

Agriculture in the Third District: Fertile Fields Outside the Farm Belt

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The large, diversified nature of the Third District economy sometimes obscures the importance of its farm sector. The tri-state region (Pennsylvania, New Jersey, and Delaware) is not part of the nation's agricultural heartland and does not supply a large percentage of the total agricultural production of the United States. However, the region does supply a significant percentage of some commodities, and in some parts of the region, agriculture is a significant part of the local economy. For example, Pennsylvania ranks high nationally in the production of milk,

mushrooms, and Christmas trees; New Jersey is among the leaders in the production of blueberries, cranberries, and garden plants; and Delaware is a leading poultry state. Several counties in the three states rank among the top 100 in the nation in output of these products. This article presents some measures of the relative importance of the region's farm sector and describes the region's major agricultural products. It also gives an overview of the financial situation of agriculture in the region and takes a look at major issues facing the farm sector.

THE REGION'S FARM SECTOR

The size of the farm sector can be measured by output (the value of agricultural products

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sold) or by input (the amount of resources, such as land and labor, used in the sector). By each of these measures, Pennsylvania and New Jersey rank below the U.S. average. Delaware matches the average for output and land use, but falls short in terms of employment.

Farm Output. Agriculture in the United States is concentrated in relatively few states in the Midwest, the South, and the West. The top five farm states (California, Texas, Iowa, Nebraska, and Kansas) account for one-third of the value of the nation's agricultural production.¹ The top 20 farm states produce three-fourths of agricultural products in dollar value. Among the three states in the Third Federal Reserve District, only Pennsylvania is in this group, ranking 19th. New Jersey and Delaware rank 39th and 40th, respectively. Pennsylvania had the largest agricultural output—\$4.6 billion—among the three states in 1997; New Jersey had \$900 million in output, and Delaware, \$840 million. The three states combined account for 2.8 percent of total agricultural output in the nation.

The gross value of farm output does not necessarily reflect the importance of agriculture for the states' economies. For example, Delaware ranks 40th in total output, but as a percentage of gross state product (GSP), Delaware's agricultural output matches the average for the country—3 percent (Table 1). Agriculture's share of GSP in Pennsylvania and New Jersey is considerably below its share of national GDP. Not only is agricultural production a larger proportion of economic output in Delaware than in Pennsylvania or New Jersey, it has also been growing faster in Delaware than in the other two states or in the nation (Figure 1).

Farming is concentrated in a limited number of counties within each of the three states in the Third District (Map and Appendix). In Pennsyl-

¹Data on farms and agricultural production used in this article are from the 1997 Census of Agriculture, published by the U.S. Department of Agriculture, National Agricultural Statistics Service.

TABLE 1
Agriculture's Share
of the Economy

	Percent of Total*		
	Gross Product	Employment	Land
United States	3	2.6	41.2
Pennsylvania	1.4	1.2	25
New Jersey	0.3	0.6	17.5
Delaware	3	1.4	45.4

*1997 figures are used for land and employment, 1996 for gross domestic and state product.

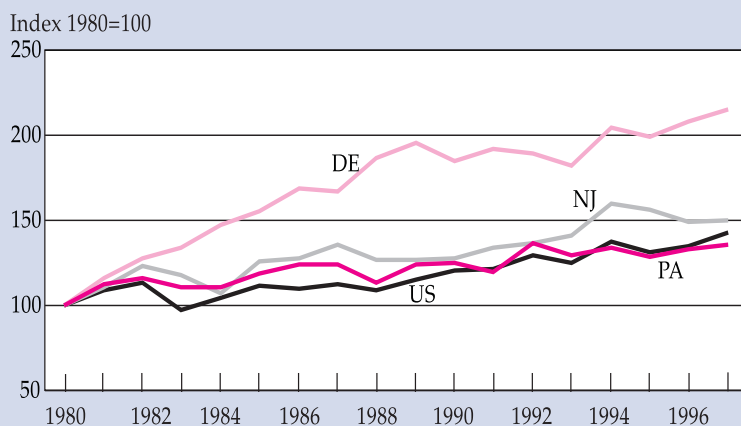
vania, farming is most important in a string of counties in the south central and southeastern part of the state.² The major farm products in this region are dairy products, beef cattle, and grain. A few other counties in northern and central Pennsylvania also produce large amounts of dairy products and fruit.³ In New Jersey, farming is a significant part of the landscape in some southern counties, where the major crops are vegetables and fruits.⁴ In Delaware, farming—primarily poultry—is concentrated in Kent and Sussex counties.

²Counties with the highest dollar value of agricultural production are, east to west, Bucks, Chester, Berks, Lancaster, Lebanon, York, Adams, Cumberland, and Franklin counties.

³Dollar value of production is highest in Bradford and Erie counties in the north and Snyder County in the center.

⁴The southern agricultural counties with the greatest dollar value of agricultural production are Burlington, Cumberland, and Salem. Monmouth County, in the middle of the state, also has a relatively large production by dollar value.

FIGURE 1
Real Value of Agricultural Output



Farm Employment. Farm jobs are a small fraction of total employment in the nation and in the states of the Third District. (For an explanation of how farm employment is measured, see *Farm Employment*.) The latest Census of Agriculture, conducted in 1997, counted 3.4 million people who were hired to work on farms at some time during that year, including paid members of the farm operator's family. This represents only 2.6 percent of total U.S. resident employment. Agricultural workers make up even smaller percentages of total employment in Pennsylvania, New Jersey, and Delaware (Table 1).

Farm employment has been declining for decades. Most of the decline is a result of the transition to nonfarm occupations by people in traditionally agricultural areas where family farming as a way of life has waned. A National Agricultural Statistics Service study of farm labor found that from 1910 to 1990, total farm labor declined by three-fourths and hired farm labor declined by two-thirds.⁵ The trend has continued in recent decades: from the 1982 Census of Agriculture to the 1997 Census, hired farm labor in the United States declined nearly one-third.

The decline in Delaware was similar, but Pennsylvania and New Jersey recorded smaller decreases in farm employment.

The decrease in farm employment is not indicative of a declining agricultural sector. On the contrary, even as employment in the sector has fallen, output has increased as a result of advances in productivity. A recent study by the Agriculture Department determined that total real farm output increased from 1948 to 1994 at a compound annual average rate of 2 percent,

despite an annual decrease in labor usage on farms of 3 percent.⁶

Farmland. The percentage of Delaware land in farms (45.4 percent) is very close to the U.S. average (41.2 percent). Farmland is a smaller percentage of total land area in Pennsylvania (25 percent) and New Jersey (17.5 percent) than in the nation as a whole. The amount of land in farms has been declining. Nationally, farmland acreage declined 4 percent from 1987 to 1997. Regionally, the declines were 10 percent in Pennsylvania, 7 percent in New Jersey, and 5 percent in Delaware.

Nationwide, the number of farms has been

⁵Farm Employment and Wage Rates 1910-1990, U.S. Department of Agriculture, National Agricultural Statistics Service, Estimates Division, Statistical Bulletin No. 822, March 1991. Nonhired labor consists of self-employed farmers and their unpaid family members working on their farms.

⁶*Agricultural Productivity in the United States*, U.S. Department of Agriculture, Economic Research Service, April 1999.

Farm Employment

Farm employment differs from most types of nonfarm employment in two significant ways: it is more likely to be seasonal than year-round, and farm workers are more likely to hold multiple jobs. For these reasons farm employment is estimated in surveys by the Department of Agriculture at different seasons of the year rather than in the monthly surveys of employment by the Bureau of Labor Statistics. The number of people employed on farms is highest in the summer and lowest in the winter. Throughout the nation only about one-fourth of hired farm workers work more than 150 days on a farm. In Delaware, this percentage is the same as the national average, but in Pennsylvania and New Jersey, about one-third of hired farm workers spend 150 days or more working on a farm.

Many farm workers hold multiple jobs, most commonly in service occupations, manufacturing, and transportation. Even farm operators (those managing their own farms or employed as farm managers) tend to hold other jobs. In fact, half of all farm operators in the nation list an occupation other than farming as their principal occupation. In Delaware and Pennsylvania, a smaller percentage of farm operators have another principal occupation—39 percent and 43 percent, respectively—and in New Jersey a larger than average percentage of farm operators, 56 percent, have another principal occupation. Operators of large farms (measured by value of production) are less likely to have another principal occupation than operators of small farms, and they are less likely to spend time working off the farm. Farms in Delaware and Pennsylvania are larger, on average, than farms in New Jersey, and their operations are steadier through the year. There are proportionately more dairy and poultry farms in Pennsylvania and Delaware, respectively, on which activity is less seasonal than on crop farms, which predominate in New Jersey. Large farms and farms on which production is less seasonal require more regular attention from farm operators during the year.

declining faster than farmland acreage. In the decade between the agriculture censuses of 1987 and 1997, the number of farms in the nation fell 9 percent. The decreases in Pennsylvania and Delaware were greater: 13 percent and 21 percent, respectively. In New Jersey, the number of farms actually increased just under 1 percent. In 1997, there were nearly two million farms in the 50 states. In that same year, there were approximately 26,000 farms in Pennsylvania, 4,000 in New Jersey, and 1,500 in Delaware.

Although the number of farms has declined, the size of farms has increased as farm families leave the land for other employment and technology enables more land to be farmed by fewer farmers. For the whole country, the size of the average farm in 1997 was 487 acres, an increase of 5 percent from 1987. In Pennsylvania, the size of the average farm in 1997 was 158 acres,

an increase of 3 percent from 1987. In New Jersey, farms averaged 91 acres in 1997, a decrease of 8 percent from 1987. And in Delaware farms averaged 236 acres, an increase of 15 percent. These numbers reveal that farms in the three states are smaller than the national average; however, poultry farms, the most numerous type of farm in Delaware, are nearly as large as the national average.

AGRICULTURAL PRODUCTS OF THIRD DISTRICT STATES

The mix of major crops and agricultural products in Third District states reflects both the region's geography and the initiative of the region's farmers. For example, land in Pennsylvania is more suitable for hay and pasturage than row crops; hence, dairy farming is a more efficient use of the land. New Jersey farmers were

early leaders in the cultivation of blueberries, and the state has a long history of producing nursery crops. Farmers in Delaware started large-scale commercial poultry production 70 years ago, and the industry has developed extensively since then. As a result of geographic and historical factors, the predominant types of farms in the three states are different from the predominant types nationally, and the three states provide significant portions of the national supply of certain products (Table 2).

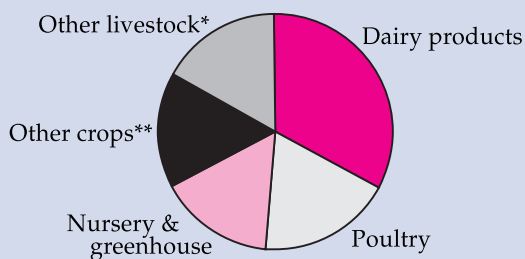
Pennsylvania. The major agricultural products of Pennsylvania (in dollar value of sales in 1997)—dairy products, poultry, and greenhouse and nursery products—account for a large portion of the state’s agricultural output (Figure 2a). Pennsylvania’s dairy output is 7 percent of the national total, placing the state fourth among all states in dairy production. (The top three states are California, Wisconsin, and New York.) Pennsylvania ranks high in total poultry sales (11th in dollar value) and supplies more laying hens for egg production than any other state. Pennsylvania ranks fourth in greenhouse and nursery crops, primarily because of the state’s large output of mushrooms. Pennsylvania leads the nation in mushroom production, providing 36 percent of the total national output. Pennsylvania is also an important source of Christmas trees, ranking third in dollar value of cut Christmas trees.

Pennsylvania’s largest farm sector, the dairy industry, has been undergoing a seemingly unending process of restructuring for 50 years, and this restructuring has affected all phases of the industry, from farm to product manufacturer to retail outlet. Large-scale production and processing operations and extended markets have replaced small local producers and distributors for all types of dairy products from milk to cheese and ice cream as well as less visible products, such as milk solids used in baked goods and other nondairy foods. Nationally, large dairy farms, some with 5,000 cows, have increased in number since the 1950s, when a farm with 100

cows was considered large. Reduced transportation costs have allowed dairy farms in the West to take advantage of abundant land, good climate, and ample supplies of forage to increase their share of the national market for milk and other dairy products.

Agricultural analysts expect these trends to continue. Producing a bulk commodity and facing expanding competition, dairy farmers are expected to emphasize volume and quality at low cost. Recent changes to federal dairy policy reflect these developments and open up the dairy industry to more market forces (see *U.S. Agricultural Policy*, page 22). As the effects of these changes in legislation unfold, responses in the dairy industry may include consolidation among the cooperatives that market milk for their farm members, setting of quotas among members of a cooperative, and active production and inventory management by the cooperative, as well as a continuation of the trend toward fewer and larger dairy farms. These changes may prove more critical to Pennsylvania dairy farms than to those in some other states, since

FIGURE 2a
Agricultural Products of Pennsylvania



*Sum of all livestock other than those listed individually

**Sum of all crops other than those listed individually

TABLE 2
State and County Rankings for Agricultural Production

	State Rank	Percent of U.S. Total	Counties in Top 100	County Rank**
Pennsylvania Production*				
Dairy Products	4	7.0	Lancaster Franklin Bradford Berks Lebanon Chester Cumberland	8 23 49 60 76 84 98
Nursery and Greenhouse Crops, Christmas Trees, Mushrooms, Sod	4	5.9	Chester Berks Bucks Lancaster Armstrong	3 20 48 65 84
Poultry and Products	11	3.2	Lancaster Lebanon	6 82
Hogs and Pigs	12	1.7	Lancaster	15
Fruits, Nuts, Berries	12	0.7	Adams Erie	55 91
Vegetables, Sweet Corn, Melons	17	0.8		
Sheep, Lambs, Wool	19	0.8		
New Jersey Production*				
Nursery and Greenhouse Crops, Christmas Trees, Mushrooms, Sod	11	2.5	Monmouth Cumberland Burlington Morris Gloucester	40 61 74 83 91
Fruits, Nuts, Berries	13	0.7	Atlantic Burlington	64 68
Vegetables, Sweet Corn, Melons	17	0.8	Cumberland Gloucester Atlantic	33 50 60
Delaware Production*				
Poultry and Products	16	2.2	Sussex Kent	1 78
Vegetables, Sweet Corn, Melons***			Sussex Kent	52 70

*Product categories defined by the U.S. Department of Agriculture

**Rank out of 3,043 counties in the U.S.

***State not in top 20 but counties in top 100

Pennsylvania’s dairy farms are smaller than the national average.

New Jersey. New Jersey’s major agricultural products are greenhouse and nursery products, vegetables, melons, and other fruits (Figure 2b). New Jersey produces 2.5 percent of the national output of greenhouse and nursery crops (in dollar value), several times the state’s share of total agricultural production, and much more per farm or acre than the national average. The state ranks in the top 10 in production of bedding and garden plants, cut flowers, foliage plants, potted plants, and bulbs. Thus, despite being in the center of the East Coast megalopolis, New Jersey can justify its nickname, The Garden State. New Jersey also supplies one-fifth of the nation’s blueberry crop and one-tenth of the cranberry crop, placing it second and third, respectively, in production of these fruits among all states.

Greenhouse and nursery crops, New Jersey’s most important agricultural products, have been the fastest growing sector of agriculture in the United States for several years. The sector is made up of two major subsectors: floriculture (cut flowers, cut cultivated greens, and potted flowering and foliage plants) and environmental horticulture (trees, shrubs, bedding and garden plants, and turfgrass). Environmental horticulture accounts for 80 percent of the dollar value of output for greenhouse and nursery crops, and much of the greenhouse and nursery crop sector’s growth in sales has come from environmental horticulture. Sales of trees, outdoor plants, and other landscaping vegetation have been boosted by overall economic growth, residential development, and increased spending on home improvements in recent years. U.S. producers supply 97 percent of the domestic market, since imports are restricted by transportation difficulties associated with live plants and by regulations intended to prevent the spread of plant diseases. On the other hand, floriculture products, especially cut flowers, face strong import competition, and U.S. producers have lost market share and reduced acreage, although they have

achieved increases in dollar sales.

Delaware. Poultry, grains, and vegetables dominate Delaware’s agricultural output (Figure 2c). Poultry alone accounts for 69 percent of the state’s agricultural sales. Delaware’s poultry farms supply nearly 4 percent of total U.S. sales of broiler and other meat-type chickens. Poultry, the major agricultural product in Delaware and the second most important in Penn-

FIGURE 2b
Agricultural Products of New Jersey

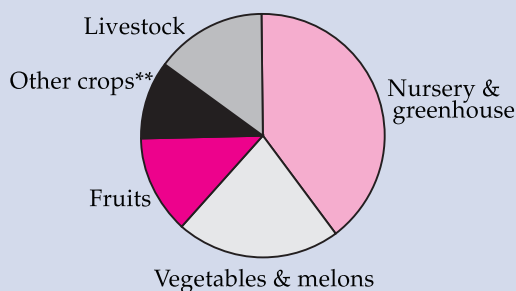
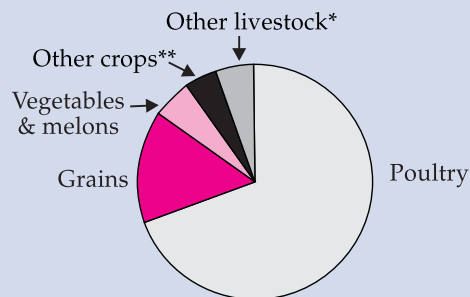


FIGURE 2c
Agricultural Products of Delaware



*Sum of all livestock other than those listed individually

**Sum of all crops other than those listed individually

U.S. Agricultural Policy

National agricultural policy in the first century and a half of the United States was focused on encouraging farming by making land available for free or at low prices, promoting transportation between agricultural areas and urban markets, and providing financial and technical assistance to farmers. During the Great Depression, farm commodity prices fell, and the income of farmers dropped both absolutely and relative to incomes in other sectors of the economy. The Agricultural Adjustment Act of 1933 was passed to address the problem of low and unstable farm prices and incomes, and basic farm policy since then has had income support for farmers as its major goal.

The 1933 act introduced production and marketing controls and price and income supports for many commodities, chiefly grains, cotton, tobacco, and milk. Under these programs farm output was restrained and land was often taken out of production. Government payments to farmers were countercyclical, increasing when prices of agricultural commodities fell and decreasing when they rose. Under these programs, U.S. farmers found themselves insulated from foreign competition during adverse times but also frequently unable to expand their output (because of government limits on production) when worldwide demand rose.

The U.S. economy has expanded and grown in complexity since these programs were initiated. In the 1930s one-fourth of the population lived on farms; currently less than 2 percent does. Before World War II farms tended to be diversified family operations on which rural residents depended for their livelihood. Now many farms are specialized commercial ventures, and rural families have off-farm sources of employment and income.

Beginning in 1985 with the Food Security Act, agricultural policy has been evolving toward greater market orientation, separating farm income support from farm production planning. The most recent major legislation, the Federal Agriculture Improvement and Reform Act of 1996 (FAIR Act), sets agricultural policy out to 2002. It is another step in the process of lifting production restraints and moving the farm sector toward greater reliance on market signals while cushioning farm income during the transition. (In 2001 a commission established by the act will propose an outline of federal policy to be implemented for 2002 and subsequent years.) The FAIR Act makes farmers more subject to income variability as they become more responsible for managing their exposure to market risk.

Prior to the 1996 act, producers of wheat, feed grains, cotton, and rice received deficiency payments when market prices fell below target prices. Payments also depended on farmers' reducing the acreage on which these crops were planted. Under the new law, deficiency payments are replaced by

sylvania, has benefited from increasing popularity in domestic and foreign markets. Per capita consumption has grown steadily since the late 1970s as poultry prices have remained competitive with beef and consumers' tastes have shifted from beef to lighter meats. Poultry producers have also catered to growing demand for convenience foods by adding processing steps to reduce the time required to prepare poultry meals at home. Meanwhile, the growth of away-from-home eating has increased outlets for poultry products.

From 1992 to 1997, the dollar value of poultry products sold in the United States increased 44 percent, twice the rate of increase in total agricultural sales. Sales by Delaware and Pennsylvania farms have not increased at this rate; dollar sales grew 28 percent in Delaware and 20 percent in Pennsylvania. Much of the national increase was accounted for by increased production in southern states. The Department of Agriculture estimates that sales of broiler chickens, the major poultry category, have increased

annual payments that are not based on commodity prices, and these payments will decline each year through 2002. In addition, the production limits required under the former law are substantially eliminated. Commodity loans are retained in the 1996 act. Under this program, farmers are eligible for loans from the federal government when they pledge certain crops as collateral. If market prices fall below the price set on the commodity as collateral, farmers may keep the loan amounts and deliver the commodity to the government in payment of the loan.

Another major change in the new law is the reduction in support for dairy prices. The law phased out price supports and replaced them with a loan program intended to assist in the management of dairy product inventories; however, the program does not permit dairy farmers to forfeit commodities to the government in lieu of paying off a loan. The 1996 law also addressed federal milk marketing orders, regulations that set minimum milk prices. Prior to the FAIR Act, these orders were issued separately for milk produced or purchased in 33 specified regions that cover the entire country. The 1996 law directed that these regions be consolidated into a smaller number, and new orders for 11 areas were issued in 1999. This change expands the number of dairy farms and dairy product purchasers subject to each marketing order. The intent of the broadening of milk marketing regions is to encourage more competition within each region.

An environmental issue addressed by the new law is water pollution. The FAIR Act consolidated and expanded federal measures, establishing the Environmental Quality Incentives Program. Under this program, the government signs one-year contracts with farmers, providing technical and financial assistance in exchange for the farmers' implementing measures to reduce water pollution caused by the use of fertilizers and the disposal of animal waste. Under the FAIR Act, multi-year contracts will replace one-year contracts, but the law sets limits on amounts that can be paid and makes large-scale operations ineligible for financial assistance for construction of animal waste facilities.

In Third District states, the reduction in price supports for grains is not expected to have a major impact. Grain production is not a large part of the region's farm output, and grain producers find ready markets among the region's poultry farms. Changes to the dairy program may have a significant impact by bringing the region's dairy farms into more direct competition with larger dairy farms from other regions of the country. And the potential reduction of financial assistance for controlling water pollution could hamper farm profitability in the region as federal and state regulations become more stringent.

in 1998 and will rise again in 1999. The strength of domestic demand has prompted this growth; exports to major foreign markets in Asia and the nations of the former Soviet Union have declined as those regions have suffered economic setbacks. Recovery in exports to those areas is not expected to be strong in the near term. The Department of Agriculture's 10-year baseline projection for poultry envisions advances in productivity that will reduce costs, but increased foreign competition will limit growth in exports.

FARM FINANCES

Farming in Third District states has remained economically viable despite the fact that farms in the region are smaller than the national average and surrounded by dense populations and a large number of nonagricultural industries. Farms in the region have greater sales per acre than farms elsewhere, and the value of their assets per acre is higher (Table 3).

Revenue. Agricultural sales per acre are higher in all three states of the Third District

than in the nation. To some extent, this advantage is due to the fact that many farms in the three states are in the categories with the highest value of output per acre nationally. But even among these types of farms, Third District farms generally produce more per acre. For example, both nationally and in the Third District, farms engaged in poultry and egg production have the greatest market value of sales per acre, and in Delaware, where poultry is the largest agricultural product, poultry farm sales per acre exceed the national average by 4 percent. Sales per acre of nursery and greenhouse products, the major agricultural product of New Jersey, are the next highest in market value (again, both nationally and in the region) and sales per acre of these products by New Jersey farms are 7 percent greater than the national average. In Pennsylvania, however, the major type of agriculture, dairy farming, ranks only in the middle of major farm categories in terms of sales per acre, and Pennsylvania's dairy sales per acre are 13 percent less than the national average. Because farms are smaller than average in Pennsylvania and New Jersey, sales per farm in these states are less than the national average, but sales per farm in Delaware are higher than average.

Nationally, farmers' net cash return from sales of agricultural products made up 83 percent of total farm income (excluding government loans) in 1997.⁷ Farms in Pennsylvania, New Jersey, and Delaware obtained slightly more than this portion of their income from agricultural sales. In addition to sales of agricultural products, important sources of farm income are the provision of agricultural services by farmers and government payments to farmers (see *Sources of Farm Income*).

⁷This figure is computed by the National Agricultural Statistics Service by subtracting production expenses from farm income. Expenses include purchase costs of livestock, feeds, seeds, and fuels, and the cost of labor, maintenance, utilities, taxes, rent, and interest.

Since 1997, prices for many agricultural commodities have fallen as a result of increased production in this country and abroad and a decline in world demand due to weak economic performance in many foreign countries. Prices for major grains fell to or near decade lows in 1998. In contrast, relatively healthy market conditions for the major agricultural products of the three-state region have sustained Third District farm income amid the national decline. The Department of Agriculture estimates that from 1997 to 1998, cash receipts from farm marketings increased approximately 1 percent in Pennsylvania and Delaware and declined about 1 percent in New Jersey. Cash receipts are estimated to have declined 6 percent nationally.

Assets and Liabilities. The resilience of the region's farm sector is reflected in the high value of farm assets. The average value of assets per farm in Pennsylvania was lower than in the nation, but in Delaware and New Jersey it was higher. On a per acre basis, the value of farmland and buildings is higher in each of the Third District states than in the nation for nearly all types of farms (Table 3).

Much of this premium may be attributed to generally higher land prices in Third District states. Agricultural land values are primarily determined by the income-earning potential of the land as measured by farm output. But in places where alternative, nonfarm uses of the land might be more profitable, farmland values can rise above what would be predicted based solely on agricultural use. According to the Department of Agriculture's Economic Research Service, this rise in value tends to happen in rapidly urbanizing areas and in areas where recreational use of the land is popular. The service estimates that farmland values are still based on agricultural use in all areas of the country except the Northeast farm production region (which includes all three Third District states), where residential and commercial uses are more important determinants of land prices.⁸

Evidence of this may be found in farmland

Sources of Farm Income

In addition to income from sales of agricultural products, farmers receive income from other sources, such as providing farming services to others. These services include planting, spraying, harvesting, providing mechanical services, and renting farmland and equipment. For all farms in the nation, gross farm-related income other than sales of agricultural products averaged \$5,999 per farm in 1997, equal to 6 percent of total net farm income (the sum of net cash return from sales of agricultural products, other farm related-income, and government payments). In Pennsylvania, other farm income averaged \$4,848 per farm and matched the national average (6 percent) as a share of total net farm income. In New Jersey and Delaware, this type of income per farm was \$3,092 (3 percent of total net farm income) and \$4,801 (5 percent of total net farm income), respectively. These amounts were less than the national average both absolutely and as shares of total net farm income.

Government payments under a variety of programs have been a major source of farm income. In 1997, 36 percent of the nation's farms received government payments (excluding crop loans). The average payment was \$7,378 per farm. In Third District states, relatively fewer farms received government payments, and the average payment was less than in the nation as a whole. In Pennsylvania, 22 percent of farms received government payments, and the average payment was \$3,009. In New Jersey, 7 percent of farms received government payments, and the average payment was \$4,677. In Delaware, 28 percent of farms received government payments, and the average payment was \$5,432. Because fewer farms receive payments and the payments are smaller, government payments made up a smaller share of farm income in Third District states than in the nation. The portion of total net farm income accounted for by government payments was about 3 percent in Pennsylvania, 1 percent in New Jersey, and 5 percent in Delaware. The national average was close to 9 percent.

The ratio of government payments to farm income varies with the agricultural business cycle. By historical standards, the ratio of government payments to farm income in 1997 was relatively low. These payments were made in accordance with the provisions of the 1996 farm law, and they were lower than what they would have been under previous programs. In response, Congress passed legislation in late 1998 to allow farmers to receive all of their fiscal year 1999 payments in 1998 rather than taking half in December 1998 and half in September 1999. Congress also passed legislation in 1998 providing additional funds for farmers in that year.

prices of Third District states. While prices are higher for nearly all types of farms, premiums vary. For example, nationally, sheep farms have the lowest average value per acre, but the value of sheep farms per acre (land and buildings) in Pennsylvania, New Jersey, and Delaware exceeds the national average by a greater percent-

age than any other type of farm. Conversely, greenhouse and nursery land has the highest value nationally per acre, but the three-state premium for this type of land is relatively low. In general, the three states' farmland values exceed the national average proportionately less for farm types that have higher national average values and proportionately more for farm types that have lower national average values. This difference suggests that the possibility of using the land for nonagricultural purposes is setting a floor on the value of farmland in the region.

⁸ *Agricultural Income and Finance: Situation and Outlook Report, AIS-71*, U.S. Department of Agriculture, Economic Research Service, February 1999, p. 29.

TABLE 3
Farm Finances

Sales of Agricultural Products

	Per Farm	Per Acre
United States	\$102,970	\$211
Pennsylvania	87,942	566
New Jersey	76,627	842
Delaware	280,811	1,190

Value of Farmland and Buildings

	Per Farm	Per Acre
United States	\$449,748	\$933
Pennsylvania	371,740	2,390
New Jersey	594,206	6,642
Delaware	609,074	2,660

The farm sector's financial position has improved since its problems of the 1980s. At that time, commodity prices and land values fell after surging in the previous decade, and interest rates rose on the high debt that farms had acquired during the expansion. In the 1990s, commodity prices and land values rose. Although the absolute amount of farm debt rose in the 1990s, asset values increased more, resulting in an improved balance sheet for the farm sector. The average debt to asset ratio, a key indicator of financial health, was 16 percent in 1998 (the latest year for which data are available), continuing the recovery from the 1980s when the ratio exceeded 20 percent. In 1998, the debt to asset ratio was 12 percent in Pennsylvania, 7 percent in New Jersey, and 17 percent in Delaware. Delaware's poultry farms, which tend to be

larger operations than other types of farms in the region, require higher capitalization. They also tend to sell their output under contract, which provides them with greater security for higher debt levels than farms without pre-arranged sales.

Low prices for many commodities and uncertainties about recovery in foreign demand for U.S. agricultural products have prompted concern about financial conditions in the farm sector. The Department of Agriculture forecast a decline of 2 percent in the sector's net cash income in 1999 compared to 1998.⁹ With clear signs of recovery lacking, farmers were not expected to increase their borrowing in 1999. Providers of financing to the agriculture sector have implemented more cautious credit evaluation procedures since the 1980s, placing greater emphasis on a farm's basic profitability and long-term earning capacity and less reliance on short-term cash flow and collateral value to support loan repayment. As a result of greater restraint on the part of both borrowers and lenders, and a forecasted increase in the value of farm real estate, the farm sector's debt to asset ratio was projected to fall slightly in 1999.

**AGRICULTURAL ISSUES
FACING THE REGION**

Continuing trends and important developing issues will affect the future of farming in the Third District. Some of these developments are national, even international, in scope; others relate to factors of particular importance in the region. As mentioned above, low prices for many farm commodities have caused concern recently. Although farm income in the three states of the region has not been negatively impacted by low prices for grain, the most troubled commodity,

⁹Forecasts for 1999 are from *Agricultural Outlook*, September 1999, U.S. Department of Agriculture, Economic Research Service, and represent the latest data and estimates available at the time this article was written.

the region's poultry farms have experienced lower demand as a result of economic slowdowns in Asia and the countries of the former Soviet Union. Looking further ahead, there is a possibility that other nations, particularly in South America, may be preparing to enter world markets for poultry, intensifying competition even when world demand rebounds. Dairy prices have also weakened lately, mainly because of expanded supply, and this weakening is affecting Pennsylvania, an important dairy state. Meanwhile, the growth of the dairy industry in western states and changes in federal milk marketing regulations are altering the competitive landscape facing dairy farmers in Pennsylvania and throughout the East.

Declining farmland is a concern both nationally and in the region. Farmland is shrinking as residential and commercial development spreads into formerly rural areas. Residential expansion has also created conflict between farm operations and residential amenities in some communities. Environmental regulation is becoming stricter, raising the cost of farming and prohibiting some or all types of farming in some environmentally sensitive areas. Restrictions on the use of fertilizer and on the disposal of animal waste are of particular concern to farmers in the region. While increasingly stringent environmental regulations drive up the cost of farming, development pressures are raising the price of land. These two factors tend to reduce the economic return to farming and increase the gains that can be made by switching land to nonfarm uses, especially in densely populated states such as Pennsylvania, New Jersey, and Delaware.

Whether land remains in use for farming or is converted to other uses is a concern for many people who see the preservation of farms as a means of preventing rapid development and its attendant congestion. A common response that

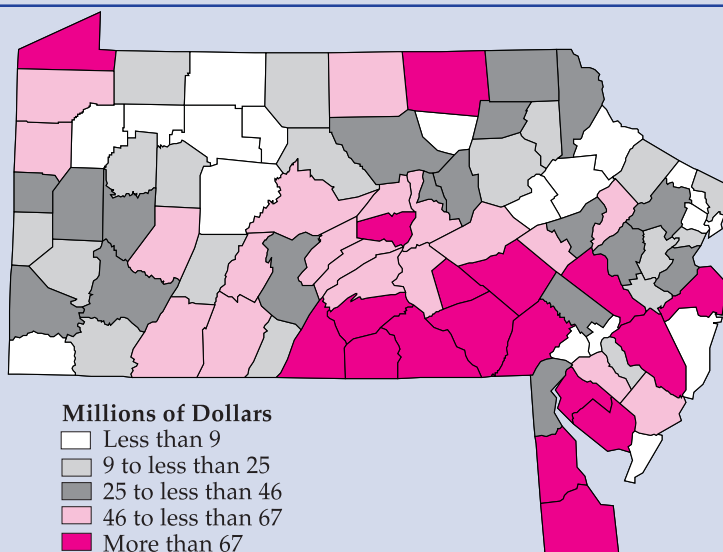
addresses the desire for farmland preservation is development easements, whereby farmland owners are compensated with public funds for forgoing the right to switch their land to other uses or sell it for development. Third District states have such programs in place, but farmers and others are concerned that the amount of money available is inadequate and the commitment to continuing these programs is uncertain. Advocacy of increased funding and dedicated revenue sources for easements has been growing. Another approach to preservation is lower taxation of farms than other properties. Those interested in arresting the decline in farming believe this approach can be extended further than it has been so far.

CONCLUSION

The total impact of changes in the way foods and fibers are produced and marketed has been summed up in the word industrialization, which is used to describe changes in the structure of agriculture that have taken place over the past two decades. As advanced technology and modern business techniques are applied to all aspects of the process that leads from the field to the dinner table, agriculture is becoming more similar to other goods-producing sectors. Industrialization requires high levels of investment and makes high levels of output possible, and both of these factors tend to result in fewer and larger farms. Some of the distinguishing features of poultry farming in Delaware are the result of industrialization, and similar developments may be in store for Pennsylvania's dairy farms. Whatever changes may lie ahead for agriculture, it is clear that farmers in the region, as in the nation generally, will have to initiate or accept innovations in how they do business in the future. The history of agriculture in the region shows that the area's farmers have displayed adaptability in the past.

APPENDIX

Value of Agricultural Products Sold - 1997



County Shares of State Agriculture

County	Percent of State Farmland	Percent of State Farm Workers	Percent of State Farm Product Sales	County	Percent of State Farmland	Percent of State Farm Workers	Percent of State Farm Product Sales
DELAWARE				Gloucester	7.01	11.37	9.60
Kent	33.57	41.99	22.25	Hudson	0.00	0.00	0.00
New Castle	13.34	15.44	5.35	Hunterdon	12.64	5.31	5.17
Sussex	53.09	42.57	72.40	Mercer	3.41	1.66	1.90
NEW JERSEY				Middlesex	3.37	3.00	4.93
Atlantic	3.73	17.61	9.10	Monmouth	7.13	8.33	9.75
Bergen	0.32	1.16	1.29	Morris	2.68	3.37	4.30
Burlington	12.45	10.89	12.55	Ocean	1.37	1.20	1.17
Camden	1.08	2.42	2.51	Passaic	0.27	0.47	0.55
Cape May	1.16	1.09	0.98	Salem	11.06	8.96	9.74
Cumberland	7.96	13.67	13.50	Somerset	5.56	2.19	2.01
Essex	0.00	0.21	0.18	Sussex	8.77	2.49	2.75
				Union	0.00	0.52	1.43
				Warren	9.96	4.07	6.60

APPENDIX

County Shares of State Agriculture (continued)

PENNSYLVANIA

County	Percent of State Farmland	Percent of State Farm Workers	Percent of State Farm Product Sales	County	Percent of State Farmland	Percent of State Farm Workers	Percent of State Farm Product Sales
Adams	2.49	6.47	3.75	Lackawanna	0.41	0.61	0.28
Allegheny	0.38	0.62	0.23	Lancaster	5.47	8.96	19.18
Armstrong	1.67	1.92	1.02	Lawrence	1.22	0.75	0.64
Beaver	0.75	0.45	0.31	Lebanon	1.54	2.04	4.28
Bedford	2.77	1.69	1.45	Lehigh	1.28	1.26	1.42
Berks	3.09	7.02	6.20	Luzerne	0.80	1.33	0.46
Blair	1.17	1.10	1.28	Lycoming	1.89	1.21	1.08
Bradford	4.28	1.72	2.43	McKean	0.54	0.16	0.11
Bucks	1.17	2.72	1.74	Mercer	2.32	1.77	1.15
Butler	1.65	1.21	0.69	Mifflin	1.11	0.62	1.30
Cambria	1.22	1.35	0.55	Monroe	0.36	0.25	0.13
Cameron	0.06	0.02	0.01	Montgomery	0.58	0.98	0.74
Carbon	0.28	0.30	0.19	Montour	0.56	0.51	0.66
Centre	1.90	1.25	1.26	Northampton	1.09	0.49	0.67
Chester	2.45	10.14	8.58	Northumberland	1.60	1.36	1.49
Clarion	1.31	0.59	0.41	Perry	1.60	0.60	1.47
Clearfield	0.73	0.35	0.22	Philadelphia	0.00	0.06	0.02
Clinton	0.58	0.75	0.52	Pike	0.08	0.09	0.03
Columbia	1.54	1.67	0.96	Potter	1.16	0.67	0.49
Crawford	2.89	1.49	1.46	Schuylkill	1.26	1.76	1.67
Cumberland	2.00	1.27	2.11	Snyder	1.29	1.24	1.87
Dauphin	1.21	1.40	1.34	Somerset	2.88	1.77	1.50
Delaware	0.07	0.33	0.18	Sullivan	0.38	0.23	0.18
Elk	0.24	0.07	0.05	Susquehanna	2.35	0.92	1.08
Erie	2.34	3.75	1.72	Tioga	2.82	1.32	1.18
Fayette	1.52	0.63	0.50	Union	0.88	0.84	1.24
Forest	0.07	0.05	0.03	Venango	0.64	0.19	0.16
Franklin	3.32	4.48	4.88	Warren	0.90	0.28	0.37
Fulton	1.32	0.42	0.53	Washington	2.60	1.25	0.67
Greene	1.83	0.40	0.18	Wayne	1.53	0.53	0.63
Huntingdon	1.74	1.03	1.03	Westmoreland	2.06	1.24	0.91
Indiana	1.93	2.55	1.15	Wyoming	0.85	0.72	0.75
Jefferson	1.12	0.58	0.40	York	3.64	3.31	3.22
Juniata	1.21	0.90	1.60				