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December 2003

E.B. 2003-22

New York Economic Handbook 2004



Department of Applied Economics and Management
College of Agriculture and Life Sciences
Cornell University
Ithaca, NY 14853-7801

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This material is based upon work supported by Smith Lever funds from the Cooperative State Research, Education, and Extension Service, U.S. Department of Agriculture. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the U.S. Department of Agriculture.

Publication Price Per Copy: \$7.00

For additional copies, contact:

Linda Putnam
Dept. of Applied Economics and Management
Agricultural Finance and Management Group
305 Warren Hall
Cornell University
Ithaca, New York 14853-7801

E-mail: ldp2@cornell.edu
Fax: 607-255-1589
Phone: 607-255-8429

Or visit: <http://aem.cornell.edu/outreach/materials.htm>

Table of Contents

<u>Chapter</u>	<u>Topic</u>	<u>Author(s)*</u>	<u>Page</u>
1	Websites for Economic Information and Commentary	Steven Kyle	1-1
2	The Marketing System	Kristen Park and William Drake	2-1
3	Cooperatives	Bruce Anderson and Brian Henehan	3-1
4	Finance	Eddy LaDue	4-1
5	Grain and Feed	William Tomek	5-1
6	Dairy – Markets and Policy	Andrew Novakovic and Mark Stephenson	6-1
7	Dairy – Farm Management	Wayne Knoblauch and Linda Putnam	7-1
8	Fruit	Gerald White	8-1
9	Vegetables	Wen-fei Uva	9-1
10	Ornamentals	Wen-fei Uva	10-1
11	Agriculture and the Environment	Greg Poe, Nelson Bills, and Peter Wright	11-1

*Faculty and staff in the Department of Applied Economics and Management, Cornell University, except Peter Wright, Senior Extension Associate, Department of Animal Science, Cornell University.

This publication contains information pertaining to the general economic situation and New York agriculture. It is prepared primarily for use by professional agricultural workers in New York State. USDA reports provide current reference material pertaining to the nation's agricultural situation. Many of these reports are available on the internet at: <http://www.usda.gov/newsroom.html>

The chapters in this handbook are available in PDF format on the Applied Economics and Management outreach website: <http://aem.cornell.edu/outreach/materials.htm>

Chapter 1. Websites for Economic Information and Commentary

Steven C. Kyle, Associate Professor

1. <http://www.economagic.com/> *Economagic -- Economic Times Series Page*
Economagic is an excellent site for all kinds of U.S. economic data, including national income accounts, the Federal Reserve, the Bureau of Labor Statistics and more. The site includes a very useful graphing function and allows downloads to excel worksheets as well as simple statistical functions.
2. <http://www.whitehouse.gov/fsbr/esbr.html> *Economics Statistics Briefing Room*
This is the White House site for overall economics statistics. This also includes links to other parts of the government.
3. <http://www.cbpp.org/index.html> *Center on Budget and Policy Priorities*
The Center on Budget and Policy Priorities is a non-partisan web site that focuses on economic policies related to the budget and their effects on low- and moderate-income people.
4. <http://www.argmax.com/> *ArgMax*
This is an excellent site for economic news, data links and analysis.
5. <http://www.econlib.org/> *Library of Economics and Liberty*
The Library of Economics and Liberty web site features articles and links to many books and other economics related resources.
6. <http://cf.heritage.org/budget/cbo/BudgetTreeStart.cfm> *Heritage Foundation*
The Heritage Foundation comments on economic policy from a conservative viewpoint. This link takes you to a very useful federal budget calculator that will help you understand what the federal government spends its money on and where they get the money from.
7. <http://www.kowaldesign.com/budget/> *Budget Explorer*
This site contains a budget explorer which I like because it allows you not only to calculate your own budget but also links to the various executive branch departments with spending authority, so you can see exactly where the money is going.
8. <http://www.concordcoalition.org/> *The Concord Coalition*
The Concord Coalition is a non-partisan group advocating a balanced budget. Their site contains very useful graphs and projections showing what current taxing and spending proposals mean for the federal budget in the years ahead.
9. <http://www.federalbudget.com/> *National Debt Awareness Center*
The National Debt Awareness Center has a useful graph providing up to date information on the size of the national debt and what the Federal Government is spending money on.
10. <http://www.ombwatch.org/> *OMB Watch*
OMB Watch is another web site devoted to information on what is happening to the federal budget. Click on <http://w3.access.gpo.gov/usbudget/fy2004/maindown.html> to link to OMB's own presentation of the 2004 budget.

11. <http://www.economy.com/dismal/> *The Dismal Scientist*
This is a very good web site for evaluations of current statistics and policy.
12. <http://www.brook.edu/default.htm> *The Brookings Institution*
The Brookings Institution publishes lots of good articles on current economic and political policy.
13. <http://www.realtor.org/PublicAffairsWeb.nsf/pages/NARNewsReleases> *National Assoc. of Realtors*
Check this site if you want information on real estate.
14. <http://www.census.gov/> *U.S. Census Bureau*
The U.S. Census Bureau web site provides demographic and population numbers.
15. <http://finance.yahoo.com/> *Yahoo/Finance*
Want to know where the stock market is today, and what are the current interest rates? Find out here.
16. <http://www.briefing.com/FreeServices/> *Briefing.com*
For a more in-depth analysis of stock and bond markets and the factors that influence them, check out Briefing.com.
17. <http://www.imf.org/> *International Monetary Fund*
The International Monetary Fund is an excellent site for data on all member countries, with a particular emphasis on balance of payments, exchange rate and financial/monetary data.
18. <http://www.worldbank.org/worldbank.htm> *The World Bank Group*
The World Bank has cross country data on a wide variety of subjects.
19. <http://www.undp.org/> *United Nations Development Programme*
The UNDP has cross country data with a particular focus on measures of human welfare and poverty.
20. <http://www.fao.org/> *Food and Agriculture Organization of the UN*
The Food and Agriculture Organization of the UN has cross country information on food and agriculture.
21. <http://datacentre2.chass.utoronto.ca/pwt/> *Penn World Tables*
The Penn World Tables are a useful source for a variety of economic data series not available from other sources.
22. <http://www.bls.gov/fls/> *U.S. Department of Labor, Foreign Labor Statistics*
The Foreign Labor Statistics program provides international comparisons of hourly compensation costs; productivity and unit labor costs; labor force, employment and unemployment rates; and consumer prices. The comparisons relate primarily to the major industrial countries, but other countries are included in certain measures.
23. <http://www.kyle.aem.cornell.edu/> *Professor Kyle's Web Site*
Visit my web site for information about me, material contained in this chapter, and my work in the area of economic policy.

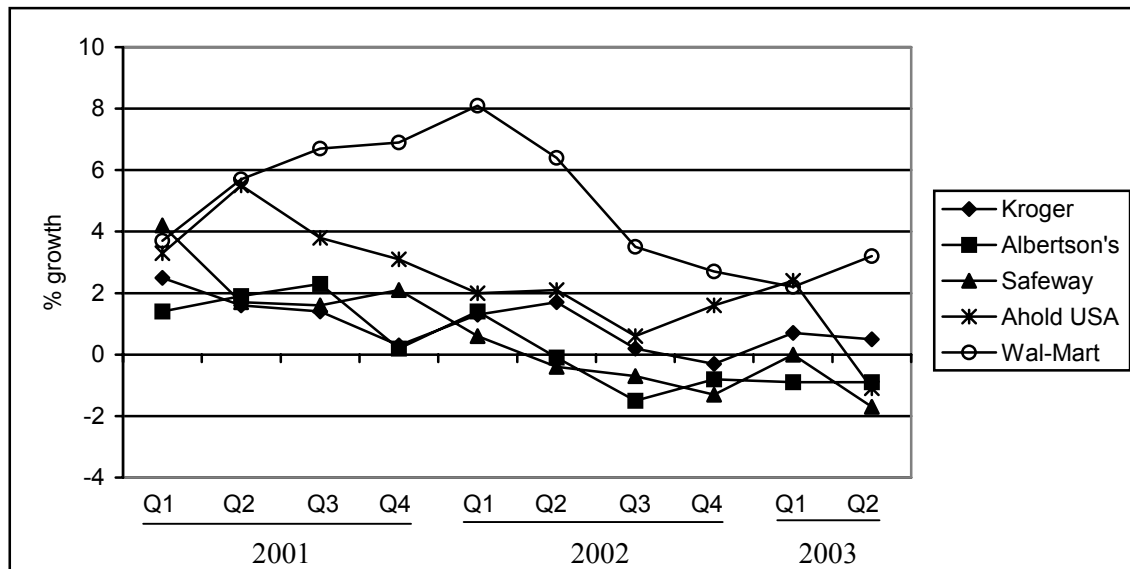
Chapter 2. The Marketing System

Kristen S. Park, Extension Support Specialist and William Drake, Extension Associate

Retail Update

The past year has been a difficult one for the U.S. supermarket industry. Comparable store sales (generally considered to be the best gauge of a retailer's current and future health) began a slide in mid - 2001 that has continued through the first half of 2003 (Figure 2-1). While short-term economic softness and its effect on consumer spending have certainly contributed to poor sales performance, a longer-term and arguably more important structural force is at work—aggressive competition for the retail food dollar from non-traditional channels. Led by Wal-Mart and its supercenter format, but also including Dollar Stores (e.g. Dollar General), Limited Assortment Stores (e.g. Aldi), and Drug Stores (e.g. Walgreen's), the non-traditional channel retailers are rapidly capturing share from the traditional grocery segment (Table 2-1). Wal-Mart is now the largest food retailer in the United States, largely on the strength of its network of 1,429 supercenter stores (as of Oct. 2003), which combine a full-line grocery store and general merchandise discount store under one roof.

FIGURE 2-1. TOP U.S. GROCERS COMPARABLE STORE SALES – SLOW GROWTH EVEN SLOWER



Source: Management Ventures, Inc. (Company Reports)

Wal-Mart's expansion continues unabated, with plans for 220 additional supercenter stores (50 million+ sq. ft. of additional retail space) during its current fiscal year ending Jan. 31, 2004. The challenges Wal-Mart poses to traditional U.S. supermarket operators are daunting. Wal-Mart's strengths lie in its supply chain efficiency (by far the best in retailing) and scale (the world's largest retailer with FY03 sales of \$244.5 billion). By most estimates, Wal-Mart operates with a cost structure advantage of 400-500 basis points relative to traditional food retailers. This strength is brought to bear at the point of retail with a clear and

compelling consumer proposition—market-leading everyday low prices delivered via large supercenter stores that also appeal to consumers’ convenience-based appetite for one-stop-shopping.

TABLE 2-1. THE GROCERY DOLLAR - ALTERNATE CHANNELS CONTINUE TO TAKE SHARE AWAY FROM TRADITIONAL GROCERS

	Grocery Stores	Supercenters	Cash & Carry	Discount Stores	Convenience Stores	Drug Stores	Other Value/ Discount Stores
	<i>% of grocery sales</i>						
1998	76.1%	5.5%	5.9%	4.4%	4.3%	2.9%	0.9%
1999	74.5	6.4	6.1	4.5	4.4	3	1.1
2000	73	7	6	4	5	3	2
2001	71	9	7	4	5	3	1
2002	70	10	7	4	4	3	2
2003E	69	11	7	4	4	3	2
2004E	67	12	7	4	4	3	3
2005E	65	13	8	4	4	3	3
2006E	64	14	8	4	4	3	3

Source: Management Ventures, Inc.

Through its portfolio of formats, it is estimated that Wal-Mart will capture 19% of the U.S. food dollar by 2007. (Management Ventures, Inc., 2003) So significant is Wal-Mart’s impact that it has been credited as a contributor to the recent disinflationary trends in many food product groups in the U.S. (Figure 2-3). Wal-Mart’s size, supply chain sophistication and low price go-to-market strategy has put tremendous pressure on the supplier side, as well as the demand side of food retailing. Manufacturers, as a prerequisite to a supply relationship, must conduct business within the framework of Wal-Mart’s supply chain methods and initiatives, which include among others, electronic data interchange, collaborative planning, forecasting and replenishment, and a desire for net pricing that eschews traditional food retailing practices of trade promotion and off-invoice dealing. Despite the pressures on suppliers to conform and provide value, there is general acknowledgement that Wal-Mart’s supply chain leadership has been successful in eliminating many of the inefficiencies that plague the traditional grocery supply chain, and thus creating “wins” for both Wal-Mart and its suppliers. Future relationships between Wal-Mart and its suppliers are being watched with interest and are a source of angst among suppliers simply due to Wal-Mart’s size and scale. It is not uncommon for Wal-Mart to account for 20+% of a manufacturer’s total sales, and Wal-Mart is typically among a manufacturer’s most rapidly growing customers.

Despite its size and scope, it is interesting to note that Wal-Mart has yet to penetrate the West Coast and Northeast regions of the U.S. to a significant degree, as measured by the capacity of these regions for supercenter type stores. For example, California does not yet contain a Wal-Mart Supercenter, and the state of New York contains comparatively few (22)(Oct. 2003) relative to the size of the population base. Nonetheless, Wal-Mart’s presence in and impact on New York State is significant. As measured by square footage of retail space in operation across all formats, Wal-Mart is New York State’s largest retailer, operating over 11 million square feet. (Management Ventures Inc., 2002) Wal-Mart’s published figures for economic impact in the state of New York state that for the year ended January 31, 2002, it operated 86 stores, employed 26,036 associates, and spent \$3.8 billion with New York-based suppliers.

Future Changes Affecting Market Costs

Country of Origin Labeling

The Country of Origin Labeling law was passed as part of the 2002 Farm Bill. Very briefly, this states that retailers must display information about the country in which food products, specifically commodities, were produced. Since the passing of this law, USDA has been charged with formulating details of the rule which will be in affect in 2004. In general, the Country of Origin Label covers perishable commodities, such as, but not limited to, fresh and frozen meats, fruits and vegetables, and seafood.

While various academic and government surveys find that the majority of consumers are interested in the country of origin for their food, the rule incurs costs on the food system. USDA estimates that the direct incremental costs to the system in the first year will be \$582 million - \$3.9 billion. The costs estimated to be born by individual firms in the system:

- Producers \$180 - \$443
- Intermediaries \$4,048 - \$50,086
- Retailers \$49,581 - \$396,089

Many food industry groups are against the law as stated and support the repeal of the law. Even USDA, who bears the responsibility for drafting the rule, states, "Available studies on potential benefits of mandatory COOL reviewed with conclusion that benefits likely will be small. Little tangible evidence found to support the view that consumers' stated preferences for COOL information will lead to increased demands for covered commodities bearing a U.S.-origin label" (<http://www.ams.usda.gov/cool/talkingpts.htm>).

Radio Frequency Identification (RFID)

RFID technology and the potential it offers to improve supply chain efficiency is the subject of growing attention (and debate) in the grocery industry. RFID systems consist of *transponders* (tags) that contain microchips and are attached to the items to be identified, and *transceivers* (tag readers) that communicate with the tags via electromagnetic waves. RFID offers several key advantages relative to conventional barcode scanning. First, line-of-site between tag and reader is not required—the tag can simply be placed in proximity of the reader, and tags can even be read through non-metallic material. Secondly, multiple tags can be read simultaneously, resulting in nearly instantaneous exchanges of information. The current disadvantages of RFID center around cost of implementation. Although costs are dropping rapidly, tags currently are relatively expensive at 15 - 20 cents each, thus making low unit value applications (e.g. individual tuckering units at retail) not yet cost effective.

RFID has been used in selective retail applications for a number of years. EAS (electronic article surveillance) systems are commonly used for theft deterrence of high value items in department, discount and consumer electronics stores. ExxonMobil's "Speedpass" payment system utilizes RFID technology.

While the cost of RFID technology is rapidly declining, the potential uses are "exploding". In the grocery supply chain, potential uses can be categorized into three levels based on performance requirements, benefits, and costs of implementation (Fitzek, 2003):

- Pallet identification and tracking
- Case identification and tracking
- Item level tracking

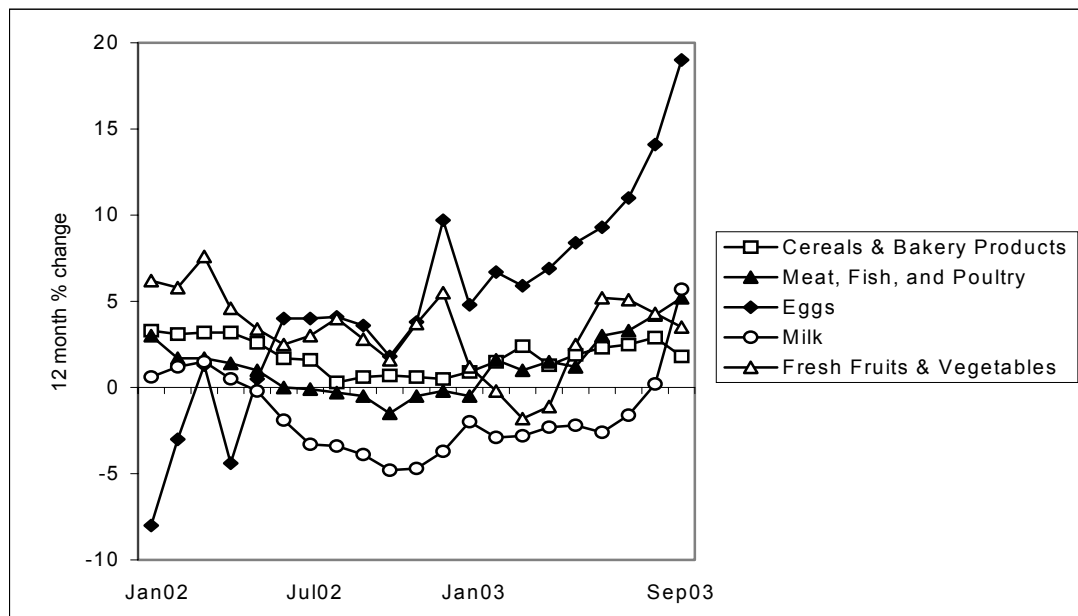
Pallet level tracking has numerous logistics applications and is currently within the realm of cost effectiveness. Case level tracking opens up further possibilities and efficiencies in the area of inventory management and forecasting. Item level tracking would offer virtually complete inventory visibility in the grocery supply chain, as well many other exciting benefits that are currently not cost effective. For example, a full cart of groceries could be instantaneously scanned with virtually no labor cost. Item level tracking is meeting staunch resistance from consumer privacy advocates who envision a future where consumers' retail behaviors and even personal and household possessions are tracked in great detail.

RFID at the pallet and case level will soon be a reality in the grocery supply chain. Wal-Mart, not surprisingly given its supply chain sophistication and scale, recently announced that it will require its top 100 suppliers to adopt RFID technology at the case level by the end of 2004. All suppliers are expected to comply by the end of 1005. While supply chain cost benefits will be shared, it is Wal-Mart's expectation that suppliers will bear the full cost of RFID tagging, which is substantial. At prices of \$0.15 per tag (a conservative estimate), a supplier with \$5 billion in sales would use 220 million tags annually at a cost of \$32 million. (A.T. Kearney, 2003).

The U.S. Food Marketing System Update

The CPI for food showed some positive gains in the second half of 2003 over dismal year-ago levels (Figure 2-2). According to the USDA Economic Research Service the Consumer Price Index (CPI) for food in 2003 is predicted to increase between 1.5 – 2.5% by the end of the year. The price increase for food in 2004 is forecast to be slightly greater (2.0 – 3.0%) predicting a recovery from the recent economic downturn.

FIGURE 2-2. CONSUMER PRICE INDEX FOR FOOD RECOVERS LATE IN 2003



Source: Bureau of Labor Statistics

Food items predicted to see price increases in 2004 *over* the average 2.0 – 3.0% are:

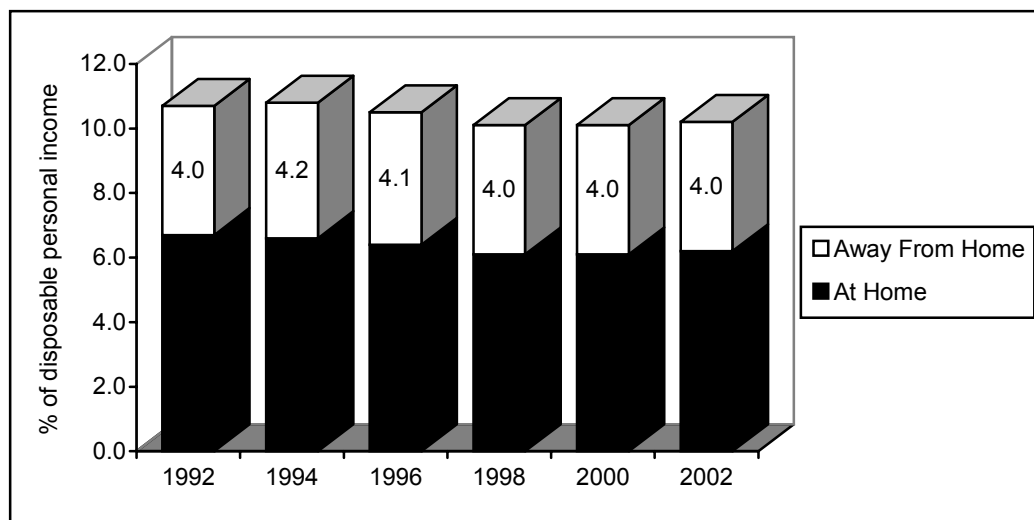
- Beef and veal
- Fresh fruits
- Fresh vegetables
- Cereals and bakery products

Items predicted to see *below-average* price increases are:

- Pork
- Poultry
- Dairy
- Sugar and sweets

Food expenditures as a share of disposable personal income was 10.2% in 2002 (Figure 2-3). This slight increase in a historically downward trend may have been affected by the increase in the unemployment rate in 2002 which hovered between 5.5 – 6.0%. Unemployment may be dropping now, in 2003, but only after peaking at just under 6.5%.

FIGURE 2-3. FOOD EXPENDITURES AS A SHARE OF DISPOSABLE PERSONAL INCOME



Expenditures include food purchases from grocery stores and other retail outlets, including purchases with food stamps and WIC vouchers and food produced and consumed on farms (valued at farm prices) because the value of these foods is included in personal income. Excludes government-donated foods. Purchases of meals and snacks by families and individuals, and food furnished employees since it is included in personal income. Excludes food paid for by government and business, such as donated foods to schools, meals in prisons and other institutions, and expense-account meals.

Source: USDA-ERS, <http://www.ers.usda.gov/briefing/CPIFoodAndExpenditures/Data/table7.htm>. last updated: June 2, 2003.

Sales in the food system in 2002 grew a total of \$44.2 billion or 4.8% over the previous year (Table 2-2). Sales of food purchased for consumption at home outpaced sales in the foodservice sector slightly (\$21.5 billion versus \$16.3 billion respectively).

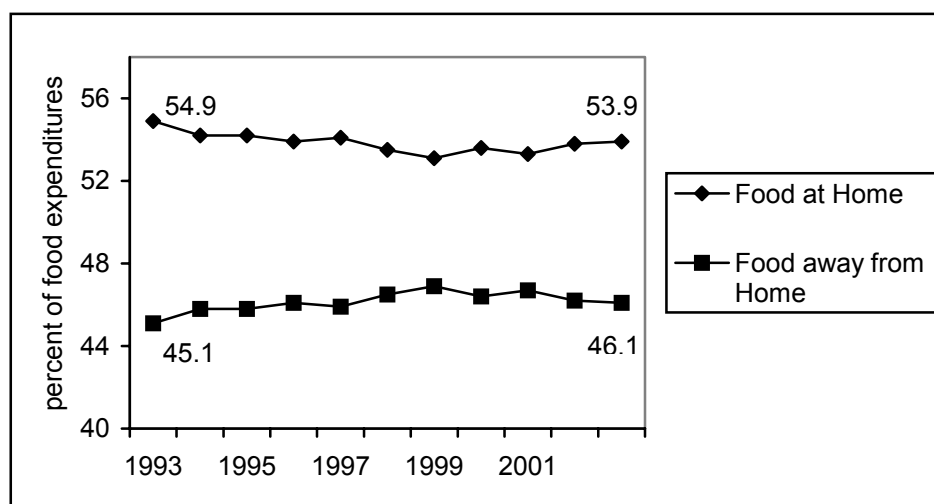
TABLE 2-2. FOOD SALES ¹				
Sector	Sales 2001	Sales 2002	Increase	Growth
	--\$ billion--		--\$ billion--	
			--% change--	
Total food and beverage sales	925.6	969.8	44.2	4.8
Total food sales (excluding alcohol)	819.7	857.6	37.8	4.6
Food at home sales	456.3	477.8	21.5	4.7
Food away from home sales	363.4	379.7	16.3	4.5
Alcoholic beverage sales	105.9	112.3	6.4	6.0

¹ Does not include home production, donation, or school lunch program expenditures

Source: USDA-ERS, <http://www.ers.usda.gov/briefing/CPIFoodAndExpenditures/Data/table1.htm>, last updated: June 2, 2003.

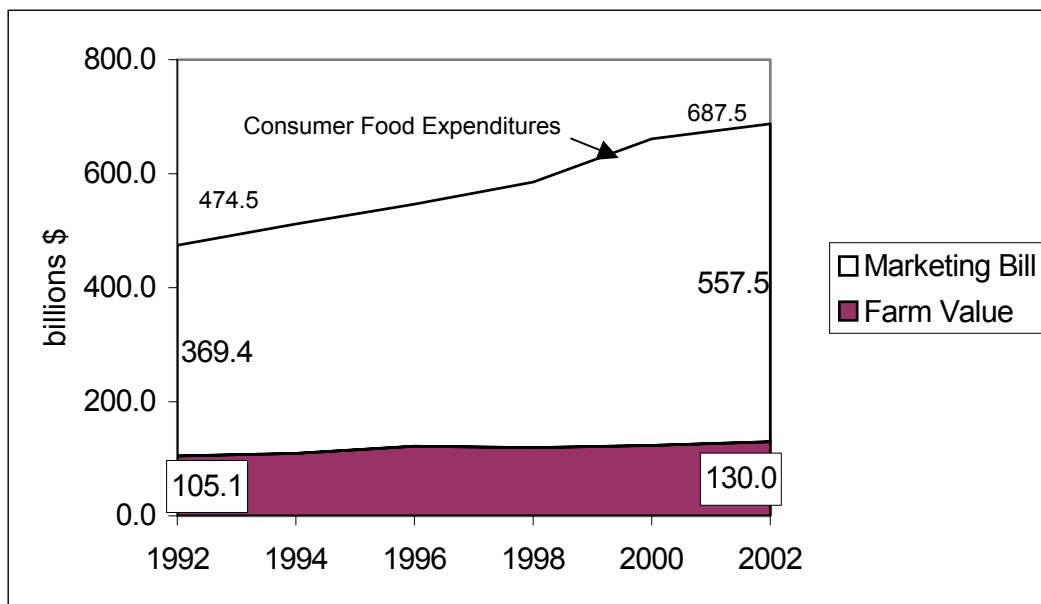
Appendix Figures

FIGURE 2-A1. PERCENT OF TOTAL CONSUMER FOOD EXPENDITURES, AT HOME AND AWAY FROM HOME



Source: USDA-ERS, <http://www.ers.usda.gov/briefing/CPIFoodAndExpenditures/Data/table1.htm>, last updated: June 2, 2003.

FIGURE 2-A2. CONSUMER FOOD EXPENDITURES—FARM VALUE AND MARKETING BILL



Source: USDA-ERS, <http://www.ers.usda.gov/briefing/foodpricespreads/trends/>. September 3, 2002.

FIGURE 2-A3. WHAT A DOLLAR SPENT ON FOOD PAID FOR IN 2002, IN CURRENT DOLLARS

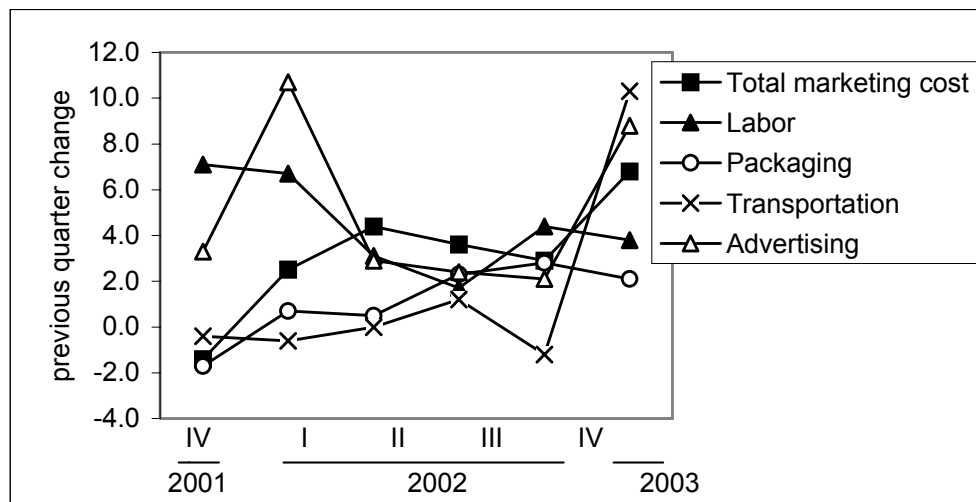
farm value
\$130.0 billion

marketing expenses
\$557.5 billion



Source: Elitzak, Howard. USDA-ERS, Food Marketing and Price Spreads: USDA Marketing Bill. November 7, 2003.

FIGURE 2-A4. PRICE INDEXES OF SELECTED FOOD MARKETING COSTS, CHANGE FROM PREVIOUS QUARTER



Source: USDA, Agricultural Outlook: Statistical Indicators, Table 9.

<http://www.ers.usda.gov/publications/Agoutlook/AOTables/>, published May 2003.

Chapter 3. Cooperatives

Bruce L. Anderson, Associate Professor
Brian M. Henahan, Senior Extension Associate

U.S. Situation

The most complete data available on U.S. agricultural cooperatives are collected through an annual survey of marketing, farm supply and selected service cooperatives conducted by the Rural Business-Cooperative Service of the USDA. Results of the most recent survey are summarized in Table 3-1. Additional analysis of the data reported for 2001 was obtained from USDA Rural Development staff.

Table 3-1. UNITED STATES AGRICULTURAL COOPERATIVE NUMBERS, BUSINESS VOLUME, AND NET INCOME 2000-2001 ¹							
Major Business Activity	Number		Net Volume		Net Income		
	2000	2001	2000	2001	2000	2001	
			(\$ billion)		(\$ million)		
Marketing	1,672	1,606	72.1	75.0	867		810
Farm Supply	1,277	1,234	24.1	24.8	311		429
Related Service	397	389	3.5	3.5	98		118
TOTAL	3,346	3,229	99.7	103.3	1,276		1,357
¹ Totals may not add due to rounding. Source: Farmer Cooperative Statistics, 2000, Rural Business - Cooperative Service, USDA, RBS Service Report 60, Washington, D.C., December, 2001 and preliminary release from Rural Business - Cooperative Service, USDA, October 22, 2002.							

The number of cooperatives in the United States has continued to decline to 3,229 in 2001, a net decrease of 117 associations. This is primarily due to ongoing consolidation and merger of local grain marketing and supply cooperatives in the Midwest. The rate of decline decreased over the past year compared to 2000. Total net business volume, which excludes intercooperative business, amounted to \$103.3 billion, up 3.6% from 2000.

Sales of milk and dairy products increased by 15 percent. Livestock and poultry sales also showed gains. However, sales by other marketing cooperatives declined with fruits and vegetables off by \$700 million in 2001.

Supply sales climbed 2.8 percent, due mainly to higher petroleum prices. Petroleum sales increased nearly \$1 billion. Feed and fertilizer sales also grew from the previous year.

Total net income for 2001 was \$1.4 billion, up from 2000 which was the lowest net income level since 1993. Although net income increased for dairy cooperatives, that gain was offset by lower margins for poultry, rice, sugar, and livestock.

Combined assets in 2001 for all cooperatives reached \$48.7 billion, down 2.5 percent from 2000. Net worth totaled nearly \$20.1 billion, down slightly from the previous year.

Note: The above numbers do not reflect the declared bankruptcies of Agway or FarmLand Industries.

New York State Situation

Data for agricultural cooperatives headquartered in New York State were obtained from the Cooperative Service survey cited previously. State level data are collected every other year. The most current statistics available are for 1999 and 2001. Table 3-2 summarizes cooperative numbers and business volume for New York State.

Table 3-2. NEW YORK STATE AGRICULTURAL COOPERATIVE NUMBERS AND NET BUSINESS VOLUME BY MAJOR BUSINESS, 1999 and 2001 ¹				
Major Business Activity	Number Headquartered in State		Net Volume	
	1999	2001	1999 (\$ million)	2001
Marketing:				
Dairy	67	64	1,595.2	1,254.0
Fruit & Vegetable	9	9	492.4	523.6
Other Products ²	6	6	353.5	232.3
TOTAL MARKETING	82	79	2,441.1	2,009.9
Supply:				
Crop Protectants			34.5	31.5
Feed			121.3	111.9
Fertilizer			54.1	51.2
Petroleum			182.5	278.7
Seed			17.1	21.0
Other Supplies			152.2	121.9
TOTAL SUPPLY	11	8	561.7	616.3
Related Service³	5	5	232.5	199.6
TOTAL	98	92	3,235.3	2,825.8
Source: Farmer Cooperative Statistics, 1999, RBS Service Report 59, USDA, RBS, Washington, DC, 2000 and Farmer Cooperative Statistics, 2001. RBS Service Report 61, USDA, RBS, Washington, DC, March, 2003.				
¹ Totals may not add due to rounding.				
² Includes wool, poultry, dry bean, grains, livestock, maple syrup, and miscellaneous.				
³ Includes those cooperatives that provide services related to cooperative marketing and purchasing.				

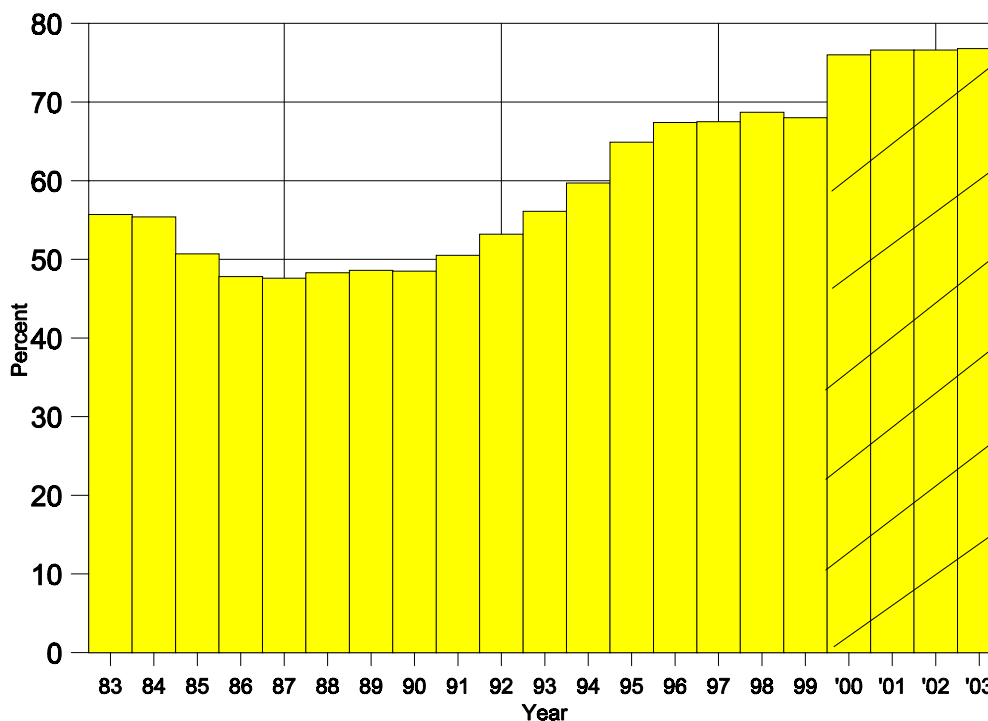
The number of agricultural cooperatives in New York State in 2001 showed a net decrease of 6 cooperatives from 1999 to 2001, with fewer dairy cooperatives and a decrease in the number of supply cooperatives. Total net business volume declined \$3,235 million in 1997 to \$2,826 million in 2001, a decrease of 8 percent. Supply cooperative volume increased by \$54 million with higher sales of petroleum. Marketing volume decreased by \$431 million with dairy marketing cooperatives showing a significant decrease in volume over the two year period primarily due to lower milk prices. Total volume of other products marketed through cooperatives declined as well. A significant portion of the decline in revenues for dairy cooperatives came from the lower value of products sold. Total volume for services related to marketing or purchasing decreased from \$232 million to \$200 million over the two-year period.

Cooperative Share of Northeast Federal Milk Marketing Order 1

As indicated in Figure 3-1, the proportion of milk receipts handled by dairy cooperatives fluctuated over the twenty-year period and leveled off at about 67 percent from 1996 to 1999 under the old Order 2. However, the cooperative share of milk receipts increased significantly to 76 percent in 2000 under the new consolidated Order combining former Federal Order 1 (New England), Federal Order 2 (New York-New Jersey), and Federal Order 4 (Middle Atlantic) into the new Northeast Milk Marketing Order 1. The increase following the consolidation of Orders was primarily the result of pre-existing higher percentages of milk being shipped to cooperatives in the former Orders 1 and 4. Those higher percentages increased the total average of milk received by cooperatives in the new Order 1. The cooperative share of milk receipts for the first nine months of 2003 remained stable from the previous year.

Figure 3-1. COOPERATIVE SHARE OF PRODUCER MILK RECEIPTS

**Federal Order 2, 1983- 1999 and
Northeast Federal Order 1, 2000-2003***



* The year 2003 is based on data for the first nine months of the year. Data from the year 2000 forward represent the consolidated Federal Milk Marketing Order 1 (the result of a merger of the old Federal Orders 1, 2, and 4).

Source: Market Administrator's Office, Northeast Federal Milk Marketing Order 1.

Cooperative Performance

Financial performance of major agricultural cooperatives was extremely mixed in 2002, not just in New York or the Northeast, but across the country.

Due to their significance in the Northeast we will start by examining dairy cooperatives' share of producer milk receipts as well as recent events, review important developments in other types of cooperatives, and finally look at some major factors likely to influence cooperatives in the coming year.

As discussed above and indicated by Figure 3-1, the proportion of milk receipts handled under the Northeast Milk Marketing Order 1 dairy cooperatives remained relatively stable in 2002 and the first nine months of 2003. Over 76 percent of all milk produced in Order 1 is marketed through dairy cooperatives. The cooperative share of milk marketings has remained about constant for the last four years, at its highest since 1974, and about 20 percentage points higher than a decade ago. However, some of this increase is due to milk marketing order mergers in 1999.

As predicted last year, the dairy industry continues to experience significant consolidation. The joint procurement and marketing arrangement between the two largest New York dairy cooperatives continues to work well for both parties. The strategic alliance has reduced assembly, sales and administrative costs. Also, it appears that 2003 brought greater coordination between these parties

About a year ago the largest U.S. dairy cooperative, which has a major presence in New York, announced a pending merger with the largest private dairy company in New England which operates across the U.S. There was a re-structuring of that merger proposal, and a year later it is still pending before the Justice Department and Federal Trade Commission as they consider its impact of market competition, specifically in New England. The cooperative's profitability and credit rating have remained strong throughout the year. In October the cooperative had a private offering of about \$100 million of preferred stock to strengthen its balance sheet.

Despite relatively weak milk prices at the farm level over the last year, the financial performance of Northeast milk marketing cooperatives was relatively strong in 2003. One cooperative had good results primarily due to its membership in another dairy processing cooperative. A second organization with a very strong brand name continued its growth in the hard dairy consumer products and increased its profitability. In addition, it acquired a plant and membership associated with a smaller NY cooperative. The plant has since been modernized and the cooperative is in the process of developing complementary hard products and brand name. A third profitable milk marketing cooperative with no major physical assets continued its expansion into services for dairy farmer members.

Dairy related cooperatives generally experienced stable or increased profitability despite weak milk prices. The major artificial insemination cooperative operating in the Northeast has been experiencing increased sales and profitability. Because they sell internationally, some of the increase in sales (and profitability) was due to animal disease problems abroad. The primary dairy herd improvement cooperative also reported stable sales and profitability. They have almost successfully integrated the operations of out-of-state DHI's, specifically Pennsylvania and Texas, into their operations. Even the major cooperative livestock marketing organization in the Northeast, a subsidiary of a milk marketing cooperative, has been doing well after decades of financial struggles.

The major supply cooperative in the Northeast declared bankruptcy on October 1, 2002. Unfortunately this is not a unique trend. On May 31, 2002, the largest cooperative in the U.S. and a supply cooperative, also declared bankruptcy. Both cooperatives are in Chapter 11 re-organizations. It appears that the bankruptcy of the large Northeast cooperative may result in complete liquidation of its

assets. The reason is that most of its security holders, often retired individuals, want cash rather than securities that could be offered in a re-organization.

What were the reasons for these bankruptcies? We have identified three primary factors. First, agricultural production experienced rapid structural change, and some cooperatives did not keep up with this evolution. More farmers today are buying direct and bypassing traditional supply firms. Traditional organizations maintained a significant investment in fixed assets, many operating at significantly less than capacity, and this was a major cost burden. In fact, many agricultural supply firms today are “virtual organizations” with very few assets. Second, many supply cooperatives became very diversified, perhaps too difficult to manage. At the time it declared bankruptcy the Northeast supply cooperative was involved in feed and animal nutrients, petroleum, agronomy needs and seeds, leasing, insurance, fresh produce marketing, and heifer raising. Finally, the cooperatives experiencing bankruptcy were very highly leveraged.

The major vegetable and fruit cooperative, headquartered in New York but operating throughout the country, sold majority interest in its processing and marketing operations to a merchant bank in August, 2002. This was done to reduce its debt and meet new accounting rules that require the write-down of over-valued intangible assets (i.e. goodwill), which were the result of major acquisitions in recent years. During 2003 the new entity has closed six processing facilities, hired several experienced executives, and increased its investment in advertising as well as new product development. While the cooperative still maintains an approximately 42%, but minority, investment in the continuing entity, the cooperative continues to explore its future role in the vegetable and fruit industry. Two conditions of the sale to the merchant bank were: 1) it could source agricultural products for other food processing firms, and 2) it has perpetual rights to a system the tracks commodities from the seed to the plate. The big question for this cooperative is: What will happen to the processing and marketing firm once the merchant bank decides to sell its current investment? Our best guess, based on historical strategies of merchant banks, is that this could happen anywhere from 3 to 7 years from now.

The major grape cooperative in New York reported strong sales and record returns to growers. Increased marketing efforts in terms of new product development, increased spending on advertising, and positive public reaction on health research has helped increase the consumption of grape products. Their investment in a strong brand name with associated consumer awareness were their saving graces this year. Grape cooperatives marketing bulk, un-branded juice suffered. This was due to a significant volume of low priced bulk grape juice on the market. In addition, the 2003 crop was the largest on record, but in the east did not reach the desired maturity in terms of sugar level. This often means added costs in processing, and even potential future consumer dissatisfaction with quality.

Over two years ago a new apple marketing cooperative was formed in order for growers to better understand the weekly market for fresh apples and improve the quality of apples. It was initially limited to New York growers, but in 2003 allowed members from any state in the U.S. Its current membership probably represents 65-70+ of the fresh apples marketed from NY, and now has members in Michigan, Pennsylvania, Ohio, Virginia, Minnesota. Due to a short supply from the 2002 harvest, its market information efforts probably were able to increase and hold fresh apple prices throughout the season. The larger 2003 apple crop has been somewhat more challenging, but encouraging. Its quality improvement efforts initially have focused on objectively measuring the quality of apples of individual shippers in retail outlets.

While little known, the largest organic marketing cooperative in the U.S., headquartered in the upper Mid-west, has several members in New York. Its major commodity is dairy products, but it is also involved in eggs, fruit juices, meats, as well as produce and operates throughout the U.S. It is more or less a “virtual cooperative” with a strong brand name in the organic market. It owns only one processing

facility, but leases the excess capacity of about 42 facilities owned by others. This cooperative's sales are growing at over 25 percent a year, and net income is keeping pace. There is a waiting list of farmers to join the cooperative.

The farm credit cooperatives had good financial performance during the year. Despite weak prices for many agricultural products conservative lending policies served credit cooperative well in 2003. Over the past year several competing banks involved in agricultural lending have announced plans to exit this segment of the market. Farm credit cooperatives plan to obtain the most credit worthy, but do not feel obliged to take over all the farmers whose lenders are exiting agriculture. In addition, farm credit continues to increase its focus on financial related services to member/borrowers.

While some large well-known cooperatives experienced poor performance and financial difficulties, interest in and creation of new cooperatives continues.

Cooperative Outlook

While, New York and Northeast cooperatives have had mixed results in 2003, many are financially strong and their operating performance has been stable or improved. The last two years' weak and uncertain economy has caused the adoption of more conservative strategies on the part of many cooperatives.

We have been surprised by the relatively strong health of many of our dairy related cooperatives, especially given the very weak milk prices of the last two years. Again, we attribute this to the sound and conservative strategies of dairy marketing, credit, artificial insemination, and dairy herd improvement organizations. We expect these strategies to continue.

Certainly, the general economy will be a major factor in 2004. Certainly an election year could have a major impact on the economy and the agricultural economy specifically. Energy prices and tax rates will be important for cooperatives' cost structure. We can also guarantee that there will be continued industry consolidation and structural change. This will most likely come in the form of more mergers and acquisitions, but unfortunately may even include a bankruptcy or two hopefully not in the Northeast.

Chapter 4. Finance

Eddy L. LaDue, Professor

Table 4-1. United States Farm Balance Sheet Current Dollars, December 31 Excluding Operator Households							
Item	1985	1990	1995	2000	2001	2002	2003 ^c
<i>billion dollars</i>							
Assets							
Real Estate	586	626	741	946	996	1,046	1,077
Livestock	47	71	58	77	79	76	81
Machinery	83	85	89	90	93	94	94
Crops ^a	23	23	27	28	25	23	28
Purchased Inputs	1	3	3	5	4	5	5
Financial Assets	33	38	49	57	59	60	61
Total	773	846	967	1,203	1,256	1,304	1,346
Liabilities & Equity							
Real Estate Debt	100	75	79	91	96	103	109
Nonreal Estate Debt ^b	78	63	72	87	90	90	90
Total	178	138	151	178	186	193	199
Owner Equity	595	708	816	1,025	1,070	1,111	1,147
Total	773	846	967	1,203	1,256	1,304	1,346
Percent Equity	77	84	84	85	85	85	85
^a Excludes crops under CCC loan.							
^b Excludes CCC loans.							
^c Forecast							

Table 4-2. Changes in Structure, United States Farm Balance Sheet Current Dollars, December 31 Excluding Operator Households							
Item	1985	1990	1995	2000	2001	2002	2003 ^c
<i>percent of total</i>							
Assets							
Real Estate	76	74	77	79	80	80	80
Livestock	6	8	6	6	6	6	6
Machinery	11	10	9	8	7	7	7
All Other ^a	7	8	8	7	7	7	7
Total	100	100	100	100	100	100	100
Liabilities							
Real Estate Debt	56	54	52	51	52	53	55
Nonreal Estate Debt ^b	44	46	48	49	48	47	45
Total	100	100	100	100	100	100	100
^a Excludes crops under CCC loan.							
^b Excludes CCC loans.							
^c Forecast							
Source: Agricultural Income and Finance Outlook, ERS, USDA; Agricultural Outlook: Statistical Indicators, ERS, USDA.							

Table 4-3. Distribution of United States Farm Debt by Lender Current Dollars, December 31 Excluding Operator Households							
Item	1980	1985	1990	1995	2000	2001	2002 ^c
<i>billion dollars</i>							
Real Estate							
Farm Credit System	33.2	42.2	25.8	24.8	29.7	32.9	37.8
Individuals & Others	27.8	25.8	15.1	18.0	17.2	17.5	17.9
Commercial Banks	7.8	10.7	16.2	22.3	29.8	31.1	33.1
Farm Service Agency	7.4	9.8	7.6	5.1	3.4	3.3	3.2
Insurance Companies	12.0	11.3	9.7	9.1	11.0	11.2	11.4
CCC-Storage	1.5	.3	a	0	0	0	0
Total	89.7	100.1	74.4	79.3	91.1	96.0	103.4
Nonreal Estate^b							
Commercial Banks	30.0	33.7	31.3	37.7	44.8	45.0	44.4
Farm Service Agency	10.0	14.7	9.4	5.1	4.2	4.2	4.0
Merchants & Dealers	17.4	15.1	12.7	16.2	20.8	21.3	21.9
Farm Credit System	19.7	14.0	9.8	12.5	16.7	19.2	19.7
Total	77.1	77.5	63.2	71.5	86.5	89.7	90.0
^a Less than .05 billion.							
^b Excludes crops under CCC loan.							
^c Forecast							

Table 4-4. Market Share of United States Farm Debt by Lender Current Dollars, December 31 Excluding Operator Households							
Item	1980	1985	1990	1995	2000	2001	2002
<i>percent of total</i>							
Farm Credit System	32	32	26	25	26	28	30
Commercial Banks	23	25	35	40	42	41	40
Farm Service Agency	11	14	12	7	4	4	4
Insurance Companies	7	6	7	6	6	6	6
Individuals & merchants	27	23	20	22	22	21	20
Total ^a	100	100	100	100	100	100	100
^a Excludes crops under CCC loan.							
Source: Economic Research Service, USDA, Data, Farm Balance Sheet.							

Generous government support payments for major crops continue to be capitalized into land values, resulting in higher U.S. farm real estate values. Farm real estate is expected to increase at least another three percent in 2003 following rises of five percent in the last two years. An increase in beef cattle prices will raise the total inventory of livestock by nearly seven percent.

Table 4-5. New York Farm Balance Sheet Current Dollars, December 31 Excluding Operator Households							
Item	1980	1985	1990	1995	2000	2001	2002
<i>million dollars</i>							
Assets							
Real Estate	6,178	6,520	7,768	8,165	9,595	10,102	10,418
Livestock	1,527	983	1,259	1,138	1,360	1,633	1,415
Machinery	1,718	1,875	1,847	1,838	1,654	1,693	1,687
Crops ^a	561	491	540	352	308	328	329
Purchased Inputs	c	27	74	88	133	115	153
Financial Assets	607	668	666	670	917	944	941
Total	10,591	10,564	12,154	12,251	13,967	14,815	14,943
Liabilities & Equity							
Real Estate Debt	1,038	1,125	901	854	957	1,012	1,095
Nonreal Estate Debt ^b	1,582	1,472	1,268	1,318	1,552	1,647	1,660
Total	2,620	2,597	2,169	2,172	2,509	2,659	2,755
Owner Equity	7,971	7,967	9,985	10,079	11,458	12,156	12,188
Total	10,591	10,564	12,154	12,251	13,967	14,815	14,943
Percent Equity	75	75	82	82	82	82	82
^a Excludes crops under CCC loan.							
^b Excludes CCC loans.							
^c Not available.							

Table 4-6. Changes in Structure, New York Farm Balance Sheet Current Dollars, December 31 Excluding Operator Households							
Item	1980	1985	1990	1995	2000	2001	2002
<i>percent of total</i>							
Assets							
Real Estate	58	62	64	67	68	68	70
Livestock	15	9	10	9	10	11	9
Machinery	16	18	15	15	12	12	11
All Other	11	11	11	9	10	9	10
Total ^a	100	100	100	100	100	100	100
Liabilities							
Real Estate Debt	40	43	42	39	40	38	40
Nonreal Estate Debt ^b	60	57	58	61	60	62	60
Total	100	100	100	100	100	100	100
^a Excludes crops under CCC loan.							
^b Excludes CCC loans.							
Source: Economic Research Service, USDA, Data, Farm Balance Sheet.							

Table 4-7. New York Farm Debt by Lender Current Dollars, December 31 Excluding Operator Households							
Item	1980	1985	1990	1995	2000	2001	2002
<i>million dollars</i>							
Real Estate							
Farm Credit System	367	449	404	332	400	443	510
Individuals & Others	373	363	216	256	244	249	254
Commercial Banks	108	89	116	146	218	227	242
Farm Service Agency	145	192	156	116	83	81	77
Insurance Companies	26	26	9	4	12	12	12
CCC-Storage	19	6	a	0	0	0	0
Total	1,038	1,125	901	854	957	1,012	1,095
Nonreal Estate							
Commercial Banks	632	597	417	374	435	437	430
Farm Service Agency	284	287	219	176	188	185	177
Merchants & Dealers	338	257	216	274	352	361	371
Farm Credit System	328	331	416	494	577	664	682
Total ^b	1,582	1,472	1,268	1,318	1,552	1,647	1,660
^a Less than .5 million.							
^b Excludes CCC loans.							

Table 4-8. Market Share of New York Farm Debt by Lender Current Dollars, December 31 Excluding Operator Households							
Item	1980	1985	1990	1995	2000	2001	2002
<i>percent of total</i>							
Farm Credit System	27	30	38	38	39	42	43
Commercial Banks	28	26	25	24	26	25	24
Farm Service Agency	17	19	17	14	10	9	9
Insurance Companies	1	1	a	a	1	1	1
Individuals & Merchants	27	24	20	24	24	23	23
Total	100	100	100	100	100	100	100
^a Less than .5 percent.							
Source: Economic Research Service, USDA, Data, Farm Balance Sheet.							

Total U.S. farm debt is expected to increase about three percent with all of the increase in debt resulting from larger amounts of real estate debt. Non-real estate debt is expected to remain constant. With assets and debt both increasing about three percent, farmer equity is also expected to increase about three percent. The net financial position of the nation's agriculture remains very strong with 85 percent equity.

Table 4-9. Nonaccrual and Nonperforming Loans
Farm Credit System, December 31

Year	Nonaccrual	Nonperforming ^a
percent of loan volume		
1988	6.5	12.3
1989	5.1	11.0
1990	4.5	9.7
1991	3.7	8.0
1992	2.7	6.0
1993	2.3	4.2
1994	1.9	2.9
1995	1.4	2.1
1996	1.1	1.5
1997	0.9	1.3
1998	1.8	2.1
1999	1.4	1.6
2000	0.9	1.2
2001	0.9	1.2
2002	1.0	1.3
2003 (9/30)	1.2	1.4

^a Nonaccrual plus accrual that are restructured or 90 days or more past due (impaired loans).

Source: Annual and Quarterly Reports of the Farm Credit System.

Table 4-10. Nonaccrual, Nonperforming, and Total Delinquent
United States Commercial Banks, December 31

Year	Farm Nonreal Estate Loans			Farm Real Estate Loans		
	Nonaccrual	Nonperforming ^a	Delinquent ^b	Nonaccrual	Nonperforming	Delinquent
percent of loan volume						
1985	6.1	7.3	10.1			
1986	5.9	7.0	9.4			
1987	4.2	4.8	6.5			
1988	2.9	3.3	4.5			
1989	1.9	2.3	3.7			
1990	1.6	1.9	3.1			
1991	1.6	1.9	3.2			
1992	1.5	1.8	2.8	1.0	1.3	2.1
1993	1.2	1.4	2.2	0.8	1.1	1.8
1994	0.9	1.1	2.0	0.9	1.4	2.4
1995	0.9	1.1	2.1	0.9	1.4	2.4
1996	1.0	1.3	2.4	1.0	1.7	2.8
1997	0.9	1.1	2.0	0.9	1.5	2.6
1998	0.9	1.2	2.2	1.0	1.7	2.9
1999	1.1	1.3	2.1	0.7	1.3	2.0
2000	1.0	1.2	2.1	0.8	1.4	2.3
2001	1.3	1.5	2.7	1.2	1.5	2.6
2002	1.3	1.6	2.6	1.2	1.5	2.5
2003 (6/30)	1.5	2.0	3.1	1.2	1.6	2.6

^a Includes nonaccrual and past due 90 days but accruing.

^b Includes nonperforming and past due 30 to 89 days but accruing.

Source: Agricultural Financial Databook, Board of Governors of the Federal Reserve System.

Table 4-11. Delinquent Major Farm Program Direct Loans Farm Service Agency										
Date	Farm Ownership ^a		Operating Loans ^a		Emergency Loans		Economic Emergency		Soil and Water ^a	
	U.S.	N.Y.	U.S.	N.Y.	U.S.	N.Y.	U.S.	N.Y.	U.S.	N.Y.
	percent of loan volume									
9/30/83	3	4	13	8	25	13	16	11	7	4
9/30/84	4	4	17	11	32	22	20	15	9	5
9/30/85	5	5	13	10	37	25	23	19	11	7
9/30/86	5	5	16	12	41	31	27	25	12	9
9/30/87	6	7	19	14	45	34	31	34	14	10
9/30/88	8	9	25	19	57	38	42	45	20	12
9/30/89	9	10	26	20	60	41	44	51	23	13
9/30/90	7	9	23	17	60	37	42	50	18	10
9/30/91	7	9	24	16	61	38	42	51	18	11
9/30/92	7	9	25	19	61	41	42	55	19	9
9/30/93	7	10	24	19	62	40	40	61	18	10
9/30/94	6	11	23	18	60	41	40	63	17	11
9/30/95	6	12	23	20	60	38	39	62	18	13
9/30/96	6	13	21	19	48	37	36	65	17	14
9/30/97	6	14	20	17	44	34	33	67	15	15
9/30/98	5	13	18	16	39	34	31	68	16	14
9/30/99	5	13	15	15	32	29	29	63	15	11
9/30/00	4	12	14	14	26	27	26	60	15	11
9/30/01	4	11	13	13	24	24	24	55	14	10
9/30/02	4	10	12	12	21	22	23	51	13	12
9/30/03	4	8	11	10	20	21	21	48	11	9
^a Includes limited resource loans.										
Source: FSA Report Code 616.										

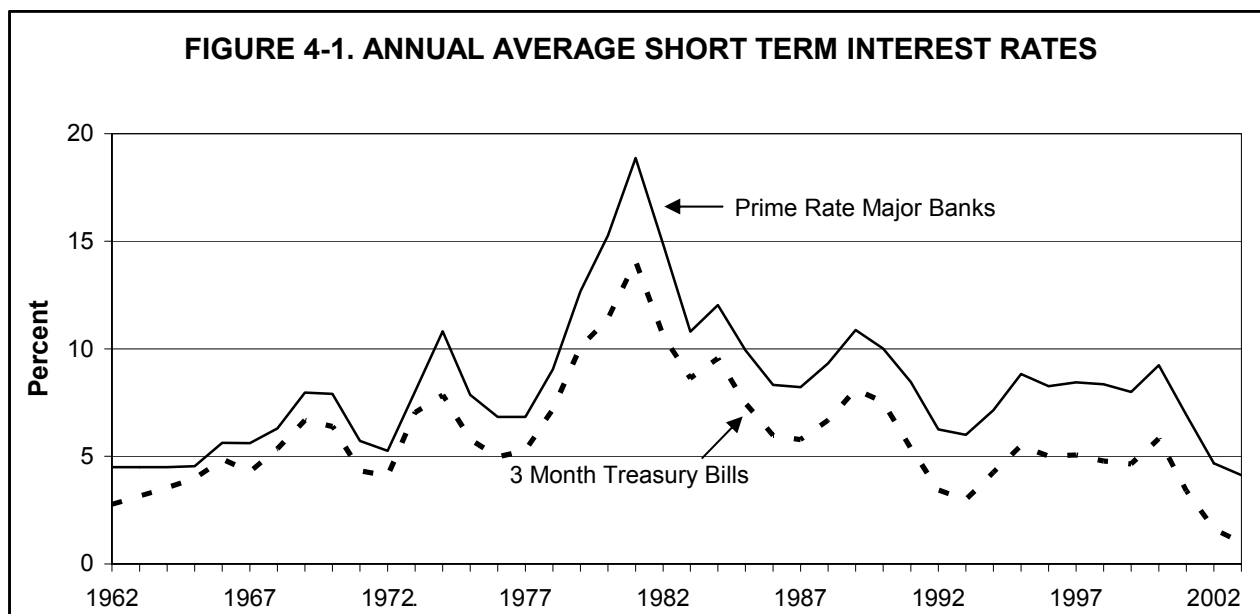
Table 4-12. Delinquent Major Farm Program Guaranteed Loans Farm Service Agency				
Date	Farm Ownership		Farm Operating	
	U.S.	N.Y.	U.S.	N.Y.
	percent of loan volume			
9/30/95	1	1	2	1
9/30/96	1	1	2	1
9/30/97	1	1	2	1
9/30/98	1	2	3	2
9/30/99	1	2	3	2
9/30/00	1	2	2	3
9/30/01	2	3	3	3
9/30/02	1	2	3	4
9/30/03	1	2	3	3
Source: FSA Reports 4067 and 4067-C.				

Market shares of the nation's agricultural debt continued to shift modestly during 2003 with the Farm Credit System experiencing a slight increase at the expense of commercial banks, individuals and merchants. Commercial banks continue to be the nation's most important agricultural lender with a 40 percent market share.

Urban pressure, with a little help from government support payments, raised New York State farm real estate values during 2002 by about 3 percent. Livestock values declined with the fall in dairy livestock prices. During 2003 and 2004 livestock values will likely remain relatively constant while real estate values continue with modest increases.

During 2002, market shares of New York farm debt shifted slightly from commercial banks to the Farm Credit System. With the changes occurring in the banking industry, this shift is likely to accelerate during 2004.

Credit quality remains high for all commercial agricultural lenders. FSA credit quality showed modest improvement.



Following a year of relatively constant, but low, short-term interest rates in 2002, rates declined even further during the first half of 2003. Late 2003 rates are the lowest in 50 years.

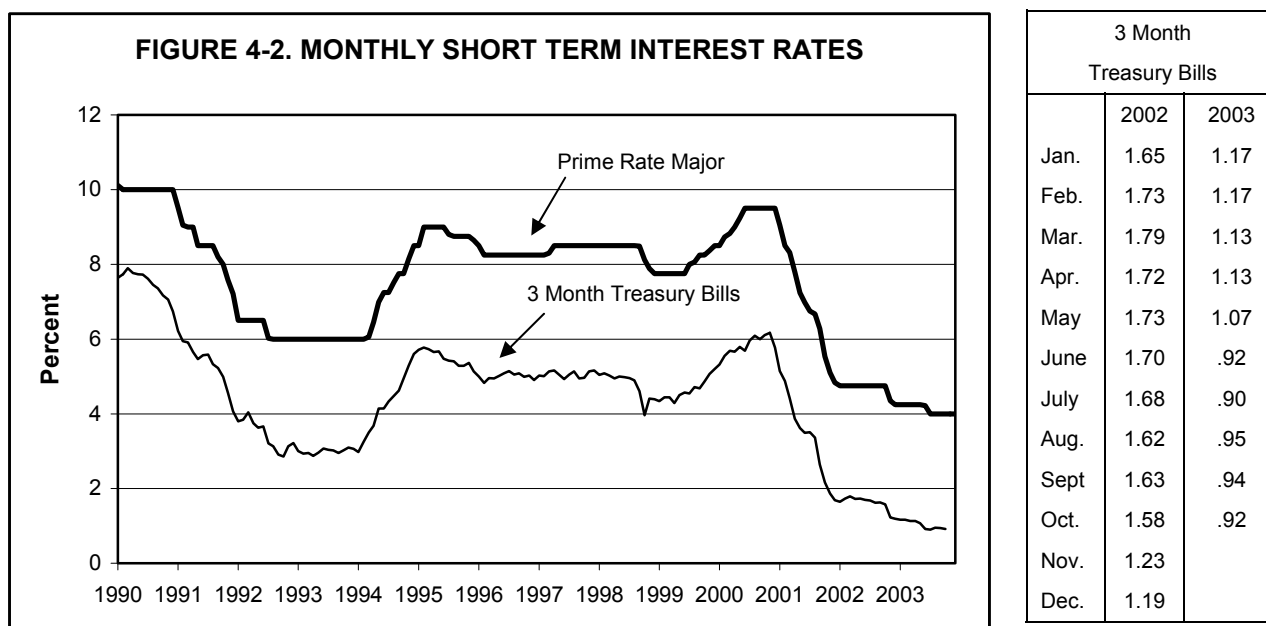
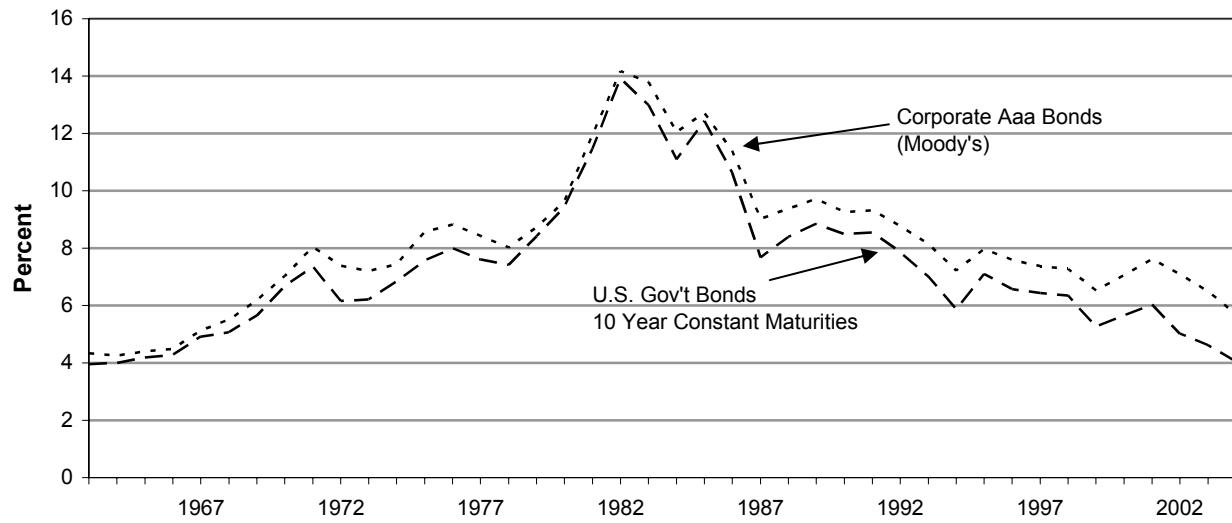
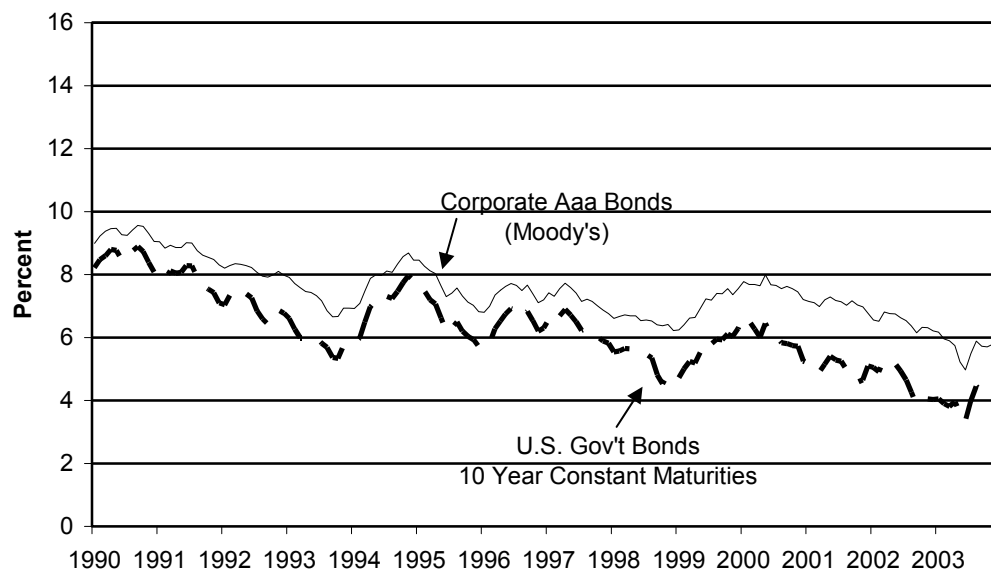
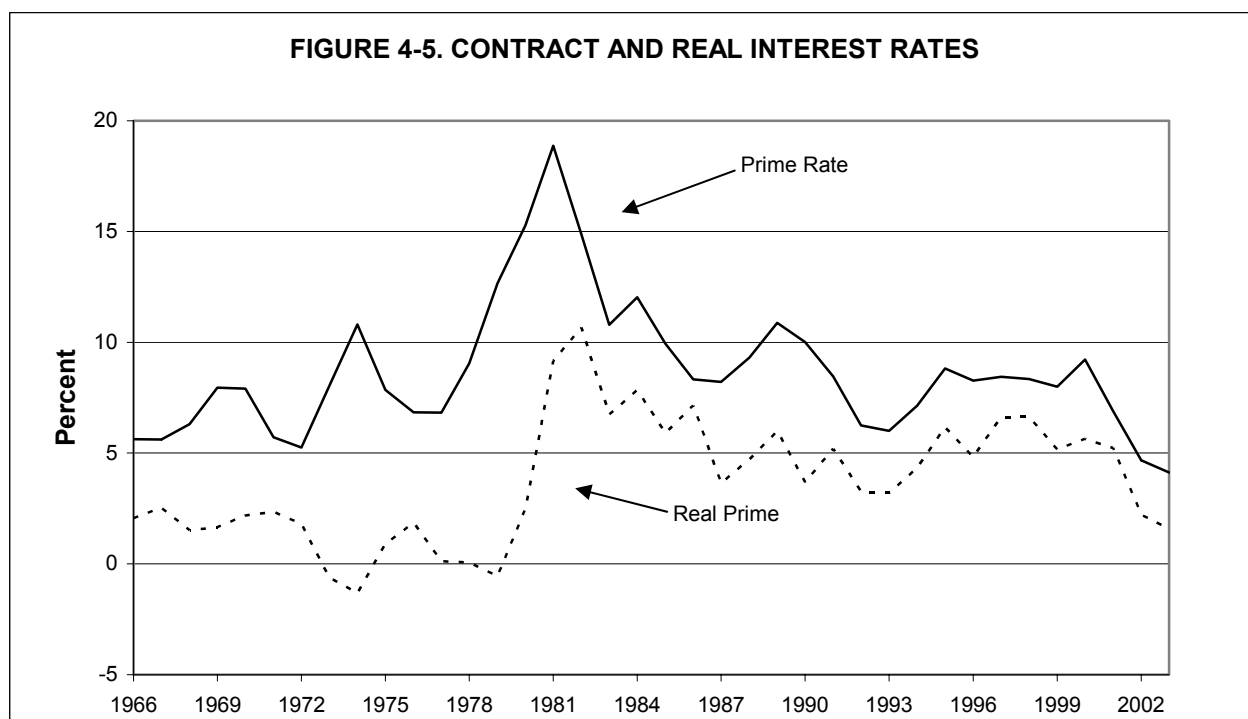


FIGURE 4-3. ANNUAL LONG TERM INTEREST RATES

Basic long-term interest rates fell during the first half of 2003 and then recovered to approximately beginning of year levels. High quality corporate bonds were at their lowest rate since the mid 1960's.

FIGURE 4-4. MONTHLY LONG TERM INTEREST RATES

U.S. Gov't. Bonds		
10 Year Constant Maturity		
	2002	2003
Jan.	5.04	4.05
Feb.	4.91	3.90
Mar.	5.28	3.81
Apr.	5.21	3.96
May	5.16	3.57
June	4.93	3.33
July	4.65	3.98
Aug.	4.26	4.45
Sept	3.87	4.27
Oct.	3.94	4.29
Nov.	4.05	4.47
Dec.	4.03	4.57



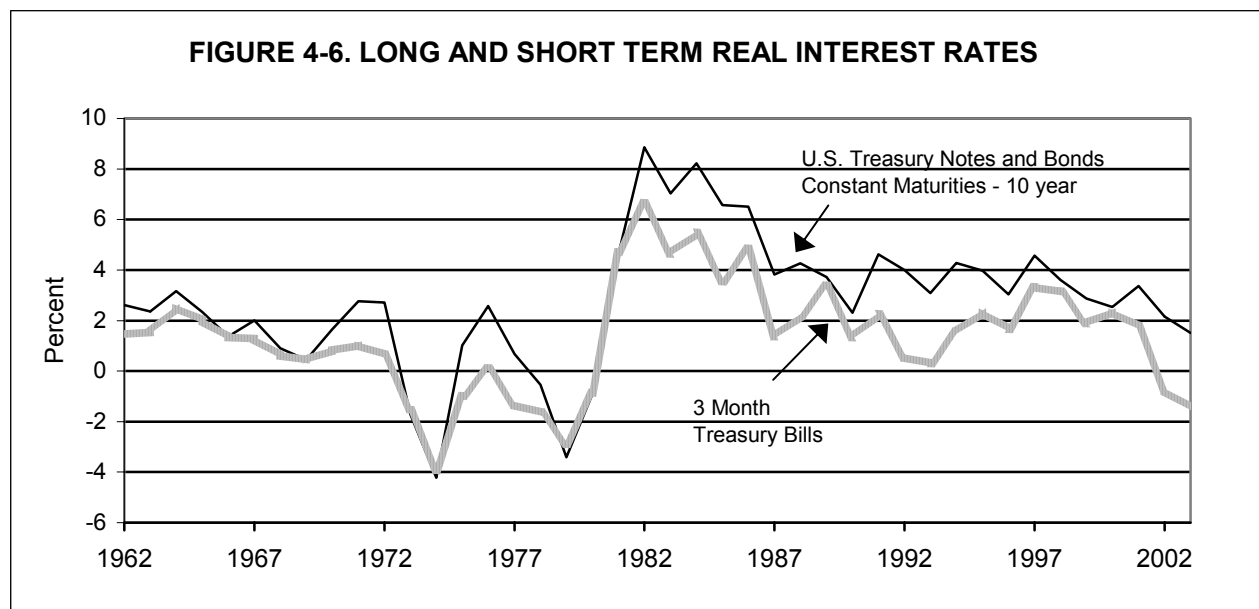
The Federal Reserve Board moved short-term interest rates down slightly in mid 2003. Longer-term rates also declined at mid-year, but recovered to levels slightly higher than year earlier levels as prospects for a recovering economy became clearer. The combined effect of these two occurrences is an even steeper yield curve than the sharply upward sloping curve of 2002. By the end of 2003, long-term rates were over four percentage points above short-term rates.

Throughout much of 2003 there was considerable concern as to whether the economy was improving. Surprisingly strong growth in the third quarter has led most forecasters to believe that the economy is truly experiencing strong growth that should continue throughout 2004. It is now expected that growth will average about 2.9 percent in 2003 and 4.3 percent in 2004. This would represent a strong, rapidly growing economy.

The current recovery has been referred to as a “jobless recovery.” Although there is expected to be some pick up in hiring with the stronger economy, that increase is likely to reduce the unemployment rate only modestly, from 6.0 percent in 2003 to something like 5.8 percent in 2004.

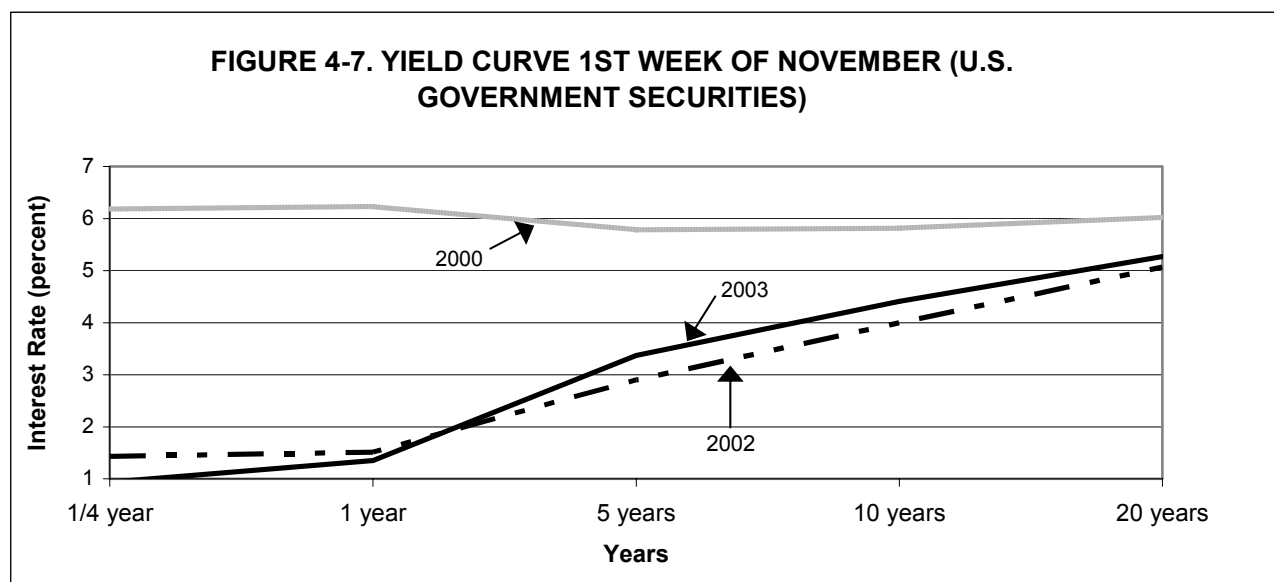
The inflation rate for 2004 is expected to continue at approximately 2003 levels, at around 2.1 percent. A slight increase in inflation rates could occur late in the year, if expected high rates of growth occur.

Both short and long term interest rates are expected to increase about one-half of a percentage point during 2004, with most of the increase occurring during the last half of the year. Because long term rates recovered somewhat during late 2003, the average long term rate is expected to increase about 0.8 percent while short term rates increase an average of 0.3 percent over 2003 levels.



Farm level interest rates are expected to remain at late 2003 levels well into 2004. Rate increases of about one-half percent can be expected during the last half of the year. Current rates are at the lowest in over 40 years and will likely hold at that level for spring borrowing needs. For the entire year farm level interest costs will likely be only slightly above the very favorable 2003 levels.

Many agricultural industries important in the Northeast (dairy, fruit, some vegetables) are experiencing low incomes, and, thus, increased repayment problems. This will cause lenders to carefully analyze agricultural loans. Current changes taking place in the banking industry will likely reduce the number of financing alternatives for some farmers. However, credit should be readily available for farmers with demonstrated repayment capacity.



Chapter 5. Grain and Feed

William G. Tomek, Professor Emeritus

Total grain use in the world has exceeded output for the past two years and is forecast to do so again in 2003-04. Thus, the stocks-to-use ratio has declined from 26.8% at the end of 2001-02 to a (forecast) 16.5% at the end of 2003-04. Nonetheless, current supplies of grains appear adequate to meet demands at prices similar to those prevailing in the past few years. Of course, with smaller inventories in 2004, price levels will be more dependent on expected crop conditions for the 2004-05 harvest. World supply and demand for oilseeds are about in balance, but inventories are consistently smaller (relative to use) than those for the grains. Oilseed prices are especially volatile.

In contrast to the world situation for 2003-04, U.S. grain production is up, while the U.S. soybean crop is down. In the next several sections, we take a closer look at the U.S. situation.

Wheat

The supply-use balance sheet for wheat in the U.S. is provided in Table 5-1. Production in the U.S. was up sharply this year compared to 2002-03, but last year's crop was the smallest in the past 30 years. This year's output, of 2.34 billion bushels, is more nearly consistent with historical experience. Acres planted have been trending downward while yields have been trending upward; consequently, total production has been relatively flat. Last year's small crop—1.62 billion bushels—was an “outlier” on the down side.

TABLE 5-1. SUPPLY/DEMAND BALANCE SHEET FOR WHEAT			
	2001-02	2002-03E	2003-04F
	(Million Bushels)		
Beginning Stocks	876	777	491
Production	1957	1619	2337
Imports	108	77	75
Total Supply	2941	2473	2903
Use:			
Food	926	918	910
Seed	84	84	85
Feed and Residual	190	126	225
Total Domestic	1200	1128	1220
Exports	964	854	1075
Total Use	2164	1982	2295
Ending Stocks	777	491	608
Ending Stocks, % of Use	35.9	24.8	26.5
Season Average Farm Price U.S., \$/Bu.	\$2.78	\$3.56	\$3.25

E = estimated F = forecast

The output of all classes of wheat was larger in 2003, but the largest increase was for hard winter wheat (up almost 74%), reflecting exceptional yields. White wheat production in the U.S. increased, but wheat production in NYS declined from 7.4 million bushels in 2002 to 6.4 million in 2003, largely as a consequent of smaller acreage planted and harvested (Table 5-4). The NYS crop also appears to have been of poor quality.

The domestic use of wheat is forecast to increase about 90 million bushels while exports are expected to rise approximately 210 million bushels. But with the 720 million bushel increase in output, inventories for the year ending May 31, 2004 are expected to be about 27% of total use, up from 25% last May 31. Wheat production in Canada and Australia, like the U.S., is near normal. Thus, while production in Europe was small, wheat prices this year are forecast to average about 15 cents per bushel below year-earlier levels. Prices will, however, be above the depressed level of 2001-02. The low quality, high moisture wheat marketed in NYS has received large discounts.

Corn

Corn production in the U.S. is forecast to be a record large 10.28 billion bushels, up 1.27 billion from last year (Table 5-2). This is a consequence of a record average yield of 143 bushels per acre and an increase in harvested acres from 69.3 to 71.8 million. Total coarse grain production in other countries will be down over 3%.

TABLE 5-2. SUPPLY/DEMAND BALANCE SHEET FOR CORN			
	2001-02	2002-03E	2003-04F
	(Million Bushels)		
Beginning Stocks	1899	1596	1086
Production	9507	9008	10278
Imports	10	14	10
Total Supply	11416	10619	11374
Use:			
Feed and Residual	5861	5642	5700
Food, Seed and Ind. Uses	2054	2298	2450
Total Domestic	7915	7940	8150
Exports	1905	1592	1875
Total Use	9820	9553	10025
Ending Stocks	1596	1086	1349
Ending Stocks, % of Use	16.3	11.4	13.5
US Season Average Farm Price, \$/Bu.	\$1.97	\$2.32	\$2.10

E = estimated F = forecast

Corn production in NYS is estimated to be 54.3 million bushels compared with 43.65 million last year (Table 5-4). Corn yields in the State are up from 97 in 2002 to 118 bushels per acre in 2003. About 460,000 acres of corn were harvested for grain in 2003; this is a consistent with a downward trend in acres planted and harvested for grain in the State over the past 20 years.

Total supply of corn in the U.S. will be about 750 million bushels larger this year. (The increase in supply is less than the increase in production because inventories on September 1, 2003 were smaller than a year earlier.) The current forecast is for exports to increase approximately 280 million bushels and domestic use to be up about 210 million bushels. Hence, carryover to the next crop year will increase. The stocks-to-use ratio this past September was 11.4% and is forecast to increase to 13.5% on September 1, 2004. This level of inventories is near the middle of the historical experience of the past 20 years, when ending stocks have ranged from 5 to 25% of use. Prices and the stocks-to-use ratio are inversely related. Thus, corn prices in 2003-04 are forecast to average about 20 cents per bushel below last year's prices. We have more to say about corn prices below.

Soybeans

Hot weather combined with a lack of rain, at a critical point in the growing season, sharply reduced soybean yields in the central and western corn belt. Production is estimated to be 2.45 billion bushels compared with 2.75 in 2002-03 and 2.89 in 2001-02 (Table 5-3). The combined domestic and export uses will exceed production and draw down inventories to near "pipeline" levels; the stocks-to-use ratio is forecast to be only 5.0% by September 1, 2004.

TABLE 5-3. SUPPLY/DEMAND BALANCE SHEET FOR SOYBEANS			
	2001-02	2002-03E	2003-04F
	(Million Bushels)		
Beginning Stocks	248	208	169
Production	2891	2749	2452
Imports	2	5	8
Total Supply	3141	2962	2629
Use:			
Crushings	1700	1615	1485
Exports	1064	1045	890
Seed and Residual	169	132	130
Total Use	2933	2793	2505
Ending Stocks	208	169	125
Ending Stocks, % of Use	7.1	6.4	5.0
US Season Average Farm Price, \$/Bu.	\$4.38	\$5.53	\$7.10

E = estimated F = forecast

When inventories are relatively small, prices can spike to very high levels, but production in foreign countries, especially the Southern hemisphere, is trending upward. In 2001-02, Brazil produced 43.5 million metric tons of soybeans; their production is expected to be near 60 million metric tons in 2003-04. (The contrasting numbers for the U.S. are 78.67 and 66.73.) The Southern hemisphere crops will be harvested largely in April and May, and prices in the U.S. are likely to be lower in Spring 2004 than they were at harvest. Of course, if production in Argentina and Brazil falls short of current expectations, prices would rise. I expect daily prices for soybeans to be highly variable as new information occurs about worldwide supply and demand. Starting in June, growing conditions in the U.S. will become a major factor influencing prices.

Higher prices for soybeans, of course, imply higher prices for soybean meal. The average price of soybean meal (48%, Decatur IL) was \$167.73 per ton in 2001-02, \$181.57 in 2002-03, and is forecast to be in the range of \$210 to \$240 in 2003-04.

In contrast to corn, soybean acreage in NYS has been trending upward, and an estimated 142,000 acres were harvested in Fall 2003. The state's yields appear to be reasonably good, and production is estimated to be 5.25 million bushels compared with 4.61 last year (Table 5-4). Clearly, state output is tiny compared to the national total, and local prices are influenced mainly by national conditions. This means that soybean producers in NYS have the good fortune of selling at a high price. Thus, users of soybeans and soybean meal will be facing higher prices.

TABLE 5-4. NEW YORK STATE FIELD CROPS			
	2001	2002	2003E
Wheat			
Acres (1,000)a	120	128	120
Yield (bushels)	53	58	53
Production (1,000)	6,360	7,424	6,360
Price (\$/bu)	\$2.64	\$3.25	-
Corn			
Acres (1,000)	540	450	460
Yield (bushels)	105	97	118
Production (1,000)	56,700	43,650	54,280
Price (\$/bu)	\$2.51	\$2.85	-
Soybeans			
Acres (1,000)	158	144	142
Yield (bushels)	33	32	37
Production (1,000)	5,214	4,608	5,254
Price (\$/bu)	\$4.55	\$5.55	-
a = harvested acres			
E = preliminary or forecast			
Source: USDA and NYS Agricultural Statistics			

Expected Prices

Many economists believe that the price quotations for futures contracts provide forecasts that are equal in quality to those available from other public sources, such as the USDA or extension economists. These prices reflect the publicly available information, and change as new information becomes available. Prices for the future delivery of corn, soybeans, and soybean meal as of November 14, 2003 are provided in Table 5-5. Prices on this date reflect the USDA's "supply and demand" information, released on November 12, and any other information that arrived in the subsequent two days. Since November 14, prices have changed and will continue to change, as markets appraise new information, such as new export orders.

TABLE 5-5. PRICES FOR FUTURE DELIVERY, NOVEMBER 14, 2003					
<u>Corn</u>		<u>Soybeans</u>		<u>Soybean Meal</u>	
<u>Contract</u>	<u>Price (\$/bu)</u>	<u>Contract</u>	<u>Price (\$/bu)</u>	<u>Contract</u>	<u>Price (\$/ton)</u>
December	2.40 ½	January	7.78 ½	December	242.7
March	2.46 ½	March	7.72 ¼	March	238.2
May	2.50 ¼	May	7.46 ¾	May	230.7
July	2.52 ¼	July	7.29	July	225.3
September	2.48 ½	September	6.50	September	202.0
December	2.47 ¾	November	5.83 ¾	December	172.2

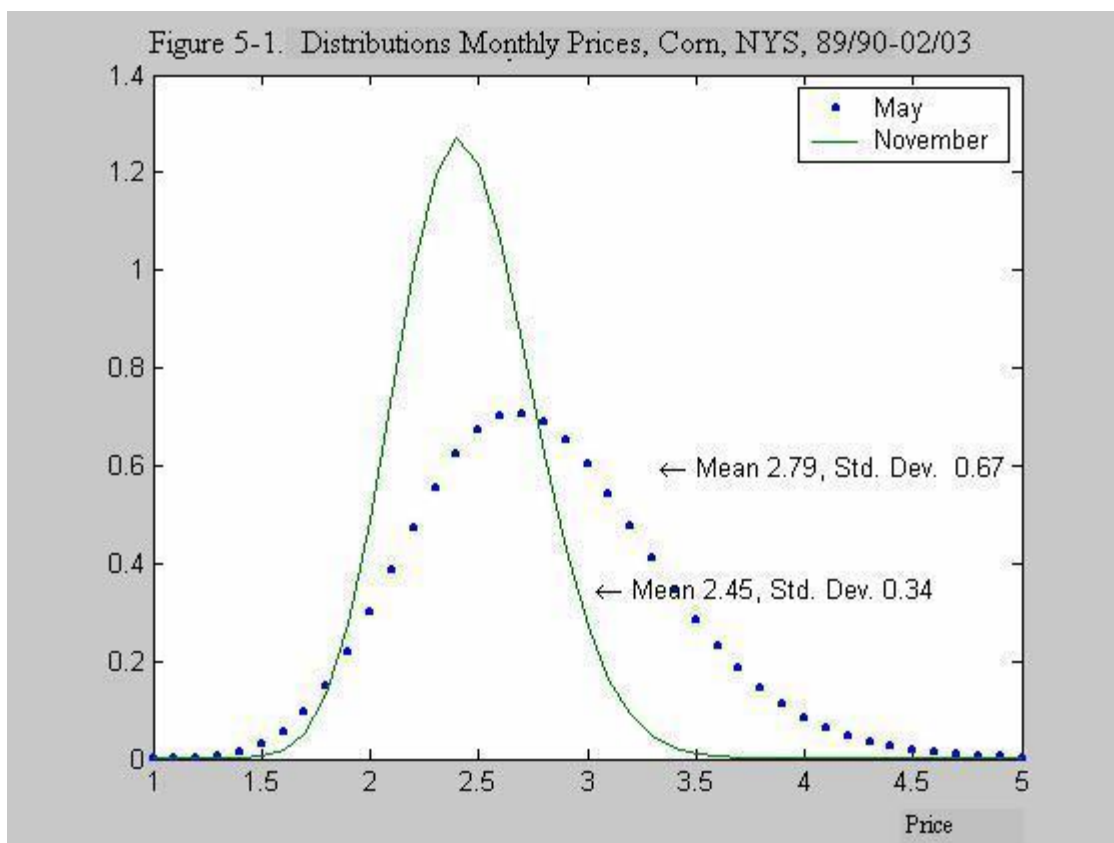
As of November 14, prices of soybeans for nearby delivery were above those for delivery in March and thereafter. As noted above, the Southern hemisphere harvest will add importantly to world supplies starting in April. Thus, relative prices are not encouraging the storage of soybeans in the U.S. A wild card in soybean prices is the appearance of soybean rust in the Southern hemisphere. (The disease originated in Asia and will no doubt reach the U.S. in the future.) For 2004, there is uncertainty about the extent of area that might be affected and the degree of damage that might be caused.

In contrast, the prices of corn are reflecting a large crop in the U.S., with prices for future delivery encouraging the storage of corn. It is possible, however, that new, unpredictable information will cause the entire price level to rise or fall. Current prices for future delivery could be insured by hedging using futures (e.g., inventory holders could sell futures), options, or forward contracts.

One way to look at price variability is to estimate the probability distributions of prices for different months. Estimates of the distributions for cash corn prices in NYS for two different months (November and May) are shown in Figure 5-1. On average, prices are higher in May than in November, but the variability of prices is also larger in May than in November, indeed almost twice as large. It is possible to store corn and sell it at a lower price in the spring than at harvest. Given current economic conditions, corn prices in spring 2004 are expected to be larger than at harvest, but this is not guaranteed.

Looking at prices for new crop futures contracts, i.e., for Fall 2004, the market is expecting corn prices to be higher and soybean prices to be lower than in Fall 2003. This reflects the expectation that both corn and soybean production will return to near "normal" levels next year. Obviously, expectations will be revised between now and next Fall.

From the viewpoint of feed users, prices in 2004 will at best be about the same as in 2003; my best guess is that feed prices will average somewhat higher than in 2003. If crop prospects appear to be poor next summer, then prices would rise sharply. Of course, if prospects favor a bumper crop, prices will decline in the last half of the year. Growing conditions will be especially important for soybean and soybean meal prices.



Chapter 6. Dairy -- Markets and Policy

Andrew M. Novakovic, The E.V. Baker Professor of Agricultural Economics
and Mark W. Stephenson, Senior Extension Associate

The year 2003 represents a turning point in US dairy markets. After nearly two years of relentlessly low farm milk prices, the year is ending with producer prices much more in line with current production costs. The outstanding question for 2004 is whether this trend will continue.

As shown in Table 6-2, producer milk prices have been low in three of the last four years. In 2000, low milk prices could largely be attributed to expansive milk supplies in 1999 and 2000 that were the result of favorable milk prices and a very favorable milk:feed price relationship. The price declines of the last two years are partly related to fairly strong production in 2002 but they are primarily due to very weak sales caused by the economic downturn following the 9/11 disaster and ensuing events. What was particularly difficult about this recession were the additional psychological factors that deterred travel and even nearby away-from-home food consumption. With so much of the growth in dairy product sales tied to cheese consumed in restaurants (e.g., pizza and cheeseburgers), the disruption in those sales left the overall sales picture for dairy very weak. Compounding this problem are the beginnings of what may prove to be a longer term trend towards different patterns of away-from-home, and particularly, fast-food food consumption. Consumers are being increasingly sensitized to the high caloric content of the typical and most popular fast food menu items, which often include cheese. With McDonalds posting its first ever quarterly loss, this has become a very real issue in the fast food sector.

The existence of Milk Income Loss Contract (MILC) payments of \$1.00 per hundredweight and more has also played a significant role in the persistence of low milk prices. Without these payments, market adjustments would have necessarily occurred earlier. Market prices would have returned to higher levels earlier, but of course this would have been at the expense of greater and earlier farm casualties. Other factors, such as the availability and use of imported ingredients, most famously milk protein concentrates, have had some price dampening effect; however, their importance pales in comparison to the recessionary and psychological impediments to dairy demand.

The questions shaping the outlook for 2004 are 1) will economic growth rejuvenate dairy sales and 2) will production tighten in response to the low prices recently in place?

Milk production in 2003 saw a return to the long term trend of reductions in cow numbers and increases in production per cow, as shown in Table 6-1. Nonetheless, total production barely grew, with an anemic increase of about 0.2% expected for the year. Low milk prices and relatively expensive feeds kept production per cow gains below the historic trend. Nevertheless, milk supplies were ample, with commercial disappearance barely increasing by a half a percent, the second year in a row of sluggish sales. Commercial inventories are beginning to shrink but have run well above levels of two and more years ago, considerably more than are needed to serve commercial market needs. Sales of cheese, butter, and skim milk powder have been made to the US government under the price support program, with significant quantities of skim milk powder that are hard to detect in Table 6-1.

Outlook

Towards the end of 2003, milk prices have been showing some strength, wholesale prices are softening some, and even retail prices are showing some moderation. Milk supplies seem to be tightening relative to demand. Is this a harbinger of 2004 or is something else in store?

Analysts seem to agree that the surge in milk prices in late fall are more due to seasonal factors than a long term correction. Futures markets and public forecasts consistently express the market view that prices will weaken again after the typical holiday surge in sales. Where analysts differ is in when the market will again show signs of strength.

Prices will increase as excess supplies decrease and/or demand strengthens. The former hinges on the response of marginal producers to economic stress. The latter hinges on general improvements in the economy and, especially, household income. While there are definitely signs of economic growth, the “trickle down” impacts on jobs and household incomes has been slower to materialize. Over time, this will occur, although the timing is difficult to predict. A fair guess is that most of the economic led demand growth probably won’t be particularly evident until the second half of the year. A summer that is unusually cool or unusually hot will dampen growth that typical occurs seasonally with summer ice cream sales; so weather could have an impact on the timing of a demand surge.

Adjustments in the production sector are widely anticipated. Many farmers are in a fragile economic condition. Most forecasters do not anticipate tightening of supplies until well after mid-year. We believe that these adjustments may well occur a quarter or so earlier than is generally expected. Although feed supplies are generally adequate to abundant, protein costs will be notably higher in the coming months and this could have particular impacts on productivity and/or profitability for farmers who have little or poor high quality hay supplies.

As shown in Table 6-1, the supply and utilization forecast for 2004 includes a modest, productivity led gain in production, strong gains in commercial disappearance and a reasonably well balanced market by year end. The usual quadrennial caution is in effect for this year, as it will once again be a leap year. While the addition of one day to the calendar has no effect on stocks, net removals, DEIP and imports, it does have a marginally significant effect on production, marketings and commercial disappearance, for those who wish to calculate percentage changes.

Although prices are expected to be low in the first half of 2004, gains in the second half should bring up annual average farm prices by about 75 cents per hundredweight. This will be matched fully, perhaps even more, by an offsetting decline in the average MILC payment.

Table 6.1. U.S. Supply and Utilization of Milk, 1996-2002, estimated 2003, projected 2004.
(milk equivalent, fats basis)

	1996*	1997	1998	1999	2000*	2001	2002	2003	2004*
Supply									
Cows Numbers (thous.)	9,351	9,258	9,154	9,156	9,206	9,114	9,141	9,095	8,945
Production/cow (lbs)	16,498	16,916	17,189	17,772	18,202	18,158	18,573	18,700	19,195
Production	154.3	156.6	157.3	162.7	167.6	165.5	169.8	170.1	171.7
Farm Use	1.5	1.4	1.4	1.3	1.3	1.3	1.1	1.1	1.1
Marketing	152.8	155.2	155.9	161.4	166.3	164.2	168.6	169.0	170.6
Beginning Commercial Stocks	4.1	4.7	4.9	5.3	6.1	6.8	7.0	9.9	9.1
Imports	2.9	2.7	4.6	4.8	4.4	5.7	5.1	5.1	5.1
Total Supply	159.8	162.6	165.4	171.4	176.9	176.8	180.8	184.0	184.8
Utilization									
Commercial Disappearance	155.0	156.6	159.8	165.0	169.2	169.6	170.5	173.6	177.2
Ending Commercial Stocks	4.7	4.9	5.3	6.1	6.8	7.0	9.9	9.1	7.2
DEIP	0.1	1.1	0.3	0.3	0.4	0.1	0.0	0.1	0.1
Net Removals (excluding DEIP)	0.0	0.0	0.0	0.1	0.5	0.1	0.3	1.2	0.4
Total Use	159.8	162.6	165.4	171.4	176.9	176.8	180.8	184.0	184.8

* leap year

Table 6-2. Selected U.S. Milk and Dairy Product Prices, 1996-2002, estimated 2003.

	1996	1997	1998	1999	2000	2001	2002	2003
Farm Milk (\$/cwt.)								
All Milk (ave. fat)	\$ 14.75	\$ 13.34	\$ 15.50	\$ 14.38	\$ 12.40	\$ 15.05	\$ 12.11	\$ 12.52
Class III (3.5%)	\$ 13.39	\$ 12.05	\$ 14.20	\$ 12.43	\$ 9.74	\$ 13.10	\$ 10.42	\$ 11.39
Support (3.5%)	\$ 10.25	\$ 10.10	\$ 9.95	\$ 9.80	\$ 9.80	\$ 9.80	\$ 9.80	\$ 9.80
Milk Price: Feed Price Value	2.45	2.38	3.34	3.59	3.05	3.39	2.60	2.52
Assessment	\$ 0.03	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
MILC payments	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0.06	\$ 1.21	\$ 1.09
Cheddar Cheese, Blocks (\$/lb.)								
CCC Purchase	\$ 1.15	\$ 1.13	\$ 1.12	\$ 1.10	\$ 1.12	\$ 1.13	\$ 1.13	\$ 1.13
Wholesale, NCE/CME	\$ 1.47	\$ 1.31	\$ 1.57	\$ 1.40	\$ 1.13	\$ 1.44	\$ 1.18	\$ 1.320
Butter (\$/lb.)								
CCC Purchase, Grade A or higher, Chicago	\$ 0.65	\$ 0.65	\$ 0.65	\$ 0.65	\$ 0.67	\$ 0.85	\$ 0.85	\$ 0.85
Wholesale, Grade AA, CME	\$ 1.08	\$ 1.16	\$ 1.77	\$ 1.23	\$ 1.18	\$ 1.66	\$ 1.06	\$ 1.140
Nonfat Dry Milk (&/lb.)								
CCC Purchase, Unfortified	\$ 1.07	\$ 1.05	\$ 1.03	\$ 1.01	\$ 1.01	\$ 0.90	\$ 0.90	\$ 0.90
Wholesale, Central States	\$ 1.22	\$ 1.10	*1.069	\$ 1.03	\$ 1.02	\$ 1.01	\$ 0.93	\$ 0.840
Retail Price Indices (1982-84=100.0)								
Whole Milk	141.1	142.9	147.9	156.2	156.9	165.9	162.1	165.5
Cheese	144.7	147.7	152.3	162.6	162.8	167.6	170.0	169.6
All Dairy Products	142.1	145.5	150.8	159.6	160.7	167.1	168.1	168.0
All Food	153.3	157.3	160.7	164.1	167.8	173.1	176.2	178.5
All Consumer Prices	156.9	160.5	163.0	166.6	172.2	177.1	179.9	185.0

Chapter 7. Dairy -- Farm Management

Wayne A. Knoblauch, Professor

Linda D. Putnam, Extension Support Specialist

Herd Size Comparisons

Data from the 219 New York dairy farms that participated in the Dairy Farm Business Summary (DFBS) Project in 2002 have been sorted into nine herd size categories and averages for the farms in each category are presented in Tables 7-1 and 7-2. Note that after the less than 50 cow category, the herd size categories increase by 25 cows up to 100 cows, by 50 cows up to 200 cows, by 100 cows up to 400 cows, and by 200 cows up to 600 cows.

As herd size increases, the average profitability generally increases (Table 7-1). Net farm income without appreciation averaged \$14,699 per farm for the less than 50 cow farms and \$92,702 per farm for those with more than 600 cows. However, net farm income per cow decreases as herd size increases. No relationship to herd size exists with the other measures of profitability.

It is more than size of herd that determines profitability on dairy farms. Farms with 600 and more cows averaged \$95 net farm income per cow while the less than 50 cow dairy farms averaged \$387 net farm income per cow. The 200 to 299 herd size category had the second highest net farm income per cow at \$309. Other factors that affect profitability and their relationship to the size classifications are shown in Table 7-2.

TABLE 7-1. COWS PER FARM AND FARM FAMILY INCOME MEASURES						
219 New York Dairy Farms, 2002						
Number of Cows	Number of Farms	Avg. No. of Cows	Net Farm Income w/o Apprec.	Net Farm Income Per Cow	Labor & Management Inc./Oper.	Return to all Capital w/o Apprec.
Under 50	15	38	\$14,699	\$387	\$-8,330	-3.7%
50 to 74	29	62	16,501	266	-6,582	-2.4%
75 to 99	24	84	12,931	154	-11,737	-1.6%
100 to 149	34	122	22,280	183	-11,652	-1.5%
150 to 199	23	170	10,102	59	-26,555	-2.1%
200 to 299	19	256	79,227	309	12,768	2.5%
300 to 399	22	346	1,128	3	-41,470	-0.8%
400 to 599	24	493	89,355	181	2,453	2.2%
600 & over	29	973	92,702	95	-29,652	1.8%

This year, net farm income per cow did not exhibit the usual increase as herd size increased. All herd size categories saw a decrease in operating cost of producing milk from a year earlier. Net farm income per cow will increase as farms become larger if the costs of increased purchased inputs are offset by greater and more efficient output.

The farms with more than 600 cows averaged more milk sold per cow than any other size category (Table 7-2). With 23,724 pounds of milk sold per cow, farms in the largest herd size group averaged 19 percent more milk output per cow than the average of all herds in the summary with less than 600 cows.

Note: All data in this section are from the New York Dairy Farm Business Summary and Analysis Project unless a specific source is specified. Publications reporting Dairy Farm Business Summary data for New York and six regions of the state are available from the department website: <http://aem.cornell.edu>. Publications reporting Dairy Farm Business Summary data for large herds, small herds, grazing farms, and farms that rent are available from <http://www.nraes.org>.

The ability to reach high levels of milk output per cow with large herds is a major key to high profitability. Three times a day milking (3X) and supplementing with bST are herd management practices commonly used to increase milk output per cow in large herds. Many dairy farmers who have been willing and able to employ and manage the labor required to milk 3X have been successful. Only three percent of the 69 DFBS farms with less than 100 cows used a milking frequency greater than 2X. As herd size increased, the percent of herds using a higher milking frequency increased. Farms with 100 to 200 cows reported 12 percent of the herds milking more often than 2X, the 200-299 cow herds reported 56 percent, 300-399 cow herds reported 68 percent, 400-599 cow herds reported 79 percent, and the 600 cow and larger herds reported 90 percent exceeding the 2X milking frequency.

TABLE 7-2. COWS PER FARM AND RELATED FARM FACTORS
219 New York Dairy Farms, 2002

Number of Cows	Avg. No. of Cows	Milk Sold Per Cow (lbs.)	Milk Sold Per Worker (cwt.)	Till-able Acres Per Cow	Forage DM Per Cow (tons)	Farm Capital Per Cow	Cost of Producing Milk/Cwt.	
							Operating	Total
Under 50	38	17,065	2,030	4.0	6.4	\$9,936	\$8.93	\$17.79
50 to 74	62	17,163	4,444	3.2	6.7	7,985	10.18	16.30
75 to 99	84	18,435	5,671	3.6	8.6	8,319	10.79	15.95
100 to 149	122	19,161	5,751	3.2	7.8	8,328	10.91	16.11
150 to 199	170	21,471	6,437	3.5	8.0	8,071	10.99	15.38
200 to 299	256	22,041	9,079	2.4	7.8	6,561	10.31	13.75
300 to 399	346	22,038	8,891	2.0	7.6	6,902	11.45	14.83
400 to 599	493	22,315	9,562	2.0	6.7	6,035	10.74	13.55
600 & over	973	23,724	11,834	1.8	7.6	6,491	11.21	13.86

Bovine somatotropin (bST), was used to a greater extent on the large herd farms. bST was used sometime during 2002 on 23 percent of the herds with less than 100 cows, 55 percent of the farms with 100 to 299 cows and on 79 percent of the farms with 300 cows and more.

Milk output per worker has always shown a strong correlation with farm profitability. The farms with 100 cows or more averaged over 859,000 pounds of milk sold per worker while the farms with less than 100 cows averaged less than 405,000 pounds per worker.

In achieving the highest productivity per cow and per worker, the largest farms had the fewest crop acres per cow and below average forage dry matter harvested per cow. The farms with 400 to 599 cows had the most efficient use of farm capital with an average investment of \$6,035 per cow.

The last column in Table 7-2 may be the most important in explaining why profits were significantly higher on the 400 to 599 cow farms. The 24 farms with 400 to 599 cows held their average total costs of producing milk to \$13.55 per hundredweight, \$1.95 below the \$15.50 average for the remaining 195 dairy farms. The lower average costs of production plus a similar milk price gave the managers of the 400 to 599 cow dairy farms profit margins (milk price less total cost of producing milk) that averaged \$1.84 per hundredweight above the average of the other 195 DFBS farms.

Ten-Year Comparisons

The total cost of producing milk on DFBS farms has increased \$0.51 per hundredweight over the past 10 years (Table 7-3). In the intervening years, total cost of production had exhibited a downward trend to 1995, increased in 1996, decreased 1997 through 1999, increased in 2000 and 2001, and fell in 2002. Over the past 10 years milk sold per cow has increased 18 percent and cows per worker by 17 percent on DFBS farms (Table 7-4). Farm net worth has increased significantly, while percent equity has been stable to declining.

TABLE 7-3. TEN YEAR COMPARISON: AVERAGE COST OF PRODUCING MILK PER HUNDREDWEIGHT
New York Dairy Farms, 1993 to 2002

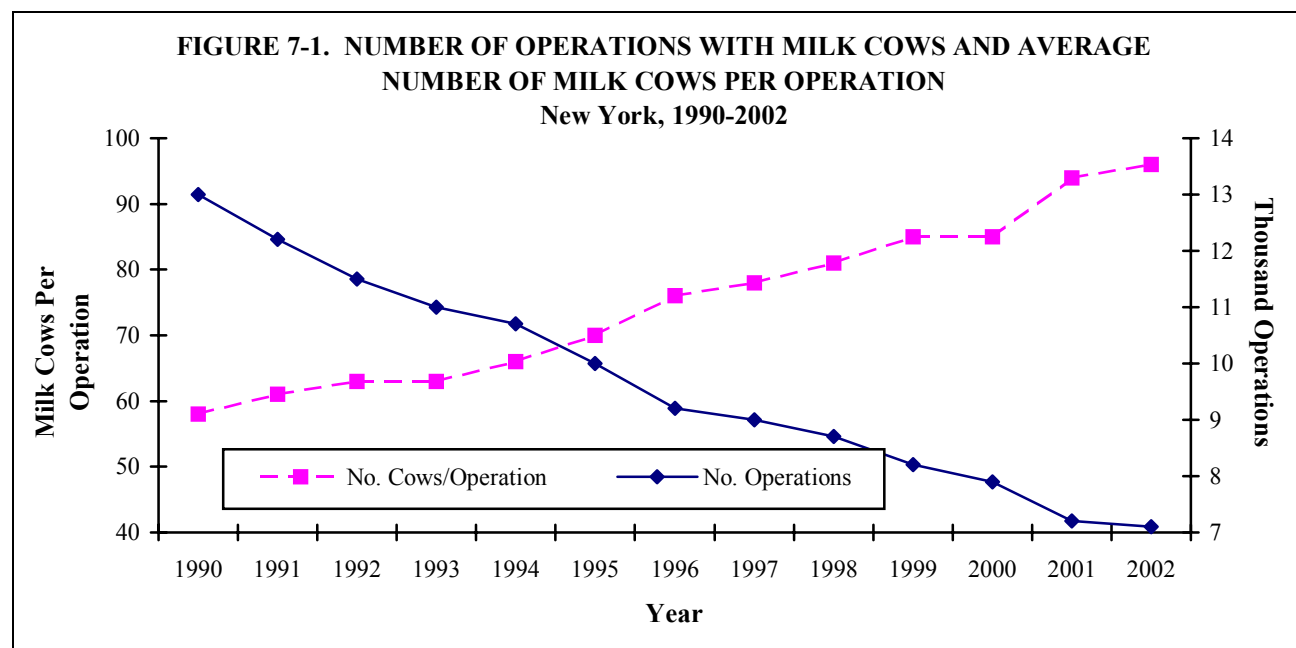
Item	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
<u>Operating Expenses</u>										
Hired labor	\$1.86	\$1.80	\$1.78	\$1.89	\$1.97	\$2.06	\$2.14	\$2.25	\$2.41	\$2.44
Purchased feed	3.85	3.89	3.71	4.73	4.63	4.18	3.96	3.91	4.25	4.10
Machinery repair, vehicle expense & rent	.93	.92	.85	1.02	.94	1.12	1.18	1.06	1.21	1.01
Fuel, oil & grease	.34	.31	.27	.31	.28	.25	.24	.34	.32	.28
Replacement livestock	.17	.21	.15	.19	.18	.24	.24	.23	.20	.16
Breeding fees	.19	.17	.15	.15	.15	.16	.17	.17	.19	.21
Veterinary & medicine	.37	.40	.39	.42	.41	.45	.47	.51	.54	.56
Milk marketing	.64	.67	.70	.59	.52	.53	.49	.69	.63	.65
Other dairy expenses	.72	.88	.92	.99	1.05	1.09	1.13	1.16	1.26	1.25
Lime & fertilizer	.36	.33	.31	.32	.33	.35	.35	.29	.33	.27
Seeds & plants	.20	.19	.19	.20	.21	.22	.20	.19	.20	.20
Spray & other crop expense	.20	.20	.20	.21	.23	.24	.24	.22	.25	.22
Land, building & fence repair	.21	.21	.16	.23	.19	.27	.27	.21	.26	.19
Taxes	.34	.29	.27	.26	.23	.21	.21	.20	.21	.20
Insurance	.20	.18	.17	.18	.16	.17	.16	.16	.14	.16
Utilities (farm share)	.39	.38	.38	.39	.35	.32	.31	.32	.33	.34
Interest paid	.80	.81	.94	.91	.90	.89	.83	.95	.82	.61
Misc. (including rent)	.41	.40	.40	.41	.38	.41	.44	.45	.42	.44
Total Operating Expenses	\$12.18	\$12.24	\$11.94	\$13.40	\$13.12	\$13.15	\$13.02	\$13.31	\$13.98	\$13.27
Less: Nonmilk cash receipts	1.65	1.30	1.15	1.07	1.14	1.18	1.44	1.83	1.49	1.91
Increase in grown feed & supplies	.13	.25	.14	.15	.07	.25	.25	0.11	0.10	0.12
Increase in livestock	.22	.21	.25	.18	.15	.22	.11	.06	.052	.023
OPERATING COST OF MILK PRODUCTION	\$10.18	\$10.47	\$10.40	\$12.00	\$11.76	\$11.50	\$11.22	\$11.31	\$11.87	\$11.01
<u>Overhead Expenses</u>										
Depreciation: machinery & buildings	\$1.17	\$1.13	\$1.07	\$1.04	\$0.95	\$1.08	\$1.14	\$1.20	\$1.30	\$1.39
Unpaid labor	.15	.12	.12	.13	.13	.11	.11	.10	.10	.08
Operator(s) labor *	1.00	.86	.92	.88	.79	.74	.80	.79	.74	.74
Operator(s) management (5% of cash receipts)	.74	.73	.70	.80	.73	.82	.83	.76	.87	.75
Interest on farm equity capital (5%)	1.11	1.00	.94	.94	.87	.85	.86	.88	.91	.89
Total Overhead Expenses	\$4.17	\$3.84	\$3.75	\$3.79	\$3.47	\$3.60	\$3.74	\$3.73	\$3.92	\$3.85
TOTAL COST OF MILK PRODUCTION	\$14.35	\$14.31	\$14.15	\$15.79	\$15.23	\$15.10	\$14.96	\$15.04	\$15.79	\$14.86
AVERAGE FARM PRICE OF MILK	\$13.14	\$13.44	\$13.03	\$14.98	\$13.65	\$15.60	\$14.91	\$13.38	\$15.98	\$12.98
Return per cwt. to operator labor, capital & mgmt.	\$1.64	\$1.72	\$1.44	\$1.81	\$0.81	\$2.91	\$2.44	\$0.77	\$2.71	\$0.50
Rate of return on farm equity capital	-0.4%	0.6%	-1.0%	0.7%	-4.1%	8.0%	4.7%	-4.4%	6.0%	-5.6%

*1993 = \$1,400/month, 1994 and 1995 = \$1,450/month, 1996 = \$1,500/month, 1997 = \$1,550/month, 1998 = \$1,600/month, 1999 = \$1,800/month, 2000 = \$1,900/month, 2001 = \$2,000/month, and 2002 = \$2,100/month of operator labor.

TABLE 7-4. TEN YEAR COMPARISON: SELECTED BUSINESS FACTORS
New York Dairy Farms, 1993 to 2002

Item	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Number of farms	343	321	321	300	253	305	314	294	228	219
Cropping Program										
Total tillable acres	351	392	399	415	462	497	516	566	618	660
Tillable acres rented	135	159	166	183	207	232	234	262	290	337
Hay crop acres	182	195	197	198	219	239	248	274	302	323
Corn silage acres	96	110	117	120	156	175	186	192	210	232
Hay crop, tons DM/acre	2.7	3.0	2.8	2.8	2.5	3.1	2.9	3.3	2.8	3.1
Corn silage, tons/acre	14.9	16.4	15.6	15.9	16.1	18.0	16.3	15.1	16.5	15.4
Fert. & lime exp./tillable acre	\$25	\$25	\$25	\$26	\$28	\$31	\$32	\$27	\$32	\$27
Machinery cost/cow	\$430	\$438	\$402	\$450	\$429	\$471	\$502	\$513	\$554	\$520
Dairy Analysis										
Number of cows	130	151	160	167	190	210	224	246	277	297
Number of heifers	100	116	121	124	139	155	164	186	207	226
Milk sold, cwt.	24,448	30,335	32,362	33,504	39,309	43,954	47,932	52,871	60,290	66,177
Milk sold/cow, lbs.	18,858	20,091	20,269	20,113	20,651	20,900	21,439	21,516	21,762	22,312
Purchased dairy feed/cwt. milk	\$3.85	\$3.89	\$3.70	\$4.73	\$4.63	\$4.18	\$3.96	\$3.91	\$4.25	\$4.10
Purc. grain & conc. as % of milk receipts	29%	28%	27%	30%	33%	26%	25%	27%	25%	30%
Purc. feed & crop exp/cwt. milk	\$4.61	\$4.61	\$4.39	\$5.46	\$5.39	\$5.00	\$4.75	\$4.61	\$5.03	\$4.79
Capital Efficiency										
Farm capital/cow	\$6,462	\$6,398	\$6,264	\$6,218	\$6,196	\$6,161	\$6,368	\$6,535	\$6,755	\$6,794
Real estate/cow	\$2,932	\$2,859	\$2,763	\$2,701	\$2,650	\$2,537	\$2,562	\$2,615	\$2,713	\$2,612
Mach. invest./cow	\$1,165	\$1,150	\$1,098	\$1,107	\$1,108	\$1,118	\$1,163	\$1,225	\$1,222	\$1,261
Asset turnover ratio	.46	.50	.49	.55	.52	0.61	0.59	0.54	0.63	0.53
Labor Efficiency										
Worker equivalent	3.68	4.02	4.40	4.48	5.01	5.35	5.71	6.11	6.72	7.21
Operator/manager equivalent	1.45	1.49	1.56	1.56	1.60	1.62	1.76	1.83	1.94	1.82
Milk sold/worker, lbs.	664,868	755,178	736,269	747,861	784,604	821,565	839,432	865,325	897,167	917,854
Cows/worker	35	38	36	37	38	39	39	40	41	41
Labor cost/cow	\$568	\$558	\$570	\$582	\$598	\$609	\$653	\$674	\$706	\$725
Profitability & Financial Analysis										
Labor & mgmt. income/operator	\$9,000	\$14,789	\$10,346	\$18,651	\$-1,424	\$55,917	\$42,942	\$-2,908	\$45,479	\$-14,243
Farm net worth, end year	\$542,126	\$608,749	\$624,261	\$648,186	\$685,665	\$798,297	\$865,626	\$942,881	\$1,181,055	\$1,173,836
Percent equity	65%	63%	61%	61%	57%	59%	58%	57%	60%	57%

Milk Cow Operations and Milk Cow Inventory



As the number of milk cow operations decreases, the average number of milk cows per operation increases as shown by the chart above. There were 5,100 less milk cow operations in 2002 than there were in 1991. The average number of milk cows per operation has increased by 35 cows, or 57 percent over the same period. On January 1, 2002, 28 percent of the total milk cows were in herds with 50-99 head, 62.5 percent were in herds with over 100 milk cows, and 9.5 percent were in herds with less than 50 head.

TABLE 7-5. MILK COW OPERATIONS AND MILK COW INVENTORY
by Herd Size, 1991 to 2002

MILK COW OPERATIONS BY HERD SIZE & TOTAL, 1991-2002 (Number of Milk Cows in Herd)							MILK COWS ON FARMS, JAN. 1 BY HERD SIZE & TOTAL, 1991-2002 (Number of Milk Cows in Herd)						
Year	1-29	30-49	50-99	100-199 ^a	200 plus	Total	Year	1-29	30-49	50-99	100-199 ^a	200 plus	Total
(Number of Operations)							(Thousand Head)						
1991	2,500	2,900	5,000	1,800		12,200	1991	27	116	319	288		750
1992	2,600	2,600	4,400	1,900		11,500	1992	24	111	314	291		740
1993	2,400	2,500	4,200	1,500	400	11,000	1993	22	102	285	190	131	730
1994	2,400	2,200	4,200	1,500	400	10,700	1994	22	87	297	189	130	725
1995	2,100	2,200	4,000	1,300	400	10,000	1995	21	92	277	178	142	710
1996	1,800	2,000	3,700	1,300	400	9,200	1996	19	79	259	189	154	700
1997	1,700	1,900	3,600	1,300	500	9,000	1997	18	73	245	189	175	700
1998	1,600	1,800	3,500	1,300	500	8,700	1998	18	73	238	182	189	700
1999	1,400	1,600	3,200	1,400	600	8,200	1999	14	70	218	189	211	702
2000	1,400	1,500	3,000	1,400	600	7,900	2000	14	63	203	196	224	700
2001	1,300	1,200	2,800	1,300	600	7,200	2001	13	54	194	181	228	670
2002	1,200	1,250	2,800	1,200	650	7,100	2002	14	51	189	165	257	675

^a100 plus category prior to 1993.

Source: NYASS, New York Agricultural Statistics, 2002-2003.

**TABLE 7-6. COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 65 New York Dairy Farms, 1993 - 2002**

Selected Factors	1993	1994	1995	1996
Milk receipts per cwt. milk	\$13.23	\$13.48	\$13.11	\$15.04
<u>Size of Business</u>				
Average number of cows	175	192	211	226
Average number of heifers	138	148	161	170
Milk sold, cwt.	34,079	40,052	44,598	47,755
Worker equivalent	4.76	5.21	5.73	5.89
Total tillable acres	456	477	508	541
<u>Rates of Production</u>				
Milk sold per cow, lbs.	19,424	20,909	21,139	21,142
Hay DM per acre, tons	2.8	3.2	3.0	2.9
Corn silage per acre, tons	15	17	16	16
<u>Labor Efficiency</u>				
Cows per worker	37	37	37	38
Milk sold per worker, lbs.	715,945	768,762	778,321	810,776
<u>Cost Control</u>				
Grain & concn. purchased as % of milk sales	29%	28%	26%	30%
Dairy feed & crop expense per cwt. milk	\$4.73	\$4.60	\$4.23	\$5.28
Operating cost of producing cwt. milk	\$10.10	\$10.33	\$10.30	\$11.88
Total cost of producing cwt. milk	\$13.60	\$13.41	\$13.27	\$14.84
Hired labor cost per cwt.	\$2.12	\$2.05	\$2.07	\$2.21
Interest paid per cwt.	\$0.71	\$0.73	\$0.82	\$0.80
Labor & machinery costs per cow	\$991	\$1,001	\$1,004	\$1,084
Replacement livestock expense	\$8,174	\$6,667	\$5,415	\$8,318
Expansion livestock expense	\$10,826	\$15,905	\$11,387	\$14,428
<u>Capital Efficiency</u>				
Farm capital per cow	\$6,329	\$6,298	\$6,156	\$6,226
Machinery & equipment per cow	\$1,123	\$1,118	\$1,098	\$1,097
Real estate per cow	\$2,736	\$2,706	\$2,625	\$2,645
Livestock investment per cow	\$1,528	\$1,536	\$1,504	\$1,498
Asset turnover ratio	0.51	0.53	0.52	0.58
<u>Profitability</u>				
Net farm income without appreciation	\$66,420	\$86,969	\$81,787	\$100,659
Net farm income with appreciation	\$85,964	\$102,213	\$95,202	\$112,669
Labor & management income per operator/manager	\$16,106	\$25,789	\$21,058	\$30,944
Rate return on:				
Equity capital with appreciation	5.9%	7.3%	5.8%	7.5%
All capital with appreciation	6.1%	7.1%	6.5%	7.4%
All capital without appreciation	4.4%	5.9%	5.4%	6.5%
<u>Financial Summary, End Year</u>				
Farm net worth	\$749,462	\$798,129	\$836,962	\$905,970
Change in net worth with appreciation	\$31,407	\$47,684	\$41,540	\$64,895
Debt to asset ratio	0.35	0.36	0.37	0.38
Farm debt per cow	\$2,182	\$2,228	\$2,260	\$2,387

Farms participating in the DFBS each of the last 10 years have increased size of business, labor efficiency and milk sold per cow (Table 7-6). While net farm income has generally increased except for declines in 1995, 1997, 2000, and 2002, rates of return on capital have not.

TABLE 7-6. COMPARISON OF FARM BUSINESS SUMMARY DATA (Continued)
Same 65 New York Dairy Farms, 1993 - 2002

1997	1998	1999	2000	2001	2002
\$13.75	\$15.74	\$15.11	\$13.43	\$15.96	\$12.93
242	256	269	284	305	316
185	204	209	219	236	253
52,157	54,844	59,644	63,151	67,568	72,527
6.26	6.53	6.77	6.95	7.41	7.76
569	593	623	640	667	697
21,588	21,465	22,203	22,262	22,149	22,944
2.6	3.3	3.1	3.5	3.0	3.3
16	21	16	15	17	15
39	39	40	41	41	41
833,176	839,877	881,010	908,649	911,852	934,628
33%	25%	24%	27%	25%	29%
\$5.33	\$4.97	\$4.66	\$4.49	\$4.84	\$4.68
\$11.69	\$11.42	\$11.19	\$11.12	\$12.16	\$11.08
\$14.42	\$14.43	\$14.30	\$14.18	\$15.32	\$14.14
\$2.13	\$2.26	\$2.33	\$2.38	\$2.53	\$2.65
\$0.86	\$0.84	\$0.71	\$0.84	\$0.73	\$0.55
\$1,039	\$1,128	\$1,216	\$1,219	\$1,283	\$1,313
\$8,229	\$8,606	\$14,171	\$14,230	\$10,843	\$7,172
\$15,206	\$13,404	\$12,964	\$22,085	\$29,057	\$13,549
\$6,262	\$6,380	\$6,592	\$6,665	\$6,682	\$6,845
\$1,102	\$1,171	\$1,219	\$1,255	\$1,242	\$1,263
\$2,626	\$2,570	\$2,601	\$2,566	\$2,559	\$2,601
\$1,504	\$1,524	\$1,547	\$1,602	\$1,697	\$1,810
0.53	0.62	0.60	0.56	0.64	0.53
\$59,349	\$174,616	\$160,597	\$69,983	\$168,350	\$39,897
\$62,619	\$211,143	\$194,343	\$117,346	\$243,634	\$79,842
\$6,247	\$65,566	\$53,632	\$4,435	\$55,303	\$-16,903
1.5%	16.0%	12.4%	5.0%	14.4%	1.4%
3.9%	12.5%	10.1%	5.9%	11.3%	2.7%
3.7%	10.3%	8.2%	3.4%	7.6%	0.9%
\$912,267	\$1,059,695	\$1,159,617	\$1,184,910	\$1,344,078	\$1,319,569
\$3,066	\$147,258	\$101,174	\$26,100	\$156,231	\$-20,901
0.41	0.38	0.37	0.38	0.37	0.39
\$2,534	\$2,457	\$2,479	\$2,515	\$2,527	\$2,665

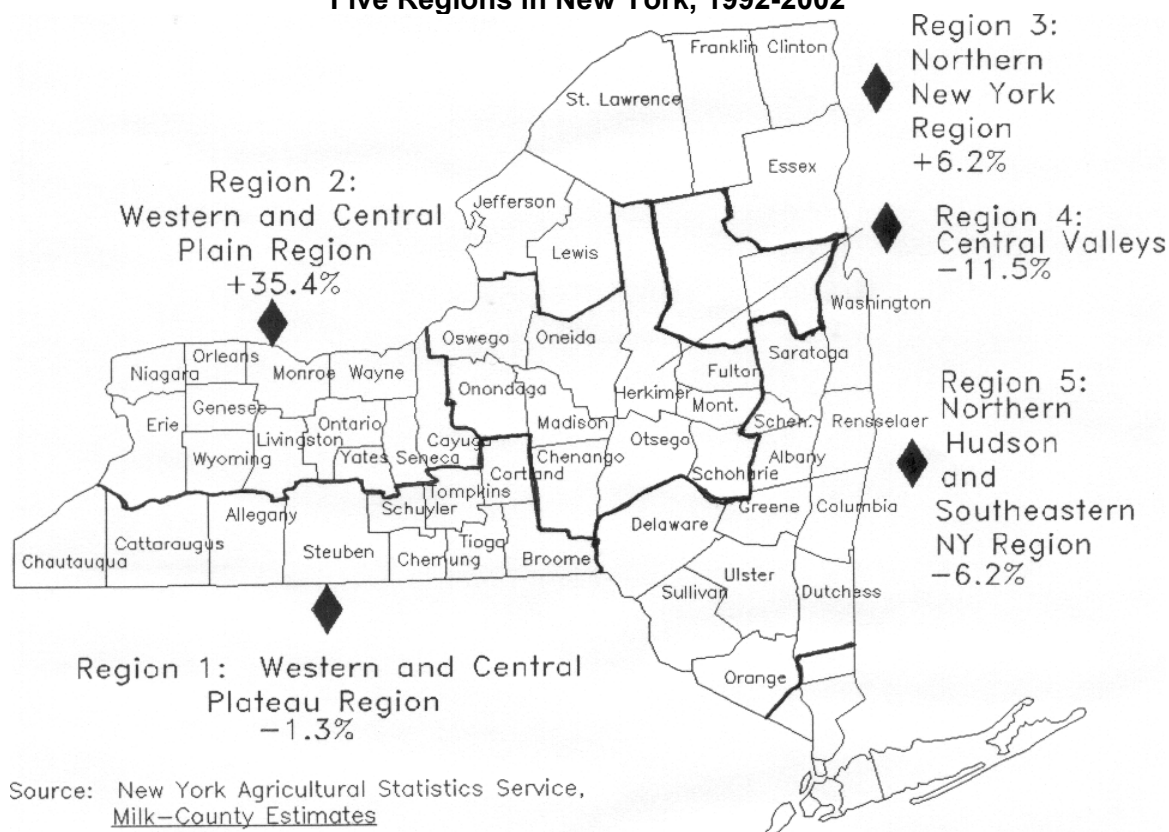
Debt to asset ratio and debt per cow have remained stable while farm net worth almost doubled. During this time, crop yields have fluctuated, largely due to weather. Purchased grain and concentrate as a percent of milk sales has varied only from 24 to 33 percent, with the high being in 1997 and the low in 1999.

TABLE 7-7. COMPARISON OF DAIRY FARM BUSINESS DATA BY REGION
219 New York Dairy Farms, 2002

Item	Western & Central Plateau Region	Western & Central Plain Region	Northern New York	Central Valleys	No. Hudson & South- eastern New York
Number of farms	24	69	27	30	69
ACCRUAL EXPENSES					
Hired labor	\$96,259	\$290,582	\$144,537	\$112,554	\$81,935
Feed	163,027	458,559	276,959	209,539	145,899
Machinery	68,652	129,761	74,558	69,374	57,873
Livestock	107,614	310,840	171,947	168,489	103,114
Crops	30,604	70,342	43,940	42,583	29,792
Real estate	30,265	65,310	43,235	41,178	28,251
Other	<u>54,212</u>	<u>137,545</u>	<u>88,229</u>	<u>71,882</u>	<u>45,121</u>
Total Operating Expenses	\$550,633	\$1,462,938	\$843,404	\$715,599	\$491,985
Expansion livestock	10,577	25,242	18,114	6,849	5,611
Machinery depreciation	34,376	79,333	59,737	49,272	23,402
Building depreciation	<u>22,112</u>	<u>72,101</u>	<u>52,139</u>	<u>48,449</u>	<u>11,037</u>
Total Accrual Expenses	\$617,698	\$1,639,614	\$973,394	\$820,169	\$532,035
ACCRUAL RECEIPTS					
Milk sales	\$547,974	\$1,425,351	\$861,486	\$718,352	\$460,321
Livestock	40,452	130,608	87,183	69,657	44,012
Crops	8,467	22,627	16,672	16,790	9,381
Government receipts	39,726	59,425	51,676	42,231	41,645
All other	<u>9,286</u>	<u>35,092</u>	<u>12,357</u>	<u>22,204</u>	<u>11,329</u>
Total Accrual Receipts	\$645,904	\$1,673,102	\$1,029,374	\$869,234	\$566,689
PROFITABILITY ANALYSIS					
Net farm income (w/o appreciation)	\$28,206	\$33,488	\$55,980	\$49,065	\$34,654
Net farm income (w/ appreciation)	\$58,959	\$106,000	\$120,596	\$92,349	\$47,941
Labor & management income	-\$20,873	-\$53,704	-\$6,788	-\$8,111	-\$15,118
Number of operators	1.73	1.92	1.67	1.93	1.83
Labor & mgmt. income/operator	-\$12,065	-\$27,971	-\$4,065	-\$4,203	-\$8,261
BUSINESS FACTORS					
Worker equivalent	5.15	10.51	7.11	6.14	5.14
Number of cows	185	484	300	258	160
Number of heifers	149	361	239	195	126
Acres of hay crops ^a	287	380	398	290	265
Acres of corn silage ^a	134	353	262	197	147
Total tillable acres	497	906	742	622	455
Pounds of milk sold	4,040,442	11,045,309	6,854,726	5,412,961	3,517,665
Pounds of milk sold/cow	21,860	22,807	22,846	21,010	21,940
Tons hay crop dry matter/acre	2.8	3.8	3.1	3.0	2.4
Tons corn silage/acre	14.0	16.6	13.8	15.9	14.0
Cows/worker	36	46	42	42	31
Pounds of milk sold/worker	784,552	1,050,933	964,096	881,590	684,371
% grain & conc. of milk receipts	29%	29%	31%	28%	31%
Feed & crop expense/cwt. milk	\$4.79	\$4.79	\$4.68	\$4.66	\$4.99
Fertilizer & lime/crop acre	\$25.20	\$26.89	\$21.48	\$24.36	\$34.66
Machinery cost/tillable acre	\$234	\$261	\$208	\$217	\$205

^aAverage of all farms in the region, not only those producing the crop.

**FIGURE 7-2. PERCENT CHANGE IN MILK PRODUCTION
Five Regions in New York, 1992-2002**



**TABLE 7-8. MILK PRODUCTION & AVERAGE COST OF PRODUCING MILK
Five Regions of New York**

Item	Region ^a				
	1	2	3	4	5
<u>Milk Production^b</u>	(million pounds)				
1992	2,134.8	2,721.0	2,206.1	2,976.0	1,536.9
2002	2,106.0	3,683.0	2,343.0	2,635.0	1,441.0
Percent change	-1.3%	+35.4%	+6.2%	-11.5%	-6.2%
<u>2002 Cost of Producing Milk^c</u>	(\$ per hundredweight milk)				
Operating cost	\$11.47	\$11.23	\$10.12	\$10.56	\$11.12
Total cost	15.18	14.05	13.52	14.66	14.79
Average price received	13.56	12.90	12.57	13.27	13.09
Return per cwt. to operator labor, management & capital	\$0.60	\$0.25	\$0.77	\$0.84	\$0.78

^aSee Figure 7-2 for region descriptions.

^bSource: New York Agricultural Statistics Service, Milk-County Estimates.

^cFrom Dairy Farm Business Summary data.

Prices Paid by New York Dairy Farmers and Values of Inventory Items

The prices dairy farmers pay for a given quantity of goods and services has a major influence on farm production costs. The astute manager will keep close watch on unit costs and utilize the most economical goods and services. The table below shows average prices of selected goods and services used on New York dairy farms.

TABLE 7-9. PRICES PAID BY NEW YORK FARMERS FOR SELECTED ITEMS, 1992 - 2002						
Year	Mixed Dairy Feed 16% Protein ^a	Fertilizer, Urea 45-46%N ^a	Seed Corn, Hybrid ^b	Diesel Fuel ^a	Tractor 50-59 PTO ^b	Wage Rate All Hired Farm Workers ^c
	(\$/ton)	(\$/ton)	(\$/80,000 Kernels)	(\$/gal)	(\$)	(\$/hr)
1992	174	221	71.80	0.910	18,850	6.42
1993	171	226	72.70	0.900	19,200	6.76
1994	181	233	73.40	0.853	19,800	6.96
1995	175	316	77.10	0.850	20,100	6.92
1996	226	328	77.70	1.020	20,600	7.19
1997	216	287	83.50	0.960	21,200	7.63
1998	199	221	86.90	0.810	21,800	7.63
1999	175	180	88.10	0.750	21,900	8.12
2000	174	201	87.50	1.270	21,800	8.74
2001	176	270	92.20	1.260	22,000	8.72
2002	178	232	92.00	1.028	21,900	9.36

SOURCE: NYASS, New York Agricultural Statistics. USDA, ASB, Agricultural Prices.
^aNortheast region average. ^bUnited States average. ^cNew York and New England combined.

Inflation, farm profitability, supply and demand all have a direct impact on the inventory values on New York dairy farms. The table below shows year-end (December) prices paid for dairy cows (replacements), an index of these cow prices, an index of new machinery prices (U.S. average), the average per acre value of farmland and buildings reported in January (February for 1988-89), and an index of the real estate prices.

TABLE 7-10. VALUES AND INDICES OF NEW YORK DAIRY FARM INVENTORY ITEMS, 1988 - 2002					
Year	Dairy Cows		Machinery ^a	Farm Real Estate	
	Value/Head	1977=100	1977=100	Value/Acre	1977=100
1988	900	182	189	993	169
1989	1,020	206	201	1,045	178
1990	1,060	214	209	1,014	173
1991	1,040	210	219	1,095	187
1992	1,090	220	226	1,139	194
1993	1,100	222	235	1,237	211
1994	1,100	222	249	1,260	215
1995	1,010	204	258	1,280	218
1996	1,030	208	268	1,260	215
1997	980	198	276	1,250	213
1998	1,050	212	286	1,280	218
1999	1,250	253	294	1,340	228
2000	1,250	253	301	1,410	240
2001	1,600	323	312	1,500	256
2002	1,400	283	320	1,600	273

SOURCE: NYASS, New York Agricultural Statistics and New York Crop and Livestock Report. USDA, ASB, Agricultural Prices.
^aUnited States average; 1995 - 2002 are estimated due to discontinuation of 1977=100 series.

Farm Business Charts

The Farm Business Chart is a tool which can be used in analyzing a business by drawing a line through the figure in each column which represents the current level of management performance. The figure at the top of each column is the average of the top 10 percent of the 219 farms for that factor. The other figures in each column are the average for the second 10 percent, third 10 percent, etc. Each column of the chart is independent of the others. The farms which are in the top 10 percent for one factor would not necessarily be the same farms which make up the 10 percent for any other factor.

The cost control factors are ranked from low to high, but the lowest cost is not necessarily the most profitable. In some cases, the "best" management position is somewhere near the middle or average. Many things affect the level of costs, and must be taken into account when analyzing the factors.

TABLE 7-11. FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS							
219 New York Dairy Farms, 2002							
Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv- alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
22.1	1,096	26,070,804	25,939	5.5	23	63	1,348,521
13.1	577	13,521,669	24,156	4.0	18	49	1,116,565
9.9	397	8,759,377	23,267	3.4	17	45	974,408
7.5	293	6,374,929	22,426	3.1	16	41	884,130
5.7	195	3,992,743	21,679	2.9	15	38	785,112

4.3	142	2,942,120	20,935	2.7	14	34	692,994
3.5	110	2,070,554	19,685	2.4	13	31	605,540
2.9	83	1,514,427	18,018	2.1	12	28	516,862
2.3	66	1,140,734	16,056	1.8	10	24	424,069
1.6	42	674,145	12,330	1.2	7	18	295,997

Cost Control							
Grain Bought Per Cow		% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk	
\$422		19%	\$279	\$866	\$571	\$3.41	
576		24	390	1,026	759	3.97	
646		26	442	1,139	843	4.26	
721		28	487	1,215	914	4.53	
767		30	523	1,265	972	4.73	

829		31	563	1,332	1,027	4.99	
894		33	610	1,423	1,099	5.20	
939		34	661	1,548	1,165	5.43	
1,012		36	727	1,686	1,242	5.82	
1,140		42	945	2,124	1,372	6.97	

The next section of the Farm Business Chart provides for comparative analysis of the value and costs of dairy production.

The profitability section shows the variation in farm income by decile and enables a dairy farmer to determine where he or she ranks by using several measures of farm profitability. Remember that each column is independently established and the farms making up the top decile in the first column will not necessarily be on the top of any other column. The dairy farmer who ranks at or near the top of most of these columns is in a very enviable position.

TABLE 7-11. (CONTINUED) FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS 219 New York Dairy Farms, 2002						
Milk Receipts Per Cow	Milk Receipts Per Cwt.	Operating Cost Milk Production Per Cow	Operating Cost Milk Production Per Cwt.	Total Cost Milk Production Per Cow	Total Cost Milk Prod. Per Cwt.	
\$3,383	\$15.11	\$1,117	\$7.37	\$2,074	\$12.10	
3,103	13.58	1,590	8.65	2,558	12.95	
2,995	13.26	1,842	9.35	2,772	13.58	
2,900	13.04	1,990	9.97	2,907	14.06	
2,797	12.92	2,119	10.48	3,022	14.62	
2,696	12.80	2,301	10.86	3,156	15.15	
2,565	12.65	2,444	11.36	3,301	15.79	
2,366	12.48	2,580	11.91	3,431	16.73	
2,099	12.31	2,813	12.55	3,677	17.85	
1,594	11.89	3,116	14.93	4,013	21.72	
Profitability						
Net Farm Income Without Appreciation			Net Farm Income With Appreciation		Labor & Management Income	
Total	Per Cow	Operations Ratio	Total	Per Cow	Per Farm	Per Operator
\$311,300	\$800	0.23	\$490,988	\$1,018	\$169,943	\$102,486
111,164	544	0.17	190,585	695	46,398	31,785
74,548	422	0.13	120,125	540	19,765	12,137
48,934	321	0.10	76,473	429	6,293	4,230
31,650	250	0.08	51,347	340	-6,706	-4,145
18,485	152	0.05	31,621	213	-17,073	-12,209
6,953	57	0.02	17,028	139	-31,884	-22,091
-3,847	-18	-0.01	5,335	51	-59,274	-40,962
-31,661	-193	-0.06	-21,619	-152	-105,558	-70,856
-173,275	-522	-0.20	-118,492	-453	-272,400	-204,262

Financial Analysis Chart

The farm financial analysis chart is designed just like the farm business chart on pages 7-11 and 7-12 and may be used to measure the financial health of the farm business.

TABLE 7-12. FINANCIAL ANALYSIS CHART 219 New York Dairy Farms, 2002							
Liquidity (repayment)							
Planned Debt Payments Per Cow	Available for Debt Service Per Cow	Cash Flow Coverage Ratio	Debt Coverage Ratio	Debt Payments as Percent of Milk Sales	Debt Per Cow	Working Capital as % of Total Expenses	Current Ratio
\$136	\$862	6.53	3.22	5%	\$272	41%	12.51
266	665	1.71	1.65	9	1,046	26	3.42
345	575	1.29	1.23	13	1,626	20	2.35
393	502	1.05	1.02	15	2,072	15	1.88
447	446	0.92	0.83	17	2,447	11	1.57
513	378	0.80	0.73	19	2,789	7	1.30
570	318	0.70	0.59	21	3,164	3	1.08
649	245	0.59	0.33	24	3,583	-2	0.85
749	138	0.38	0.02	29	3,990	-9	0.66
901	-220	-0.64	-1.36	36	5,658	-19	0.34
Solvency				Profitability			
Leverage Ratio ^a	Percent Equity	Debt/Asset Ratio		Percent Rate of Return with appreciation on:			
		Current & Intermediate	Long Term	Equity	Investment ^b		
0.03	97%	0.04	0.00	64%	11%		
0.15	87	0.15	0.00	8	7		
0.28	78	0.24	0.03	5	5		
0.38	73	0.32	0.16	2	3		
0.52	66	0.37	0.25	0	2		
0.69	60	0.42	0.33	-2	1		
0.89	53	0.49	0.41	-4	-1		
1.17	46	0.57	0.54	-7	-3		
1.53	40	0.65	0.70	-13	-5		
9.33	25	0.90	1.02	-37	-10		
Efficiency (Capital)							
Asset Turnover (ratio)	Real Estate Investment Per Cow	Machinery Investment Per Cow	Total Farm Assets Per Cow	Change in Net Worth w/Appreciation	Farm Net Worth, End Year		
.73	\$1,144	\$618	\$4,832	\$264,759	\$3,960,449		
.62	1,935	888	5,717	96,454	2,045,314		
.57	2,234	1,038	6,164	46,852	1,437,846		
.52	2,486	1,194	6,539	21,703	1,156,650		
.48	2,725	1,320	6,871	5,483	965,214		
.45	3,008	1,458	7,454	-5,080	758,914		
.41	3,359	1,651	8,058	-20,508	608,915		
.35	3,850	1,899	8,653	-43,685	459,597		
.31	4,483	2,220	9,564	-80,709	326,039		
.23	7,197	3,171	12,724	-255,995	146,060		
^a Dollars of debt per dollar of equity, computed by dividing total liabilities by total equity.							
^b Return on all farm capital (no deduction for interest paid) divided by total farm assets.							

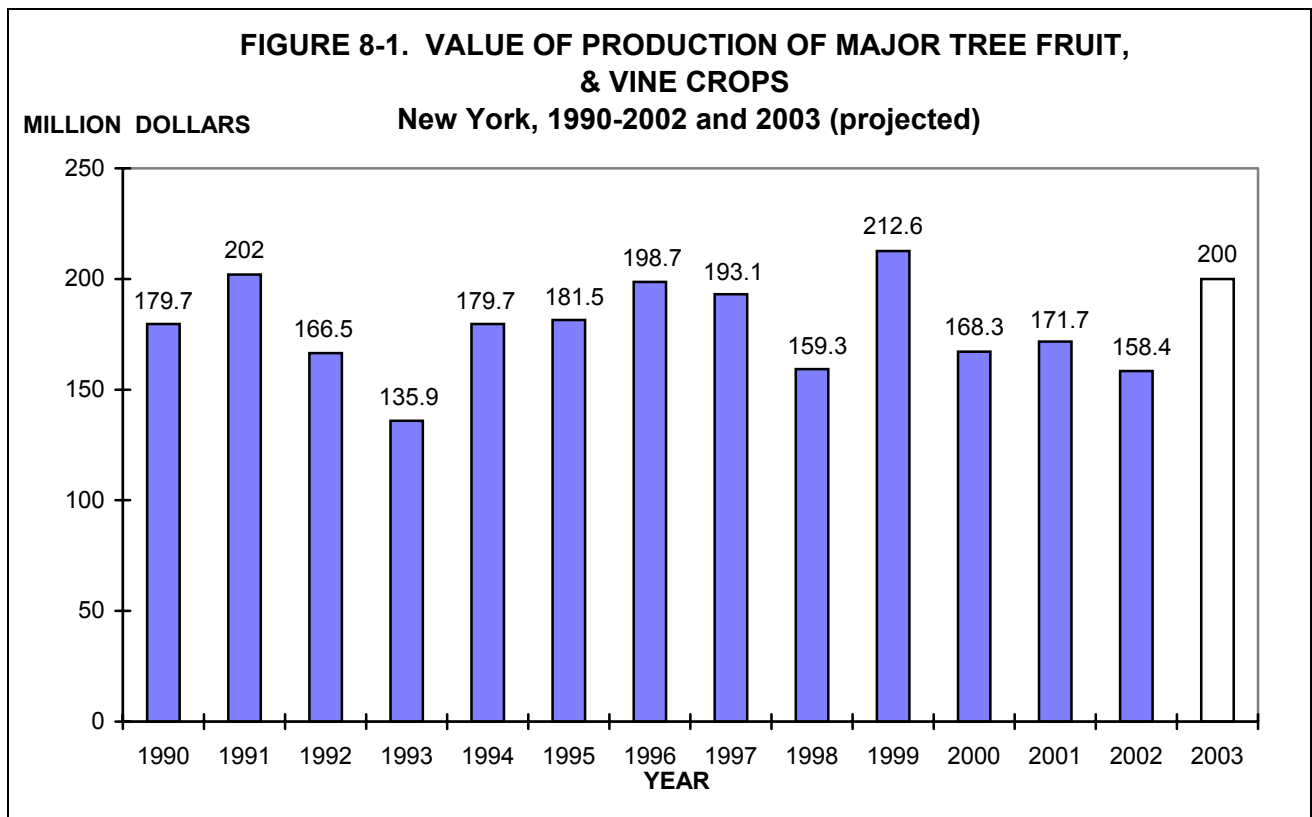
Chapter 8. Fruit

Gerald B. White, Professor

The total production of the six tree and vine crops which are important to New York's agricultural economy was projected to decrease by just one per cent nationally. The national production of apples, tart cherries, pears, and peaches were forecast to increase compared with last year's production, while decreased production was indicated for grapes, and sweet cherries. The national production of apples was forecast at 223 million bushels, a considerable increase of nine per cent above last year's short crop, but 8 percent below the average of the past five years. Grape production was expected to total 6.8 million tons, a decrease of eight percent from last year's crop.

In New York, apple production is indicated to be 28.6 million bushels, a very large crop but fractionally below the huge crop of '99. (Thus one of the largest crops on record follows the smallest crop in about 50 years, in 2002). Indicated production is 20 percent above the average production of the last 5 years. Grape production of 210 thousand tons was estimated, 35 percent above last year's near average crop. Total production of the six major fruit and vine crops of 836 thousand tons is projected for the State, the largest production since 1999, when record production was recorded for both apples and grapes.

The utilized value of the major fruit tree and vine crops in New York since 1990 and the projected value for 2003 is shown below. With much larger than average apple and grape crops, but with lower prices; and with record tart cherry prices, the value of the state's major fruit tree and vine crop is projected at \$200 million, well above last year, but below the record \$213 million realized in '99.



Source: New York Agricultural Statistics, 2002-2003

TABLE 8-1. COMMERCIAL NONCITRUS FRUIT PRODUCTION
New York and United States

Fruit	New York				United States			
	2000	2001	2002	2003*	2000	2001	2002	2003*
----- thousand tons -----								
Apples	498	500	340	600	5,292	4,714	4,278	4,676
Grapes	154	149	156	210	7,688	6,570	7,364	6,752
Tart Cherries	8	7	6	4	144	185	31	109
Pears	15	11	10	15	967	1002	868	933
Peaches	6	6	5	6	1,290	1,217	1,288	1,312
Sweet Cherries	1	1	0	1	208	230	181	106
Total New York's Major Fruit Crops	682	674	517	836	15,589	13,918	14,010	13,888

*indicated

TABLE 8-2. AVERAGE FARM PRICES OF NONCITRUS FRUITS
New York and United States

Fruit	New York				United States			
	1999	2000	2001	2002	1999	2000	2001	2002
----- dollars per ton -----								
Apples								
Fresh	330	340	368	500	426	356	458	514
Processed	134	130	133	153	128	101	108	126
All Sales*	228	234	238	324	300	256	316	374
Grapes	286	298	320	307	469	403	447	388
Tart Cherries	314	360	392	1012	436	374	372	896
Pears	388	353	401	374	294	264	264	295
Peaches	908	800	622	476	380	388	422	408
Sweet Cherries	1,490	1,370	1,530	1,730	1,100	1,340	1,230	1,550

TABLE 8-3. VALUE OF UTILIZED PRODUCTION, NONCITRUS FRUITS
New York and United States

Fruit	New York				United States			
	1999	2000	2001	2002	1999	2000	2001	2002
----- million dollars -----								
Apples								
Fresh	97.4	78.2	77.3	77.5	1,278	1,116	1,252	1,380
Processed	42.9	30.9	34.6	24.5	286	205	201	191
All Sales*	140.2	109.1	111.9	102.0	1,564	1,321	1,453	1,571
Grapes	58.4	45.9	47.7	47.6	2,927	3,098	2,934	2,853
Tart Cherries	2.7	3.5	2.8	6.4	56	52	57	28
Pears	4.4	4.6	4.0	3.7	298	250	254	256
Peaches	5.5	4.5	3.7	2.4	463	482	493	504
Sweet Cherries	1.5	1.2	1.6	.6	235	275	271	274
Total New York's Major Fruit Crops*	212.8	168.8	171.7	162.7	5,543	5,478	5,462	5,486

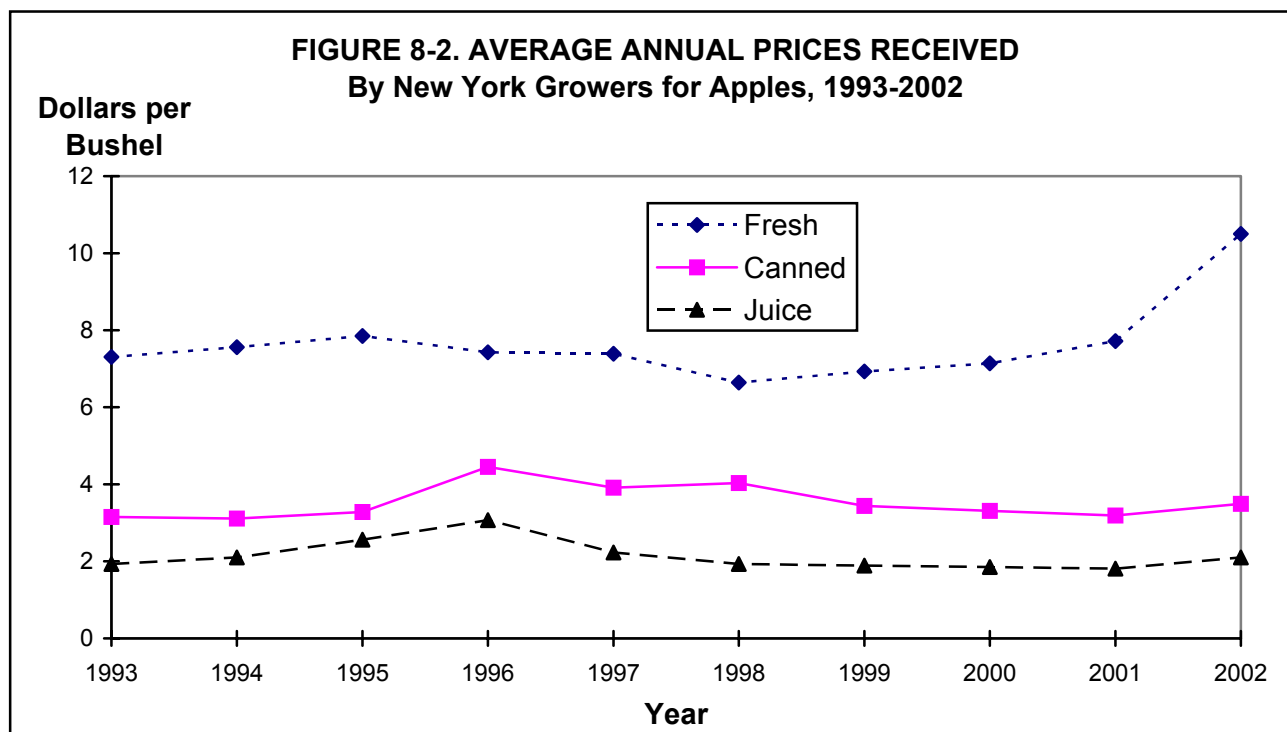
*May not add from total of fresh and processed due to rounding errors. Source: NASS, USDA, Noncitrus Fruits and Nuts 2002 Summary, July 2003.

**TABLE 8-4. APPLE PRODUCTION, UNITED STATES,
1998-2002, Five-Year Average Production, and 2003 Forecast
1,000 42-Pound Bushels**

States/Regions	5-Year Average 1998-2002*	2002*	2003 USDA Estimate**	2003 Compared to USDA 5-Year Average % Change	2003 vs. 2002 % Change
Maine	1,195	1,155	1,095	-8.4	-5.2
New Hampshire	729	631	810	11.1	28.3
Vermont	979	738	917	-6.3	24.2
Massachusetts	1,043	786	1,095	5.0	39.4
Rhode Island	61	62	79	27.9	26.9
Connecticut	445	286	512	15.0	79.2
New York	23,833	16,190	28,571	19.9	76.5
New Jersey	1,167	833	1,071	-8.2	28.6
Pennsylvania	10,595	8,810	10,476	-1.1	18.9
Maryland	853	762	881	3.3	15.6
Virginia	7,238	5,952	7,143	-1.3	20.0
West Virginia	2,548	2,262	2,143	-15.9	-5.3
North Carolina	3,986	3,810	3,095	-22.3	-18.8
South Carolina	533	214	143	-73.2	-33.3
Georgia	267	238	262	-1.8	10.0
Total East	55,471	42,729	58,293	5.1	36.4
Ohio	2,090	1,667	2,048	-2.1	22.9
Indiana	1,201	952	1,214	1.1	27.5
Illinois	1,105	1,024	1,000	-9.5	-2.3
Michigan	21,095	11,905	23,571	11.7	98.0
Wisconsin	1,640	1,381	1,643	0.1	19.0
Minnesota	561	595	619	10.4	4.0
Iowa	212	202	231	9.0	14.1
Missouri	952	905	810	-15.0	-10.5
Kansas	93	88	98	5.1	10.8
Kentucky	192	133	200	4.0	50.0
Tennessee	224	155	214	-4.3	38.5
Arkansas	129	107	131	1.5	22.2
Total Central	24,496	19,114	31,779	7.7	66.3
Total East & Central	84,968	61,843	90,071	6.0	45.6
Colorado	700	500	500	-28.6	0.0
New Mexico	124	48	NA	NA	NA
Utah	667	167	714	7.1	328.6
Idaho	2,500	1,905	2,024	-19.0	6.3
Washington	132,381	122,619	114,286	-13.7	-6.8
Oregon	4,005	4,810	2,857	-28.7	-40.6
California	16,171	11,190	12,143	-24.9	8.5
Arizona	985	624	62	-93.7	-90.1
Total West	157,533	141,862	132,586	-15.8	-6.5
TOTAL U.S.	242,500	203,705	222,657	-8.2	9.3
TOTAL NORTHEAST	43,448	32,514	47,650	9.7	46.6

*2002 and 5-year average production from NASS, USDA, Non-Citrus Fruits and Nuts Summary July 2003.

**NASS, USDA, Crop Production, October 10, 2003.



Source: New York Agricultural Statistics, 2002-2003.

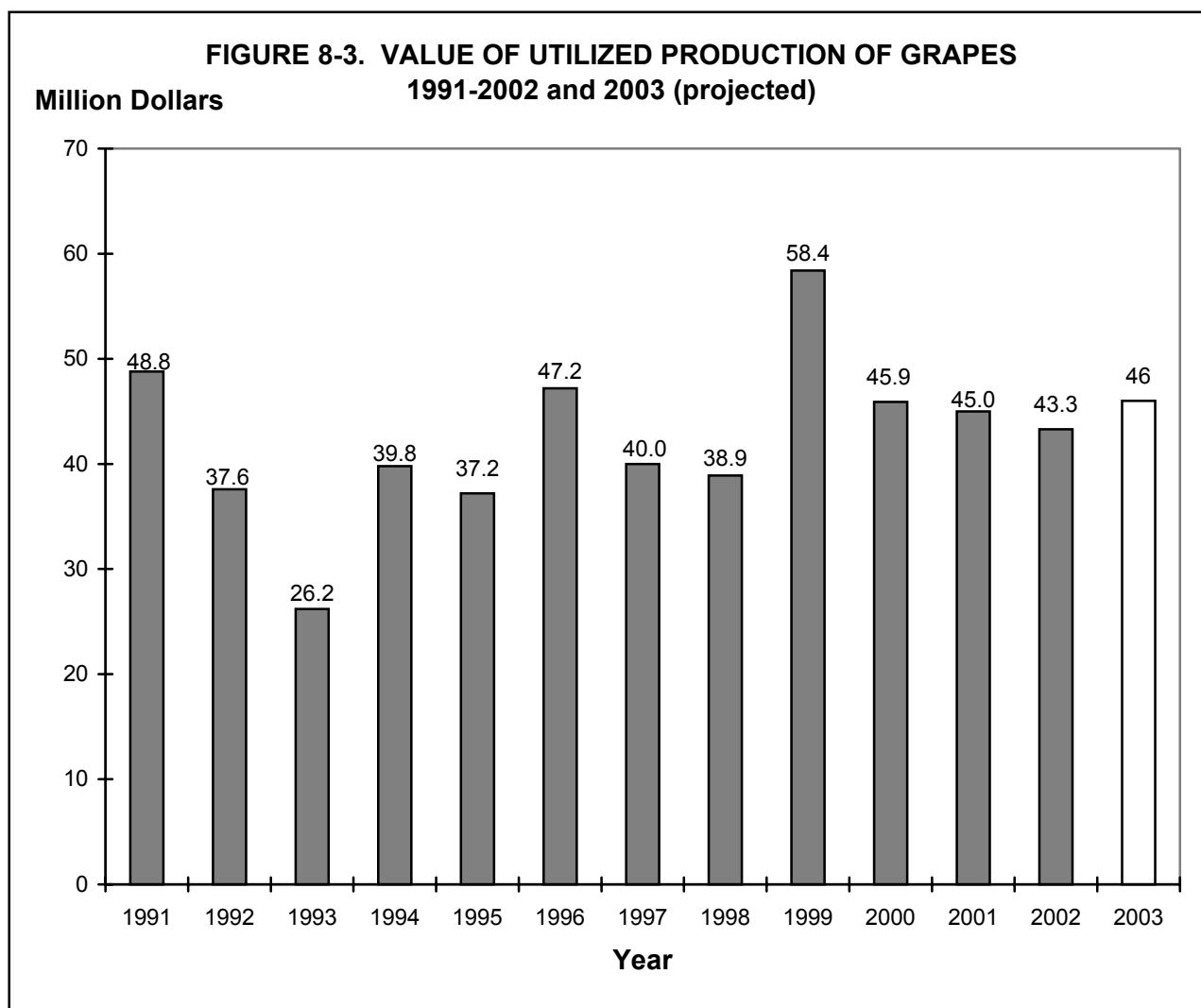
Over the past decade until 1996, prices for processed apples were fairly constant. In 1996, prices for canned and juice apples increased dramatically while the price for fresh apples decreased. The value of the 1996 apple crop was 138.9 million dollars, buoyed by record prices for processed fruit. Since 1996, processing prices steadily declined; however, in 1999, the largest crop since 1926 pushed up the crop value to \$140.2 million, despite soft prices. In 2002, the lowest production in 50 years pushed down the value of the state's apple crop to 102 million, despite record prices for fresh apples and improved processing prices.

In October 2003, the average price for fresh apples in New York State was well below last year, although export prices were higher (in US dollars) due to the recent weakening of the US currency. Apple production in the European Union is down about three percent from last year, down notably in large producing EU countries, Italy, and France. Washington state's short crop (down seven percent from 2002 and 14 percent below the five year average) and the relatively weak US dollar in relation to the British pound are potential favorable factors for NY apple prices. However there is a cloud hanging over export potential as the EU threatens retaliation on the US for imposition of tariffs on steel. The EU is considering a 15 percent tariff on apples and other products, a retaliatory action that could occur in mid-December. If the dispute were successfully resolved, exports of New York apples would surely exceed last year's 541 million bushels exported from the 2002 crop (which was the weakest performance in over 10 years due to the short crop and the strong dollar). For the entire season, New York's average price for fresh apples will probably average about 17 cents per pound, well below last year's record price of 25 cents.

Announced processing apple prices in 2003 were down slightly for peelers above 2 and 1/2 inches (but up for smaller peelers); however out-of-state buyers were quite active, and processing prices have been amazingly strong, given the state's big crop. Juice prices were 4 to 5 cents per pound, below last year's price. Revenue will be much improved for growers in the Hudson Valley, even with lower prices, because of a large crop, good packouts, and high quality fruit. Revenue should also be somewhat improved for the Champlain Valley and Western New York growers. The state's apple crop should reach a value of \$138 million, well above the \$102 million realized in 2002. (The assistance of Alison DeMarree, Area Specialist, Cornell Cooperative Extension, is acknowledged for this section of the handbook.)

Grapes

The New York grape crop this year is projected to be 210,000 tons, about 33 percent above the average of the last five years, and, if realized, a record crop. However, a difficult harvesting period, with cool, wet weather and slow ripening meant that considerable acreage was unharvested, and thus utilized grapes will be well below the production estimate. Market conditions were generally unfavorable for both juice and wine grape growers. When the final crop value estimate is available, it will likely show a crop value of \$46 million, up six percent from last year due to considerably higher production, but well below the record value of \$59.2 million realized in 1999.

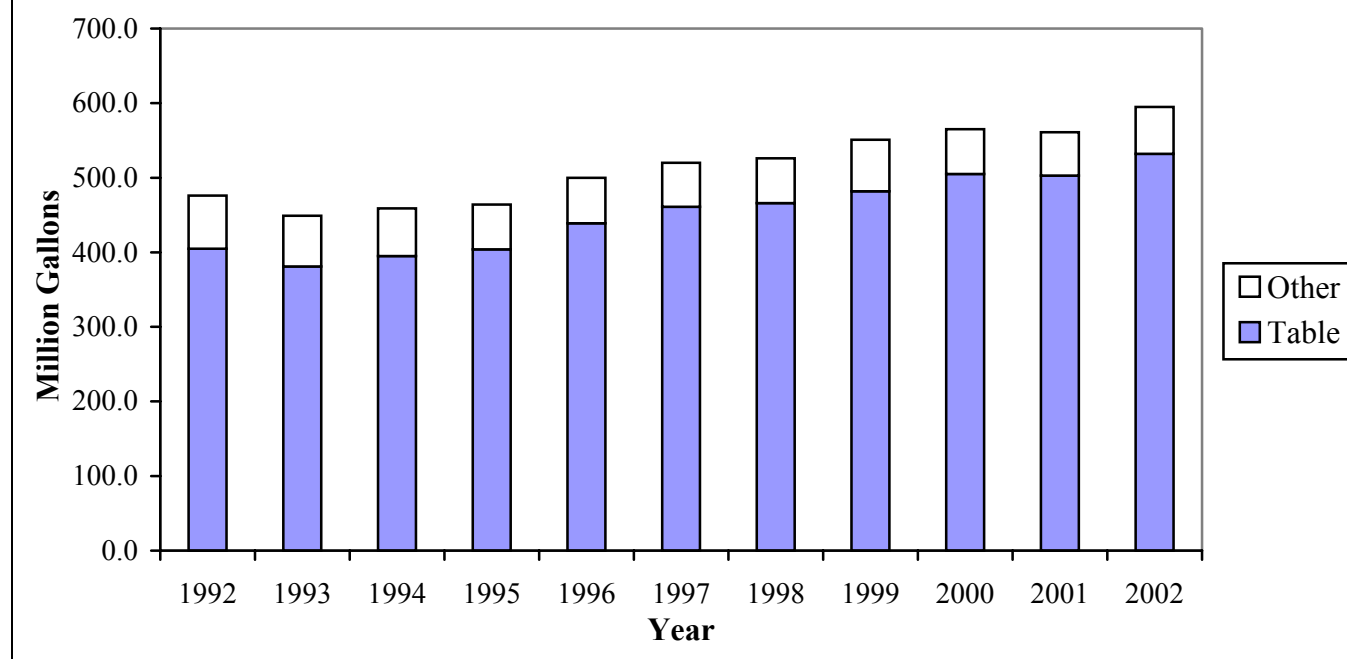


Source: New York Agricultural Statistics, 2002-2003.

Performance in the US wine market is being driven by increased table wine consumption and the super value wines now available at the retail level (Figure 1). From 1995 to 2001, wine consumption grew at the rate of about 2.5 percent a year. However in 2002, wine shipment entering US distribution channels increased by a remarkable six percent to a record 595 million gallons, despite the weak economy. Excess supplies of grapes and bulk wine permitted California wineries (which account for two-thirds of the US wine shipments), to improve the quality of their product offering even at lower prices. Shipments in 2003 are likely to increase again by six percent!

To sum up the situation in the US wine market and the near term outlook for the rest of 2003 and 2004, supplies of grapes are plentiful; there is a worldwide excess supply of both grapes and wine that is expected to last for at least a couple of years. Imports, even with the lower value dollar, are increasing. Plentiful supplies led to the development of new “extreme-value” labels, some with innovative packaging of premium varietals. In this pricing environment, wineries and retailers are facing their lowest margins in years. In addition, there is increasing retail power of chains and club stores. The near term outlook is for the most intensely competitive holiday season in years, if not decades. Some analysts expect to see domestic varietal wines selling in the \$4 to \$5 range in the near future in competitive retail markets such as California.

**FIGURE 8-4. TOTAL WINE CONSUMPTION, U.S.
1992-2002**



Source: Wine Institute/Department of Commerce/Gomberg, Fredrickson and Associates

Concords are the predominant variety grown and processed in New York. There were 107,770 tons of Concords from New York processed in 2002, similar to the previous year, but 47 percent below the record crop of '99. Over the past five years, Concords have comprised 73 percent of total tonnage utilized. The second leading variety is Niagara with 9.8 percent of tonnage followed by Catawba with 4.7 percent. *Vinifera*, with an average of just 4,349 tons utilized, accounted for just 2.8 percent of the NY crush over the last five years.

The average price for French-American hybrids such as Aurore, de Chaunac, and Cayuga White has been flat to declining in recent years except for Seyval, which increased dramatically last year. Native American varieties used for juice (i.e. Concord and Niagara) were in a cycle of relatively high prices until 2002, while American varieties used primarily in wine (such as Catawba and Elvira) were sold at somewhat lower prices. This year, for growers selling to large wineries, prices for grapes on contract ranged from slightly higher to slightly lower than last year, depending upon the variety. Canandaigua Wine Company, the major buyer of wine grapes in New York, listed a \$5 per ton increase for Aurore, Catawba (early or low brix), and Elvira. A \$10 increase was listed for other Catawba grapes. A \$5 decrease was listed for Concord. Canandaigua did not list prices for hybrids. There was an announcement of a cutback in contracted tonnage

**TABLE 8-5. GRAPES: NEW YORK GROWN
Received By Wineries and Processing Plants, 1998-2002**

Variety	1998	1999	2000	2001	2002	5-Year Avg.
----- tons -----						
Concord	89,400	154,500	113,300	107,200	107,770	114,434
Niagara	10,000	17,200	13,900	15,100	18,880	15,016
Catawba	6,090	9,600	6,400	7,760	6,680	7,306
Elvira	3,080	4,540	3,660	3,950	4,200	3,886
Delaware	550	1,180	630	550	820	746
Ives	115	210	140	150	165	156
Aurora	4,080	4,240	4,060	2,880	4,100	3,872
de Chaunac	710	940	670	850	590	752
Baco Noir	890	730	720	990	930	852
Seyval Blanc	650	850	550	610	590	650
Cayuga White	840	860	740	670	830	788
Rougeon	420	660	540	680	625	585
Vitis Vin.(all)	4,015	4,030	4,670	4,410	4,620	4,349
Other varieties	2,160	2,460	2,020	2,200	2,200	2,208
Total, all varieties	123,000	202,000	152,000	148,000	153,000	156,250

SOURCE: New York Agricultural Statistics, 2002-2003.

**TABLE 8-6. GRAPES: PRICES PAID FOR NEW YORK GROWN GRAPES PROCESSED
1998-2002**

Variety	1998	1999	2000	2001	2002	5-Year Avg.
<u>American Varieties</u>						
Catawba	245	243	246	252	237	245
Concord	276	261*	263*	264	233	259
Delaware	270	279	272	259	284	273
Elvira	240	238	244	250	259	246
Ives	370	384	385	381	302	364
Niagara	265	271*	248*	240	246	254
<u>French American Hybrid</u>						
Aurore	245	248	240	244	245	244
Baco Noir	395	409	405	442	362	403
Cayuga White	390	401	412	398	415	403
de Chaunac	375	285	391	375	321	349
Rougeon	380	404	384	382	315	373
Seyval Blanc	360	346	392	377	533	402
<u>Vitis Vinifera</u>						
All varieties	1,230	1,290	1,310	1,316	1,454	1,320
TOTAL	308	283	295	298	272	291

*Preliminary estimates of future payments by cooperatives have been included based upon historical data.
SOURCE: Fruit, 975-2-03 NY Agricultural Statistics Service.

of 15 percent, and the company did not purchase DeChaunac as they had in the past. The overall average price for native varieties (used for wine) and hybrids, when weighted by volume of purchases, will be slightly lower than last year. An increase in non contracted tonnage will impact certain varieties even further.

Vitis Vinifera prices are heavily influenced by Riesling and Chardonnay, which are harvested in larger quantities than other *vinifera* varieties. Prices offered by Finger Lakes wineries for *vinifera* grapes were slightly lower than last year for red varieties (for the second year in a row), with price decreases for Cabernet Franc (down four percent) and Cabernet Sauvignon (down three percent). The additional plantings of red varieties in recent years are now bearing crops so that the tonnage produced has caught up with demand. Whereas three years ago, a few wineries had small quantities of cases of Cabernet Franc available, now many wineries have more product available on the shelves, and there are plentiful Cabernet Franc grapes available to meet the current demand. Price offerings for white varieties increased with Chardonnay and Riesling both showing increases in the average price offering. The average prices for all *vinifera* in the state of New York will probably increase slightly with price gains for white varieties offsetting decreases for red varieties for the 2003 crop year.

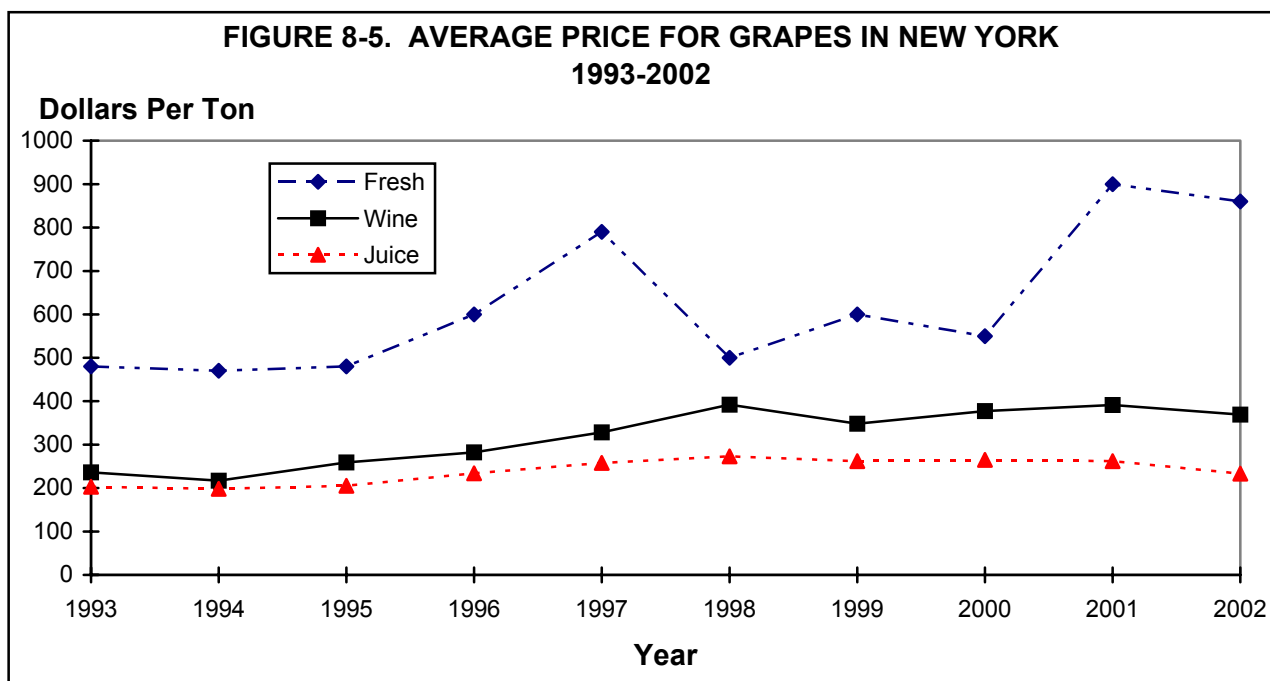
Small wineries in the Finger Lakes with quality wines and good marketing skills experienced declining sales or, at best, no growth in retail sales for the first half of the current year. Winery visitation leveled off and in some areas decreased slightly. Beginning the second half of '03, both sales and visitation increased modestly. Many wineries expect slightly increased dollars spent per visitor for the entire '03 fiscal year. Nevertheless, this was a substantial change for these wineries that had been experiencing growth in retail sales of five to ten per cent a year for the last several years.

Finger Lakes wineries' management should not be complacent with their reliance on direct marketing and a solidifying tourist based market. The slowdown in sales growth that many wineries experienced this year may signal something more fundamental that will last even after the economy improves. The new "extreme-value" category offers new threats and opportunities for the area's wineries!

The national crop of Concord and Niagara grapes was one of the largest on record. Eastern US production recovered from last year's freeze damaged crop; Michigan's production increased about 87 percent, while Pennsylvania's production increased 32 percent. New York production was forecast to be a record. The record sized crop, combined with poor weather, resulted in low sugar, reducing the effective price for juice grapes considerably.

National Grape Cooperative processes about 40 per cent of the total NY grape crop and about two thirds of the US Concord crop. Favorable publicity about the health benefits of grape juice has enhanced demand for Concord grapes. The Cooperative's international operations are strong, contributing about \$57 million to net sales, out of a total of \$553 million in 2002. Excluding sales to Puerto Rico, foreign trade amounts to \$22 million for the cooperative, or about \$450 per patron acre. In FY 2003, international sales grew on a case basis by 34 percent, with steady progress in the UK, and starting local production in South Korea. A major challenge in the coming year will be to manage the low sugar crop in a market in which the Cooperative has achieved demand momentum through its premium brand image. Earnings from the 2003 crop for juice grape growers will likely decline again as cash prices have decreased the last couple of years. Grapes left on the vine will hurt yields, income, and profits in 2003 for juice grape growers.

(The assistance of Barry Shaffer and Tim Martinson, area Extension Educators in the Lake Erie region and the Finger Lakes region, is acknowledged for this section of the handbook.)



Source: New York State Agricultural Statistics, 2002-2003.

Chapter 9. Vegetables

Wen-fei L. Uva, Senior Extension Associate

The value of New York vegetable production (including principal vegetables for fresh and processing markets, potatoes, and dry beans) in 2002 totaled \$384 million (Figure 9-1). In 2002, a wet spring delayed planting preparations. By mid-summer, hot, dry weather prevailed, and irrigation was needed in many cases. Many crops which were delayed in development in the spring were catching up by mid-July. Moreover, the drought condition during much of the summer prevented some producers from planting all the acreage that they had earlier intended to plant, and yield also suffered.

New York ranked sixth in the nation for the value of principal fresh market vegetable production and ninth for the value of principal processed vegetable production in 2002. The value of New York's principal fresh market vegetables totaled \$291 million this year, and fresh market production in 2002 was estimated at 13.8 million hundredweight (cwt.). Principal processing vegetables were valued at \$25.5 million in 2002 and production totaled 175 thousand tons. It should be noted that four of the six crops that were added to New York Agricultural Statistics Service's fresh market vegetable program in 2000 were discontinued in 2002 - bell peppers, eggplant, escarole/endive, and spinach. Also, in 2002 estimates of cabbage for kraut were discontinued, and estimates of processed sweet corn were not available. Therefore, aggregate commodity estimates for 2002 are not comparable with estimates for the previous two years. Sweet corn, potatoes, cabbages, snap beans, and onions were the top five vegetable crops produced in New York in 2002.

Table 9-1 compares production value per acre for selected principal vegetable crops produced in New York from 2000 to 2002. Tomatoes generated the highest per acre value (\$8,889) in three consecutive years. The value per acre for sweet corn, squash, fall potatoes and dry beans increased 28 percent, 20 percent, 19 percent, and 38 percent, respectively, in 2002 from a year before. In contrast, the per acre value of fresh market cabbage, onions, and processed green peas in 2002 fell 32 percent, 20 percent, and 26 percent, respectively, from 2001.

Tables 9-2 to 9-4 show production values, production levels, and average farm prices for major vegetable crops produced in New York from 2000 to 2002 and compare them with U.S. production.

Fresh Market Vegetables

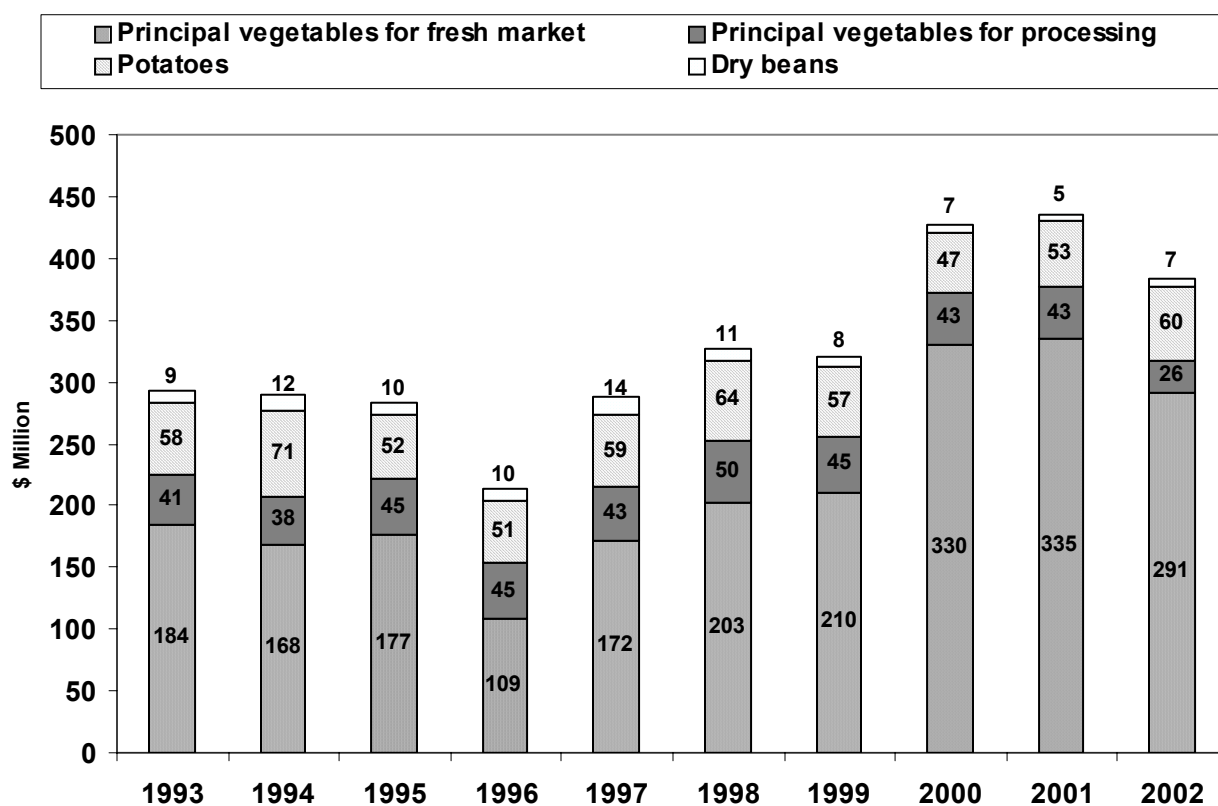
The 2002 value of fresh market vegetable production in New York was about 3 percent of the U.S. total, down from 6 percent in 2001. The only three crops that had increases in production value in New York between 2001 and 2002 were squash (up 27 percent), sweet corn (up 22 percent), and tomatoes (up 12 percent). Among fresh market vegetables produced in the U.S., squash, cucumbers, onions, and pumpkins had the highest percentage increase in production value between 2001 and 2002.

Fresh market sweet corn acreage in New York was down this year. A total of 31,800 acres were harvested, a 5 percent decrease from last year. Average yield was 110 cwt. per acre. Total value was \$83.6 million, up 22 percent from last year due to higher prices. Due to lower prices and yield, the value of fresh market cabbage production in 2002 was \$48.6 million, down 42 percent from the 2001 value of \$83.5 million. Fresh market cabbage production was estimated at 4.13 million cwt., down 25 percent from 2001. New York ranked second in the nation for fresh market cabbage production in 2002. The value of the 2002 New York fresh market snap bean crop was second highest in the nation at \$37.8 million. Total production

was 561,000 cwt., down 12 percent from last year due to less acres harvested and lower yields. Pumpkins produced in New York had a value of \$23.8 million, the highest value in the nation in 2002.

While the 2002 value of U.S onion production increased 9 percent from 2001, the value of onion production in New York decreased 23 percent from 2001, to \$28 million. Onion yields in New York in 2002 were 210 cwt. per acre, 57 percent lower than 2001, and production is estimated at 2.58 million cwt., a 39 percent decrease from 2001.

FIGURE 9-1. VALUE OF PRODUCTION OF PRINCIPAL VEGETABLES FOR FRESH MARKET^a AND PROCESSING, POTATOES, AND DRY BEANS, NEW YORK, 1993-2002



^a The total 2002 figure for principal vegetables for fresh market is not comparable to 2000 and 2001 figures because estimates for four of the six crops added to the program in 2000 – bell peppers, eggplant, endive/escarole and spinach – were discontinued in 2002.

Source: New York Agricultural Statistics, 2002-2003.

TABLE 9-1. VALUE PER ACRE OF PRODUCTION FOR SELECTED PRINCIPAL VEGETABLE CROPS IN NEW YORK, 2000-2002				
	2000	2001	2002	Change 2001-2002
<u>Vegetables for Fresh Market</u>		----- dollar /acre-----		%
Sweet corn	2,052	2,047	2,629	28%
Cabbage	6,172	6,048	4,122	-32%
Onion	3,852	2,859	2,276	-20%
Snap beans	4,150	3,526	3,706	5%
Cucumbers	5,334	4,675	4,891	5%
Tomatoes	10,224	9,504	8,889	-6%
Pumpkins	4,620	3,738	3,778	1%
Squash	5,214	3,808	4,585	20%
Cauliflower	4,556	5,375	4,444	-17%
<u>Vegetables for Processing</u>				
Sweet corn	400	404	N/A	N/A
Snap beans	650	516	521	1%
Green peas	411	708	526	-26%
Cabbage for kraut	1,451	1,452	N/A	N/A
<u>Fall Potatoes</u>	2,226	2,270	2,709	19%
<u>Dry Beans</u>	273	215	298	38%

Source: New York Agricultural Statistics, 2002-2003.

Processed Vegetables

The production of New York processing vegetables was valued at about 2 percent of the U.S. total in 2002, a decrease from 3 percent of the U.S. total in 2001. Due to less harvested acreage and significantly lower yield per acre, the value of processed green peas in New York fell 34 percent to \$8.13 million in 2002, and production was down 44 percent to 22,220 tons. Processing snap beans also had a reduction in production value during the same period (down 4 percent). Processors of five major vegetables (tomatoes, sweet corn, snap beans, green peas, and cucumbers for pickles) contracted for 1.28 million acres in the U.S. in 2003, up 1 percent from the comparable producing states of a year ago.

Potatoes

The 2002 value of potato production in New York was \$59.6 million, 13 percent higher than in 2001. The increase in production value is mainly from higher prices. Production totaled 5.5 million cwt., down 7 percent from the 5.94 million cwt. in 2001. Harvested acreage totaled 22,000 acres, down 1,300 acres from 2001. Yields averaged 250 cwt. per acre, down 5 cwt. from a year ago.

Dry Beans

In 2002, production of dry beans in New York totaled 333,000 cwt., up 72 percent from 2001. Acres harvested totaled 24,500 acres, up 10 percent from 2001. The average yield was 1,360 pounds per acre, up 490 pounds from 2001. The 2002 dry bean production in New York was valued at \$7.29 million, up 52 percent from 2001. Production is expected to decline in all major production states in 2003. Production is

expected to decrease for most major bean classes, including pinto, navy, black, and dark red kidney, with a few exceptions – Great Northern, small red, light-red kidney, and blackeye beans. Nevertheless, prices are expected to rise for most dry bean classes in 2003.

**TABLE 9-2. VALUE OF PRODUCTION, SELECTED VEGETABLE CROPS
NEW YORK AND UNITED STATES, 2000-2002**

	New York				United States				NY as % of U.S.
	2000	2001	2002	% Change 2001-2002	2000	2001	2002	% Change 2001-2002	2002
	--- (\$ million) ---			%	--- (\$ million) ---			%	%
Vegetables for Fresh Market									
Sweet Corn	56.4	68.4	83.6	22%	480.7	534.6	531.2	-1%	16%
Cabbage	79.6	83.5	48.6	-42%	313.7	340.2	301.5	-11%	16%
Onions	47.4	36.6	28.0	-23%	736.4	698.0	762.7	9%	4%
Snap Beans	31.5	40.2	37.8	-6%	250.8	277.6	282.2	2%	13%
Tomatoes	20.3	20.1	22.5	12%	218.4	210.6	214.3	2%	10%
Pumpkins	30.7	28.5	24.0	-16%	1,159.6	1,080.2	1,171.0	8%	2%
Cucumbers	26.3	23.9	23.8	-1%	83.3	70.9	82.7	17%	29%
Squash	17.2	14.9	18.8	27%	210.3	173.8	204.3	18%	9%
Cauliflower	4.1	4.3	4.0	-7%	230.5	199.0	174.0	-13%	2%
<i>Total Principal Fresh Market Vegetables^A</i>	330.2	334.6	291.2	N/A	9,160.8	8,967.5	9,281.9	N/A	3%
Vegetables for Processing									
Sweet Corn	11.6	11.8	N/A	N/A	231.6	229.2	210.3	-8%	N/A
Snap Beans	17.2	11.5	11.1	-4%	142.5	112.1	126.8	13%	9%
Green Peas	6.7	12.3	8.1	-34%	131.7	103.2	87.5	-15%	9%
Cabbage for Kraut	4.1	3.8	N/A	N/A	9.9	8.5	N/A	N/A	N/A
<i>Total Principal Processing Vegetables^A</i>	42.6	42.5	25.5	N/A	1,415.1	1,256.0	1,346.9	N/A	2%
Potatoes	47.4	52.9	59.6	13%	2,591.1	3,057.6	3,151.2	3%	2%
Dry Beans	6.7	4.8	7.3	52%	414.0	426.5	519.6	22%	1%

^A Totals include additional principal crops not listed.

Source: NASS, USDA, Agricultural Statistics 2003, Vegetables and Melons.
New York Agricultural Statistics, 2002-2003.

**TABLE 9-3. PRODUCTION OF SELECTED VEGETABLE CROPS
NEW YORK AND UNITED STATES, 2000-2002**

	New York				United States				NY as % of U.S.
	2000	2001	2002	% Change 2001-2002	2000	2001	2002	% Change 2001-2002	2002
	--- (Million cwt) ---			%	--- (Million cwt) ---			%	%
Vegetables for Fresh Market									
Sweet Corn	2.6	3.8	3.5	-9%	26.4	27.4	26.4	-3%	13%
Cabbage	5.7	5.5	4.1	-25%	26.0	26.1	24.4	-6%	17%
Onions	4.7	4.2	2.6	-39%	71.7	67.7	67.4	0%	4%
Snap Beans	0.5	0.6	0.6	-12%	5.9	6.2	6.0	-3%	9%
Cucumbers	0.8	0.7	0.8	13%	11.0	10.8	11.4	6%	7%
Tomatoes	0.5	0.5	0.4	-21%	37.7	35.5	37.3	5%	1%
Pumpkins	1.1	1.3	1.1	-20%	8.9	8.1	7.9	-2%	14%
Squash	0.7	0.6	0.7	12%	8.8	7.8	8.6	11%	8%
Cauliflower	0.1	0.1	0.1	-20%	8.0	7.0	6.4	-8%	1%
<i>Total Principal Fresh Market Vegetables^A</i>	17.2	17.9	13.8	-23%	479.3	472.3	456.6	-3%	3%
Vegetables for Processing									
	--- (1,000 tons) ---			%	--- (1,000 tons) ---			%	%
Sweet Corn	155	161	-	-	3,156	3,143	-	-	-
Snap Beans	89	66	64	-4%	833	695	831	20%	8%
Green Peas	33	39	22	-44%	530	390	347	-11%	6%
Cabbage for Kraut	76	73	-	-	208	174	-	-	-
<i>Total Principal Processing Vegetables^A</i>	389	377	175	-54%	17,026	14,991	17,117	14%	1%
	--- (1,000 cwt) ---			%	--- (1,000 cwt) ---			%	%
Fall Potatoes	5,964	5,942	5,500	-7%	467,504	393,750	417,228	6%	1%
Dry Beans	358	194	333	72%	26,409	19,583	29,974	53%	1%

^A Totals include additional principal crops not listed.

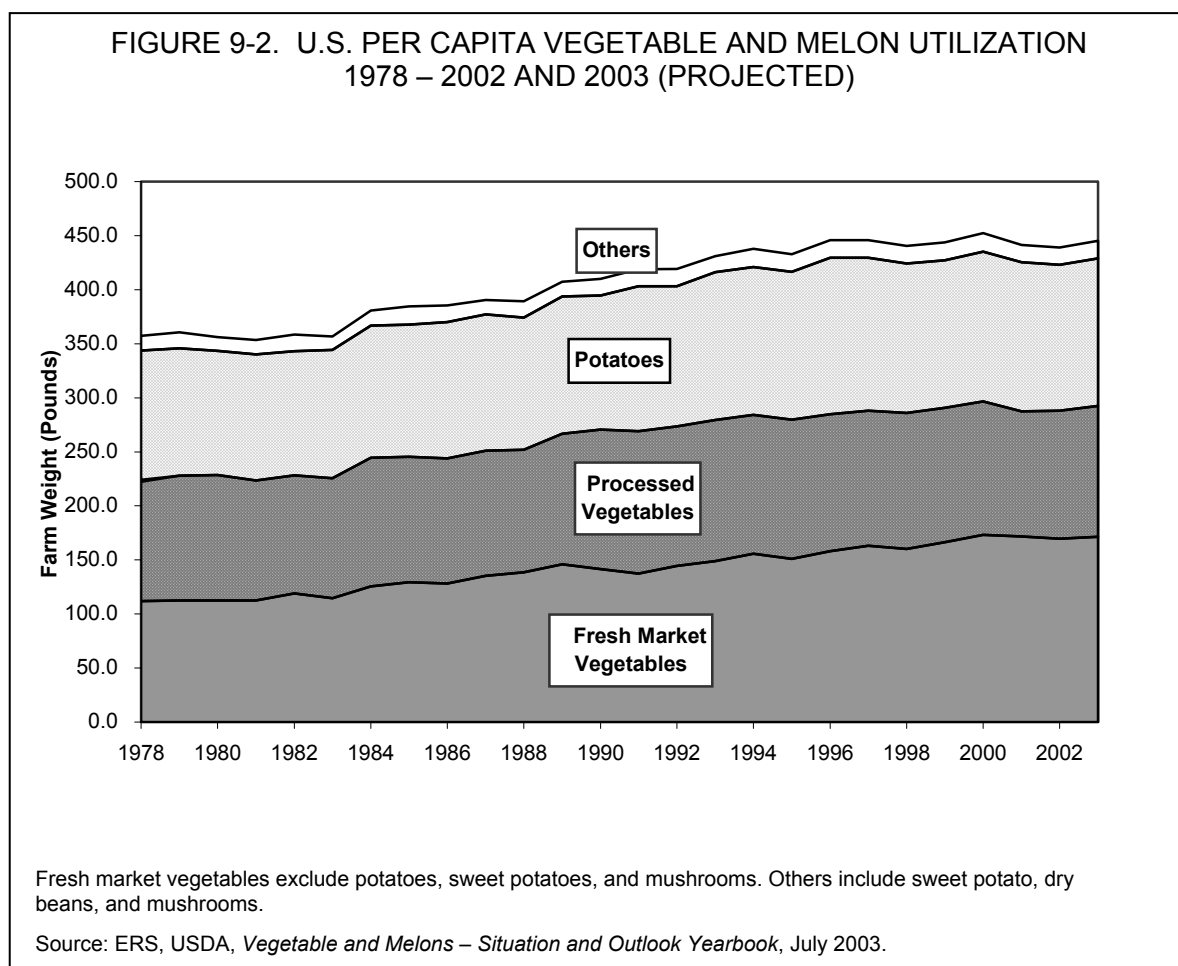
Source: NASS, USDA, Agricultural Statistics 2003, Vegetables and Melons.
New York Agricultural Statistics, 2002-2003.

TABLE 9-4. AVERAGE FARM PRICES OF MAJOR VEGETABLE CROPS NEW YORK AND UNITED STATES, 2000-2002								
	New York				United States			
	2000	2001	2002	% Change 2001-2002	2000	2001	2002	% Change 2001-2002
	--- (\$/cwt) ---			%	--- (\$/cwt) ---			%
<u>Vegetables for Fresh Market</u>								
Sweet Corn	21.6	17.8	23.9	34%	18.2	19.5	20.1	3%
Cabbage	15.5	16.8	13.1	-22%	12.3	13.3	12.6	-5%
Onion	13.5	9.7	12.2	26%	11.3	11.4	11.7	3%
Snap Beans	61.0	63.0	67.0	6%	42.6	45.1	47.4	5%
Cucumbers	25.4	27.5	27.2	-1%	19.9	19.6	18.8	-4%
Tomatoes	56.8	59.4	63.5	7%	30.7	30.4	31.4	3%
Pumpkins	23.1	17.8	22.2	25%	9.3	8.8	10.5	20%
Squash	23.7	23.8	27.0	13%	23.9	22.3	23.7	6%
Cauliflower	38.0	39.6	44.1	11%	31.3	28.4	32.3	14%
	--- (\$/ton) ---			%	--- (\$/ton) ---			%
<u>Vegetables for Processing</u>								
Sweet Corn	75.0	73.7	-	-	73.4	72.9	68.2	-6%
Snap Beans	193.0	174.0	175.0	1%	171.0	161.0	152.0	-6%
Green Peas	204.0	312.0	366.0	17%	248.0	264.0	252.0	-5%
Cabbage for Kraut	53.4	51.5	-	-	47.4	48.7	-	-
	--- (\$/cwt) ---			%	--- (\$/cwt) ---			%
Fall Potatoes	8.7	9.9	11.7	18%	5.3	4.6	-	-
Dry Beans	18.8	24.7	21.9	-11%	15.5	22.1	17.0	-23%

Source: NASS, USDA, Agricultural Statistics 2003, Vegetables and Melons.
New York Agricultural Statistics, 2002-2003.

Consumption

In 2002, per capita use of all vegetables and melons fell about 2 pounds to 439 pounds as lower fresh market vegetable and potato consumption outweighed increased canning and freezing use (Figure 9-2). Despite the decline in total fresh-market use in 2002, fresh-market tomatoes reached a record-high 18.3 pounds per person, and cucumber and onion use were the second highest on record. In 2003, per capita consumption of all vegetables and melons is expected to increase 1 percent to 445 pounds — up about 6 pounds from 2002. Increases are expected to be spread across fresh and processing items, led by potatoes, tomatoes, and sweet corn.



Per capita use of fresh market vegetables (excluding melons, potatoes, sweet potatoes, and mushrooms) declined 1 percent to 142 pounds in 2002 (Table 9-5). Including potatoes, sweet potatoes, and mushrooms, fresh market vegetable consumption totaled about 221 pounds — down 2 percent from a year earlier. Much of this decline likely reflected the soft general economy and corresponding weakness in the food service sector.

Declining fresh use in 2002 was largely centered in leafy green vegetables such as lettuces, cabbages, and broccoli, which suffered from inclement weather and reduced output during the first 3 months.

One exception was spinach consumption up 29 percent from 2001 to 1.5 pounds, the second highest over the past 50 years. Aside from the leafy vegetables, the only other major fresh market vegetables to suffer reductions in per capita use in 2002 were carrots and sweet corn. On the plus side, several key vegetables registered gains in per capita use in 2002, including tomatoes, cucumbers, onions, bell peppers, and asparagus. Asparagus imports outweighed reduced domestic production and expanded off-season consumption. In 2003, per capita consumption was projected to recover to its 2001 level.

TABLE 9- 5. U.S. PER CAPITA UTILIZATION OF SELECTED FRESH MARKET VEGETABLES

Item	Average 1996-2000	2001	2002	2003 ^b
---- Pounds/ person ----				
Lettuce, all	30.0	31.8	30.7	30.9
Iceberg/head	22.9	23.5	22.4	22.3
Leaf /romaine	7.1	8.3	8.3	8.7
Tomatoes	17.4	17.4	18.3	18.6
Onions	18.4	17.8	18.5	17.4
Carrots	12.1	10.6	9.5	9.5
Sweet Corn	8.9	9.4	8.9	9.4
Cabbage	8.5	9.0	8.4	8.6
Bell Peppers	6.7	6.7	7	7.1
Cucumbers	6.4	6.4	6.7	6.7
Broccoli	5.4	5.6	5	5.5
Squash	4.1	4.2	4.4	4.4
Snap Beans	1.7	2.2	2.1	2.1
Cauliflower	1.8	1.6	1.5	1.7
Spinach	1.1	1.2	1.5	1.6
Asparagus	0.8	0.9	1.0	1.0
Total ^a	136.1	143.4	142.0	143.4

^a Total excludes melons, potatoes, sweet potatoes, and mushrooms.

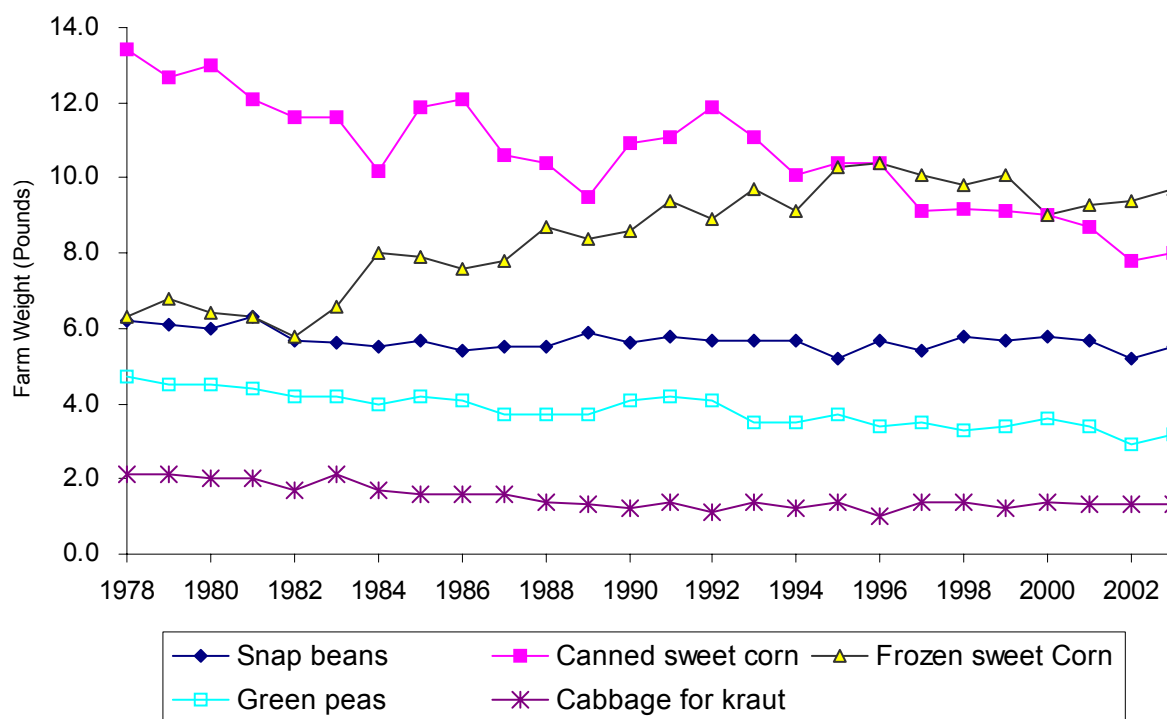
^b 2003 figures are projected estimates.

Source: ERS, USDA, *Vegetable and Melons Outlook*, June 20, 2003.

Per capita use of processing vegetables (excluding potatoes, sweet potatoes, and mushrooms) increased 3 percent to 118.5 pounds in 2002. On a fresh-equivalent basis, total disappearance of vegetables used in manufacturing frozen, canned, and dehydrated products in 2002 was estimated to be 34.3 billion pounds, up 4 percent from a year earlier. Assuming improvement in the general economy this summer and fall, the outlook for 2003 points to a 2 percent increase in per capita use of processing vegetables to 122 pounds, led by modest gains in tomatoes and sweet corn.

Consumption of freezing vegetables (excluding potatoes) increased 3 percent to 20.9 pounds in 2002, while use of canning vegetables (excluding potatoes) increased 2 percent to 96.4 pounds. Figure 9-3 presents national per capita utilization for some principal vegetables produced in New York State. Frozen sweet corn increased 2 percent in 2002. Canned sweet corn, green peas, and beets continued their long-term decline.

FIGURE 9-3. U.S. PER CAPITA UTILIZATION OF PRINCIPAL NEW YORK PROCESSING VEGETABLES, 1978-2002 AND 2003 (PROJECTED)



Source: USDA, *Vegetable and Specialties – Situation and Outlook Yearbook*, July 2003.

Preliminary estimates indicate that per capita use of fresh and processing potatoes fell 2 percent in calendar 2002 to about 135 pounds, with decreases in both fresh and processing uses (Table 9-6). In 2003, per capita use of potatoes is forecast to reach 136.5 pounds as production increases and prices fall. This is up 1 percent from a year ago, but is 1 percent below 2001 and 2 percent below the 1996-2000 average. Also, per capita consumption of frozen potato products is projected to increase fractionally from 2002 to 57.1 pounds, but still seems to be showing signs of slight downward trend since peaking at 60.2 pounds in 1996. Overall potato consumption has shown a downward trend since 1996 when per capita consumption weighed in at 145 pounds. Reduced potato consumption in recent years could be due to increased competition from other foods, particularly with the rising number of quick and limited-service restaurants offering alternatives to French fries, as well as the increased popularity of reduced-carbohydrate diets.

Per capita use of all dry bean classes rose 3 percent to nearly 7.5 pounds, 1 percent below the average consumption during the 1990s but 22 percent above the average consumption experienced in the 1980s.

TABLE 9-6. U.S. PER CAPITA UTILIZATION OF POTATOES

Item	Average 1996-2000	2001	2002	2003 ^a
---- Pounds, fresh-equivalent ----				
Fresh market	48.1	46.2	45.0	45.8
Processing	91.8	91.6	89.9	90.7
Freezing	58.8	57.9	57.0	57.1
Chipping	15.8	17.6	16.9	16.8
Dehydrating	15.5	14.6	14.5	15.2
Canning	1.7	1.5	1.5	1.6
Total	139.9	137.8	134.9	136.5

^a 2003 estimates are projected figures.

Source: USDA, *Vegetable and Specialties – Situation and Outlook Yearbook*, July 2003.

Organic Vegetables

State and private certifying groups certified organic vegetable crops in 47 states on 71,667 acres in 2001, up 15 percent from 2000 (Table 9-7). About one-third of the acreage was planted to lettuce, tomatoes, and carrots, and the rest was for other vegetable crops and vegetable acreage that could not be classified. California is the biggest organic vegetable producer in the U.S. Nine private certifying organizations certified 40,632 acres of organic vegetables in California in 2001, accounting for 41 percent of certified organic vegetable acreage in the U.S. Washington and Colorado followed with 7,174 and 4,889 certified acres in 2001. Oregon had 2,585 acres, and Arizona, Florida, Nebraska, New York, and Texas also each had over 1,000 acres of certified organic vegetables in 2001.

TABLE 9-7. CERTIFIED ORGANIC VEGETABLE ACERAGE, BY THE TOP STATES
1997, 2000, AND 2001

States	1997	2000	2001
--- Acres---			
California	22,886	35,563	40,632
Washington	3,716	6,957	7,174
Colorado	3,140	3,449	4,889
Oregon	2,345	1,941	2,585
Florida	1,017	2,060	1,928
Arizona	3,081	1,186	1,579
New York	1,615	967	1,465
Texas	264	317	1,254
Nebraska	248	803	1,136
Pennsylvania	1,615	842	925
Vermont	677	765	785
U.S. total	48,227	62,342	71,667

Source: ERS, USDA 2002

Certified organic vegetable acreage accounted for 1.6 percent of the U.S. vegetable acreage in 2001. Over 10 percent of the vegetables grown in Vermont, New Hampshire, Maine, and Colorado, and over 2

percent of the vegetable acreage in Connecticut, Arkansas, Massachusetts, Utah, Washington, California, Oregon, and Pennsylvania was certified organic in 2001. New York had an estimated 1,465 acres of certified organic vegetables in 2001, less than 1 percent of the total vegetable acreage.

Industry Outlook

Heavy rainfall in May 2003 on the East Coast caused planting delays of about 10 days. Despite the weather, acreage and prices are comparable to years past. On the bigger picture, U.S. markets for fruits and vegetables have been transformed in the past decade. Consumers are purchasing more produce, more exotic varieties, and more convenient portions and packaging. The implications of consumer demand filter through the market. Imports' roles in consumer diets continue to grow, and more market innovations are happening throughout the supply chain.

- ***Eating Healthy and Having Fun***

Consumers want to eat more healthy, convenient, flavorful, and fun food. In restaurants, demand for entrée salads is up 6.7 percent according to a 2002 report by the Chain Account Menu Survey. Casual gourmet restaurants are driving salad sales by adding things like grapes, cranberries, pears, mixed greens, and nuts to the usual mix. Applebee's International, Inc. entered a 5-year partnership with Weight Watchers International, Inc. to slim down its menu at its 1,500 restaurants. Red potatoes, sun-dried tomatoes, mushroom enchiladas, and white carrots are examples of some items being catered to the more gastronomically adventurous spirits of American consumers.

Produce are also gaining importance in the fast food sector. Success of fast-food salads keeps fueling demand for lettuce. The growing trend toward health conscious menus at fast-food chains such as Wendy's, McDonald's, Burger King, and Jack-in-the-Box has breathed new life into lettuce suppliers as well. Salad demand among fast-food chains grew 12 percent in the year that ended in May, according to a study on eating habits by the NPD Group, Inc., a NY-based market research firm. At the same time, 24-count cartons of romaine lettuce from the Salina-Watsonville district were receiving f.o.b.s of \$30.10 - \$30.75 per carton in late May 2003 according to the USDA; during the same time last year, the range was \$4-4.70.

- ***Development of New Processors***

To develop new markets and alternative marketing channels, more collaborative efforts among public and private sectors are devoted to facilitating development of new processors in New York. Empire Produce Processors LLC, the Oswego, NY onion processor which has yet to start business, will produce and market fresh processed sweet and pungent onion products beginning in January 2004 – October 2004. Initial assistance for this new onion processor was provided by the County of Oswego Industrial Development Agency, Oswego County, Empire State Development Corporation, Central Enterprise Development Corporation, Niagara Mohawk Power Corporation, and Oswego County Legislature.

- ***The Organic Market***

The organic market will continue to grow as new retailers, i.e. 7-Eleven, sign on to provide the products, and more producers, i.e. Foxy Foods, enter the field. Although currently about 50 percent of all organic products are bought at mainstream retailers according to marketresearch.com, organic food companies are looking beyond the obvious and plotting expansion into nontraditional markets like convenience stores, sports stadiums, and foodservice channels that serve schools, hospitals and other institutions. Moreover, USDA will provide \$1 million to states so that each state can assist eligible organic food producers with the cost of certification. Producers in Connecticut, Delaware, Maine, Maryland, Massachusetts, Nevada, New

Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia, and Wyoming may be eligible for up to a 75 percent reimbursement on certification costs.

- ***Country-of-Origin Labeling***

The produce industry should also pay close attention on the development of the country-of-origin labeling mandate. Mandatory country-of-origin guidelines are scheduled to go into effect by September 30, 2004. U.S. producers that compete with importers have long advocated country-of-origin labeling mandates at the retail level to promote domestic food sales. More recently, consumer advocates have argued for such labels as the consumer's right to know. However, strong opposition is being voiced by food retailers, wholesalers, processors, and major U.S. trading partners, such as Australia, Canada, Mexico, and New Zealand. All view such mandates as protectionist non-tariff trade barriers. The U.S. food industry, including many producers, is also concerned about the multi-billion-dollar cost to implement a country-of-origin mandate.

- ***Retail Competition***

Competitive pressures continue to grow in the retail food sector. Food Marketing Institute's annual State of Food Retailing study showed that 2002 was one of the most challenging years ever for food retailers, largely because of competitive pressures. About two in ten retailers reported sales declined in 2002, but half of all retailers saw sales gains of 3.4% or higher – and many of those were independents. Despite the weak economy, wars, low consumer confidence, food security concerns, and fierce competition, many food retailers are finding the strategies to succeed. Focusing on customer service is a major strategy that independent retailers have used to stay afloat in the current environment. Retailers also are focusing their market-research efforts on demographic niche markets. The consumer market is so diverse now that variety can only increase. The industry will continue to follow the consumer's lead into the future.

Chapter 10. Ornamentals

Wen-fei L. Uva, Senior Extension Associate

The total wholesale value of floriculture and nursery crops reached \$13.8 billion in the U.S. in 2002. While grower sales of floriculture crops reached \$4.9 billion, an increase of 1.6 percent from 2001, nursery crop sales fell by a marginal amount at around \$8.9 billion. The weak U.S. economy in 2001 and 2002 is largely responsible for flat grower sales in the green industry. In 2002, New York floriculture and nursery production was valued at \$315 million (Table 10-1). Floriculture production value accounted for more than half of that total and was valued at \$185 million, up 8 percent from 2001. Nursery crops generated \$130 million, up 4 percent from 2001. Among nursery crops, Christmas trees provided about \$19 million of sales in 2002, up 4 percent from the year before, making New York the 11th leading Christmas tree producing state in the country.

TABLE 10-1. GROWER CASH RECEIPTS OF FLORICULTURE AND NURSERY CROPS, NEW YORK, 1997-2002						
	1997	1998	1999	2000	2001	2002
	--- Million dollars ---					
Floriculture ^{a, b}	147.5	158.8	162.9	179.9	172.9	185.0
Nursery ^c	100.0	110.0	115.0	118.6	125.0	130.0
Floriculture and Nursery Crops	247.5	268.8	277.9	298.5	297.9	315.0

^a Includes growers with \$10,000 or more in floriculture sales.

^b Includes ornamental plants without woody stems, grouped into bedding/garden plants, cut cultivated greens, cut flowers, potted flowering plants, indoor foliage plants, and propagative floriculture material.

^c Includes ornamental plants and trees with woody stems, including broadleaf evergreens, coniferous evergreens, deciduous shade trees, deciduous flowering trees, deciduous shrubs and other ornamentals, fruit and nut plants for home use, cut and to-be-cut Christmas trees, and propagation material or lining-out stock. Also include, other ornamental crops not classified as floriculture.

Source: Floriculture and Nursery Crops Situation and Outlook Yearbook, Economic Research Service, USDA, Various Years.

Two-thirds of the value of U.S. floriculture production in 2002 consisted of bedding and garden plants and potted flowering plants. These plants led U.S. sales growth among the six floriculture sub-sectors that also include cut flowers, foliage plants, cut cultivated greens, and unfinished propagative materials. The largest producers of bedding and garden plants are California, Michigan, Texas, Ohio, Florida and New York, each exceeding \$100 million in sales in 2002. The production of potted flowering plants is dominated by California and Florida, whose combined sales were 36 percent of U.S. growers' sales of potted flowering plants in 2002. These two commodity categories also had relatively faster growth over the past decade compared to others.

New York floriculture production ranked sixth nationally for total commercial sales in 2002 (Table 10-2). Most states produced more bedding and garden plants than any of the other floriculture products, and New York is no exception. In 2002, bedding and garden plants continued to top the list of floriculture commodity categories in New York, and sales by operations with \$100,000 or more annual sales increased 7 percent to \$104 million. Potted flowering plants were second with sales valued at \$47.1 million, an increase of 17 percent. While U.S. cut flower production continued to recede and the growth in demand for foliage plants has been relatively slow, New York growers realized great increases in production value for cut flowers (\$5.7 million) and foliage plants (\$3.8 million) in 2002, 26 percent and 53 percent, respectively.

This could be due to the growing interest in specialty field-grown cut flower production in the Northeast and growers' efforts in searching for new crops and new products.

TABLE 10-2. VALUE OF FLORICULTURE PRODUCTION BY PLANT CATEGORY, NEW YORK, 1997-2002

	1997	1998	1999	2000	2001	2002	5-yr avg. 1997-2001	2002 vs. 5-yr avg.	2002 vs. 2001
--- Million dollars ---									
Bedding/Garden Plants ^a	77.0	93.4	97.5	97.6	97.4	104.1	92.6	+12%	+7%
Potted Flowering Plants ^a	37.1	35.0	34.1	37.4	40.2	47.1	36.8	+28%	+17%
Cut Flowers ^a	6.1	6.4	5.0	6.1	4.5	5.7	5.6	+1%	+26%
Foliage Plants ^a	1.9	2.2	2.3	3.7	2.5	3.8	2.5	+51%	+53%
<i>Total of Reported Crops^{a, b}</i>	<i>122.1</i>	<i>137.0</i>	<i>139.0</i>	<i>152.9</i>	<i>149.9</i>	<i>167.4</i>	<i>140.2</i>	<i>+19%</i>	<i>+12%</i>
Grower Sales \$10,000-\$99,999 (Unspecified crops)	25.4	21.8	24.0	23.2	22.4	17.6	23.4	-25%	-22%
Total	147.5	158.8	162.9	178.8	172.4	185.0	164.1	+13%	+7%

^a Sales by operations with annual sales of \$100,000 or more.

^b Total reported crops includes categories not listed – cut cultivated greens and propagative materials.

Source: Floriculture and Nursery Crops Situation and Outlook Yearbook, Economic Research Service, USDA, Various Years.

The number of floriculture growers continues to decline. There were 12,717 growers of floriculture crops in the U.S. in 1997, and in 2002 the number declined to 10,216. The number of commercial growers of floriculture crops in New York decreased for the fifth consecutive year from 731 growers in 2001 to 663 growers in 2002. Although the number of both small and large growers has fallen, the average sales of large growers (\$100,000 or more annual gross sales) now exceeds \$1 million in the U.S. (dominated by growers in the West and South) and is about \$670,000 in New York (Table 10-3).

As floriculture sales of large growers continue to expand, sales by small growers have been shrinking since 2000 (Table 10-4). This reflects the industry trend of consolidation and expansion among large growers to maintain market share, stay competitive, and meet retail buyers' needs. While large growers produced 95 percent of U.S. floriculture crop sales, floriculture sales generated by large growers in New York also increased 11 percent to about \$167 million and accounted for 90 percent of the total sales in the state.

The total production area for U.S. floriculture crops in 2002 decreased to 58,000 acres from 1998's 68,500 acres. The decline in the size of total production area under covered protection in recent years is due, in part, to flat overall sales and to increasing outsourcing of seedling and propagative material production to growers in Central America and Mexico. The area used to produce floriculture crops in New York was also down approximately 10 percent. Greenhouse space increased 663,000 square feet from 2001 to a total of 24,365 square feet in 2002. Shade and temporary cover area increased 36 percent to 908,000 square feet in 2002. On the other hand, open ground production of floriculture crops decreased 17 percent to 1,034 acres in 2002. By increasing production under covered protection areas, growers are moving toward a higher value

and more intense form of crop production. Average sales per acre were \$114,602, an increase of 20 percent from 2001.

TABLE 10-3. NUMBER OF FLORICULTURE CROP GROWERS AND VALUE OF SALES, BY GROWER SIZE^a, NEW YORK AND UNITED STATES, 2002

	Number of Producers		Average Sales per Grower			Wholesale Value of Sales		
	Small growers	Large growers	Small growers	Large growers	All growers	Small growers	Large growers	All growers
	--- Number ---		-- Dollars ---			--- 1,000 dollars ---		
New York	409	254	42,946	659,150	279,018	17,565	167,424	184,989
U.S.	5,604	4,612	45,819	1,002,211	477,581	256,770	4,622,197	4,878,967

^a Small growers have between \$10,000 and \$100,000 in annual floriculture sales; large growers have at least \$100,000.

Source: Floriculture and Nursery Crops Situation and Outlook Yearbook, Economic Research Service, USDA, 2003.

TABLE 10-4. WHOLESALE VALUES OF FLORICULTURE PRODUCTION, BY GROWER SIZE^a, NEW YORK AND UNITED STATES, 2000-2002

	New York			U.S.		
	2000	2001	2002	2000	2001	2002
	----- 1,000 dollars -----					
Small growers	23,205	22,435	17,565	380,153	306,330	256,770
Large growers	156,678	150,499	167,424	4,196,432	4,496,225	4,622,197
All growers	179,883	172,934	184,989	4,576,585	4,802,555	4,878,967

^a Small growers have between \$10,000 and \$100,000 in annual floriculture sales; large growers have at least \$100,000.

Source: Floriculture and Nursery Crops Situation and Outlook Yearbook, Economic Research Service, USDA, 2003.

TABLE 10-5. GROWING AREA FOR FLORICULTURE CROPS IN NEW YORK^a, 1997-2002

Year	Total greenhouse cover	Shade and temporary cover	Total covered area	Covered area per grower	Open ground	Total covered & open ground
	-- 1,000 square feet --				--- acres ---	
1997	22,635	394	23,029	26	779	1,308
1998	22,744	439	23,183	29	1,344	1,876
1999	22,504	464	22,968	30	1,028	1,555
2000	26,429	527	26,956	34	914	1,533
2001	23,702	667	24,369	33	1,243	1,802
2002	24,365	908	25,273	38	1,034	1,614

^a Includes cut flowers, cut cultivated greens, potted flowering plants, potted foliage plants, bedding and garden plants, and hanging baskets.

Source: Floriculture Crops 2003, NASS.

Industry Situation and Outlook

War, weather and worry plagued the economy in 2003. Nevertheless, the foundation for an improving economic outlook is forming. The housing market continues to be a solid part of the economic recovery as new and existing home sales continue to rise. Meanwhile, long-term mortgage rates slipped below 6%, assuaging fears that rising interest rates would stifle demand for homes.

Lawn and garden spending is stable at around \$325 per U.S. household. The highest spending communities are in major metropolitan locations and their suburbs along the East Coast from southern Maine to central Virginia, and on the West Coast from the Bay Area south to San Diego. The biggest spenders were in Morris County, N.J., where the average household spent over \$600 in 2002.

Mass-marketers continue to present more marketing challenges to industry members who supply to these marketers, as well as putting more pressure on those who compete in the retail sector. Wal-Mart is planning aggressive growth in 2004. In addition to opening more mega stores, Wal-Mart and Home Depot are also trying to “get bigger” by going smaller with the Neighborhood Markets by Wal-Mart and the Landscape Supply Stores by Home Depot.

Consumers continue to search for “that special product” to fulfill their gardening hobby desires. Interests in native plants are growing, and the heat for container gardening stays on. The May 5 issue of *Time* reports in its Your Time Lifestyle section that container gardening is growing at nearly a 20% annual rate. This is because of the ease of designing and planting an entire flower or vegetable garden in an afternoon, the need for less weeding compared to conventional flower beds, and the availability of a greater variety of containers that add color and style even before flowers appear. The industry can meet that need by offering a variety of quality products and providing growing and designing information to ensure a satisfying experience for consumers. Moreover, the organic trend is one to watch. Although the development of organic products has been mainly in the food sector, there might be increasing consumer interest in organic floriculture products.

Lastly, continued outsourcing of plant production, especially propagative materials, presents the industry more disease and pest control challenges. It will require better programming of traceability and disease/pest control by companies. The presence of *Ralstonia solanacearum* on some Americana geranium cuttings that originated from Kenya early this spring created a big scare among industry members and caused significant losses among some growers. Although the spread was under control quickly, the industry should learn from this lesson and design and implement disease control programs to avoid future events such as the “Ralstonia Scare” this spring.

Chapter 11. Agriculture and the Environment

Nelson Bills, Professor

Greg Poe, Associate Professor

Peter Wright, Sr. Extension Associate

The last few decades have witnessed a growing awareness of the relationship between agricultural practices and environmental resources, with subsequent evolution in public policy towards agriculture. In some instances this growing awareness has been markedly discontinuous, emerging with new information documenting, say, the correlated expansion of urban fringes and the loss of prime agricultural land or the impact of agriculture on water quality. The corresponding evolution of policy has also tended to be discontinuous: prominent examples include enactment of the Agricultural Districts Law in 1971 or the more recent promulgation of Concentrated Animal Feeding Operations (CAFOs). In other instances, the relationship between environmental concerns and agriculturists has evolved more gradually, such as the maturation of the New York State Agricultural Districts Law or the expansion of participation in the New York State agricultural environment management program.

Although the environmental-based public policy interest in agriculture has waxed and waned over the years, the accumulated effect is that the role of environmental considerations has exhibited a fundamental upward shift across the decades. With the addition of this chapter to Cornell's annual Outlook conference, we have made the collective judgement that agricultural environmental considerations are presently prominent enough to merit regular attention at this forum. While such consideration may not be paramount, the entire industry and individual managers should monitor the continuing evolution of these issues, perhaps even to the level attended to other outlook topics regularly presented.

In launching this first year's effort, we are conscious that documenting the current situation and anticipating future policies for the entirety of agricultural environmental issues is clearly beyond the scope of a single chapter. Reflecting this, we have opted to narrow our focus to issues that we believe reflect contemporary demands from our clientele – i.e., the questions most frequently posed to us in our everyday work. What you will read on the following pages captures both sides of the evolution in agricultural policy, including both the viewpoint that farming and agricultural land provide external benefits to society and the countervailing concern that agricultural practices result in environmental damages. We do not take sides in this debate – our goal is to convey information rather than to sway opinion.

We have also made a deliberate decision to divide our discussion into two categories: protecting farmers and farmland, and agriculture and the environment (with specific focus on water quality). As such, we depart from the more conventional dichotomization of land and water, which historically distinguished between preserving farmland and land productivity, and protecting water quality. Our collective, longstanding view is that this dichotomy is artificial. Empirical evidence in recent years demonstrates that these two topics are closely linked and should not be considered independently. Moreover, we worry that the separation of land and water in agricultural environmental policy has led to efforts that often work at cross-purposes. Rather than endeavouring to separately maximize the benefits of protecting land and maximize the benefits of improving water quality, society would be better off if these policies were harmonized in a way that maximizes the joint benefit of these policies.

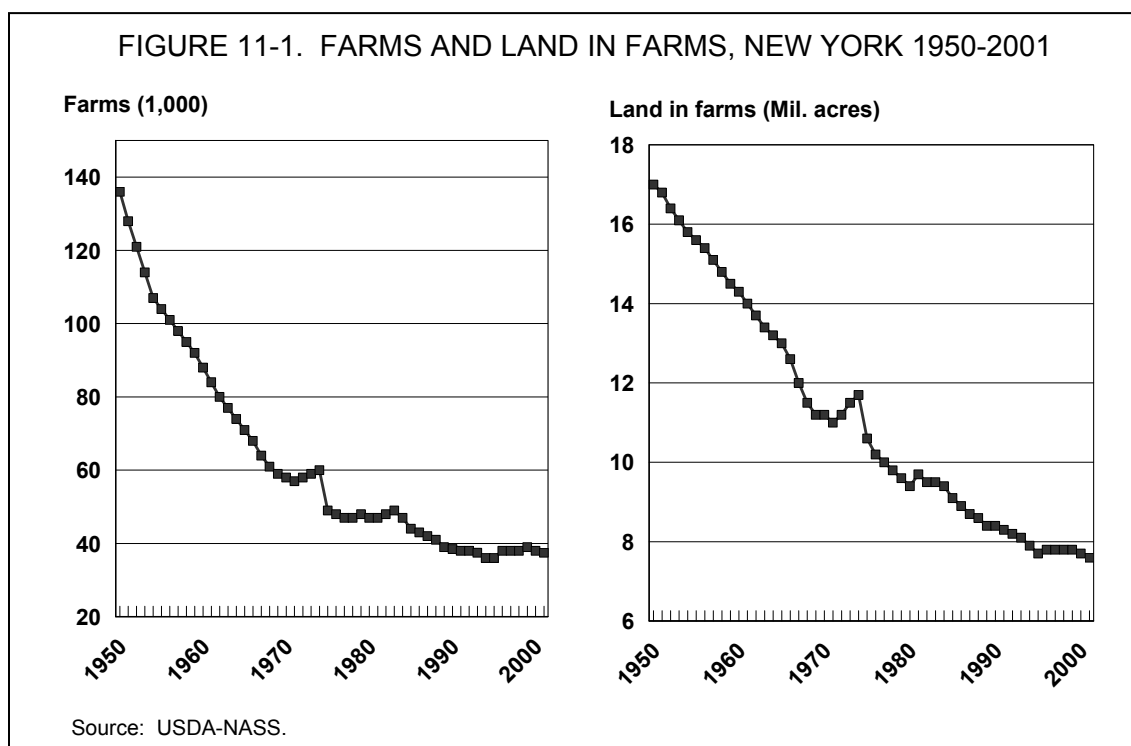
Realizing that our own dichotomy can also be considered artificial or ad hoc, we nevertheless prefer to distinguish between those policies oriented towards aiding farmers and preserving farmland (with a mixture of motivations underlying this objective) and the other set of policies oriented towards protecting environmental quality (with specific emphasis on water quality). We maintain this dichotomy in our presentation, but

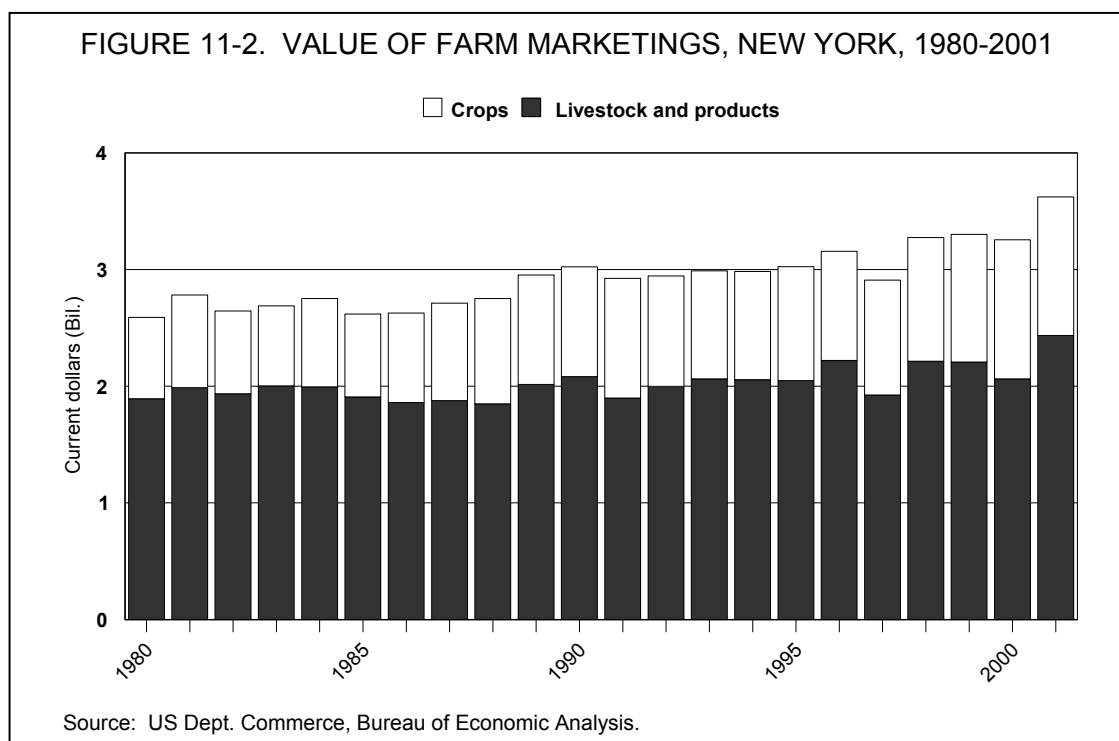
urge the audience to heed our concern that these, too, should not be regarded as separate efforts. For example, in providing funds to specific farms and farmland with the intent of encouraging the continuation of agricultural land use, it may be desirable to ensure that those entities operate within contemporary environmental standards. Similarly, a focus on water quality cannot ignore the present and future viability of farming.

Hence, it is with great pleasure that we present this first annual chapter on agriculture and the environment. Reflecting the continual, gradual evolution of policy, one of the topics discussed will be a historical overview and discussion of current agricultural land policy in New York. Reflecting discontinuous policy evolution, we also provide insights into new Conservation Reserve Enhancement Policy initiatives and new CAFO rules in New York.

Farming and Farmland

New York's land resources have always been important for agricultural commodity production. One hundred years ago, about three-fourths of the State's land base was counted as land in farms. But during much of the twentieth century, agricultural lands in New York, indeed throughout the Northeast, have slowly been reverting to alternate uses. Trends in farm numbers and farm acreage are shown in Figure 11-1. Some of the acreage released from farm use has been converted to a developed use, but millions of acres sprouted brush, then small trees and, over time, woodland that can again reclaim the title of forest. Today, farm operators own or lease 7.6 million acres; they market crops and livestock that generate receipts in excess of \$3 billion each year (Figure 11-2). Farm businesses also support industries that process raw farm commodities and supply inputs needed for commercial farm production. The value of gross output originating on New York farms and with businesses classified as agricultural services or food manufacturing totalled \$25.1 billion in 2000.

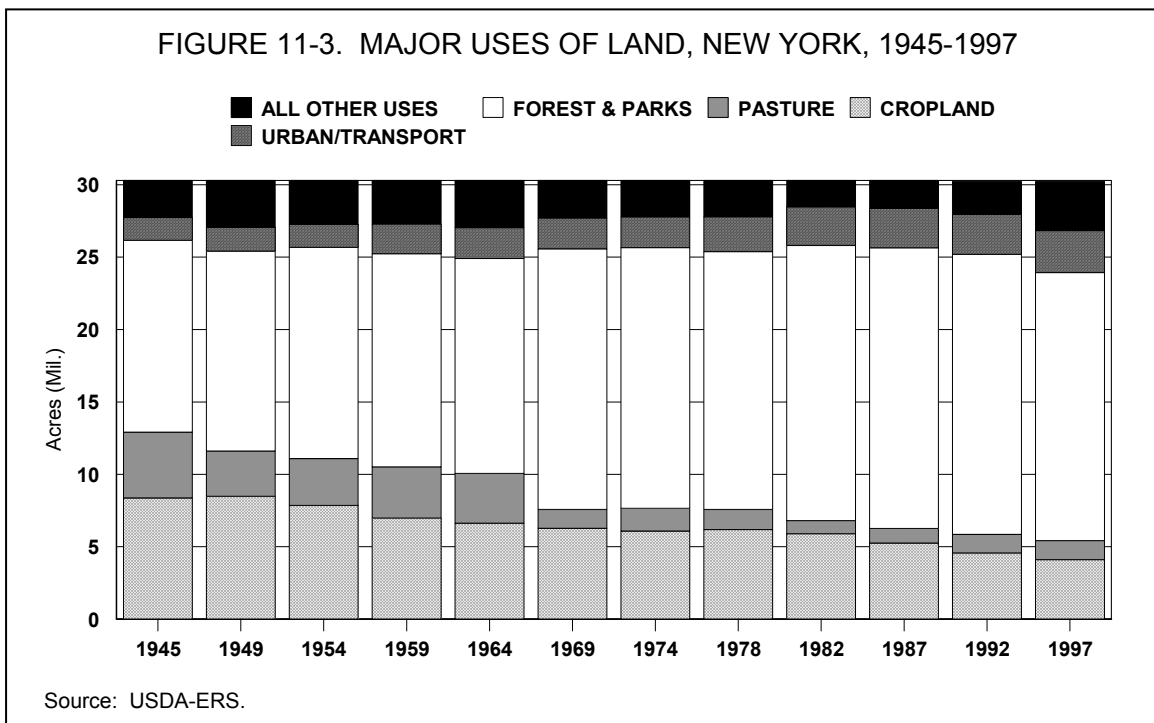




Presently, the USDA classifies nearly 60 percent of all land in New York as forest - some 17.7 million acres. Because overall land uses are not closely monitored in New York State, less is known about the portion of once-farmed acreage that has been converted to irreversible residential, commercial, industrial, and transportation uses. Two USDA agencies - the Economic Research Service (ERS) and the Natural Resources Conservation Service (NRCS) - proffer their own estimates of land use and land cover. Widely circulated trend data estimated by ERS in a consistent manner are shown in Figure 11-3. They show urbanized land on 5-year intervals, based on a conservative estimate of urbanized land based on Census definitions. Other USDA estimates from the NRCS National Resources Inventory (NRI) are more expansive in definition and put urban and built-up acreage in the range of 3.2 million acres, suggesting that as much as 11 percent of New York's 30.3 million acre land base presently accommodates residential, commercial, industrial, and transportation uses. Trends in annual conversion rates are fluid and controversial as well. The USDA's 1997 National Resources Inventory indicates that land conversions in New York followed trends evident in several other states and accelerated rapidly in the early 1990s.

Despite some uncertainty over the evidence, conversion of farmland to residential, commercial, industrial, or transportation uses is a continuing public policy issue. Often, land well suited for crop production has the physical and topographical features which also make it well suited for conversion to a residential, commercial, industrial, or transportation use. Possibilities for farmland conversion are also enhanced by prevailing patterns of land settlement. In New York, as well as in many other parts of the Nation, settlement tended to occur on or near land suited to a productive agricultural use. Urban growth since the turn of the century has largely reinforced this settlement pattern. Today, some of New York's most productive farmland is situated near metropolitan centers; this land is at risk in the sense that it is directly in the path of major road transportation corridors and residential, commercial, and industrial development.

Enactment of the Agricultural Districts Law in 1971 makes local efforts to create agricultural districts the focal point for farm protection efforts in New York. The Agricultural Districts Law recognizes that viable agricultural land is one of the State's most important and irreplaceable environmental and economic resources.

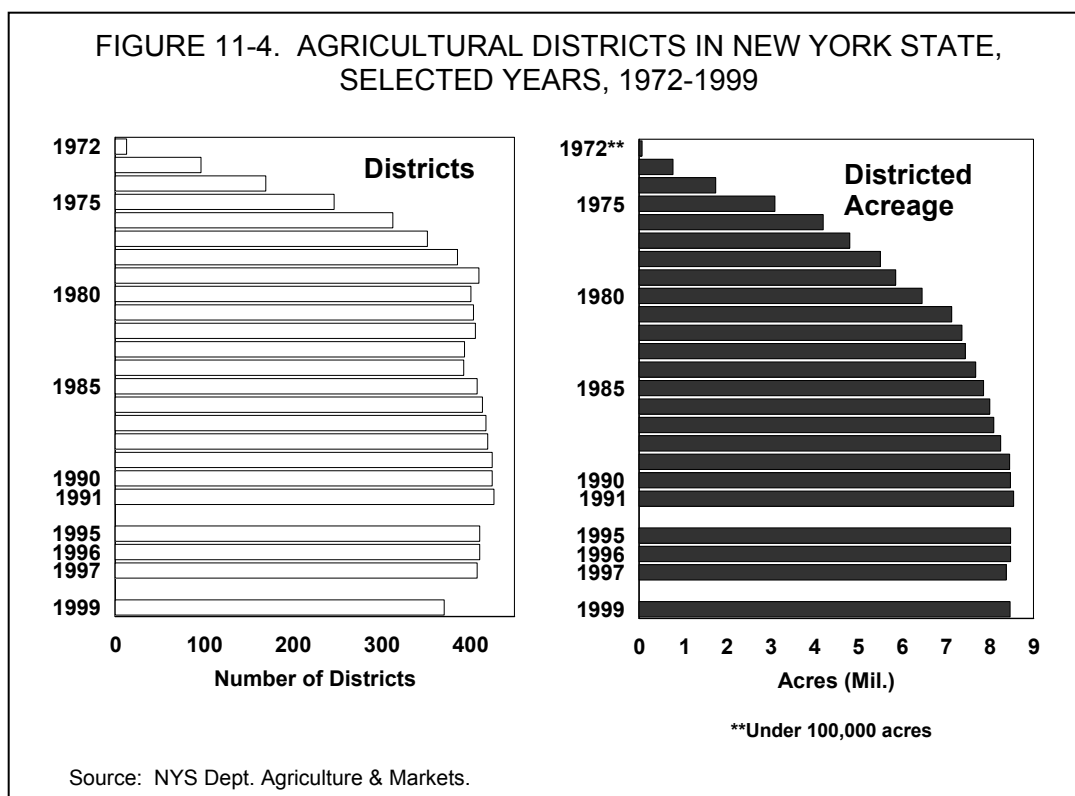


The declaration of legislative intent states that many of the State's agricultural lands are in jeopardy of being lost for agricultural purposes due to nonfarm development. The purpose of the Agricultural Districts Law is to provide a locally initiated mechanism for the protection and enhancement of agricultural land for agricultural production, and as valued natural and ecological resources which provide needed open space for clean air and aesthetic purposes.

These broad economic, social, and environmental objectives stated in the legislation are promoted through the formation of agricultural districts. The process of creating an agricultural district is initiated with a proposal by interested landowners to the county legislature. Owners forwarding a proposal must collectively own at least 500 acres or 10 percent of the land proposed for a district, whichever is greater. The proposal must include a description of the district boundaries and a recommendation on whether the district should come under review after 8, 12, or 20 years.

While the law restricts district size to no fewer than 500 acres, landowners and the county legislature are granted considerable latitude on the configuration of lands included within the boundaries of an agricultural district. The law requires that steps be taken to determine that the district consists predominantly of viable agricultural land and is consistent with state and local comprehensive plans, policies, and objectives.

Agricultural districting has proved to be popular with farmers in New York. After more than three decades, as evidenced by the data in Figure 11-4, the districts program is a mature program. Acreage committed to districts crested in the late 1980s and has remained essentially fixed at about 8.5 million acres since that time. This acreage represents more than a quarter of the total New York land area. Some nonfarm acreage is in districts because farmland is typically co-mingled with rural residential, forest, and other open space lands in most rural communities. The NYS Department of Agriculture and Markets estimates that about 6.1 million acres or 73 percent of all districted acreage is farmed by 22,000 farm operators. For comparative purposes, the USDA estimates that 7.6 million acres are owned or leased by 37,500 farms in New York (see Figure 11-1).



The Agricultural Districts Law contains six major provisions designed to facilitate the retention of agricultural land:

- District authority may supersede local ordinances designed to regulate farm structures or practices beyond the normal requirements of public health and safety.
- The right of government to acquire farmland by eminent domain is modified.
- The right of public agencies to advance funds for construction of public facilities to encourage nonfarm development is modified.
- State agencies must modify their administrative regulations and procedures to facilitate the retention of agricultural land.
- Special-use districts that overlap the boundaries of a district are restricted in the imposition of benefit assessments or special *ad valorem* levies on farmland within the district.
- Owners of 7 or more acres which have generated gross farm product sales averaging at least \$10,000 over the preceding two years can apply for an agricultural assessment; operators with fewer than 7 acres may apply if yearly sales are \$50,000 or more.

Agricultural assessments, which have the effect of a tax exemption and remove the land's nonagricultural value from the property tax roll, have proved to be a significant source of financial benefit to landowners. As shown in Table 11-1, agricultural assessments generate significant tax savings for participating farmland owners; aggregate benefits now are about \$68 million per year.

Agricultural assessments for land complement a 1969 amendment to the NYS Real Property Tax Law that grants a 10-year tax holiday to new or newly reconstructed farm buildings. This law reduces the after-tax cost of a new, land-based farm improvement. This 10-year exemption on new farm structures generated an estimated \$10 million in property tax savings during the 2001 tax year (Table 11-1).

TABLE 11-1. ESTIMATED FARMLAND PROTECTION OUTLAYS IN NEW YORK, 1996-2001						
	1996	1997	1998	1999	2000	2001
--- Dollars (Mil.) ---						
NYS-Purchase of Development Rights (1996)*	3.7	3.5	4.5	7.7	12.0	8.0
NYS-Farmers School Tax Credit (1997)	0.0	12.4	18.5	19.0	19.6	20.7
NYS-Agricultural Assessments (1971)	56.5	55.1	57.8	60.7	67.4	68.0
NYS-Farm Building Exemptions (1969)	8.9	9.0	8.8	8.8	9.4	10.0

*Year of program inception in parentheses.

Source: Estimated from file data obtained from the NYS Department of Agriculture and Markets and the Office of Real Property Tax Services; a report on NYS tax expenditures by the State Division of the Budget/Dept. of Taxation and Finance.

The 1992 Agricultural Protection Act established a State Agricultural and Farmland Protection Program, codified in Article 25-AAA of the Agriculture and Markets Law. Article 25-AAA directed the Commissioner to initiate and maintain a state program to provide financial and technical assistance to counties for local farmland protection efforts (Sec. 321, Art. 25-AA, Ag and Markets Law). The State provides funding for grants up to \$50,000 for agricultural and farmland protection plans that are developed in cooperation with the local Soil and Water Conservation District and the USDA's Natural Resources Conservation Service. Fifty-four of those counties have established an AFPB and are, therefore, eligible to apply for agricultural and farmland protection planning and implementation grants.

An approved agricultural and farmland protection plan paves the way for implementing farmland protection projects. In 1996, New York established a second matching grants program for farmland protection implementation projects by means of Article 25AAA of the Agriculture and Markets Law. Section 321 states that in an effort to maintain the economic viability, and the environmental and landscape preservation values associated with agriculture, the State must explore ways to sustain the State's valuable farm economy and the land base associated with it. To date, assistance has focused on efforts to acquire farmland development rights (PDR). The purchases are coordinated with allied PDR programs operated by a select few local governments in New York State and recent Federal funding authorized under 1996 federal Farm Bill legislation. Development rights acquisition programs operated by New York's land trust/land conservancy community are also taken into account by program administrators in Agriculture and Markets. Funds committed from State sources over the 1996-2001 span are estimated at about \$39.4 million (see Table 11-1).

In 1996, the legislation turned its attention once again to the local property tax and, under provisions of the Farmer's Protection and Farm Preservation Act, made provisions for a farmer's school tax credit. The credit provides school property tax relief for farmers and for farm acreage that meets the law's eligibility requirements. This legislation targets relief from tax levies prescribed by local school districts; at present, these districts account for about two-thirds of total tax levies. The tax credit is allowed against the farmer's income tax or corporation franchise tax and is fully funded by the State. This means that the benefits accruing to qualified farmers do not affect local property tax revenues but reduce state-level income tax revenues instead. In 2001, tax benefits from this law are estimated at \$20.7 million (see Table 11-1).

Environment (Water Quality)

Environmental policies towards agriculture can be classified in property rights terms. One set of policies, represented nationally by the Farm Bill Conservation Title and administratively by USDA and New York State Department of Agriculture and Markets, reflects the assumption that farmers have the right to practice within acceptable, often historically defined bounds. Hence, such policies are conventionally framed in terms of voluntary participation, usually with compensation provided to adopt costly practices for public environmental benefits. On the other hand, a second set of policies finds its origins in environmental laws such as the Clean Water Act, which in essence gives the public rights to a specified environmental quality. Correspondingly, a regulatory approach is adopted towards agriculture, implementation of which falls under the jurisdiction of the EPA and the NYS Department of Environmental Conservation. In New York State, however, it is important to note that the jurisdictional divide has been overcome to a great extent with the emergence of the Agricultural Environmental Management (AEM) program.

Within this context we present separate updates on a Farm Bill program, the Conservation Reserve Enhancement Program, which was extended this fall to large areas of New York State, and anticipated changes in the Concentrated Animal Feeding Operations regulations under the Clean Water Act.

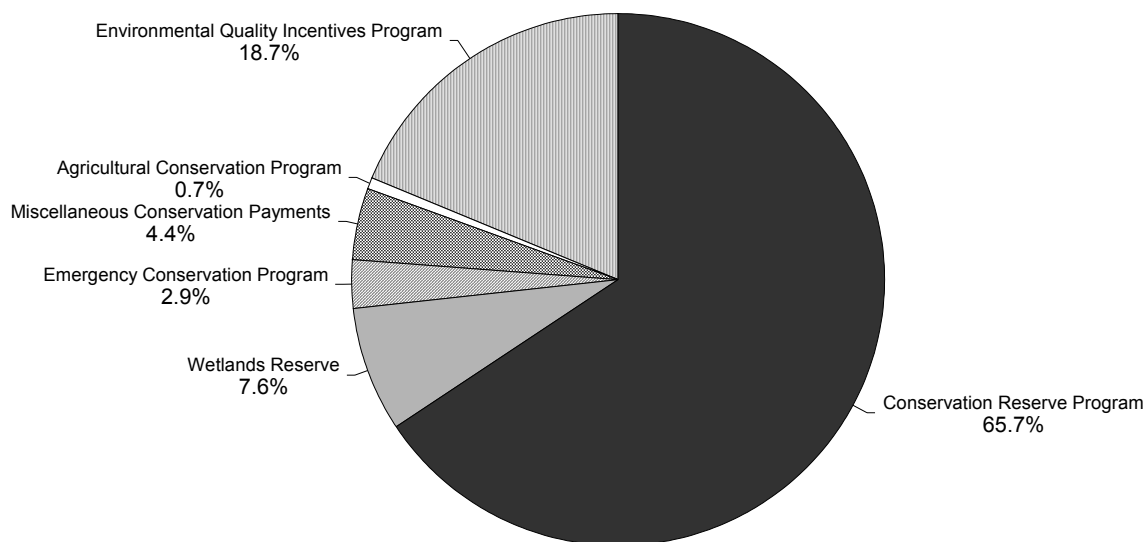
The Conservation Reserve Program and the Conservation Reserve Enhancement Program

Conservation Reserve Program (CRP): Created by the 1985 Farm Bill, the CRP is the nation's premier land conservation program, compensating landowners to retire over 36 million acres of environmentally sensitive cropland in 2003. As indicated in Figure 11-5, the CRP presently constitutes over 65% of funds distributed to New York under the Conservation Title of the Farm Bill. Of the approximately \$9.1 million in conservation payments to New York landowners in 2002, almost \$6 million was paid through CRP programs, while the Environmental Quality Incentives Program (EQIP: \$1,704,146), the Wetlands Reserve Program (WRP: \$688,562), the Emergency Conservation Program (ECP: \$267,359), Agricultural Conservation Program (ACP: \$62,590), and Miscellaneous Conservation Payments (\$398,288) constituted the rest. The proportion of recipients in each of the above programs closely mirrors the expenditures in each program.

The CRP now consists of three programs. The most established of this set of programs is the General Sign-Up CRP, which contracts over 31.6 million acres on 257,000 farms nationally. Participants enroll in the General Sign-Up CRP by contracting their land for 10 to 15 years. The rental contracts are competitive, operating through periodic sign-ups in which landowners submit offers indicating the amount that they would be willing to accept as compensation for retiring their land (annual compensation or rental rates must be equal to or less than the average dry land soil rental rate for the county in which the land is located). Each offer is compared to an environmental benefits index calculated for the specific parcel under consideration, placed in a nationwide pool, and then ranked based on the relative costs and benefits of enrolling individual parcels. Cost-share assistance can be an amount not more than 50 percent of the participant's costs in establishing approved practices.

In New York 60,782 acres were enrolled in the General Sign-Up CRP as of September 2003, with total annual payments of \$2.66 million. Annual rental rates (including annual maintenance allowance and incentive payments) averaged \$44.08 per acre across the state and 40.1 acres per farm.

FIGURE 11-5. DISTRIBUTION OF USDA CONSERVATION PAYMENTS, NEW YORK, 2002



Source: Environmental Working Group.

For a number of reasons related to the design of the environmental benefits index, topography, farmland structure, and distribution, etc., New York farmers have had relatively low rates of participation in the General Sign-Up program when compared to other regions of the country. Moreover, the outcome of the auction-based approach of the periodic sign-ups, in which farms submit contract bids and a national ranking process occurs, creates uncertainty, and hence is undesirable for some farmers.

Nevertheless, two relatively recent variants of the CRP offer the potential for high participation from New York farmers: the Continuous Sign-Up Program and the Conservation Reserve Enhancement Program. In contrast to the CRP, which has tended to retire large blocks of land on individual parcels, these new programs are more targeted towards high priority conservation practices that tend to be less land extensive.

The Continuous Sign up Program: Beginning in 1996, the Continuous Sign-Up was added to the CRP. This program offers greater financial incentives than the traditional CRP, and it allows farmers to sign up at any time as opposed to the one or two announced sign-ups each year. It also specifically targets highly valued environmental practices such as filter strips, riparian buffers, shelter belts, field windbreaks, living snow fences, grass waterways, shallow water areas for wildlife, salt-tolerant vegetation, and wellhead protection areas. Importantly, participation in this program is not competitive in that qualified cropland can be automatically enrolled at a prescribed rental payment. Thus, if agricultural land meets the program's criteria, it can immediately be enrolled in the program at any time rather than having to go through the periodic bid acceptance process of the traditional CRP. Like the traditional CRP, farmers are compensated for up to 50 percent of the costs of establishing permanent cover on the retired land and land is enrolled for 10 to 15 years. Additional incentives for specific practices are available.

As of September 2003, there were 651 active continuous sign-up CRP contracts in New York, encompassing 493 farms and 8,060 acres for an average 16.3 acres per farm. The number of contracts exceeds the number of farms because it is possible to have multiple contracts per farm. The average rental payment

per acre (which includes annual incentive and maintenance allowance payments) is estimated to be \$53.11 per acre in New York.

The Conservation Reserve Enhancement Program: The Conservation Reserve Enhancement Program (CREP) provides the third leg of the CRP. Established at local or state levels through individual Federal/State Partnerships, the CREP program currently operates in 24 states, implementing projects designed to address specific environmental objectives through CRP enrollments. As such, it retains the essential characteristics of the general CRP, establishing 10- to 15-year contracts with landowners to retire environmentally sensitive farmland. Like the continuous sign-up, CREP sign-ups are held on a continuous basis. However the CREP program differs from the other programs previously described in that, recognizing that land enrollment decisions are sensitive to contract prices, it offers substantially higher incentives for enrollment.

Beginning in October 2003, New York has three CREP programs: the Syracuse/Skaneateles Lake Watershed Program, the New York City Watershed Program, and the New York State CREP Program. Basic details of these programs are provided in Table 11-2. Close inspection of this table suggests that participants receive substantially higher one-time (at signing), cost share, and annual incentive payments. Indeed, as of September 2003, the average annual payment was \$110.98 per acre enrolled. At this time the average CREP per farm enrollment level was 13.9 acres/farm.

TABLE 11-2. COMPARISON OF CREP PROGRAMS IN NEW YORK

	Syracuse/ Skaneateles Lake	New York City Watershed	New York State CREP
Location	Certain parts of Skaneateles Lake Watershed	Portions of Delaware, Green, Schoharie, and Ulster counties comprising the watersheds feeding the Catskill/Delaware reservoir system	Targeted areas in 12 major NY Watersheds (Allegheny River Basin, Black River/St. Lawrence, Chesapeake Bay/Susquehanna River, Delaware River, Genesee-Oswego-Seneca-Oneida River, Lake Champlain, Lake Erie-Niagara River, Lake Ontario Direct Drainage, Long Island Sound- Peconic Bay, Lower Hudson River, Mohawk River, Upper Hudson River
One-Time Sign-Up Bonus per Acre	\$100-\$150	\$100-\$150	\$100-\$150
Practice Incentive Payment (as % of cost incurred, specified practices)	40%	40%	40%
Cost Share (total % of costs incurred from US and other sources)	100%	100%	50%
Annual Rental Payment (as % of CRP, county/soil specific)	100% ^a	100%	100%
Annual Incentive Payment Over and Above Annual Rental Payment (as % of annual rental payment above)	145%	120%	145%
Annual Maintenance Fee (maximum)	\$5 ^b	\$7-10	\$5

^a Maximum, subject to appropriations.

^b Based on "normal" practices.

Our recommendations: The greater incentives and limited land requirement offered through the CREP program may make participation attractive to some landowners. In addition, this is a possible source of funding for meeting, in part, the CNMP requirements for farms defined as CAFOs.

CAFOs and New York Dairy

Background: Although Concentrated Animal Feeding Operations, commonly referred to as CAFOs, have gained particular notoriety in recent years, it is important to realize that these operations have been regulated since the passing of the Clean Water Act over 30 years ago. In New York, little interest was paid to CAFOs until the early 1990s. However, because of changing environmental conditions, the evolving structure of animal agriculture, citizen law suits against individual farmers, and legal challenges to the Federal Government, the EPA has found it necessary to revisit broadly defined rules established in the 1970s governing the definition and requirements of CAFOs. The outcome of the EPA's actions has had, and will continue to have, an impact on the New York dairy industry and other animal agriculture operations.

In 1972 Congress passed the Clean Water Act (CWA) to "restore and maintain the chemical, physical and biological integrity of the nation's waters." The Act established a comprehensive program for protecting the navigable waters of the United States. A principal provision of this Act is the regulation of discharges of pollutants from point sources as authorized by National (NPDES) or State (SPDES) Pollution Discharge Elimination System permits.

Animal Feeding Operations (AFOs) are directly impacted by the CWA permitting provisions if the size, location, or practices of an operation are such that the operation can be defined as a point source of pollution. CAFOs are AFOs that have so been defined. Under the CWA, CAFOs are required to obtain a pollution discharge permit and to follow the guidelines specified in the permit. The guidelines for the agricultural industry includes the requirement that there will be no discharge from the production area from any rainfall event up to the 25-year, 24-hour storm.

Over the years and across states the interpretation of the CAFO rule has been hotly debated. Although the texture of the debate over this rule has varied over time, one convenient way to classify much of this debate is to divide the issues into two main parts: (1) the characteristics of an AFO that make it subject to the NPDES/SPDES permitting process; and (2) the "effluent limitations guidelines" for an operation that is subject to the permit. In more common terms, #1 specifies who has to get a permit and #2 specifies the on-farm practices required for operations operating with a permit. A second critical dimension of this process is to distinguish between Federal regulation and state actions. This dimension is critical because New York has been one of the national leaders in anticipating and preparing for rule-making that has occurred in recent years. In addition, there is some flexibility allowed across states in responding to new Federal rules, although the Federal rules are generally regarded as providing a minimum standard for regulatory actions.

Under court order to update CAFO standards to meet contemporary conditions, on December 16, 2002 the EPA issued a "final" rule on the National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitation Guidelines and Standards for Concentrated Feeding Operations (FR 68(29): Feb. 12, 2003). We put quotes around "final" because it often seems that it is anything but; New York and other states are presently in the process of determining how they plan to operate under this rule. Indeed, it is expected that New York will issue its preliminary plan sometime in early December and will then hold public hearings in the winter to early spring. It is expected that the next general permit, which will define New York's permitting process and requirements for 2005 to the end of 2009, will be issued in June 2004 or shortly thereafter. As such, the new permitting program initiated with last year's "final" rule fits well with New York's existing permit schedule as New York's existing permit program (NYSDEC GP-99-01) is to expire at the end of 2004.

Here we try to broadly characterize and anticipate the facets of New York's emerging rule-making with respect to the CAFO rule. In doing so, we note that we can only touch on some of the main elements. Capturing the complexity and addressing all the nuances of this rule is beyond this short chapter. For more information, the interested reader is referred to the NYS Department of Environmental Conservation and the EPA web sites <http://www.dec.state.ny.us/website/dow/cafohome.html> and <http://cfpub.epa.gov/npdes/afo/cafofinalrule.cfm>, respectively.

Who has to get a permit? Manure production is closely correlated with animal weight. Reflecting this fact, authorities have historically employed a weight-based criteria (so-called animal units), to classify AFOs as CAFOs or not, combining all the animals on a given operation. With the "final" rule, the EPA moved away from this weight-based classification toward a simple counting process. Under the new EPA rules, operations are to be designated as CAFOs on the basis of the number of animals within the predominant animal category. That is, if any category of animals on an operation exceeds thresholds listed in Table 11-3, the operation may be designated as a medium or large CAFO. Thus, if an individual operation has 201 milk cows and 50 heifers, it would be designated as a medium-sized CAFO. In contrast, an operation with 199 milk cows and 299 heifers would not be classified as a medium-sized CAFO.

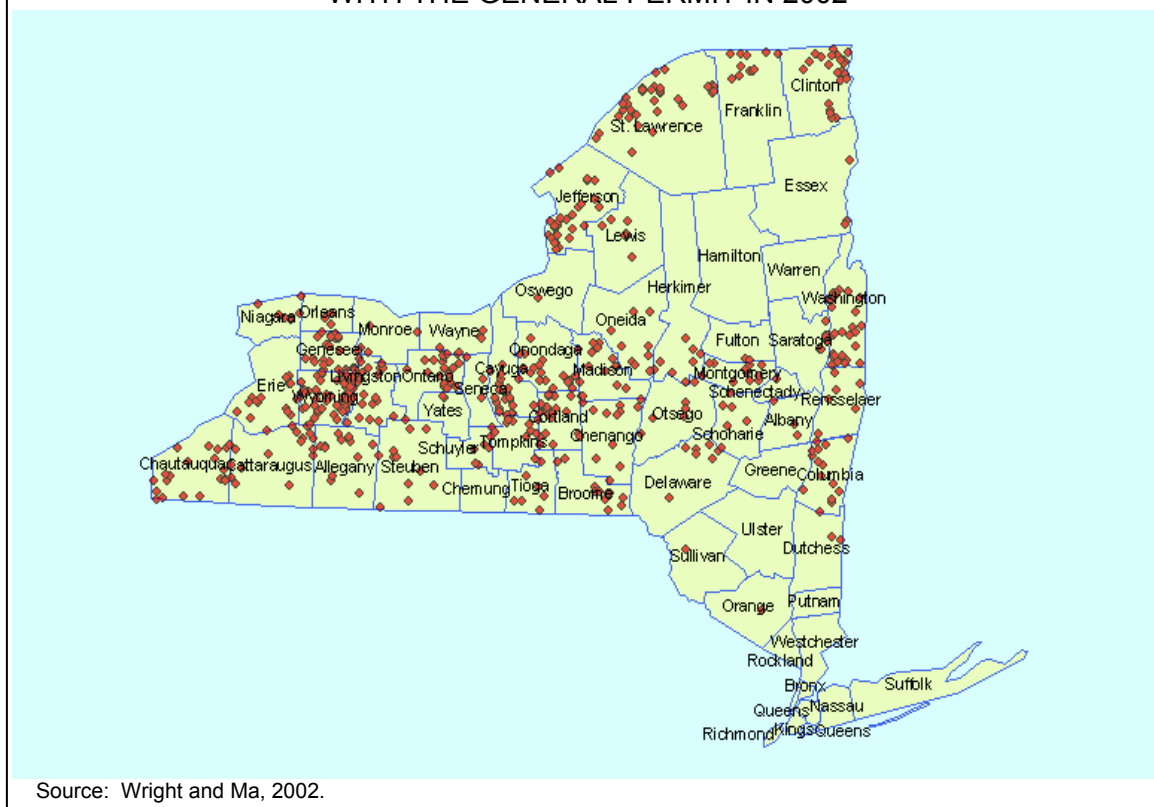
TABLE 11-3. ANIMAL CATEGORIES NEW YORK STATE CAFO PERMIT PROGRAM NOTICE		
Animal Category	Medium CAFO Threshold	Large CAFO Threshold
Mature dairy cows	200	700
Beef cattle or either beef or dairy heifers	300	1,000
Swine (>55 lbs.)	750	2,500
Swine (<55 lbs.)	3,000	10,000
Ducks with (other than) liquid manure handling system	1,500 (10,000)	5,000 (25,000)
Broilers other than liquid manure handling system	37,500	125,000
Layers with (other than) liquid handling system	9,000 (25,000)	30,000 (83,000)
Veal calves	300	1,000
Horses	150	500

Of the 7,000 or so dairy operations (NYASS 2002) in New York, 137 large CAFOs and 515 medium CAFOs have been participating in the State's SPDES permitting program. The geographical distribution of these farm operations is depicted in Figure 11-6. These numbers are thought to capture the entirety of large CAFOs, but informed estimates suggest that there may be another 200 or so medium-sized CAFOs in New York that have yet to begin participating in this program. Technically these nonparticipants are in violation of the permitting regulations. The new rules will extend opportunities for participation so that there may only be small penalties for past nonenrollment.

Moreover, some farms that were previously classified as medium-sized CAFOS under the Animal Units-based definitions may no longer be classified as such if, as expected, New York adopts the animal thresholds in Table 11-3. If the thresholds are adopted, those operations that fall below the new medium-sized thresholds can choose to remain in the program or file a notice of termination when the permit is renewed in June 2004. This decision should not be taken lightly, and even if an operation is no longer

designated as a CAFO there may be valid reasons for remaining in and complying with the permitting program. Benefits include protection against citizen suits under the Clean Water Act and greater protection from nuisance law suits under Ag and Markets law, lower likelihood of punitive damages when a water quality violation occurs, and financial considerations surrounding loans and resale value. In the case of additional protection against law suits, it is important to realize that such protection extends only to issues addressed under the Clean Water Act, and does not carry over to other issues such as odors.

FIGURE 11-6. CAFO OPERATIONS IN NEW YORK STATE IN COMPLIANCE WITH THE GENERAL PERMIT IN 2002



What if an operation is determined to be a CAFO? If an operation is determined to be a CAFO, there are a series of steps in the application and compliance associate with complying with a general permit (e.g., Notice of Intent, Notice of Animal Waste Management Plan Certification, and Notice of Complete Plan Implementation). To comply with the CAFO rules, New York has issued a general permit (NYSDEC GP 99-01), which means that only a single set of public hearings are needed concerning the process and procedures that a permittee undergoes to obtain and comply with a permit. This contrasts with other some other states wherein each permittee must hold a public hearing. Timelines for achieving each of these steps and submitting related records to the DEC have depended upon the size designation of the operation. Large CAFOs must have already completed their plan by 2002 and implementation was to have been completed by the end of 2004. Medium-sized CAFOS were to have submitted their plan by June 2004 and to implement these plans by the end of 2004. The new rules will change these timelines, most likely delaying implementation schedules to at least 2006 and possibly 2009. As with other issues, the implementation schedule and what constitutes implementation will be defined by NYS over the next several months.

If an operation has enough animals to be classified as a large CAFO, then it is clear that a permit is needed. The issue gets a bit more murky for the medium-sized group. By definition, medium-sized AFOs are defined as CAFOs if they “discharge” into the navigable waters of New York. What constitutes a discharge has been subject to debate. Courts have interpreted discharge fairly loosely, even including discharge to manure spreaders if they over-apply. In the past, New York has operated on the unwritten assumption that all medium-sized AFOs are to be classified as CAFOs.

As for differences in requirements for large- and medium-sized CAFOS, it appears that large CAFOs will be subject to greater reporting criteria. Medium-sized CAFOs are also likely to have more lengthy adoption schedules.

To meet the requirements of the permit, the basic element is a comprehensive nutrient management plan (CNMP), which is a conservation system that is unique to animal feeding operations. According to the USDA-NRCS, “it includes conservation practices and management activities which, when implemented as part of a conservation system, will help to ensure that production and natural resource protection goals are completed”. CNMPs may include the following six elements: manure and wastewater handling and storage; land treatment practices; nutrient management; record keeping; feed management; and other utilization activities such as energy production, composting, etc. The standards (NRCS Conservation Practice Standard NY312) for developing a CNMP are found on the NYS DEC web site listed previously.

CNMPs need to be designed and/or approved by a New York State certified planner. As of September 9, 2003 there were 32 certified planners and 26 conditionally certified planners in the state. An updated list of planners can be found in the AEM Planner Directory 2003-2004 (<http://www.nys-soilandwater.org>). This site also contains a number of environmental assessment worksheets that are useful in evaluating farms.

Our recommendations: CAFOs will be costly to implement in some cases: at a national level a recent USDA report estimates that total CNMP implementation costs for a milk cow operation will range from a low of \$2,362 per year to a high of \$97,013 per year with an average of \$9,788 per farm (June 2003: <http://www.nrcs.usda.gov/technical/land/pubs/cnmp1.html>). Similar cost distributions have been projected in New York. In addition there will be substantial development costs per farm in terms of technical assistance hours and capital costs will be front loaded. Estimates range from \$10,000 to greater than \$500,000 per farm. In general total costs rise with size of farm although their cost per animal declines as herd size grows. However, it is important to be cautious about relying on averages, as there will be a huge difference in costs from farm to farm.

Because the rules seem to be in flux, it is tempting to disregard this process for the time-being. A natural logic might be, why spend money now when there is a probability that I won't need to develop a plan or funding will be provided in the future to implement such a plan? We suggest that this is a form of gambler's fallacy – my odds of winning the lottery are much higher than average. While opting not to address these issues may be a rational approach for dairy farms planning to exit in the next few years, we advise that dairy farms that intend to be in operation over the long term should begin to incorporate these costs into future farm planning so as to avoid costly errors. Our recommendation is to go slow and steady in reacting to these policies. Continuously work in the direction of improving manure management practices and controlling environmental impacts. Take real steps towards developing and implementing a CNMP. Finally, anyone purchasing a farm needs to take into account these potential costs in their decision-making process.

OTHER A.E.M. EXTENSION BULLETINS

EB No	Title	Fee (if applicable)	Author(s)
2003-21	Dairy Farm Business Summary, New York Dairy Farm Renters, 2002		Knoblauch, W. and Putnam, L.
2003-20	Dairy Farm Business Summary, Western and Central Plateau Region, 2002	(\$10.00)	Knoblauch, W., Putnam, L., Karszes, J., Allhusen, G., Grace, J., Petzen, J. and Dufresne, A.
2003-19	Health Care Planning for Farm Businesses	(\$15.00)	Richards, S.
2003-18	Dairy Farm Business Summary, New York Small Herd Farms, 80 Cows or Fewer, 2002		Knoblauch, W., Putnam, L., Kiraly, M. and Karszes, J.
2003-17	Dairy Farm Business Summary, Intensive Grazing Farms, New York, 2002		Conneman, G., Grace, J., Karszes, J., Benson, A., Putnam, L., Staehr, E., Degni, J. and Barry, J.
2003-16	Income Tax Management and Reporting For Small Businesses and Farms	(\$15.00)	Bouchard, G. and Cuykendall, C.
2003-15	Leasing of Natural Gas Drilling Rights on Public and Private Land in New York		Ziegenfuss, K. and Chapman, D.
2003-14	Dairy Farm Business Summary, Northern New York Region, 2002	(\$10.00)	Knoblauch, W., Putnam, L., Van Loo, W., Murray, P., Vokey, F., Deming, A., Nobles, C., Ames, M. and Karszes, J.
2003-13	Cornell University, Cooperative Extension Landscape Business Planning Guide		Stark, J.
2003-12	New York Greenhouse Business Summary and Financial Analysis, Derived from 2001 Business Records	(\$10.00)	Uva, W., and Richards, S.
2003-11	Dairy Farm Business Summary, Southeastern New York Region, 2002	(\$10.00)	Knoblauch, W., Putnam, L., Hadcock, S., Hulle, L., Kiraly, M., and Walsh, J.

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