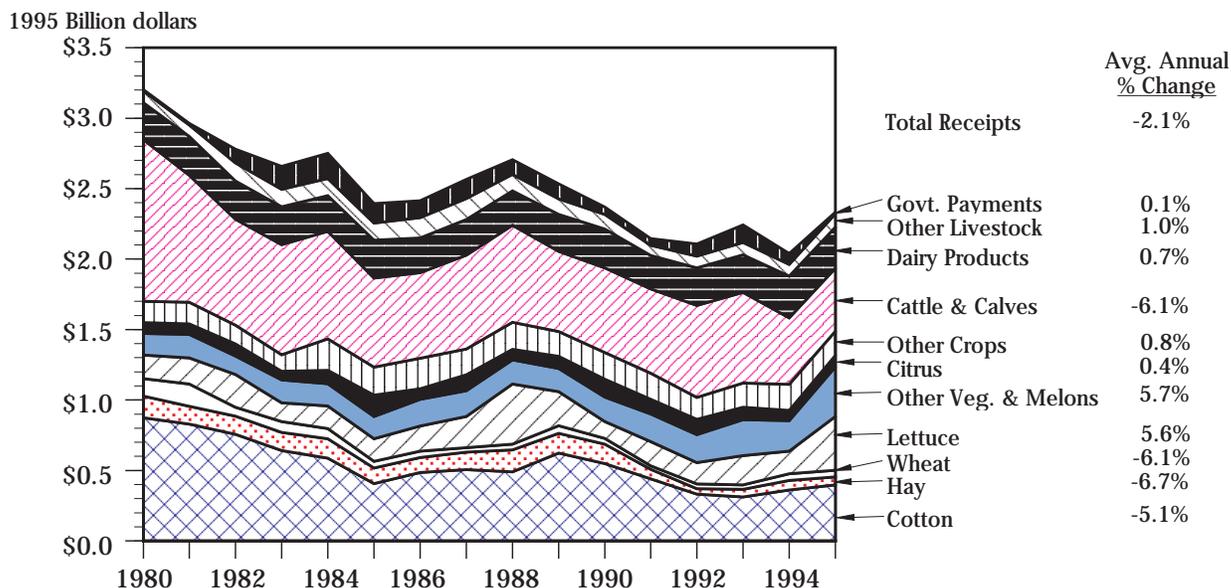
Figure 3.2a. Real Cash Receipts for Crop and Livestock Sectors in Sonora, 1980-1995.



Source: SAGAR.

annually from 1980 to 1995 whereas Arizona's equivalent sales decreased by 2.1 percent annually. It is interesting to note that some products have increased or remained flat for Sonora while they have declined significantly for Arizona. For example, cattle and calf sales in Sonora have increased by 0.9 percent while they have dropped 6.1 percent annually for Arizona. Sonora has more cattle numbers, but produces very few fed animals for slaughter. This is why cash receipts for cattle and calves are larger for Arizona than Sonora. Alfalfa and hay revenues have declined by 6.7 percent for Arizona while they have increased 11.7 percent for Sonora, with most of the increase occurring in the last few years.

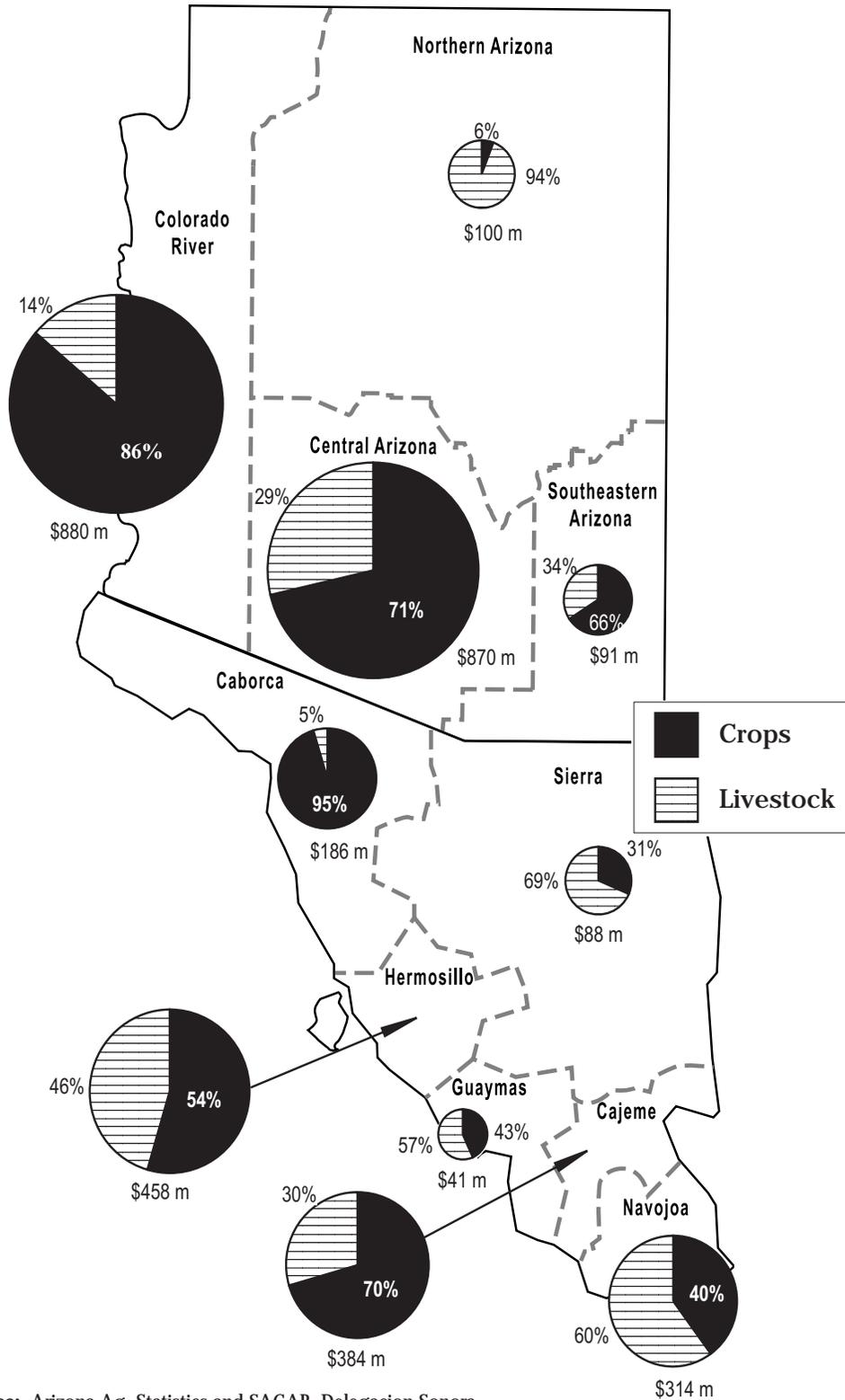
Figure 3.2b. Real Cash Receipts for Crop and Livestock Sectors in Arizona, 1980-1995.



Source: Arizona Ag Statistics.

Figure 3.2c provides a regional look at where production agriculture cash receipts occurred in 1995 for Arizona and Sonora. The pie charts provided show how cash receipts from crops are relatively larger than livestock for both states. Northern Arizona is almost entirely livestock while over 65 percent of cash receipts come from crops in all of the other three Arizona regions identified. The Sierra region of Sonora is predominantly range cattle country and livestock accounts for almost 70 percent of total crop and livestock sales. Navojoa and Guaymas regions are over 50 percent livestock due to their pork and poultry production. Sonora's pork and poultry production is concentrated in Hermosillo, Navojoa, and Cajeme. The Caborca region is almost entirely based on irrigated agriculture since livestock accounts for only 5 percent of it's agricultural sales.

Figure 3.2c. Regional Distribution of Crop and Livestock Cash Receipts, 1995.



Source: Arizona Ag. Statistics and SAGAR, Delegacion Sonora.

3.3 References

Leones, Julie P., and Neilson C. Conklin. "Agriculture in the Arizona Economy." Project Report, Department of Agricultural and Resource Economics, The University of Arizona, March 1993.

United State Department of Agriculture. "NAFTA: Situation and Outlook Series." *International Agriculture and Trade Reports*, Economic Research Service, WRS-96-3, Washington, D.C. September 1996.

United State Department of Agriculture. "FATUS: Foreign Agricultural Trade of the United States." Economic Research Service, Washington, D.C. October/November/December 1996.
