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How New York State's Agriculture Industry Is Staying Competitive

The changing dynamics of the agriculture industry have created many challenges for New York State's farmers. Agricultural producers are facing increased competition from both within the United States and around the world. At the same time, there have been widespread changes in consumer demand for agricultural goods. A transition in the structure of New York's agriculture industry has accompanied these trends: in 1950, the state was home to more than 136,000 farms—by 2004, that number had decreased to just 36,000. Those farms that remain have instituted successful business strategies that have allowed them not only to survive but also to prosper in a challenging business environment.

In this issue of *The Regional Economy of Upstate New York*, we examine some of the challenges facing New York's agriculture industry and outline some innovative responses. We distinguish between two types of agriculture: commodities and value-added consumer foods. We show that commodities are a small fraction of the agriculture industry in New York State and are not a growing market segment, while value-added goods are the primary products of New York farms and represent a market segment that is growing significantly. We then briefly discuss important strategies that agricultural producers are using to remain competitive, including the adoption of technology, an increased emphasis on exporting, the use of formal price contracts, and the vertical integration of business processes. These strategies and the expected continued growth in value-added sales support a positive outlook for many of New York's farms.

A Changing Economic Environment

The increasingly global economic environment facing many U.S. businesses over the past few decades has also made an impact on the agriculture industry. The liberalization of trade, including pacts such as the North American Free Trade Agreement, has reduced trade barriers in many markets and widened worldwide competition in the market for agricultural goods. Farm products from countries such as Brazil, Argentina, and China now pervade the U.S. marketplace.[1] This enhanced competition has exerted downward pressure on the prices of many agricultural products.

Globalization has brought with it significant changes in the composition of agricultural products that are being purchased throughout the world. Rising incomes, particularly in relatively wealthy industrialized countries, have brought about the consumption of relatively fewer commodities—such as rice and wheat—and relatively more consumption of value-added foods—such as fresh produce, meat, cheese, and processed foods. As a result, the volume of value-added foods as a share of total agricultural world trade has increased from 18 percent in 1980 to about 33 percent today.[2]

A Dual Market: Commodities and Value-Added Foods

The agriculture industry produces two types of foods: commodities, undifferentiated products such as grains, cotton, and hay, and value-added products, foods that differ in quality and attributes and generally involve more significant processing, including fresh fruits and vegetables, meats, and cheese. Farming methods and business strategies tend to differ for the two types of foods. Because commodities are nearly identical among all producers, commodity farming tends to focus on offering standard quality products while keeping production costs as low as possible. In contrast, because value-added products can differ significantly in quality and attributes, value-added farming focuses on supplying a variety of products to fit consumers' tastes, in addition to keeping costs as low as possible.

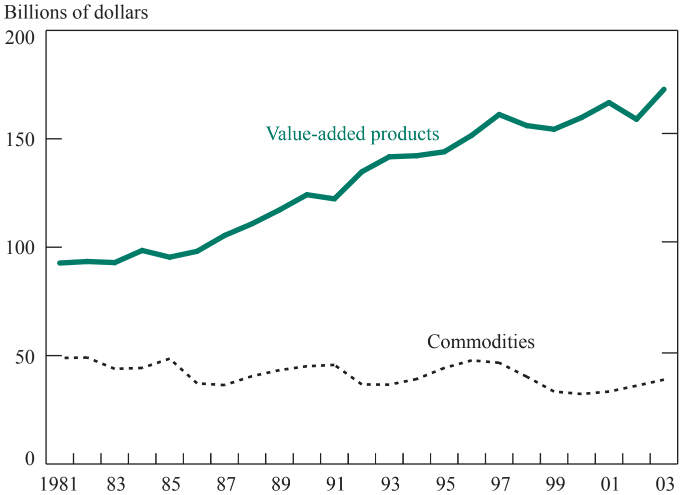
Growth patterns among these two market segments have been very different. While commodity sales have remained flat in recent decades, sales of value-added foods have grown significantly (Chart 1).

The Focus of Commodity Farming

Commodity farmers generally offer standard quality products at prevailing market prices. Worldwide competition has kept these prices relatively low, exerting pressure on commodity farms to continually seek ways to reduce production costs. Consolidation—the combining of two or more farms into one larger enterprise—is a common cost-reduction strategy. Consolidation increases the scale of production, thereby lowering costs. This practice has reduced the number of commodity-based farms, resulting in generally large-scale production performed on relatively large farms. Commodity farming represents a small fraction of the agriculture industry in New York State, accounting for only about 8 percent of New York State's agriculture sales (see box).

Chart 1

U.S. Cash Receipts for Commodities and Value-Added Products, 1981-2003



Sources: U.S. Department of Agriculture, Economic Research Service, *Farm Income Data*; authors' calculations.

Notes: Commodities include wheat, rice, feed grains, soybeans, cotton, and tobacco. Value-added products include semiprocessed and processed grains and oilseeds, animals and animal products, horticultural products, and sugar and tropical products.

The Focus of Value-Added Agriculture

Value-added farmers offer tailored food products to fit various consumer markets. Value-added goods can take many forms, including processed commodities (such as flours), dairy products, fresh produce, and meats. In addition, value-added foods include niche consumer goods, such as wine, edible flowers, rare meats such as ostrich and elk, organic produce and meats, and foods produced using environmentally-friendly methods. Agritourism—the combination of agriculture and tourism—is another form of value-added agriculture, which can include an onsite bed and breakfast, fruit picking, and a retail winery or cider mill. Consolidation can be important for value-added farming, but many of these niche products are produced on a modest scale on relatively small farms. New York farms are primarily engaged in value-added production and have developed a diversity of products that play a significant role in the state's agriculture industry (see box).

Strategies for Success

With the increasingly challenging economic environment and competitive pressures facing agriculture producers, both commodity-based farms and value-added-based farms are employing several key strategies to remain viable. Chief among these strategies is the widespread adoption of technology to increase productivity—a strategy most often associated with manufacturing. During the first half of the century, mechanization revolutionized agriculture; more recently, farmers have adopted advanced computer technologies. Computers connected to satellites, microchips, and GPS (Global Positioning System) units give farmers timely information about changing weather patterns and soil conditions on sections of farmland as small as 18 inches. This information, when integrated with farm equipment, allows the selective application of water, fertilizers, and herbicides. Imbedded microchips in livestock allow farmers to track the growth and health of their animals and to adjust the animals' feed according to individual needs.[3] Biotechnology—the genetic modification of crops—has also increased productivity and helped contain costs, particularly for commodity farmers, by increasing crop resistance to pests and diseases, improving nutritional value, and increasing crop survival under inclement conditions. These advances have allowed farmers to improve control over their operations and inventories.

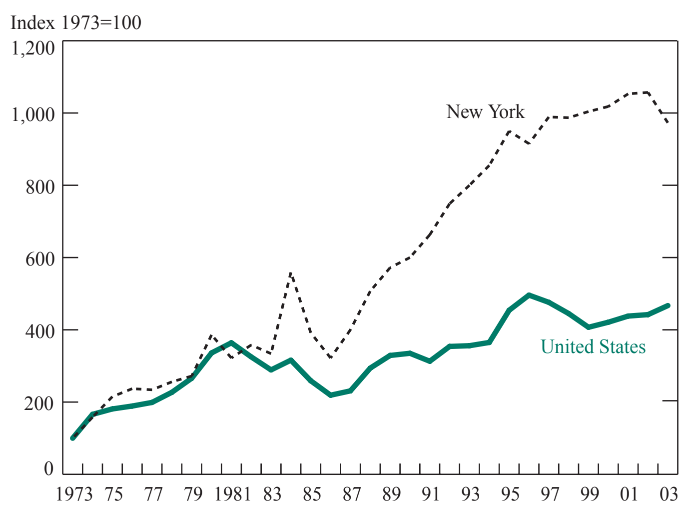
The Internet has also proved an important tool, facilitating the exchange of information between farmers, suppliers, distributors, and consumers. This tool has been especially useful in allowing farms to follow the changing tastes of consumers—an important advantage for value-added producers in particular.

Another key strategy has been to engage actively in the global marketplace through the export of agricultural products. U.S. exports have risen 40 percent since the 1980s and account for roughly one-quarter of the value of all agriculture production (Chart 2). Exports from New York have increased even more dramatically, more than doubling in value since 1980. Exports now account for roughly 15 percent of the state's agriculture production, roughly double their share in the 1980s. The export market is particularly important for value-added producers, given the increase in worldwide consumption of value-added foods. While commodities such as grains and tobacco once dominated the U.S. export market, the share of value-added goods in U.S. agriculture exports increased from 30 percent in the mid-1970s to 64 percent in 2002. Value-added exports nationwide have been growing roughly 6.3 percent per year for the past few decades, while commodity exports have declined an average of 1.2 percent annually since 1989.[4] New York's exports of value-added products such as fruit, vegetables, and dairy products have grown significantly over the past 20 years.

An additional strategy of agricultural producers is the use of contracts with customers, which protect the farmers against losses that could result from an unforeseen drop in the price of agricultural products. The contract specifies the price, quantity, and quality of a product that will be delivered by a

Chart 2

Trends in Agricultural Exports, 1973-2003



Sources: U.S. Department of Agriculture, Economic Research Service, *Farm Income Data*; authors' calculations.

producer to a customer, an arrangement that mitigates the risk of price volatility because prices are specified in advance and are guaranteed. Alternatively, a contract may specify a fee for production, relieving the farm of all risk associated with changing prices. Generally, while contracts reduce the risk associated with unfavorable market conditions, they reduce the reward of favorable conditions if prices are higher than expected.

Yet another strategy employed by farms has been vertical integration, in which one producer consolidates and is responsible for multiple stages of production. In farming, vertical integration might entail combining commodity production with food processing, as when a single producer grows grain and converts it into flour. Alternatively, it might involve combining production with wholesaling or retailing. In New York's wine and grape

The Landscape of New York State's Agriculture Industry

New York State's 37,000 farms produced $3.6 billion worth of products in 2003, just 2 percent of the total value of agriculture nationwide, and less than 1 percent of the total value of goods produced in the New York economy. Most New York farms are relatively small: only about 10 percent are larger than 500 acres, compared with 16 percent nationwide, and nearly half of New York's farms sell less than $500,000 worth of goods annually.

Despite the agriculture industry's relatively small size, it is an important element of the state's economy. Most of New York's agriculture is value-added, with the dairy industry generating almost half of all sales (see chart). Vegetables account for roughly 14 percent of agriculture sales, while nursery and greenhouse products, such as plants and flowers, and meat and poultry each account for about 10 percent of sales; fruits, mostly apples and grapes, account for nearly 6 percent. Several of the state's important niche industries warrant particular attention.

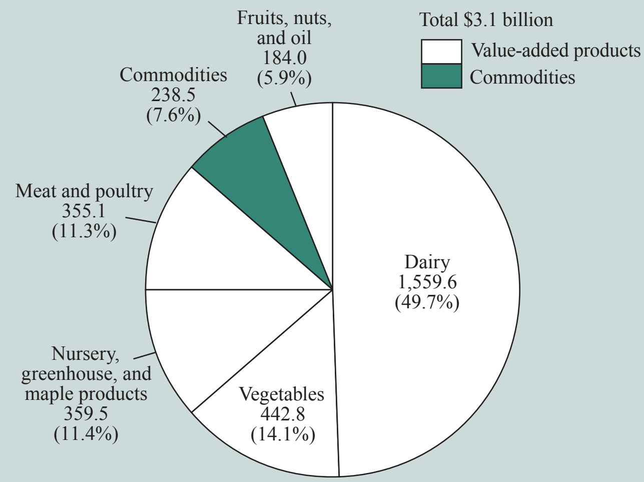
The wine and grape industry is a prime example of a value-added industry that has capitalized on agritourism. New York has nearly 200 wineries and ranks third in wine and grape production behind California and Washington.[a] New York has four major wine producing regions—the Finger Lakes, Long Island, Hudson Valley, and Lake Erie regions—each of which houses numerous retail wineries.[b]

Organic farming is another growing industry filling a market niche, although it continues to be only a small percentage of New York's agriculture sector. Despite the comparatively higher costs of organic farming and associated higher prices of organic foods, consumer demand for organic products has grown, and New York has responded with a 62 percent increase in land dedicated to organic farming between 1997 and 2001.[c]

Another specialized market is the emerging aquaculture market—the cultivation of fish in captivity for food—which accounts for 29 percent of seafood consumed worldwide. Tilapia is the fastest growing aquaculture segment in New York State, and large tilapia farms in Groton and the Bronx currently produce a combined one million pounds of tilapia per year.[d]

Goat meat, one of the world's most popular red meats, has also become an increasingly important niche within New York's agriculture sector. Growing demand from the international population within the United States has contributed to the recent growth in goat meat sales. The number of goat farms in New York has increased 50 percent since 1997 to include almost 2,500 farms.[e] In addition to producing meat, goat farmers are also involved in the production of goat milk and cheese.

New York State Cash Receipts by Agricultural Sector, 2003
Millions of Dollars



Sources: U.S. Department of Agriculture, Economic Research Service, *Farm Income Data*; authors' calculations.

Note: Commodities include wheat, rice, feed grains, and soybeans.

Another important niche market in New York is the floriculture sector, which includes bedding plants, flowering potted plants, cut flowers, vegetable transplants, and herbs. Floriculture generates about 5 percent of New York's agriculture sales, and the state ranks sixth nationwide in floriculture production.[f]

Notes:

[a] New York Wine and Grape Foundation, *The New York Wine Course and Reference*, available at <http://www.hvnet.com/PDFBrochures/wine_course.pdf>.

[b] A recent ruling by the U.S. Supreme Court overturned a law that prevented New York wine consumers from buying directly from out-of-state vineyards. Although the law was originally created to protect New York wineries from competition, its restrictions simultaneously prevented New York wineries from selling their wines out of state directly to consumers. It remains to be seen whether this ruling will improve sales.

[c] U.S. Department of Agriculture, Economic Research Service, Organic Production Data, available at <http://www.ers.usda.gov/Data/Organic/>.

[d] Michael Timmons, Gregg Rivara, Dale Baker, Joe Regenstein, Martin Schreibman, Philson Warner, Debra Barnes, and Karen Rivara, *New York Aquaculture Industry: Status, Constraints, and Opportunities*, White Paper (Ithaca, N.Y.: Cornell University Department of Biological and Environmental Engineering, 2004), available at <http://www.bee.cornell.edu/extension/aquaculture/2New_York_Aquaculture_Industry_White_Paper.pdf>.

[e] U. S. Department of Agriculture, National Agricultural Statistics Service, *2002 Census of Agriculture*, vol. 1, chap. 1, table 32.

[f] Wen-fei L. Uva, "Ornamental Outlook," in *New York Economic Handbook: 2004* (Ithaca, N.Y.: Cornell University Department of Applied Economics and Management, Horticultural Business Management and Marketing Program), available at <http://aem.cornell.edu/special_programs/hortmgt/resources/publications.htm>.

industry, for example, farmers grow grapes, turn them into juice and wine, and often sell these products at an onsite winery, retail store, or restaurant. Ideally, integration can lead to greater efficiency and lower costs—for example, by eliminating the transportation expenditures that would be necessary if each stage of a good's production occurred at a different site.

Conclusion

Despite the long-term decline in the number of farms across New York State, segments of the agriculture industry remain vibrant in a challenging economic environment. The increasingly global market has intensified competition with producers from around the world; at the same time, worldwide agriculture consumption is shifting toward value-added goods. The industry has responded to these forces by producing high-volume low-cost commodities and by catering to consumer tastes through the provision of a large array of value-added foods. Important strategies for successful agricultural enterprises are maintaining high productivity, adopting new technologies, exporting, using formal contracts, and expanding operations to include other stages of production.

While the market for commodities remains flat, sales of value-added products are growing significantly. Value-added production is the primary activity of New York's agriculture industry, with nearly half of value-added production generated by the dairy industry. From wineries to fish farms, New York State's agriculture industry is rich and varied, filling important and growing niches in the global marketplace. With these strengths and the expected continued growth in value-added sales, the outlook is positive for many of New York's farms.

Notes:

[1] Carol Whitton, *Processed Agricultural Exports Led Gains in U.S. Agricultural Exports between 1976 and 2002*, U.S. Department of Agriculture, Economic Research Service Outlook Report no. FAU-85-01 (February 2004).

[2] Anita Regmi and Mark Gehlhar, "Consumer Preferences and Concerns Shape Global Food Trade," *U.S. Department of Agriculture FoodReview: Global Food Trade* 24, no. 3 (December 2001).

[3] J. B. Cooper and Fiona Sigalla, *Agriculture, Technology, and the Economy* (Dallas: Federal Reserve Bank of Dallas, 1996), available at <http://www.dallasfed.org/research/pubs/agtech.html>.

[4] Whitton, *Processed Agricultural Exports.*

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