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New York Economic Handbook 2005



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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 Miguel Gómez	2-1
3	Cooperatives	Brian Henehan	3-1
4	Finance	Eddy LaDue	4-1
5	Grain and Feed	William Tomek	5-1
6	Dairy – Markets and Policy	Mark Stephenson	6-1
7	Dairy – Farm Management	Wayne Knoblauch, George Conneman 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	Nelson Bills, Makoto Kondo, Greg Poe, and Stanley Telega	11-1

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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/>

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://rfe.wustl.edu/EconFAQ.html> *Resources for Economists*
This American Economics Association website has an encyclopedic list of all sorts of web-based economics sites.
2. <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.
3. <http://www.econstats.com/> *Economic Statistics*
EconStats is another site with links to all kinds of US data. It also has links to data for many other countries.
4. <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.
5. <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.
6. <http://www.argmax.com/> *ArgMax*
This is an excellent site for economic news, data links and analysis.
7. <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.
8. <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.
9. <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.
10. <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.
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.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.
13. <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.
14. <http://www.brook.edu/default.htm> *The Brookings Institution*
The Brookings Institution publishes lots of good articles on current economic and political policy.
15. <http://www.realtor.org/PublicAffairsWeb.nsf/pages/NARNewsReleases> *National Assoc. of Realtors*
Check this site if you want information on real estate.
16. <http://www.census.gov/> *U.S. Census Bureau*
The U.S. Census Bureau web site provides demographic and population numbers.
17. <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.
18. <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.
19. <http://www.worldbank.org/worldbank.htm> *The World Bank Group*
The World Bank has cross country data on a wide variety of subjects.
20. <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.
21. <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.
22. <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.
23. <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.
24. <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 Associate and Miguel Gómez, Research Associate

Special Topic—Trade Promotions

The following section on trade promotions has been excerpted from an article by Miguel Gómez and Edward McLaughlin, "A Survey of Trade Promotions in the US Supermarket Industry", *Executive Outlook*, published by Reed Elsevier, February 2004. Both teach and conduct research in the Department of Applied Economics and Management at Cornell University.

Trade promotions are special offers developed specifically for the retail industry that allow manufacturers to influence retail sales and prices by rewarding retailers for their selling effort. In recent years, manufacturers of consumer packaged goods (CPGs) have substantially increased the use of trade promotion contracts (TPCs) to supermarket companies. Two decades ago, food manufacturers allocated less than 25% of their marketing budgets to TPCs; today this share reaches 70%. In 2002 alone, trade promotion expenditures represented about 13% of total sales of CPG manufacturers, their second largest expense after the cost of goods.

TPCs have evolved into various complex contractual alternatives and their rapid growth has resulted in greater research interest. Marketing researchers have focused primarily on factors that affect the extent to which retailers pass on trade promotions to consumers and on how TPCs impact retail promotions, customer loyalty and demand. Manufacturers often express skepticism regarding the extent to which trade deals are reflected in retail promotions (AC Nielsen, 2002; Cannondale Associates, 2001), and promotional negotiations often become a contentious issue between suppliers and retailers. For instance, performance-based TPCs allow manufacturers a greater control over retailers' use of promotional funds, thus often ensuring that the promotion is passed on to consumers. Such contracts are tied to a measure of retailer performance (e.g., units sold in a given period and retail price discounts) and increase the incentives for the retailer to push the manufacturer's product, thereby achieving the objective of the manufacturer. On the other hand, discount-based (e.g., off invoice allowances) TPCs tend to enhance the ability of retailers to make discretionary use of these funds, increasing the probability of opportunistic behavior from retailers. While manufacturers may give a large discount on a particular brand to the retailer, there is no guarantee that the retailer will pass the entire discount on to consumers. The retailer may instead engage in the opportunity of forward buying to increase their product category margins without pushing the particular brand negotiated in the TPCs.

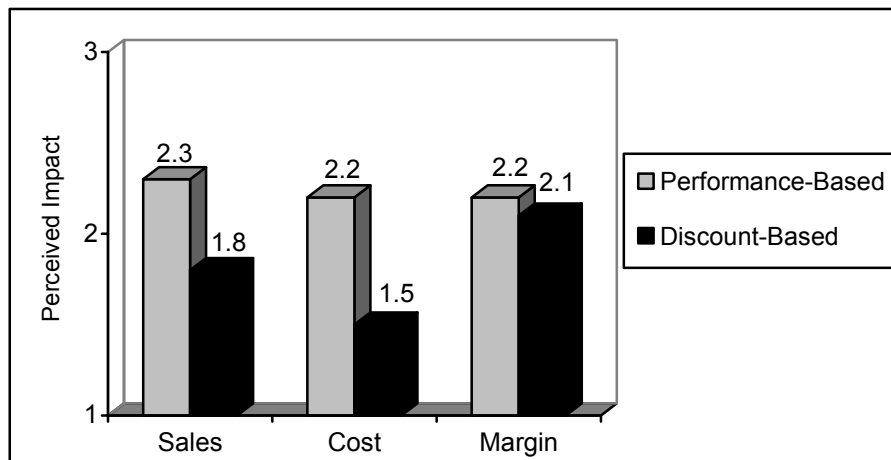
Discount-based versus performance-based trade promotion contracts: Impacts on product category sales, costs and margins – Retailers were asked, on a survey of trade promotions, to rate the perceived impacts of each type TPC on sales, costs and margins employing an ordinal scale: 1, 2 and 3, corresponding to "low," "medium" or "high" impacts, respectively. This qualitative information provides valuable insights regarding the impacts of alternative contractual types, which are summarized in Figure 2 – 2. For instance, on average the perceived impact of performance-based TPCs on product category sales is 2.3, which is substantially higher than the impact of discount-based TPCs (1.8).

While impacts on sales of performance-based TPCs are higher than the impacts of discount-based TPCs, retailers' responses suggest that the administrative costs of execution associated with performance-based contracts are much higher than the costs of discount-based promotions. On average, the perceived

impact of discount-based promotions on retailers' cost is low (1.5). This is in contrast to the higher 2.2 average impact of performance-based TPCs on cost.

What are the perceived impacts on product category margins? Surprisingly, retailers' responses indicate that discount-based and performance-based TPCs have roughly similar impacts on product category margins: the average perceived impacts of discount-based and performance-based TPCs on product category margin are 2.1 and 2.2, respectively. Consequently, one might argue that discount-based TPCs are a low-risk alternative for retailers: their impacts on sales are not perceived to be extremely high but also the administrative efforts required to execute these contracts are seen to be quite low. In contrast, it appears that performance-based contracts are a high-risk alternative for retailers since the execution costs are high relative to margin improvement. Of course, one can argue that if the objective of a particular retailer is to increase product category sales (presumably from attracting customers from other competitor stores or, depending on margin differentials, even competing categories in the same store), pay-for-performance contracts should be preferred. This is a strong argument against the mainstream view that retailers prefer discount-based TPCs because they have more flexibility in deciding how to use these funds.

FIGURE 2 - 1: RETAILER IMPACTS OF TRADE PROMOTIONS, 2002



Source: Gómez, Miguel I. and Edward W. McLaughlin, "A Survey of Trade Promotions in the US Supermarket Industry". *Executive Outlook*, February 2004.

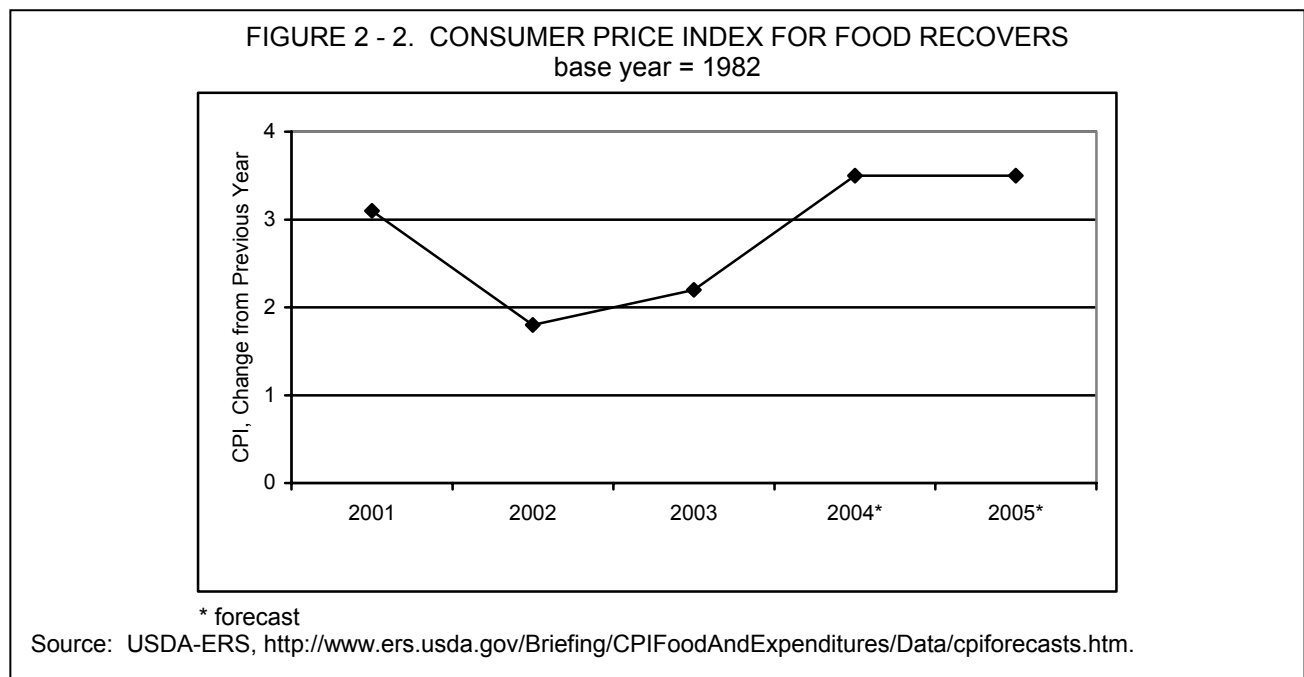
Estimates from the study show that manufacturers can outweigh their slightly weaker position in the allocation decision when they have specific trade promotion policies that favor performance-based contracts. Retailers should prefer performance-based TPCs if their objective is to increase product category sales. Alternatively, if their objective is to reduce costs, then discount-based TPCs are the best option. What's more, manufacturers desiring to achieve optimal promotional effects must know these objective functions of retailers so as to best align their promotional strategies.

References:

- ACNielsen. 2002. *11th Annual Survey of Trade Promotion Practices*.
 Cannondale Associates. 2001. *Trade Promotion Spending and Merchandising Study, 2001*.

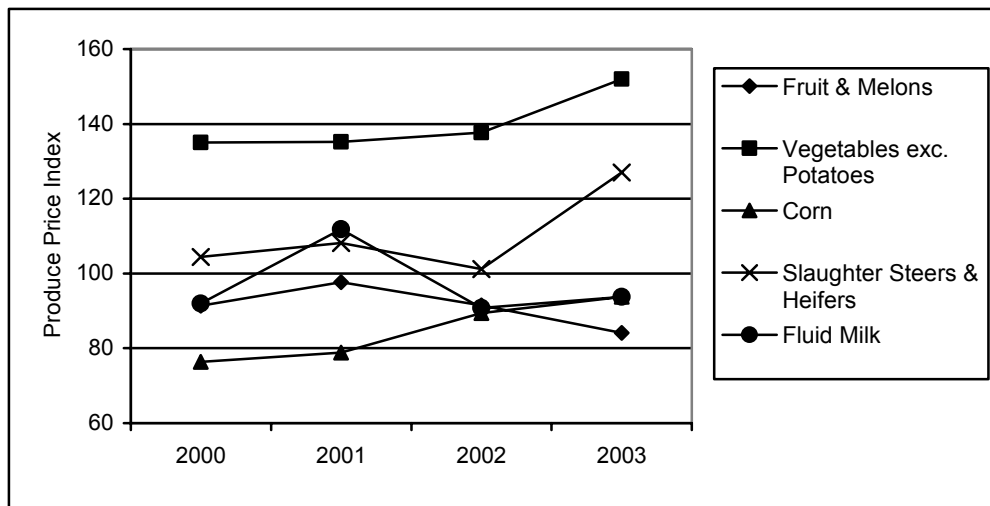
The U.S. Food Marketing System Update

An improving economy has brought with it an increase in the Consumer Price Index (CPI) for all food (Figure 2 – 2). Particularly high in 2004 has been the index for beef and veal (forecast at an increase of 10 – 11% from 2003), although this is expected to drop to more normal levels (1.5 – 2.5% change) in 2005. The CPI is forecast to increase at an annual rate of 3 to 4% in 2004 and in 2005 and comes at a time when economists are also keeping a watch for rapid inflation. The CPI for food grew 2.2% in 2003. Between 1994 – 2003, it increased at an average annual rate of 2.5%.



The Producer Price Index (PPI) for many farm products has not changed much since 1982 (Figure 2 – 3). For example, hovering with PPIs between roughly 80 – 120% of the base year of 1982 (1982 = 100) are such commodities as fresh fruit and melons, corn, slaughter steers & heifers and fluid milk. An exception to this are fresh vegetables, excluding potatoes, which have shown more impressive overall farm price gains with a 2003 PPI of 152 (base = 1982). Slaughter steers and heifers and fluid milk have exhibited the greatest fluctuation in PPI since 2000 while fresh fruit and melons and corn have experienced overall lower prices than 1982 base prices since 2000.

FIGURE 2 - 3. PRODUCER PRICE INDEX, FARM PRODUCTS
Base Year = 1982



Source: Bureau of Labor Statistics, <http://www.bls.gov/data/sa.htm#OPLC>.

In 2003 total food and beverage sales broke a trillion dollars with sales of \$1.02 trillion (Table 2 – 1). In 2003 total food and beverages also made more impressive gains than in previous years and grew a total of \$48.4 billion or 5.0% from 2002. Unlike at-home food sales in 2002, which grew at a greater rate than away-from-home sales, 2003 away-from-home sales outgrew at-home sales in terms of growth rate over year ago. This is a sign of a growing economy as people start eating out more.

TABLE 2 - 1. FOOD SALES¹

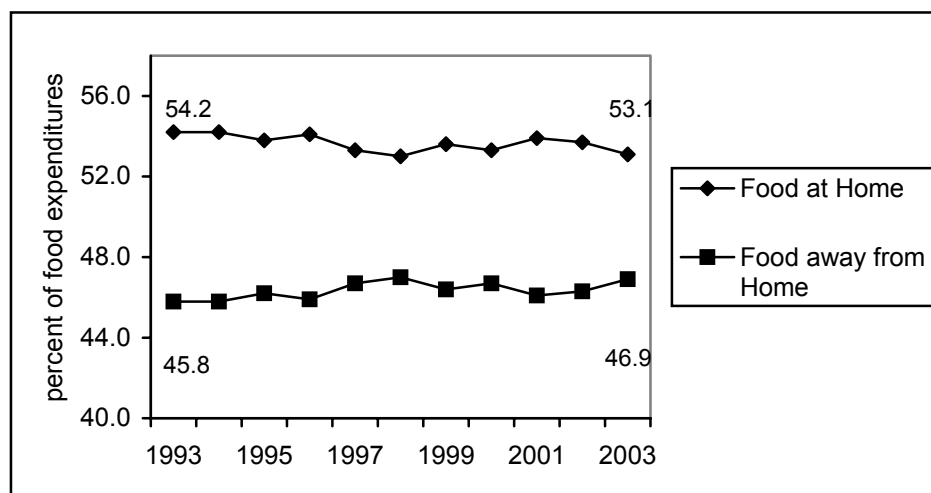
Sector	Sales 2002	Sales 2003	Increase	Growth
	--\$ billion--		--\$ billion--	--% change--
Total food and beverage sales	972.3	1,020.6	48.4	5.0
Total food sales (excluding alcohol)	861.1	904.7	43.6	5.1
Food at home sales	479.4	496.9	17.5	3.7
Food away from home sales	381.8	407.9	26.1	6.8
Alcoholic beverage sales	111.1	115.9	4.8	4.3

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: July 23, 2004.

When all food consumption expenditures are estimated, including food produced at home (at-home consumption) and school lunch programs and other child nutrition subsidies (away-from-home consumption), at-home food expenditures are approximately 53.1% of all food expenditures (Figure 2 – 4). This continued the trend in declining at-home food consumption. Food expenditures away from home are estimated to be 46.9% of total food expenditures.

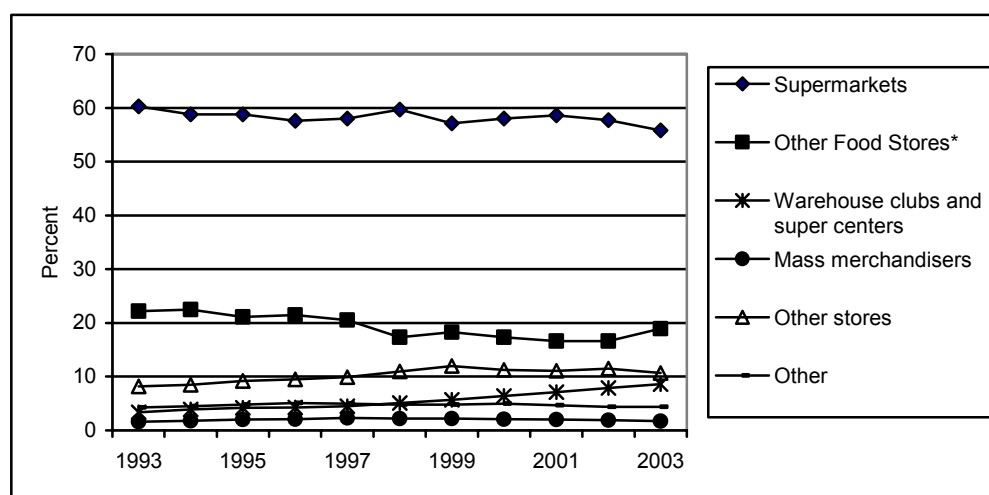
FIGURE 2 – 4. PERCENT OF TOTAL CONSUMER FOOD EXPENDITURES, AT HOME AND AWAY FROM HOME



Source: USDA-ERS, <http://www.ers.usda.gov/briefing/CPIFoodAndExpenditures/Data/table1.htm>, last updated: July 23, 2004.

Where did consumers go to buy food for at home consumption? Supermarket sales as a percent of total foods sales continued to slip in 2003, when they accounted for only 55.8% of at home sales, a drop from 57.7% in 2002 (Figure 2-5). Gains continued to be made by warehouse clubs and supercenters with 7.9% of sales in 2002 to 8.6% in 2003.

FIGURE 2-5. SALES OF FOOD AT HOME BY TYPE OF OUTLET

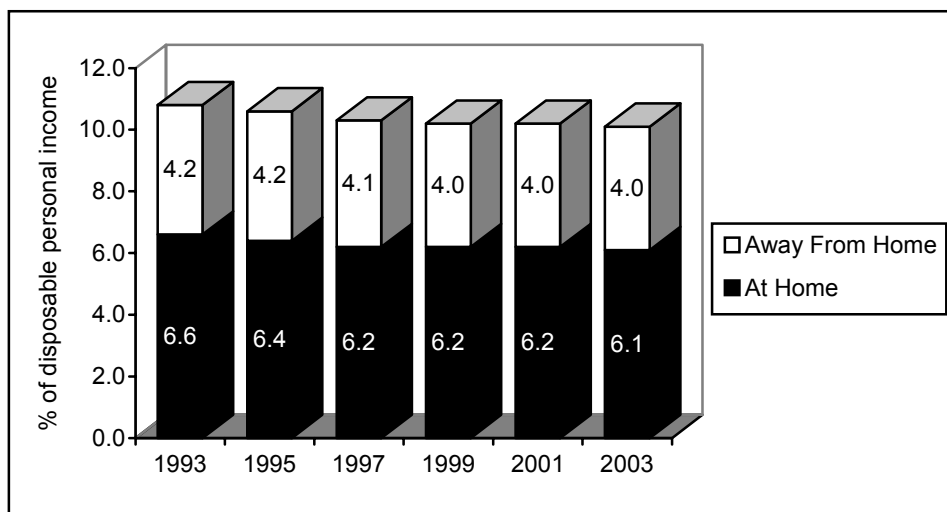


*Other Food Stores = convenience stores, other grocery stores, specialty food stores.

Source: USDA-ERS, <http://www.ers.usda.gov/Briefing/CPIFoodAndExpenditures/Data/table16.htm>. Updated July 23, 2004.

Food expenditures as a share of disposable personal income in 2003 dropped slightly to 10.1% (Figure 2 – 6).

FIGURE 2 – 6. 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: July 23, 2004.

Table 2 – 2 below reviews the amount U.S. consumers spent on food in 1999 as a proportion of their share of personal consumption expenditures and compares it to the shares spent by some of the other economies of the world. Comparisons to food spending in other countries provide an appreciation for the U.S. food marketing system efficiencies, from producer through retailer.

TABLE 2 – 2. SHARE OF PERSONAL CONSUMPTION EXPENDITURES SPENT ON FOOD AND ALCOHOLIC BEVERAGES CONSUMED AT HOME, BY SELECTED COUNTRIES, 1999		
Country/Territory	Share of total personal consumption expenditures	
	Food	Alcoholic Beverages
	Percent	
United States	8.6	1.8
United Kingdom	9.7	7.9
Germany	11.5	3.8
Sweden	12.6	4.1
Hong Kong S.A.R.	13.4	0.8
New Zealand	15.1	NA
Korea, South	16.5	2.4
Poland	21.7	7.7
South Africa	30.8	NA
Venezuela	33.4	NA
Iran	35.1	NA

Source: USDA-ERS. <http://www.ers.usda.gov/Briefing/CPIFoodAndExpenditures/Data/table97.htm>.

Chapter 3. Cooperatives

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.

Table 3-1. UNITED STATES AGRICULTURAL COOPERATIVE NUMBERS, BUSINESS VOLUME, AND NET INCOME 2000-2001 ¹							
Major Business Activity	Number		Net Volume		Net Income		
	2001	2002	2001 (\$ billion)	2002	2001 (\$ million)	2002	
Marketing	1,606	1,559	75.0	68.7	810	763	
Farm Supply	1,234	1,201	24.8	23.7	429	338	
Related Service	389	380	3.5	3.4	118	109	
TOTAL	3,229	3,140	103.3	96.8	1,357	1,210	
¹ Totals may not add due to rounding. Source: <u>Farmer Cooperative Statistics, 2002</u> , Rural Business - Cooperative Service, USDA, RBS Service Report 62, Washington, D.C., June, 2004.							

The number of cooperatives in the United States has continued to decline to 3,140 in 2002, a net decrease of 89 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 2001. Total net business volume, which excludes intercooperative business, amounted to \$96.8 billion, down 6.3% from 2001.

Sales of milk and dairy products decreased by 12 percent. Livestock and poultry sales showed gains. However, sales by other marketing cooperatives declined, with fruits and vegetables off by \$1.5 billion in 2002.

Total supply sales decreased by 4 percent, due mainly to lower petroleum prices. Petroleum sales decreased over \$1 billion. Feed sales grew from the previous year. Fertilizer sales decreased by \$700 million.

Total net income for 2002 was \$1.2 billion, down 10.9 percent from 2001. Although net income increased for dairy cooperatives, that gain was offset by lower margins for poultry, rice, sugar, and livestock.

Combined assets in 2002 for all cooperatives equaled \$47.5 billion, down 2.4 percent from 2001. Net worth totaled \$19.6 billion, down slightly from the previous year. A total of 220,367 full and part-time employees were employed by U.S. cooperatives in 2002.

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
<u>Marketing:</u>				
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
<u>Supply:</u>				
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
<u>Related Service</u> ³	5	5	232.5	199.6
TOTAL	98	92	3,235.3	2,825.8
Source: <u>Farmer Cooperative Statistics</u> , 1999, RBS Service Report 59, USDA, RBS, Washington, DC, 2000 and <u>Farmer Cooperative Statistics</u> , 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.				

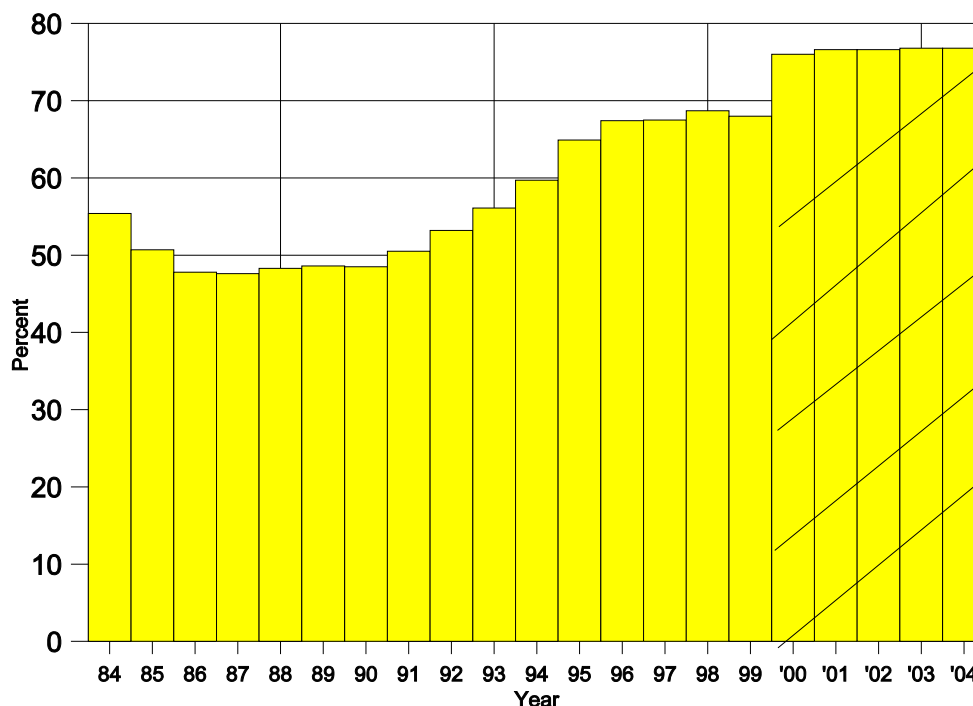
The number of agricultural cooperatives in New York State in 2001 showed a net decrease of 6 cooperatives from 1999 to 2001, with fewer dairy cooperatives and a decrease in the number of supply cooperatives. Total net business volume declined from \$3,235 million in 1999 to \$2,826 million in 2001, a decrease of 8 percent. Supply cooperative volume increased by \$54 million with higher sales of petroleum products. 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 2004 remained stable from the previous year.

Figure 3-1. COOPERATIVE SHARE OF PRODUCER MILK RECEIPTS

**Federal Order 2, 1984- 1999 and
Northeast Federal Order 1, 2000-2004***



* The year 2004 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

The financial performance of agricultural cooperatives operating in New York State has in general, been good. 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 2003 and the first nine months of 2004. 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. An additional share of milk marketed in Order 1 produced by farmers who are not members of cooperatives is being marketed by a common agency that also markets the major share of milk delivered by cooperatives.

Stronger milk prices over the last year have helped to improve the performance of dairy-related cooperatives that operate dairy herd improvement services and artificial breeding. Animal disease problems outside the U.S. have presented additional export opportunities for dairy genetics cooperatives.

The major supply cooperative that declared bankruptcy in 2002 has completed the sale of assets required to be liquidated. The Bankruptcy Court approved the proposed plan for liquidation. The petroleum products, leasing, feed, seed, agronomy and insurance businesses were all sold to going concerns. A few selected feed or fertilizer operations were closed. But in general, many of the operations and related employees were acquired by businesses that continue to operate. Unsecured creditors will be receiving higher than expected distributions following the complete liquidation.

The major grape cooperative in New York reported strong sales and returns to growers. Successful marketing efforts including new product development, branded products and advertising supported strong sales. An apple marketing cooperative continues to grow with a number of new members. This organization works on improving the coordination of marketing and quality control on behalf of members.

The major processing vegetable cooperatives is re-structuring operations following a change in it's relationship to a major food processing customer. Production acreage increased for many processing vegetables grown by members during the last year although bad weather limited total yields.

The Farm Credit associations had good financial performance during the year. Despite weak prices for some agricultural products, conservative lending policies served credit cooperative well in 2004. 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 attract the most creditworthy farmers whose lenders are exiting agriculture. In addition, Farm Credit continues to increase its focus on financial services to member/borrowers.

Cooperative Outlook

Most New York and Northeast cooperatives had positive results in 2004. Stronger milk prices have helped to sustain the health of dairy marketing and service cooperatives. Consumer demand for cheese and soft dairy products continues to remain strong benefitting dairy cooperatives involved in marketing those products.

Continued interest in acquisitions, better coordination or consolidation will be a priority as other segments of the food system continue to undergo structural change. In general, New York cooperatives are well positioned for solid performance in 2005.

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	2002	2003	2004 ^c
<i>billion dollars</i>							
Assets							
Real Estate	586	626	741	946	1,046	1,112	1,131
Livestock	47	71	58	77	76	79	79
Machinery	83	85	89	90	94	96	98
Crops ^a	23	23	27	28	23	24	29
Purchased Inputs	1	3	3	5	5	6	6
Financial Assets	33	38	49	57	60	62	61
Total	773	846	967	1,203	1,304	1,379	1,404
Liabilities & Equity							
Real Estate Debt	100	75	79	91	103	108	116
Nonreal Estate Debt ^b	78	63	72	87	90	90	89
Total	178	138	151	178	193	198	205
Owner Equity	595	708	816	1,025	1,111	1,181	1,198
Total	773	846	967	1,203	1,304	1,379	1,404
Percent Equity	77	84	84	85	85	86	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	2002	2003	2004 ^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	53	55	57
Nonreal Estate Debt ^b	44	46	48	49	47	45	43
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	2002	2003 ^c
<i>billion dollars</i>							
Real Estate							
Farm Credit System	33.2	42.2	25.8	24.8	29.7	37.8	40.1
Individuals & Others	27.8	25.8	15.1	18.0	17.2	17.9	18.3
Commercial Banks	7.8	10.7	16.2	22.3	29.8	33.1	35.1
Farm Service Agency	7.4	9.8	7.6	5.1	3.4	3.2	2.9
Insurance Companies	12.0	11.3	9.7	9.1	11.0	11.4	11.6
CCC-Storage	1.5	.3	a	0	0	0	0
Total	89.7	100.1	74.4	79.3	91.1	103.4	108.0
Nonreal Estate^b							
Commercial Banks	30.0	33.7	31.3	37.7	44.8	44.4	43.5
Farm Service Agency	10.0	14.7	9.4	5.1	4.2	4.0	3.8
Merchants & Dealers	17.4	15.1	12.7	16.2	20.8	21.9	22.6
Farm Credit System	19.7	14.0	9.8	12.5	16.7	19.7	20.1
Total	77.1	77.5	63.2	71.5	86.5	90.0	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	2002	2003
<i>percent of total</i>							
Farm Credit System	32	32	26	25	26	30	30
Commercial Banks	23	25	35	40	42	40	40
Farm Service Agency	11	14	12	7	4	4	3
Insurance Companies	7	6	7	6	6	6	6
Individuals & merchants	27	23	20	22	22	20	21
Total ^a	100	100	100	100	100	100	100
^a Excludes crops under CCC loan.							
Source: Economic Research Service, USDA, Data, Farm Balance Sheet.							

The value of US farm assets increased with the rate of inflation during 2004. Sector debt levels increased slightly more rapidly, resulting in a slower rate of growth in farm equity and a one point lower percent equity level. The entire increase in national debt levels occurred in real estate mortgages, resulting in a shift to a higher proportion of real estate debt. Part of this shift results from the need to fund higher value real estate and part reflects a change in methods of securing farm loans. The Farm Service Agency continues to reduce its direct lending to agriculture as it shifts to more guaranteed lending activity.

Table 4-5. New York Farm Balance Sheet Current Dollars, December 31 Excluding Operator Households							
Item	1980	1985	1990	1995	2000	2002	2003
<i>million dollars</i>							
Assets							
Real Estate	6,178	6,520	7,768	8,165	9,595	10,418	10,894
Livestock	1,527	983	1,259	1,138	1,360	1,415	1,634
Machinery	1,718	1,875	1,847	1,838	1,654	1,687	1,736
Crops ^a	561	491	540	352	308	329	338
Purchased Inputs	c	27	74	88	133	153	153
Financial Assets	607	668	666	670	917	941	977
Total	10,591	10,564	12,154	12,251	13,967	14,943	15,732
Liabilities & Equity							
Real Estate Debt	1,038	1,125	901	854	957	1,095	1,139
Nonreal Estate Debt ^b	1,582	1,472	1,268	1,318	1,552	1,660	1,669
Total	2,620	2,597	2,169	2,172	2,509	2,755	2,808
Owner Equity	7,971	7,967	9,985	10,079	11,458	12,188	12,924
Total	10,591	10,564	12,154	12,251	13,967	14,943	15,732
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	2002	2003
<i>percent of total</i>							
Assets							
Real Estate	58	62	64	67	68	70	69
Livestock	15	9	10	9	10	9	11
Machinery	16	18	15	15	12	11	11
All Other	11	11	11	9	10	10	9
Total ^a	100	100	100	100	100	100	100
Liabilities							
Real Estate Debt	40	43	42	39	40	40	41
Nonreal Estate Debt ^b	60	57	58	61	60	60	59
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.							

Higher dairy livestock prices increased the value of livestock on the New York State balance sheet for 2003. Dairy cow prices have increased even more during 2004.

Table 4-7. New York Farm Debt by Lender Current Dollars, December 31 Excluding Operator Households							
Item	1980	1985	1990	1995	2000	2002	2003
<i>million dollars</i>							
Real Estate							
Farm Credit System	367	449	404	332	400	510	540
Individuals & Others	373	363	216	256	244	254	260
Commercial Banks	108	89	116	146	218	242	257
Farm Service Agency	145	192	156	116	83	77	69
Insurance Companies	26	26	9	4	12	12	13
CCC-Storage	19	6	a	0	0	0	0
Total	1,038	1,125	901	854	957	1,095	1,139
Nonreal Estate							
Commercial Banks	632	597	417	374	435	430	423
Farm Service Agency	284	287	219	176	188	177	170
Merchants & Dealers	338	257	216	274	352	371	382
Farm Credit System	328	331	416	494	577	682	694
Total ^b	1,582	1,472	1,268	1,318	1,552	1,660	1,669
^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	2002	2003
<i>percent of total</i>							
Farm Credit System	27	30	38	38	39	43	44
Commercial Banks	28	26	25	24	26	24	24
Farm Service Agency	17	19	17	14	10	9	9
Insurance Companies	1	1	a	a	1	1	a
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.							

During the last few years New York commercial bank market share has declined slightly. Banks have increased real estate lending but experienced declining non-real estate volume while Farm Credit has experienced increases at both real estate and non-real estate volume. Farm service agency direct loans have declined slowly over the same period. Overall borrowing by New York farmers increased about two percent during 2003.

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	1.1	1.3
2004 (9/30)	0.7	0.9

^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	1.2	1.5	2.3	1.1	1.3	2.1
2004 (6/30)	1.0	1.3	2.1	0.9	1.2	1.9

^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.

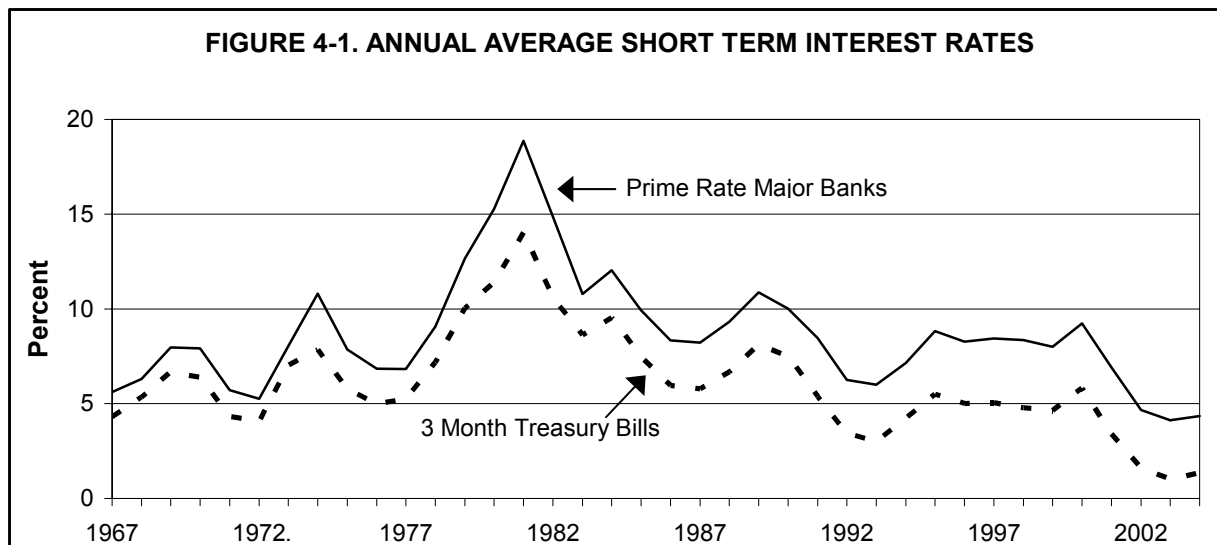
Table 4-11. Delinquent Major Farm Program Direct Loans Farm Service Agency										
Date	Farm Ownership ^a		Operating Loans ^a		Emergency Loans		Economic Emergency		Soil and Water ^a	
	U.S.	N.Y.	U.S.	N.Y.	U.S.	N.Y.	U.S.	N.Y.	U.S.	N.Y.
	percent of loan volume									
9/30/83	3	4	13	8	25	13	16	11	7	4
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
9/30/04	4	9	10	10	18	19	21	41	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
9/30/04	2	6	3	5
Source: FSA Reports 4067 and 4067-C.				

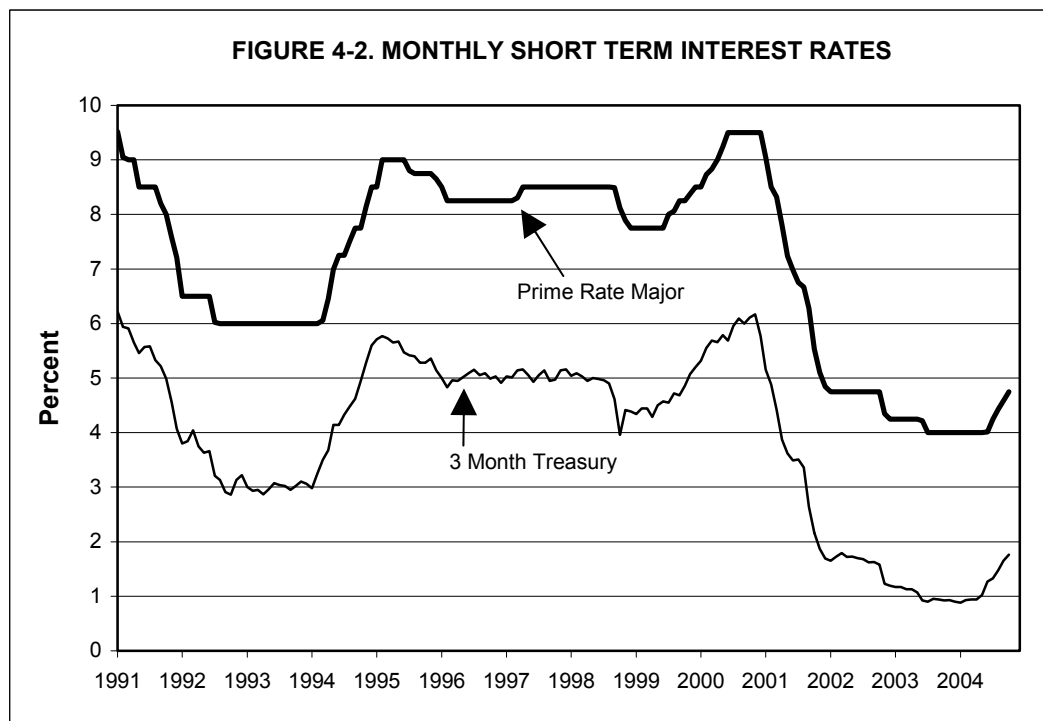
Credit quality of commercial lenders (Farm Credit and commercial banks) continues to be very high. High prices for the large dairy sector of the New York agriculture have been used to bring borrowers current on their loans. Nonaccrual and nonperforming loans are at about as low levels as they could be expected to attain without severely restricting credit to a large group of people, most of whom are good credit risks.

In general, Farm Service Agency delinquencies on direct loans to farmers continue a modest decline. Guaranteed loan delinquencies rose somewhat, particularly in New York State. As the guaranteed loan volume increases and as the portfolio matures, the one and two percent loss rates experienced prior to the last couple of years are unlikely to be repeated. The current delinquency rate is still quite reasonable for the risk level of the loans the program is designed to guarantee.

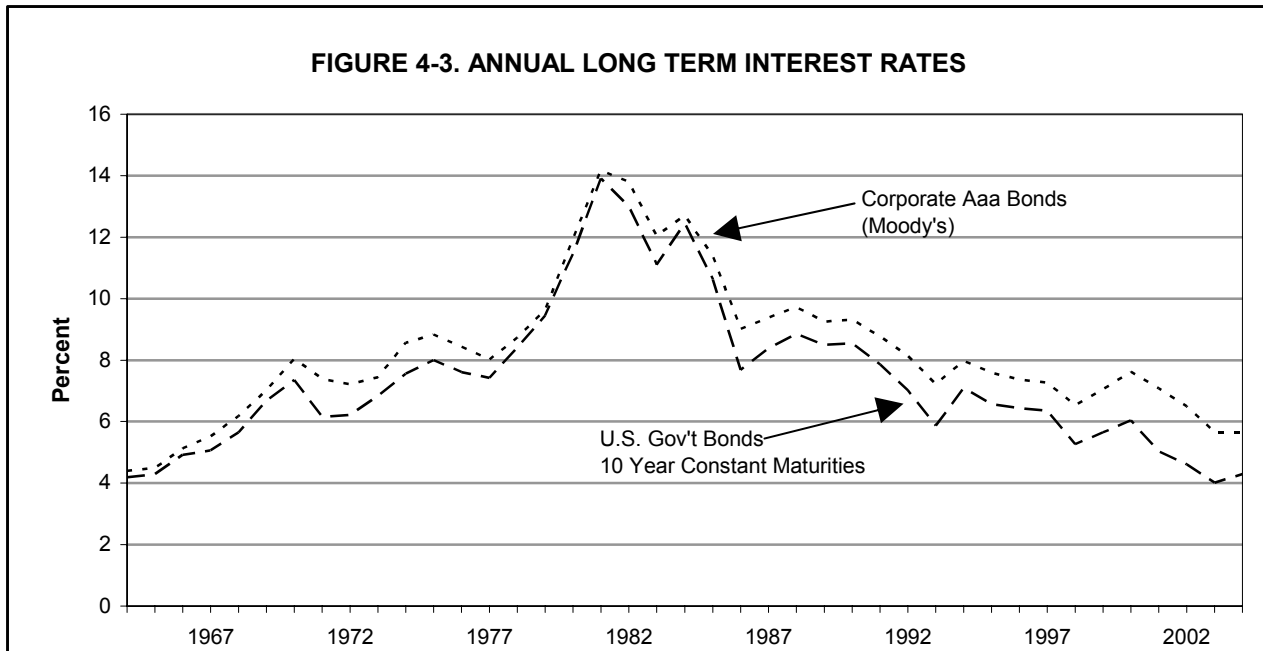
Short term interest rates bottomed out at the lowest level in 50 years in late 2003 and early 2004. In mid 2004 the Federal Reserve Board started to push interest rates up from these historic levels in an effort to reach a more neutral monetary policy position. During late 2004 rates increased about one percent, but were still historically low.



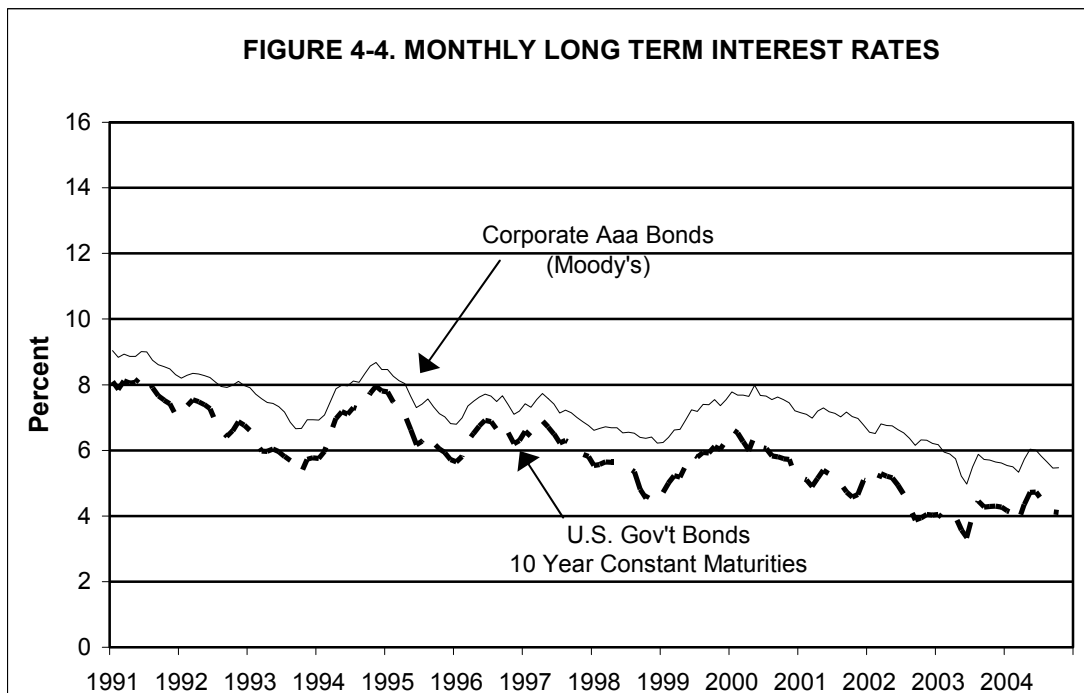
On a calendar year basis, short term rates bottomed out during 2003 and the average rate for 2004 will be about 0.35 percentage points higher than 2003.



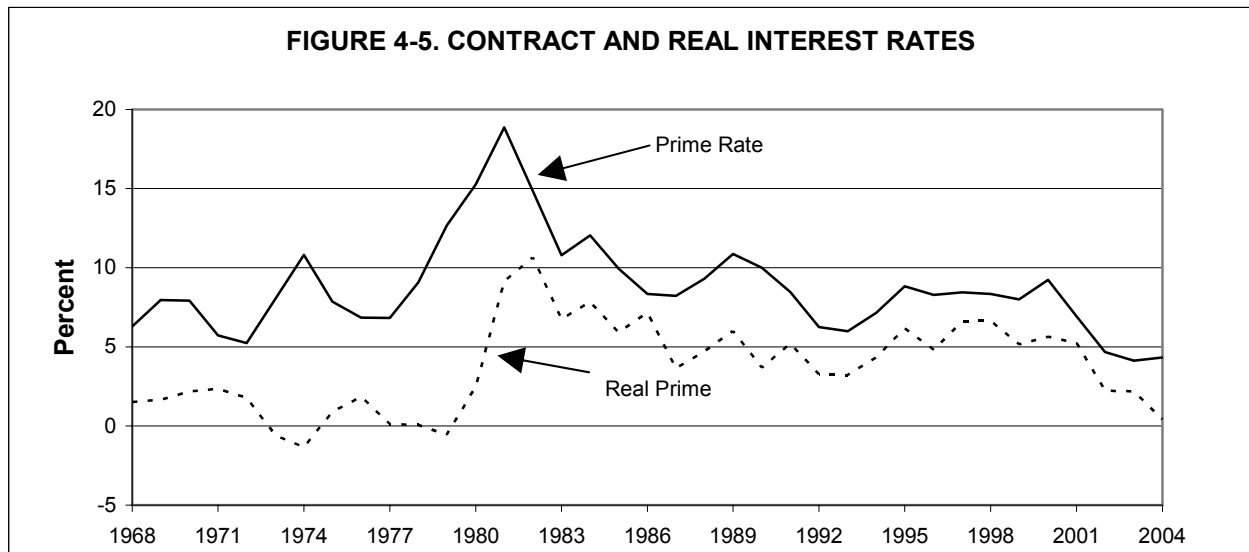
3 Month Treasury Bills		
	2003	2004
Jan.	1.17	.88
Feb.	1.17	.93
Mar.	1.13	.94
Apr.	1.13	.91
May	1.07	1.02
June	.92	1.27
July	.90	1.33
Aug.	.95	1.48
Sept.	.94	1.65
Oct.	.92	1.76
Nov.	.93	
Dec.	.90	

FIGURE 4-3. ANNUAL LONG TERM INTEREST RATES

Basic long term interest rates have been quite variable over the last two years with a dip in rates during 2003 and a spike in rates during 2004, but the resulting average level of rates has changed little. High quality corporate bonds have been at their lowest level since the 1960's

FIGURE 4-4. MONTHLY LONG TERM INTEREST RATES

U.S. Govt. Bonds		
10 Year Constant Maturity		
	2003	2004
Jan.	4.05	4.15
Feb.	3.90	4.08
Mar.	3.81	3.83
Apr.	3.96	4.35
May	3.57	4.72
June	3.33	4.73
July	3.98	4.50
Aug.	4.45	4.28
Sept	4.27	4.13
Oct.	4.29	4.10
Nov.	4.30	
Dec.	4.27	



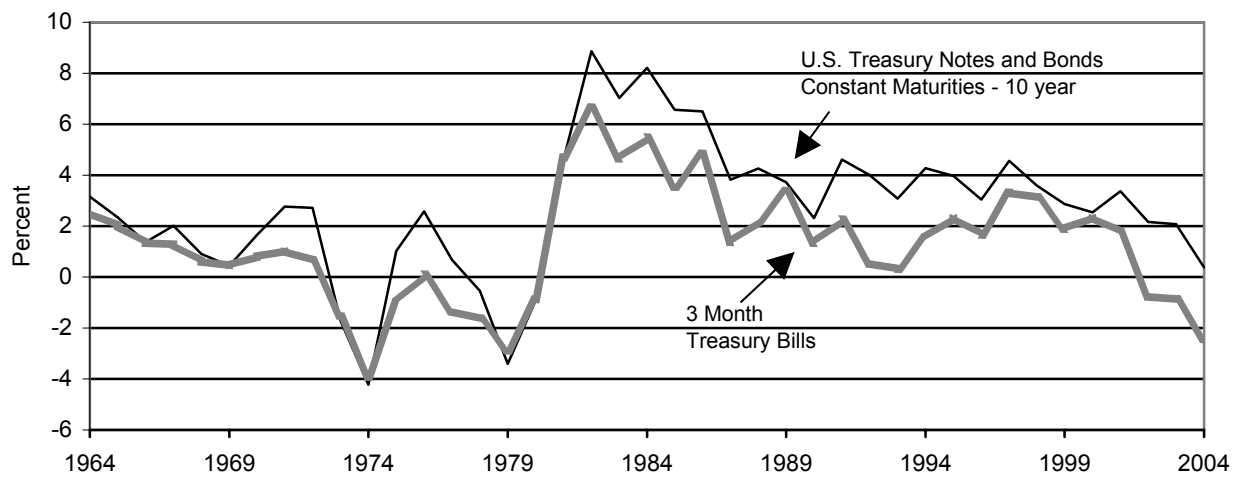
Although short-term interest rates increased somewhat during late 2004, inflation increased more rapidly, resulting in a decline in real rates. The real prime rate is approaching zero, a level it has not achieved since the rampant inflation period of the late 1970's. As of late 2004 the inflation rate is greater than the three-month Treasury bill rate, thus the government is borrowing these funds at a significantly negative real rate. Even the longer term 10 year Treasury note has a real interest rate that is only slightly above zero.

The yield curve flattened somewhat during 2004. Short-term rates increased while long-term rates were constant to down slightly. This flattening means that the interest rate premium for fixed rate loans has declined. Although the yield curve is still quite steep, as short-term rates are increased during 2005 some opportunities for more attractive fixed rate loans may appear. The trick is to lock in a low fixed rate loan before long-term rates start to rise along with short-term rates.

Forecasters now expect the economy to grow a strong 4.4 percent (year-over-year real GDP growth) in 2004. Growth at a somewhat slower 3.5 percent is expected in 2005. However, in spite of the strong growth, inflation is actually expected to decline with the average increase in the Consumer Price Index estimated at 2.2 percent for 2005 compared to 3.2 percent in 2004. The sharp increase in oil prices in 2004 contributed significantly to a rising price level in 2004. Oil prices are expected to ameliorate during 2005 and play a part in keeping the increase in the price level at modest rates. The unemployment level is expected to decline slightly during 2005 as a result of quite strong economic growth. The combined effect of strong but lower economic growth, modest inflation and some decline in the unemployment rate will put weak upward pressure on interest rates.

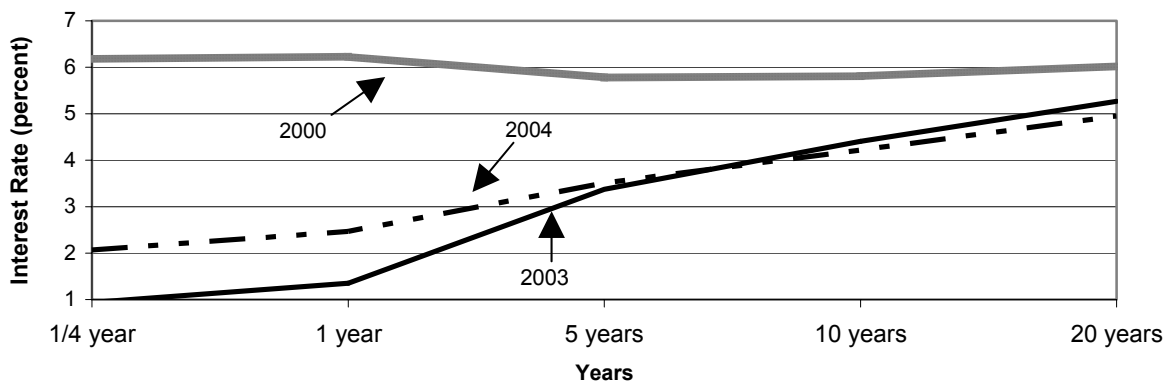
The biggest factor influencing short-term interest rates during 2005 will likely be the Federal Reserve Board's desire to move rates to a more neutral position. After moving rates down to historically low rates to foster growth, the Federal Reserve Board started moving rates back up during 2004. Given current inflation rates, interest rates need to move up another 1 to 2 percent to reach a neutral level. Forecasters generally expect short-term rates to increase nearly 1.5 percent during 2005 (fourth quarter 2005 over fourth quarter 2004).

Long term rates will likely increase much more modestly. Much of what is going on in the short term market was already built into long term rate expectations. An increase of approximately three-quarters of a percent is expected during the year. Average rates for the year are expected to be about one-half percent higher than for 2004.

FIGURE 4-6, LONG AND SHORT TERM REAL INTEREST RATES

Farm level interest rates on short term or variable rate loans are expected to increase by about 1.5 percent during 2005. Average interest costs for the year are also likely to be about 1.5 percentage points over 2004 levels. Since the major factor pushing rates up is the Federal Reserve Board, and they currently have a policy of increasing rates at a vary measured pace, the increase in rates is likely to occur gradually over the entire year.

Long term rates, and thus, rates on fixed rate loans will likely drift up somewhat as short-term rates rise. The total increase during 2005 is likely to be about three-quarters of a percent from late 2004 levels. Average rates for 2005 will likely average about one-half percent above 2004 levels. Although this implies some continued flattening of the yield curve, fixed long-term rates will still to be about two percent above variable and short-term rates at the end of 2005. Although the rising interest rates will mean sharply higher interest costs for farmers, total interest costs remain low by historical standards.

FIGURE 4-7. YIELD CURVE 1ST WEEK OF NOVEMBER (U.S. GOVERNMENT SECURITIES)

Chapter 5. Grain and Feed

William G. Tomek, Professor Emeritus

World grain production is expected to increase about 150 million metric tons (8%), while world oilseeds output is projected to increase about 50 million metric tons (16%) in 2004-05 from year-earlier levels. Nonetheless, ending inventories in 2005 for all grains will still be relatively small. Specifically, ending stocks are forecast to be about 18% of total use, down from the 23% in 2003-04. Year-ending inventories for oilseeds are projected to be a comfortable 22% of use, up from 16% this year. These changes are driven partly by the increases in corn and soybean output in the United States.

In the remainder of this chapter, I review the wheat, corn, and soybean situation in the U.S., and its implications for prices and feed costs in 2004-05. I conclude with a brief discussion of the longer-term outlook.

Wheat

The supply-use balance sheet for wheat in the U.S. is provided in Table 5-1. Production was down a bit from 2003-04, but consistent with recent trends in wheat production. Namely, acres planted are trending downward, while yield is trending upward; consequently, total output fluctuates around a constant mean. The slightly smaller output this year is almost exclusively related to a decline in hard red winter wheat production.

TABLE 5-1. SUPPLY/DEMAND BALANCE SHEET FOR WHEAT			
	2002-03	2003-04E	2004-05F
	(Million Bushels)		
Beginning Stocks	777	491	547
Production	1,606	2,345	2,158
Imports	85	72	65
Total Supply	2,468	2,909	2,770
Use:			
Food	923	911	920
Seed	83	80	82
Feed and Residual	120	211	225
Total Domestic	1,126	1,202	1,227
Exports	850	1,059	975
Total Use	1,976	2,362	2,202
Ending Stocks	491	547	568
Ending Stocks, % of Use	24.8	23.2	25.8
Season Average Farm Price			
U.S., \$/Bushel	\$3.56	\$3.40	\$3.35

E = estimated F = forecast

Source: USDA

One feature of this year's crop is lower quality, on average, in the U.S., which is related to damp and cool weather prior to harvest in much of the "wheat belt." The USDA rates less wheat than usual as good-to-excellent quality. Poorer quality tends to make U.S. wheat exports less competitive. Thus, while total production is down 157 million bushels from last year, total use is forecast to decline 160 million bushels and the average prices for the U.S. will be little changed from last year.

The circumstances in New York State (NYS) are somewhat different. Wheat production is down from 6.4 million bushels last year to 5.3 this year. Only 100,000 acres of wheat were harvested, down from 120,000 last year. The average yield of 53 bushels per acre is slightly below the historical norm, and output was the smallest since 1993. Quality in NYS is improved from last year. Wheat prices in NYS are running at least 50 cents per bushel higher than a year earlier.

Corn

The U.S. has harvested an incredible corn crop in 2004, estimated to be 11.7 billion bushels, which compares with 10.1 last year, which was itself a record (Table 5-2). Harvested acreage is estimated to be 73.3 million, compared with 71.1 last year. But, the big story is the *national average yield* of 160.2 bushels per acre. (I have more to say about trends in yields in the last section.) Coarse grain production in the rest of the world is forecast to increase about 6%.

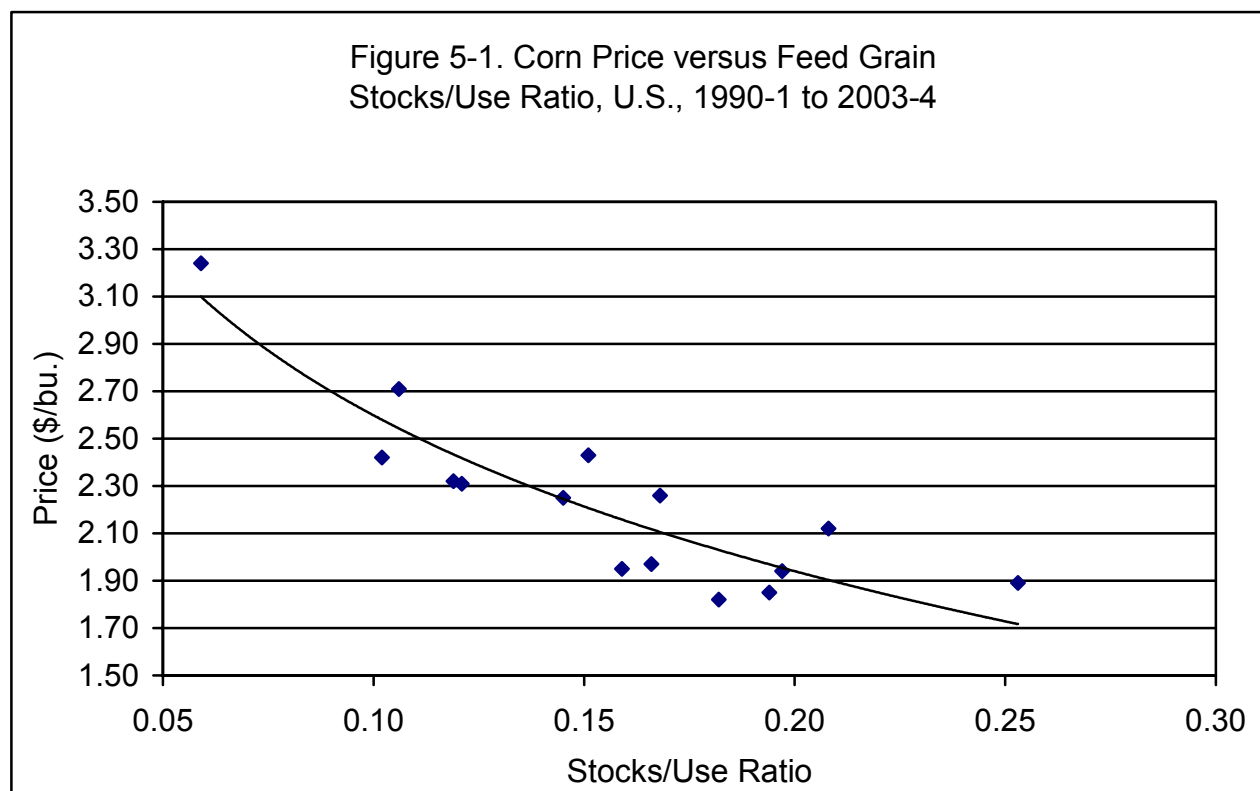
TABLE 5-2. SUPPLY/DEMAND BALANCE SHEET FOR CORN			
	2002-03	2003-04E	2004-05F
	(Million Bushels)		
Beginning Stocks	1,596	1,087	958
Production	8,967	10,114	11,741
Imports	14	14	15
Total Supply	10,578	11,215	12,714
Use:			
Feed and Residual	5,563	5,783	6,075
Food, Seed and Ind. Uses	2,340	2,577	2,770
Total Domestic	7,903	8,360	8,845
Exports	1,588	1,897	2,050
Total Use	9,491	10,257	10,895
Ending Stocks	1,087	958	1,819
Ending Stocks, % of Use	11.5	9.3	16.7
US Season Average Farm Price, \$/Bushel	\$2.32	\$2.42	\$1.90

E = estimated F = forecast

Source: USDA

With carry-over of almost one billion bushels this past August 31, the total supply of corn in the U.S. will be 12.7 billion bushels. This means lower prices and larger use. Nonetheless, inventories are projected to increase to about 1.8 billion bushels by next August 31. Larger uses are forecast to occur in all categories: livestock feed, ethanol for fuel, sweeteners and other food-related uses, and exports. Ethanol production is expected to consume 1.37 billion bushels of corn in 2004-05 compared with 1.2 last a year and 1.0 in 2002-

03. If the 04-05 projections hold true, ending inventories will be about 16 or 17% of use, up from only 9.3% on August 31, 2004. Figure 5-1 illustrates the relationship between the average farm price of corn and the stocks-to-use ratio for feed grains in the U.S. On average a ratio of 0.17 is associated with a national average price of about \$2.10 per bushel, but in recent years, prices have tended to be below the average relationship. The USDA is projecting that prices will be in the \$1.70 to \$2.10 range.



The situation in NYS does not exactly mimic the national situation. Acres harvested for grain are estimated to have increased by only 10,000 to 450,000 acres. NYS yield is estimated to be 121 bushels per acre, the same as last year's. Both yields are record highs for the State, but are well below the average yields in corn belt states like Iowa, with a yield of 183 bushels per acre. Consequently, NYS production will be up only 1.1 million bushels (Table 5-4).

In the past 20 years, the largest acreage harvested for grain in NYS was 720,000 in 1985. As recently as 1996, 630,000 acres were harvested. Clearly there has been a downward drift in corn acreage harvested for grain, only partly offset by higher yields. This has meant that the feed grain deficit, while variable from year to year, has tended to increase in the past five years (notwithstanding the declining number of dairy cows). The larger deficit tends to strengthen local corn prices relative to the national average. In 2003-04, the national average price of corn is estimated to be \$2.42 per bushel; the comparable number in NYS was \$2.80.

Soybeans

After a very poor crop last year, with an average yield of 33.9 bushels per acre, the U.S. harvested a record soybean crop in 2004-05, of 3.15 billion bushels (73.99 million harvested acres and 42.6 bushels per acre yield). Given last year's small crop, the carry-in on August 31 was only 112 million bushels, and thus the total supply for this year is about 3.3 billion bushels.

The stocks-to-use ratio on August 31 was a tiny 4.4%, reflecting the small supply and large demand, and the average farm price last year is estimated to be \$7.34 per bushel (Table 5-3). In addition to the small U.S. crop, expectations about the southern hemisphere's crop were not realized. Last year at this time, Brazil was expected to harvest about 60 million metric tons of soybeans; the actual crop, harvested last April and May, is estimated to be 52.6 million tons. For this coming harvest, the USDA is forecasting a Brazilian crop of 64.5 million metric tons. (U.S. production converted to metric tons is 85.7 million; for soybeans, one metric ton equals 0.027216 bushel.) Current prices presumably reflect this expectation about production. One of the big uncertainties about next year, however, is the possible effect of soybean rust on the southern hemisphere crop, especially in Brazil; it could reduce yields from 15 to 50%. In the latter case, soybean prices could strengthen dramatically.

TABLE 5-3. SUPPLY/DEMAND BALANCE SHEET FOR SOYBEANS			
	2002-03	2003-04E	2004-05F
	(Million Bushels)		
Beginning Stocks	208	178	112
Production	2,756	2,454	3,150
Imports	2	6	6
Total Supply	2,969	2,638	3,269
Use:			
Crushings	1,615	1,530	1,645
Exports	1,044	885	1,010
Seed and Residual	130	111	153
Total Use	2,791	2,525	2,808
Ending Stocks	178	112	460
Ending Stocks, % of Use	6.4	4.4	16.4
US Season Average Farm Price, \$/Bushel	\$5.53	\$7.34	\$4.95

E = estimated F = forecast

Source: USDA

The world demand for soybeans has continued to grow. China has shifted from a small exporter of soybeans as recently as 1994 to a major importer (between 20 and 25 million metric tons in 2004). It is unclear whether or not this upward trend will persist, though clearly population and incomes in China have been growing. So, soybean prices in 2005 are going to depend importantly on the southern hemisphere crop and world-wide demand for oilseeds.

As of now, the USDA is forecasting soybean exports of 1.0 billion bushels in 2004-05 compared with 885 million last year. Domestic crushing of beans will also increase, with a total forecast use of 2.8 billion bushels. Consequently, carryover on August 31, 2005 is projected to be 460 billion bushels or about 16.4% of use; this would constitute a four-fold increase from the previous year. But, given the uncertainties attached to the worldwide supply and demand for soybeans, prices are likely to vary considerably, even on a daily basis.

Soybean acreage in NYS is trending upward, though with relatively flat yields. Acres for harvest in 2004 are estimated to be 173,000 (Table 5-4); the previous high was 158,000 in 2001. Yield is expected to be 36 bushels per acre, which if realized, will result in a total crop of 6.23 million bushels. Like corn, soybean production in the State is a tiny proportion of the national crop, and hence the major factors influencing local prices are the overall supply-demand conditions in the nation and world.

TABLE 5-4. NEW YORK STATE FIELD CROPS			
	2002	2003	2004E
Wheat			
Acres (1,000) ^a	118	120	100
Yield (bushels)	58	53	53
Production (1,000)	6,844	6,360	5,300
Price (\$/bu.)	3.28	2.10	-
Corn			
Acres (1,000) ^a	460	440	450
Yield (bushels)	97	121	121
Production (1,000)	44,620	53,240	54,450
Price (\$/bu.)	2.87	2.80	-
Soybeans			
Acres (1,000) ^a	144	138	173
Yield (bushels)	32	35	36
Production (1,000)	4,608	4,830	6,228
Price (\$/bu.)	5.85	7.00	-

a = harvested acres

E = preliminary or forecast

Source: USDA and NYS Agricultural Statistics

As implied above, considerable uncertainty attaches to soybean prices and hence to soybean product prices. Soybean meal prices in the U.S. averaged about \$256 per ton last year, and given conditions in mid-November, the USDA estimates that meal prices in 2004-05 will be in the \$145 to \$175 range, i.e., possibly a \$100 per ton drop from a year ago.

More On Prices

Futures markets perhaps provide as accurate a reflection of expected prices as any other forecast. Settlement prices for futures contracts for corn, soybeans, and soybean meal on November 15, 2004 are provided in Table 5-5. These are prices for contracts traded on the Chicago Board of Trade for delivery at Illinois locations. They, of course, are a snapshot reflecting economic conditions on November 15, and by the time you read this chapter, prices will have changed, because of new information. This emphasizes that grain markets are dynamic, with constantly changing economic conditions. The data in this chapter reflect what was known in mid-November.

TABLE 5-5. PRICES FOR FUTURE DELIVERY, NOVEMBER 15, 2004

<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	2.02 ½	January	5.35 ¾	January	154.70
March	2.14	March	5.41 ½	March	157.10
May	2.21 ¼	May	5.46 ¼	May	160.00
July	2.27 ¾	July	5.52	July	163.30
September	2.34 ½	September	5.60	September	165.70
December	2.41 ½	November	5.68	December	170.00

Source: www.cbot.com

The prices for contracts for future delivery are well below year-ago levels. For December delivery, corn is down \$0.38 per bushel. Soybeans are down \$2.43 per bushel and soybean meal is down \$88 per ton for January delivery. Corn prices for the various delivery months reflect what is often termed “full carrying charges;” that is, prices for adjacent delivery months fully reflect the costs of storage. Soybean and soybean meal prices also are expected to rise seasonally. The amount of the seasonal increase is perhaps surprising given the looming harvest in the southern hemisphere, but it does provide an incentive to store, particularly in mid-Western locations.

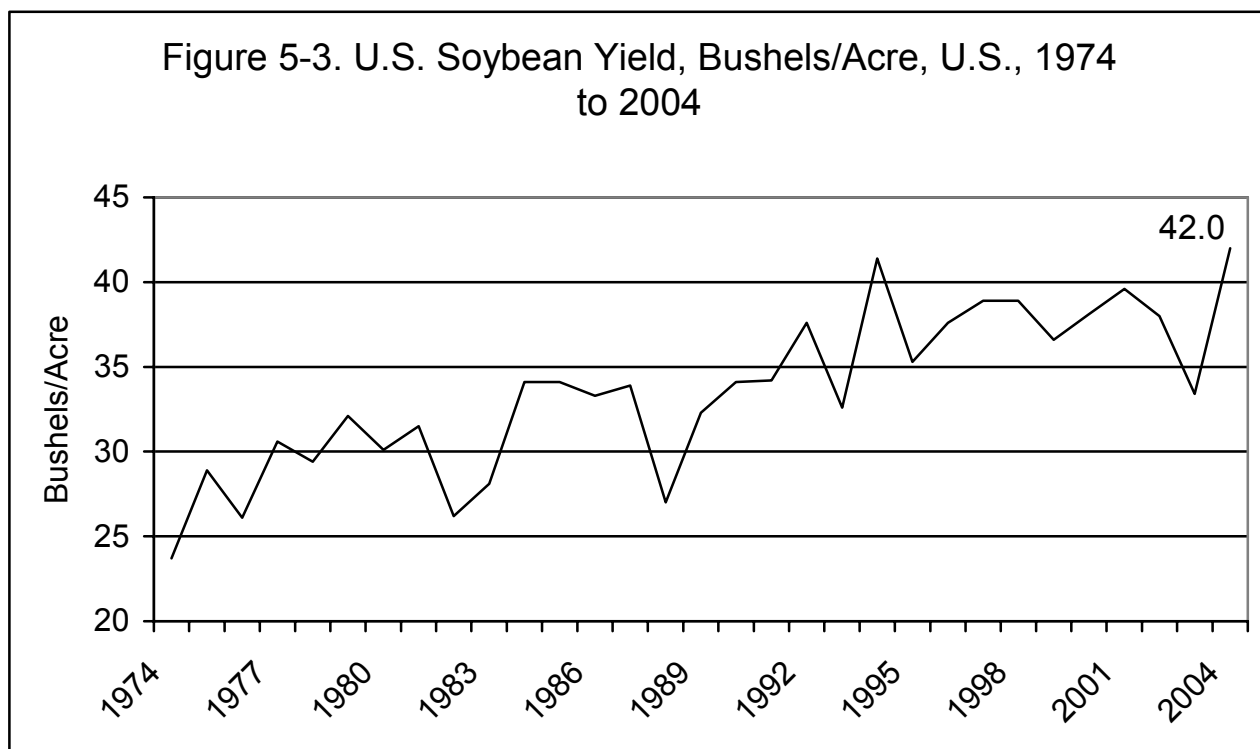
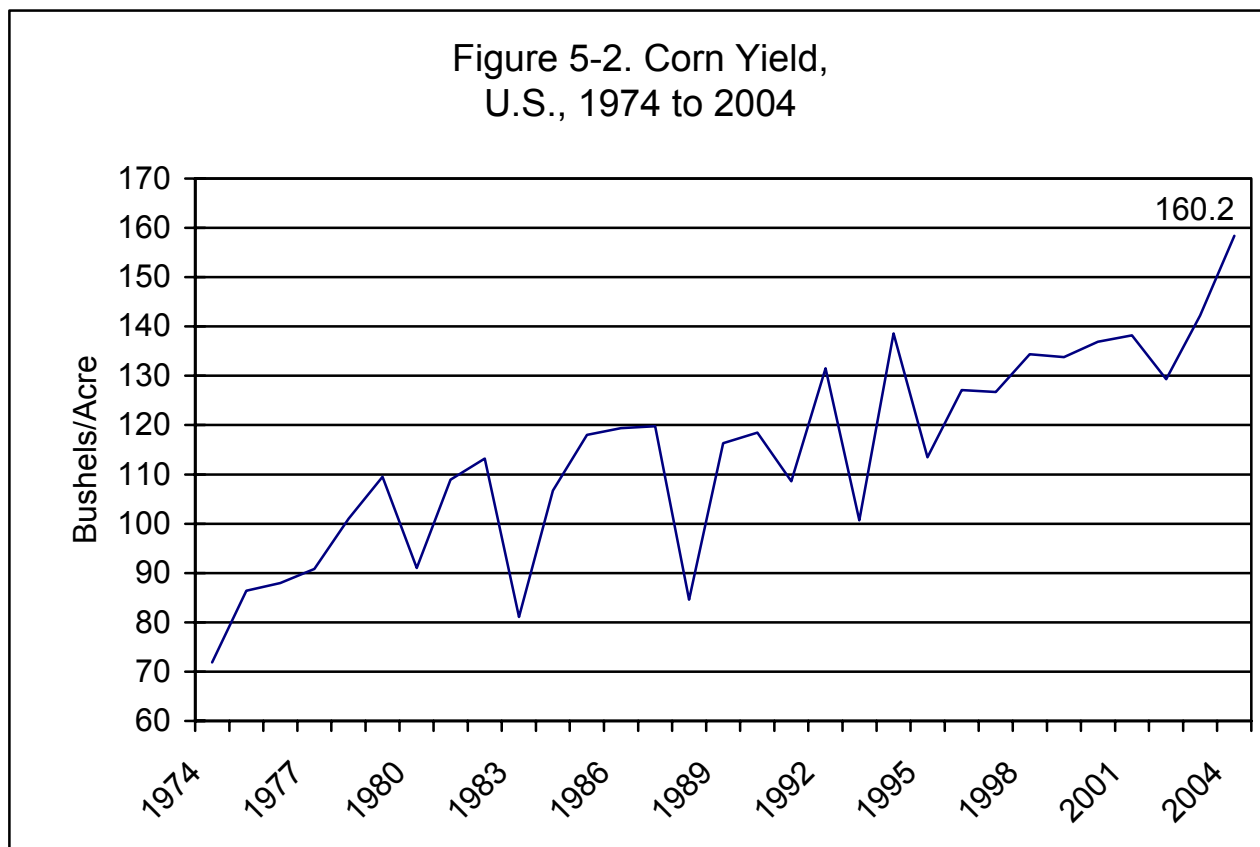
The market currently believes that harvest-time prices for the 2005 soybean and corn crops will be higher than this year. This outlook reflects the likelihood that the exceptionally high yields of 2004 will not be repeated next year.

Based on current conditions, the cost of dairy feed over the next six to nine months should be below last year's level. As noted above, however, prices of soybeans and soybean meal will be influenced by the crop size in Brazil and Argentina, including the possible effects of soybean rust, as well as by possible changes in demand in China and elsewhere.

Longer-term Trends

Prices of commodities in future years will depend on the “race” between supply and demand. On the supply side, commodity yields have trended upward along a straight line (Figures 5-2 and 5-3). Corn yields have had especially robust growth. Over the past 25 years or so, supply has tended to grow relative to demand, keeping downward pressure on prices (with exceptions like 2003-04 and 1995-96). A major question, difficult to answer, is, will this continue to be the case?

If one goes back to the 1949 - 1951 period, the U.S. corn yield was about 38 bushels per acre. By 1974, the trend yield was over 85 bushels, and by 2004, it was over 140. (Actual yield is over 160.) Soybean yields have also grown. In 1949 - 1951, the average yield was about 22 bushels per acre; in 1974, the trend yield was about 27; and today, the trend line is projecting a yield of 40 bushels per acre. (Actual soybean yield in 2004 is over 42.) It is impossible to know if these trends will persist into the future, but the historical growth is clear.



On the demand side, population and incomes are growing, and with economic development, new uses continue to be found for commodities. Corn used to be consumed mostly as livestock feed, but now over 20% of the corn supply in the U.S. is used for food and industrial purposes. Ethanol accounts for about one-half of this use category, and it is a source of growing demand for corn. The U. S. is also the major exporter of corn.

From a dairy farmer's perspective, competition is growing for the use of basic commodities like corn and soybeans. It certainly is possible that on average, feed costs could trend upward in future years. But much will depend on unforeseeable growth in crop yields and competing demands for commodities.

Chapter 6. Dairy — Markets and Policy

Mark W. Stephenson, Senior Extension Associate

2005 Dairy Outlook

Positive Factors:

- Low concentrate prices
- Adequate forage supplies
- Strong demand for dairy products
- Strong milk prices

Negative Factors:

- First cutting forage quality is questionable
- Rising interest rates
- Large and increasing federal debt

Uncertainties:

- Mixed signals from CME cash and futures markets
- Future of government expenditures on agricultural programs

New York Dairy Situation and Outlook 2002, 2003 Preliminary 2004, and Projected 2005						
Item	2002	2003	2004	2005	Percent Change	
					03-04	04-05
Number of milk cows (thousand head)	675	671	655	650	-2.4	-0.8
Milk per cow (lbs.)	18,101	17,812	17,700	17,900	-0.6	1.1
Total milk production (million lbs.)	12,218	11,952	11,600	11,800	-2.9	1.7
Blended milk price (\$/cwt.) ^a	12.64	12.99	16.32	15.52	25.6	-4.9

^a Northeast federal order statistical uniform price for farms shipping milk to Suffolk County, MA (Boston).

Table 6-1. U.S. Milk Supply and Utilization, 1998–2005.

	1998	1999	2000	2001	2002	2003 ^a	2004 ^b	2005 ^c
<u>Supply</u>								
Cows Numbers (thous.)	9,158	9,156	9,206	9,115	9,137	9,084	9,010	8,944
Production/cow (lbs)	17,192	17,771	18,201	18,139	18,612	18,748	18,974	19,455
Production	157.4	162.7	167.6	165.5	169.8	170.3	171.0	174.0
Farm Use	1.4	1.3	1.3	1.3	1.2	1.2	1.2	1.1
Marketings	156.0	161.4	166.3	164.2	168.5	169.1	169.8	172.9
Beginning Commercial Stocks	4.9	5.3	6.1	6.8	6.1	9.9	8.5	7.4
Imports	4.6	4.8	4.4	5.7	5.1	5.0	5.5	5.7
Total Supply	165.5	171.4	176.8	176.8	179.8	184.1	183.8	186.0
<u>Utilization</u>								
Commercial Disappearance	159.9	164.9	169.2	169.6	169.6	174.3	176.5	179.2
Ending Commercial Stocks	5.3	6.1	6.8	7.0	9.9	8.5	7.4	6.7
DEIP	0.3	0.3	0.4	0.1	0.0	0.1	0.1	0.1
Net Removals (excluding DEIP)	0.0	0.1	0.5	0.1	0.3	1.1	-0.2	0.0
Total Use	165.5	171.4	176.8	176.8	179.8	184.1	183.8	186.0

Source: Dairy Situation and Outlook, Milk Production, and Dairy Market News, U.S. Department of Agriculture. Note that total may not add exactly due to rounding.

* Leap year.

^a Revised.

^b Based on preliminary USDA data and Cornell estimates.

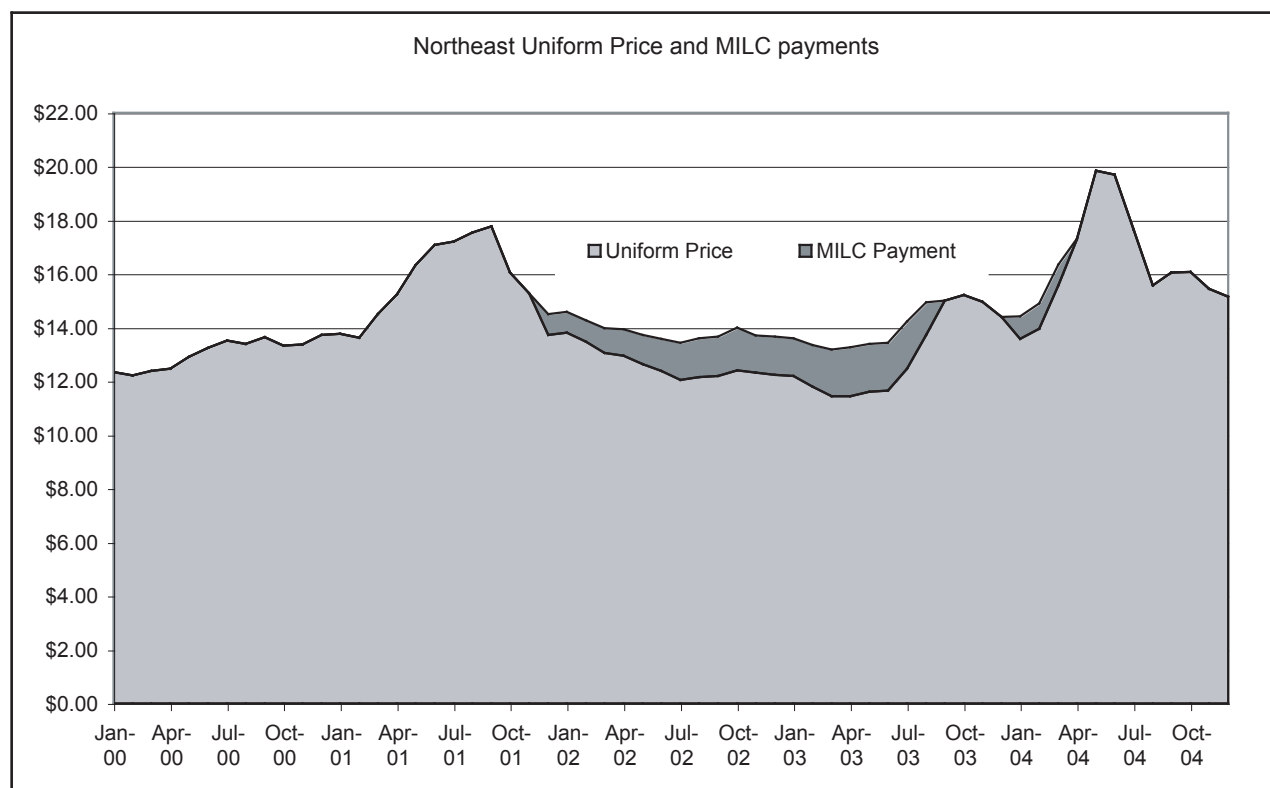
^c Projected by Mark Stephenson.

The Dairy Situation

It was a stunning year. Never before have we seen milk prices approach the heights that were scaled in of the second quarter of 2004. In May, class III milk prices exceeded \$20 per hundredweight. Prior to this year, 2001 had been the high-water mark when the Northeast uniform price averaged \$15.67. This year, the uniform price will average something like \$16.32. Some folks were referring to a series of events that help to create the environment for these prices as the “perfect storm”.

There were several components to the perfect storm. One of these was the previous two years of milk prices. Excess milk production following the strong milk prices of 2001 led to much lower prices beginning in November of 2001. These low milk prices were persistent. For the 12 months of July, 2002 through June, 2003, the class III price averaged just \$9.71.

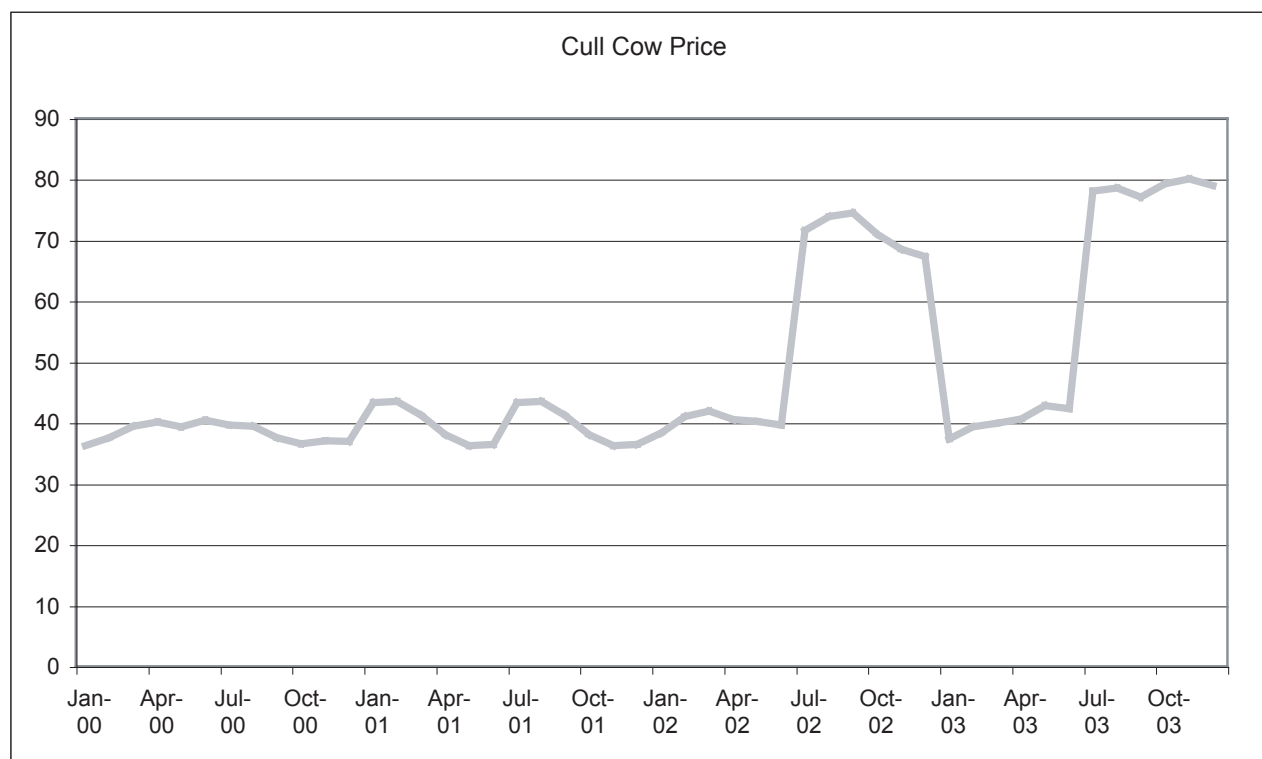
Producers found some relief from these low milk prices in the Milk Income Loss Contracts (MILC). The MILC program was newly introduced as a part of the 2002 Farm Bill and implemented retroactively to October 2001. This program provides a direct payment to dairy producers when the class I milk price in Boston is less than \$16.94. The payment is actually 45 percent of the difference between \$16.94 and the class I price. This program was a compromise to New England producers for the loss of authority to continue the Northeast Dairy Compact. \$16.94 was the trigger price for Compact payments and 45 percent was roughly equal to the class I utilization in the Northeast. The MILC was expected to generate a similar revenue stream for dairy producers.



At least three significant differences come to mind between the Compact and MILC payments. An obvious difference is that Compact payments came from processors who in turn passed the higher costs along to retailers and ultimately consumers. With the MILC payments, the money came directly from taxpayers with the result that consumers did not witness the higher product prices in the stores. A second difference is that all producers in the country had access to the program, not just northeastern producers. The last dissimilarity is that the payments were capped at 2.4 million pounds of milk per farm—the equivalent of about 135 cows. Smaller producers received the full per hundredweight value of the payments while larger farms, who experienced the production cap, may have received a much smaller benefit from the program.

Right or wrong, we have typically seen relief from low prices come when milk supplies are tightened by the loss of smaller farms. The MILC program accomplished part of its objective of targeting benefits to smaller producers and helping to keep smaller operations in business through the months of distressed market prices. However this had the effect of pushing the problem up onto larger farms. Because of this, the low milk prices lasted much longer than most folks had predicted. Persistently low prices were part of the perfect storm.

Another part of the storm was the closed border between the U.S. and Canada. In May 20, 2003, a Canadian cow was discovered with bovine spongiform encephalopathy (BSE). This immediately closed the borders to trade in live animals and animal products. The U.S. had been receiving something like 90,000 dairy heifers annually and this had the effect of reducing U.S. cow numbers. We had also been receiving substantial shipments of Canadian animals for slaughter. The border closure also reduced the red meat supply in the U.S. and cull cow prices soared. With low milk prices and high cull cow prices, many more domestic cows were culled further reducing the milk supply.



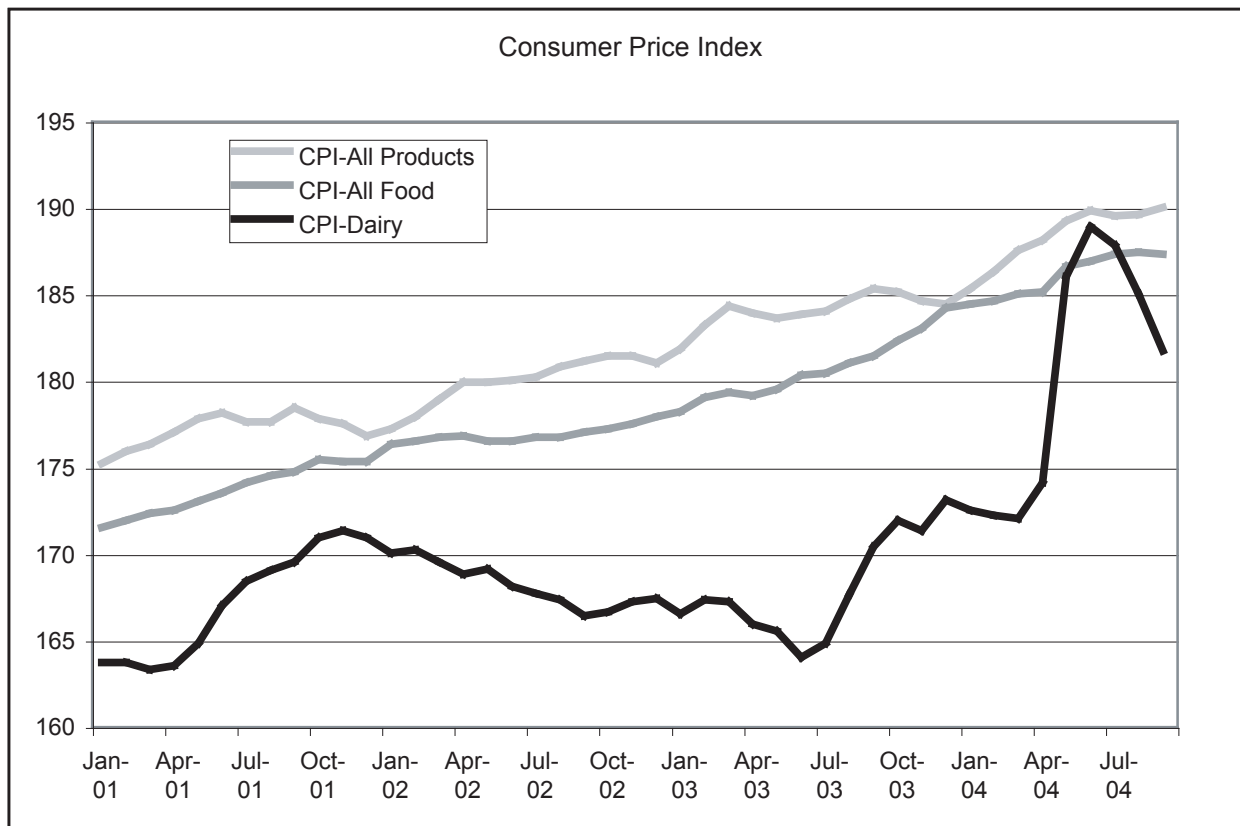
Dairy farmers fed up with low milk prices conceived of a self-help plan known as Cooperatives Working Together, or CWT. CWT would be funded by a voluntary assessment of 5 cents per hundredweight of milk produced and would use the money to purchase herds for slaughter, to reimburse farms for reduced production and to subsidize exports of dairy products. With about 70 percent of milk participating across the U.S., the program removed about 33,000 cows from the national herd.

Milk per cow was also affected in the perfect storm. Monsanto announced closure of the U.S. plant manufacturing rBST. With this announcement, they indicated that there would be an inadequate supply of the product and that users would be rationed to 50 percent of their historical usage. About the same time, widespread drought in the grain states caused shortages in grain crops. With higher feed prices and reduced rBST, 2003 milk per cow was just about equal to the previous year—not even close to the 2 percent increase that is expected annually.

All of these factors conspired to reduce the milk supply during the first half of 2004. At the same time, the U.S. economy was beginning to rebound and demand for dairy products was beginning to strengthen. The result of reduced supply and increased demand—much higher milk prices.

The Dairy Outlook

For many years dairy products have been a good consumer buy. Dairy prices have risen more slowly at retail than other food products and quite a bit more slowly than all other items in the Consumer Price Index (CPI). However, as farm milk prices were rapidly rising in the second quarter of 2004,



retail prices also began a meteoric rise. At this point, if we ever had any doubts, we found out that consumers do care about dairy product prices. Demand for fluid milk and other products saw a marked decline but as farm prices moderated, so too did retail prices.

On the supply side, don't expect to see Canadian heifers entering the U.S. in the year ahead. It is possible that borders could be opened to some live animals by year's end, but those are expected to be animals shipped here for slaughter. Canada really doesn't have the capacity to handle the current volume of beef being processed in their country. And, most folks feel that we won't import dairy animals until we have implemented an animal identification system.

Beef production in the U.S. is not expected to maintain its growth. Winter pasture appears to be quite good and growers are holding back some animals even as record-high feeder cattle prices are trying to pull animals to slaughter. This will continue to provide high cull cow prices which will move marginal dairy cows to slaughter. Culling has been exceptionally light in 2004 as producers held on to every available animal in response to the high milk prices.

Cooperatives Working Together (CWT) has also accepted bids to remove 49,000 dairy cows over the next 12 months. Some of these will certainly be animals that were destined for slaughter even without the program, but there will be some impact on the supply of milking animals.

Record high corn and soybean crops will give dairy producers unusually favorable concentrate prices. It looks as though corn may be as much as \$0.50 per bushel lower than recent years and soybean meal is expected to drop perhaps \$75 per ton from last year's prices.

Forages are also in greater quantity this year. Corn silage yields have been excellent throughout the country. First cutting hay was bountiful but of poor quality in many regions. However, subsequent cuttings were of good quality and plentiful.

Monsanto has also indicated that rBST supplies will be increasing. Producers are being offered 70 percent of historic usage, up from 50 percent last year. This increase will probably not be a dominating factor in increased milk per cow across the country but it will be a factor.

The end result for milk production is that moderate declines in cow numbers will be more than offset by increases in milk production per cow. I am expecting that we will have something better than a 1.5 percent increase in milk production for the year.

On the demand side, export subsidies under the national Dairy Export Incentive Program (DEIP) and CWT will move a modest amount of product overseas. It also looks as though Oceania production will be smaller than usual and that we may have the opportunity to export some nonfat dry milk powder perhaps without subsidy. Encouraging exports is a relatively weak U.S. dollar making our products less expensive for other countries to buy.

The Federal Reserve Board has acknowledged our rebounding economy with increases in the federal funds rate of interest. Another measure supporting an increase in demand for dairy products are the increases that we have seen in the Consumer Confidence Board's survey of consumer sentiment. I

am expecting that this will translate into something like a 1.5 percent increase in commercial disappearance for dairy products.

Table 6.1 contains projections for milk supply and utilization. The bottom line...When I put together my expectations for milk production and demand, I can't balance the equation without drawing down commercial stocks of dairy products by a fair amount. As such, I am expecting 2005 to be another very good price year for producers.

I can't promise prices at 2004 levels, but keep your eye on the Cold Storage report. That is where commercial inventories of dairy products are shown monthly. If inventories are being drawn down by the time we are heading into the spring flush, we could see product prices increase rapidly. My current projections are that class III prices may be greater than \$15 by late spring/early summer. Overall I am projecting a \$13.65 class III price for 2005.

Policy

My own projections expect class I prices to drop to levels that would again trigger MILC payments by January 2005 and continue through May. We should remember that the MILC program was authorized in the last farm bill and is scheduled to terminate in September of 2005. A number of attempts have been made to extend the program at least until the end of the current farm bill in September 2007. During the campaign, president Bush has indicated that he supported continuation of the program. However, the actions of his party would indicate that a MILC extension may have a difficult time making it to the president's desk for signature.

George Bush is an idealist and I don't think that very large deficits are a part of the legacy that he wants to be remembered for. Recently, congress had to pass legislation to increase the allowable federal debt level to 8 trillion dollars. As the Republican party has a majority in both the House and Senate, and in fact has gained seats, I think that we can look forward to four years of reduced government involvement in the dairy industry (particularly if the market price for milk doesn't crash and remain low for long periods of time). I also think that we can look forward to a posture of increased trade in agricultural products, including dairy.

As part of a cabinet restructuring, Agricultural Secretary Ann Venneman submitted her resignation to the president on November 16, 2004. At the time of this writing, it is unclear who the new Secretary of Agriculture will be, but president Bush has indicated that he is strongly in favor of promoting more liberalized trade and his cabinet choice will probably reflect that.

It is unlikely that this year will see any significant progress on the Doha Round of the World Trade Organization talks. I also doubt that there will be any significant efforts to begin the next farm bill discussions. In a word, expect 2005 to be a relatively sleepy year for dairy policy.

Summary

2002-2003 were very low milk price years. During this time, many producers drew down credit reserves and built up large open accounts with input suppliers. 2004 provided substantial relief and most accounts have been paid down but producers are not yet feeling expansionary. I think that 2005 will be another excellent milk price year—not the levels that we saw in 2004, but excellent nonetheless.

Table 6-2. National Farm Prices for Milk; CCC Purchase, Wholesale, and Retail Prices for Cheddar Cheese, Butter, and Nonfat Dry Milk; and Selected Retail Price Indices, 1994–2002.

	1996	1997	1998	1999	2000	2001	2002	2003	2004 ^b
Farm Milk (\$/cwt.)									
All Milk (ave. fat)	14.75	13.34	15.50	14.38	12.40	15.05	12.11	12.53	15.95
Class III (3.5%)	13.39	12.05	14.20	12.43	9.74	13.10	10.42	11.42	15.06
Support (3.5%)	10.25	10.10	9.95	9.80	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	2.61	3.02
MILC payments ^c	0.00	0.00	0.00	0.00	0.00	0.06	1.21	1.64	0.65
Cheddar Cheese, Blocks (\$/lb.)									
CCC Purchase	1.145	1.130	1.115	1.100	1.122	1.131	1.131	1.131	1.131
Wholesale, NCE/Chicago Mercantile Exchange	1.466	1.308	1.569	1.404	1.149	1.439	1.182	1.317	1.634
Butter (\$/lb.)									
CCC Purchase, Grade A or higher, Chicago	0.650	0.650	0.650	0.650	0.668	0.855	0.855	1.050	1.050
Wholesale, Gr. AA, Chicago Merc. Exchange	1.078	1.159	1.769	1.229	1.177	1.663	1.106	1.145	1.814
Nonfat Dry Milk									
CCC Purchase, Unfortified (\$/lb.)	1.065	1.047	1.028	1.010	1.010	0.900	0.900	0.800	0.800
Wholesale, Central States	1.222	1.100	*1.069	1.031	1.015	1.004	0.928	0.838	0.856
Retail Price Indices (1982–84=100.0)									
Whole Milk	141.1	142.9	147.9	156.2	156.9	165.9	162.1	162.5	183.5
Cheese	144.7	147.7	152.3	162.6	162.8	167.6	170.0	169.4	181.0
All Dairy Products	142.1	145.5	150.8	159.6	160.7	167.1	168.1	167.9	180.5
All Food	153.3	157.3	160.7	164.1	167.8	173.1	176.2	180.0	186.2
All Consumer Prices	156.9	160.5	163.0	166.6	172.2	177.1	179.9	184.0	189.0

Source: Dairy Situation and Outlook, Dairy Market News, and Federal Milk Order Market Statistics, U.S. Department of Agriculture.

^a Revised.^b Estimated by Mark Stephenson.^c Milk Income Loss Contract payments began in October of 2001 and are scheduled to end in September of 2005.

The Northeast Dairy Situation and Outlook

Number of Producers by State Northeast Federal Milk Marketing Order													
	Jan-03	Feb-03	Mar-03	Apr-03	May-03	Jun-03	Jul-03	Aug-03	Sep-03	Oct-03	Nov-03	Dec-03	Ave
DE	76	77	76	77	77	72	70	70	70	68	66	64	72
ME	413	409	408	409	406	405	403	404	403	403	400	398	405
MD	633	636	634	632	630	624	623	621	623	614	612	608	624
NJ	138	136	135	133	134	133	133	132	132	133	131	130	133
NY	6,203	6,191	6,160	6,138	6,106	6,097	6,096	6,114	6,075	6,006	5,965	5,955	6,092
PA	6,732	6,675	6,630	6,561	6,568	6,596	6,636	6,606	6,618	6,542	6,524	6,504	6,599
CT	1,383	1,377	1,370	1,369	1,361	1,345	1,344	1,337	1,330	1,322	1,317	1,337	1,349
VA	104	116	103	186	184	183	189	196	194	187	168	181	166
WV	32	28	26	30	25	38	26	25	26	23	24	24	27
Other Regional*	594	591	590	590	586	574	572	571	568	559	547	547	574
Other States**	68	70	76	68	68	68	83	81	74	54	75	74	72
Average	16,376	16,306	16,208	16,193	16,145	16,135	16,175	16,157	16,113	15,911	15,829	15,822	16,114

* Represents restricted data for the states of Connecticut, Massachusetts, New Hampshire, and Rhode Island

** Represents restricted data for the states of Idaho, Michigan, Minnesota, Nevada, Utah, and Wisconsin.

Source: Northeast Monthly Federal Milk Order Market Statistics .

In January, 2000, the New England, Middle Atlantic, and New York-New Jersey federal milk marketing orders were merged into a single new Northeast federal milk marketing order. New York state has producers who are pooled on other federal and state orders, most notably the Western New York State order and the new Mideast federal order. However, producers from states well outside the Northeast (Idaho, Nevada and Utah for example) are also pooled on the Northeast order.

Average Daily Output per Farm by State, Pounds Northeast Federal Milk Marketing Order													
	Jan-03	Feb-03	Mar-03	Apr-03	May-03	Jun-03	Jul-03	Aug-03	Sep-03	Oct-03	Nov-03	Dec-03	Total
DE	4,600	4,987	4,601	5,074	4,899	4,275	3,569	3,411	3,408	3,616	4,163	4,039	4,220
ME	4,087	4,101	4,171	4,198	4,277	4,284	4,240	4,103	4,123	4,004	3,979	4,051	4,135
MD	4,570	4,743	5,048	5,319	5,172	4,557	4,012	3,888	3,828	3,970	4,188	4,412	4,476
NJ	4,207	4,363	4,494	4,589	4,541	4,226	4,041	3,979	3,891	3,803	3,820	3,927	4,157
NY	4,453	4,545	4,670	4,725	4,800	4,725	4,656	4,473	4,477	4,447	4,430	4,765	4,597
PA	3,293	3,440	3,555	3,614	3,562	3,226	3,128	3,020	3,030	3,054	3,072	3,175	3,264
CT	5,287	5,333	5,402	5,407	5,477	5,441	5,301	5,150	5,205	5,151	5,186	5,258	5,300
VA	4,752	4,311	4,805	4,213	4,069	3,658	3,595	3,502	3,479	3,871	4,218	4,244	4,060
WV	3,586	4,250	4,454	4,039	4,183	3,310	3,333	2,897	3,124	3,689	3,703	3,649	3,685
Other Regional*	4,958	4,980	4,993	5,000	5,019	4,848	4,702	4,518	4,590	4,596	4,697	4,771	4,806
Other States**	3,171	3,224	2,675	3,688	4,152	4,693	4,009	4,174	5,540	6,270	5,259	5,403	4,355
TOTAL	4,269	4,389	4,443	4,533	4,559	4,295	4,053	3,920	4,063	4,225	4,247	4,336	4,278

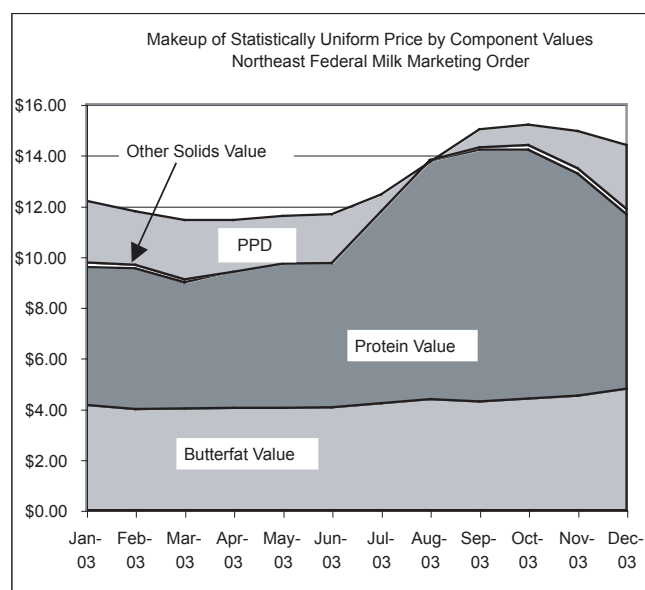
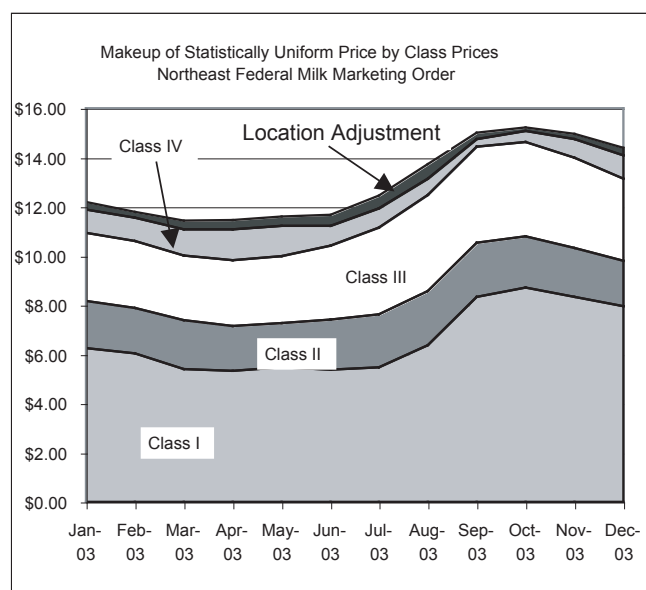
* Represents restricted data for the states of Connecticut, Massachusetts, New Hampshire, and Rhode Island

** Represents restricted data for the states of Idaho, Michigan, Minnesota, Nevada, Utah, and Wisconsin.

Class Utilization and Prices Northeast Federal Milk Marketing Order												
	Jan-03	Feb-03	Mar-03	Apr-03	May-03	Jun-03	Jul-03	Aug-03	Sep-03	Oct-03	Nov-03	Dec-03
Class I Utilization	45.3%	44.8%	41.3%	41.3%	42.1%	41.3%	41.9%	44.9%	49.1%	49.7%	47.3%	46.6%
Class II Utilization	16.9%	17.4%	18.8%	17.5%	17.3%	19.6%	20.3%	20.3%	20.5%	19.3%	18.1%	16.3%
Class III Utilization	28.4%	28.2%	29.1%	28.5%	28.0%	30.7%	30.0%	28.3%	27.2%	26.7%	27.2%	28.0%
Class IV Utilization	9.4%	9.7%	10.9%	12.7%	12.5%	8.4%	7.8%	6.5%	3.2%	4.3%	7.4%	9.1%
Class I Price	\$13.81	\$13.48	\$13.06	\$12.89	\$12.96	\$12.99	\$13.02	\$14.22	\$16.96	\$17.52	\$17.62	\$17.09
Class II Price	\$11.29	\$10.66	\$10.54	\$10.44	\$10.43	\$10.46	\$10.63	\$10.81	\$10.76	\$10.84	\$10.99	\$11.30
Class III Price	\$9.78	\$9.66	\$9.11	\$9.41	\$9.71	\$9.75	\$11.78	\$13.80	\$14.30	\$14.39	\$13.47	\$11.87
Class IV Price	\$10.07	\$9.81	\$9.79	\$9.73	\$9.74	\$9.76	\$9.95	\$10.14	\$10.05	\$10.16	\$10.30	\$10.52
Butterfat Price	\$1.19	\$1.14	\$1.15	\$1.15	\$1.15	\$1.16	\$1.21	\$1.25	\$1.22	\$1.26	\$1.29	\$1.37
Protein Price	\$1.82	\$1.85	\$1.66	\$1.80	\$1.93	\$1.94	\$2.55	\$3.14	\$3.32	\$3.28	\$2.93	\$2.30
Other Solids Price	\$0.03	\$0.02	\$0.02	\$0.00	-\$0.01	-\$0.02	-\$0.01	\$0.00	\$0.02	\$0.03	\$0.04	\$0.04
PPD	\$2.41	\$2.13	\$2.32	\$2.04	\$1.89	\$1.91	\$0.68	-\$0.08	\$0.71	\$0.82	\$1.48	\$2.52

Source: Northeast Monthly Federal Milk Order Market Statistics .

The graphs below are created from the data above. They illustrate the where the money in the Northeast Federal Order pool is coming from and how it is being paid out. The first graph shows the contribution of processors from the four classes of milk to the pool. The second graph shows the disbursement of the pool dollars to producers in component values and the Producer Price Differential. You can see from the chart that when class III prices are rising rapidly, the PPD will become quite small or even negative.



MILK PRICE PROJECTIONS* Northeast Federal Order Blend Price 3.5 Percent, Suffolk County, Massachusetts Last Quarter 2004-2005			
Month	2003	2004	Difference
(dollars per hundredweight)			
October	15.21	16.07 ^a	0.86
November	14.95	15.44 ^a	0.49
December	14.39	15.15 ^a	0.76
<i>Fourth Quarter Average</i>	14.85	15.55 ^a	0.70
Annual Average	12.99	16.32^a	3.33
Month	2004	2005 ^a	Difference
(dollars per hundredweight)			
January	13.58	14.75	1.17
February	13.95	14.44	0.49
March	15.56	14.39	-1.17
<i>First Quarter Average</i>	14.36	14.53	0.16
April	17.28	14.90	-2.38
May	19.84	15.73	-4.11
June	19.70	16.74	-2.96
<i>Second Quarter Average</i>	18.94	15.79	-3.15
July	17.64	17.03	-0.61
August	15.57	17.00	1.43
September	16.06	16.23	0.17
<i>Third Quarter Average</i>	16.42	16.75	0.33
October	16.07	15.66	-0.41
November	15.44 ^a	14.78	-0.66
December	15.15 ^a	14.59	-0.56
<i>Fourth Quarter Average</i>	15.55 ^a	15.01	-0.54
Annual Average	16.32^a	15.52^a	-0.80

* Averages may not add due to rounding.

^a Projected.

Chapter 7. Dairy -- Farm Management

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Herd Size Comparisons

Data from the 201 New York dairy farms that participated in the Dairy Farm Business Summary (DFBS) Project in 2003 have been sorted into eight 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 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 \$25,514 per farm for the less than 50 cow farms and \$71,328 per farm for those with more than 600 cows. However, net farm income per cow decreases as herd size increases. No significant 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 \$65 net farm income per cow while the less than 50 cow dairy farms averaged \$622 net farm income per cow. The 50 to 74 herd size category had the second highest net farm income per cow at \$238. 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						
201 New York Dairy Farms, 2003						
Number of Cows	Number of Farms	Average Number of Cows	Net Farm Income without Appreciation	Net Farm Income per Cow	Labor & Management Income per Operator	Return to all Capital without Appreciation
Under 50	17	41	\$25,514	\$622	\$-2,869	-3.3%
50 to 74	33	62	14,743	238	-10,452	-4.0%
75 to 99	22	85	13,412	158	-18,308	-2.8%
100 to 199	40	136	29,865	220	-10,144	-1.1%
200 to 299	20	253	51,145	202	-2,657	0.9%
300 to 399	18	347	2,787	8	-34,091	-0.8%
400 to 599	24	502	92,703	185	4,895	2.6%
600 & over	27	1,102	71,328	65	-43,496	1.2%

This year, net farm income per cow did not exhibit the usual increase as herd size increased. Most herd size categories saw an increase 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 23,991 pounds of milk sold per cow, farms in the largest herd size group averaged 15 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, six regions of the state, for large herds, small herds, grazing farms, and farms that rent are available from the Cornell Cooperative Extension Resource Center website: <http://www.cce.cornell.edu/store>

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 72 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 13 percent of the herds milking more often than 2X, the 200-299 cow herds reported 55 percent, 300-399 cow herds reported 67 percent, 400-599 cow herds reported 71 percent, and the 600 cow and larger herds reported 93 percent exceeding the 2X milking frequency.

**TABLE 7-2. COWS PER FARM AND RELATED FARM FACTORS
201 New York Dairy Farms, 2003**

Number of Cows	Average Number of Cows	Milk Sold Per Cow (lbs.)	Milk Sold Per Worker (cwt.)	Tillable Acres Per Cow	Forage DM Per Cow (tons)	Farm Capital Per Cow	Cost of Producing Milk/Cwt.	
							Operating	Total
Under 50	41	18,070	3,694	3.9	8.5	\$9,871	\$8.52	\$17.76
50 to 74	62	17,755	4,946	3.4	7.1	8,741	10.36	17.40
75 to 99	85	17,722	5,193	3.2	8.2	8,662	11.05	16.83
100 to 199	136	19,399	6,031	3.3	8.8	5,414	10.63	15.76
200 to 299	253	21,734	8,828	2.4	8.8	7,087	11.18	14.56
300 to 399	347	21,962	8,834	1.9	7.0	6,636	11.71	14.74
400 to 599	502	21,591	9,415	1.9	6.7	6,030	11.24	13.99
600 & over	1,102	23,991	11,813	1.7	7.6	6,294	11.78	14.08

Bovine somatotropin (bST), was used to a greater extent on the large herd farms. bST was used consistently during 2003 on 17 percent of the herds with less than 100 cows, 47 percent of the farms with 100 to 299 cows and on 70 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 898,000 pounds of milk sold per worker while the farms with less than 100 cows averaged less than 462,000 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 100 to 199 cows had the most efficient use of farm capital with an average investment of \$5,414 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 \$13.99 per hundredweight, \$1.89 below the \$15.88 average for the remaining 177 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 \$2.32 per hundredweight above the average of the other 177 DFBS farms.

Ten-Year Comparisons

The total cost of producing milk on DFBS farms has increased \$0.76 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, fell in 2002, and again increased in 2003. Over the past 10 years milk sold per cow has increased 11 percent and cows per worker by 11 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, 1994 to 2003**

Item	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Operating Expenses										
Hired labor	\$1.80	\$1.78	\$1.89	\$1.97	\$2.06	\$2.14	\$2.25	\$2.41	\$2.44	\$2.51
Purchased feed	3.89	3.71	4.73	4.63	4.18	3.96	3.91	4.25	4.10	4.29
Machinery repair, vehicle expense & rent	.92	.85	1.02	.94	1.12	1.18	1.06	1.21	1.01	.91
Fuel, oil & grease	.31	.27	.31	.28	.25	.24	.34	.32	.28	.33
Replacement livestock	.21	.15	.19	.18	.24	.24	.23	.20	.16	.15
Breeding fees	.17	.15	.15	.15	.16	.17	.17	.19	.21	.19
Veterinary & medicine	.40	.39	.42	.41	.45	.47	.51	.54	.56	.56
Milk marketing	.67	.70	.59	.52	.53	.49	.69	.63	.65	.69
Other dairy expenses	.88	.92	.99	1.05	1.09	1.13	1.16	1.26	1.25	1.30
Lime & fertilizer	.33	.31	.32	.33	.35	.35	.29	.33	.27	.26
Seeds & plants	.19	.19	.20	.21	.22	.20	.19	.20	.20	.20
Spray & other crop expense	.20	.20	.21	.23	.24	.24	.22	.25	.22	.19
Land, building & fence repair	.21	.16	.23	.19	.27	.27	.21	.26	.19	.14
Taxes	.29	.27	.26	.23	.21	.21	.20	.21	.20	.21
Insurance	.18	.17	.18	.16	.17	.16	.16	.14	.16	.15
Utilities (farm share)	.38	.38	.39	.35	.32	.32	.32	.33	.34	.34
Interest paid	.81	.94	.91	.90	.89	.83	.95	.82	.61	.56
Misc. (including rent)	.40	.40	.41	.38	.41	.44	.45	.42	.44	.40
Total Operating Expenses	\$12.24	\$11.94	\$13.40	\$13.12	\$13.15	\$13.02	\$13.31	\$13.98	\$13.27	\$13.39
Less: Nonmilk cash receipts	1.30	1.15	1.07	1.14	1.18	1.44	1.83	1.49	1.91	1.57
Increase in grown feed & supplies	.25	.14	.15	.07	.25	.25	0.11	0.10	0.12	0.27
Increase in livestock	.21	.25	.18	.15	.22	.11	.06	.52	.23	.09
OPERATING COST OF MILK PRODUCTION	\$10.47	\$10.40	\$12.00	\$11.76	\$11.50	\$11.22	\$11.31	\$11.87	\$11.01	\$11.46
Overhead Expenses										
Depreciation: machinery & buildings	\$1.13	\$1.07	\$1.04	\$0.95	\$1.08	\$1.14	\$1.20	\$1.30	\$1.39	\$1.23
Unpaid labor	.12	.12	.13	.13	.11	.11	.10	.10	.08	.10
Operator(s) labor *	.86	.92	.88	.79	.74	.80	.79	.74	.74	.70
Operator(s) management (5% of cash receipts)	.73	.70	.80	.73	.82	.83	.76	.87	.75	.73
Interest on farm equity capital (5%)	1.00	.94	.94	.87	.85	.86	.88	.91	.89	.85
Total Overhead Expenses	\$3.84	\$3.75	\$3.79	\$3.47	\$3.60	\$3.74	\$3.73	\$3.92	\$3.85	\$3.61
TOTAL COST OF MILK PRODUCTION	\$14.31	\$14.15	\$15.79	\$15.23	\$15.10	\$14.96	\$15.04	\$15.79	\$14.86	\$15.07
AVERAGE FARM PRICE OF MILK	\$13.44	\$13.03	\$14.98	\$13.65	\$15.60	\$14.91	\$13.38	\$15.98	\$12.98	\$13.24
Return per cwt. to operator labor, capital & mgmt.	\$1.72	\$1.44	\$1.81	\$0.81	\$2.91	\$2.44	\$0.77	\$2.71	\$0.50	\$0.45
Rate of return on farm equity capital	0.6%	-1.0%	0.7%	-4.1%	8.0%	4.7%	-4.4%	6.0%	-5.6%	-5.7%

*1994 and 1995 = \$1,450/month, 1996 = \$1,550/month, 1997 = \$1,600/month, 1998 = \$1,800/month, 1999 = \$1,800/month, 2000 = \$1,900/month, 2001 = \$2,000/month, 2002 = \$2,100/month, and 2003 = \$2,200/month of operator labor.

TABLE 7-4. TEN YEAR COMPARISON: SELECTED BUSINESS FACTORS
New York Dairy Farms, 1994 to 2003

Item	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Number of farms	321	321	300	253	305	314	294	228	219	201
<u>Cropping Program</u>										
Total tillable acres	392	399	415	462	497	516	566	618	660	659
Tillable acres rented	159	166	183	207	232	234	262	290	337	323
Hay crop acres	195	197	198	219	239	248	274	302	323	321
Corn silage acres	110	117	120	156	175	186	192	210	232	233
Hay crop, tons DM/acre	3.0	2.8	2.8	2.5	3.1	2.9	3.3	2.8	3.1	3.2
Corn silage, tons/acre	16.4	15.6	15.9	16.1	18.0	16.3	15.1	16.5	15.4	17.2
Fert. & lime exp./tillable acre	\$25	\$25	\$26	\$28	\$31	\$32	\$27	\$32	\$27	\$28
Machinery cost/cow	\$438	\$402	\$450	\$429	\$471	\$502	\$513	\$554	\$520	\$497
<u>Dairy Analysis</u>										
Number of cows	151	160	167	190	210	224	246	277	297	314
Number of heifers	116	121	124	139	155	164	186	207	226	240
Milk sold, cwt.	30,335	32,362	33,504	39,309	43,954	47,932	52,871	60,290	66,177	70,105
Milk sold/cow, lbs.	20,091	20,269	20,113	20,651	20,900	21,439	21,516	21,762	22,312	22,302
Purchased dairy feed/cwt. milk	\$3.89	\$3.70	\$4.73	\$4.63	\$4.18	\$3.96	\$3.91	\$4.25	\$4.10	\$4.27
Purc. grain & conc. as % of milk receipts	28%	27%	30%	33%	26%	25%	27%	25%	30%	30%
Purc. feed & crop exp/cwt. milk	\$4.61	\$4.39	\$5.46	\$5.39	\$5.00	\$4.75	\$4.61	\$5.03	\$4.79	\$4.92
<u>Capital Efficiency</u>										
Farm capital/cow	\$6,398	\$6,264	\$6,218	\$6,196	\$6,161	\$6,368	\$6,535	\$6,755	\$6,794	\$6,748
Real estate/cow	\$2,859	\$2,763	\$2,701	\$2,650	\$2,537	\$2,562	\$2,615	\$2,713	\$2,612	\$2,722
Mach. invest./cow	\$1,150	\$1,098	\$1,107	\$1,108	\$1,118	\$1,163	\$1,225	\$1,222	\$1,261	\$1,208
Asset turnover ratio	.50	.49	.55	.52	0.61	0.59	0.54	0.63	0.53	0.54
<u>Labor Efficiency</u>										
Worker equivalent	4.02	4.40	4.48	5.01	5.35	5.71	6.11	6.72	7.21	7.50
Operator/manager equivalent	1.49	1.56	1.56	1.60	1.62	1.76	1.83	1.94	1.82	1.86
Milk sold/worker, lbs.	755,178	736,269	747,861	784,604	821,565	839,432	865,325	897,167	917,854	934,733
Cows/worker	38	36	37	38	39	39	40	41	41	42
Labor cost/cow	\$558	\$570	\$582	\$598	\$609	\$653	\$674	\$706	\$725	\$738
<u>Profitability & Financial Analysis</u>										
Labor & mgmt. income/operator	\$14,789	\$10,346	\$18,651	\$-1,424	\$55,917	\$42,942	\$-2,908	\$45,479	\$-14,243	\$-15,360
Farm net worth, end year	\$608,749	\$624,261	\$648,186	\$685,665	\$798,297	\$865,626	\$942,881	\$1,181,055	\$1,173,836	\$1,207,964
Percent equity	63%	61%	61%	57%	59%	58%	57%	60%	57%	56%

Milk Cow Operations and Milk Cow Inventory

TABLE 7-5. NUMBER OF DAIRY FARMS AND MILK COWS BY SIZE OF HERD New York State, 2003^{a, b}				
Size of Herd	Farms		Milk Cows	
Number of Cows	Number	% of Total	Number	% of Total
1 - 29	1,400	19.7%	13,000	2.0%
30-49	1,300	18.3%	50,000	7.5%
50-99	2,700	38.0%	185,000	27.5%
100-199	1,100	15.5%	148,000	22.0%
200-399	375	5.3%	102,000	15.2%
400-699	145	2.0%	78,000	11.6%
700-999	40	0.6%	34,000	5.1%
1000 or more	40	0.6%	61,000	9.1%
Total	7,100	100.0%	671,000	100.0%
^a This information on number of farms and number of cows by size of herd is derived from several sources: - Dairy Statistics as published by the New York Agricultural Statistics Services for 2003. - CAFO (Concentrated Animal Feeding Operations) permit data as of July 1, 2004. About 70 small CAFO farms (farms with 200 to 700 milk cows have not applied for a permit). Estimates for these farms were made so as to reflect the total number of dairy farms in New York State ^b The author wishes to thank everyone who provided some data as well as providing valuable advice and perspectives: Lee Telega, Peter Wright, Wayne Knoblauch, Jason Karszes and B. F. Stanton. However, any errors, omissions or misstatements are solely the responsibility of the author, Professor George Conneman, e-mail gjc4@cornell.edu.				

In 2003, there were 7,100 dairy farms in New York State, and 671,000 milk cows as reported by the NYASS. The table above was prepared based on the NYASS data plus the CAFO permit filing for additional herd size categories.

Ninety percent of the farms (less than 200 cows per farm) had 60 percent of the milk cows. The remaining ten percent of the farms had 40 percent of the cows. About one percent of the farms (those with 700 or more cows) had 14 percent of the cows. Farms with over 200 cows represented nearly 9 percent of total herds and had 40 percent of the total cows. Farms with less than 50 cows represent 38 percent of all farms.

The size and distribution of dairy farms in New York State has changed rapidly in the past 10 years. In 1994, there were 10,700 farms; two-thirds of the farms had less than 50 cows; only 400 farms, or less than 4 percent, had 200 or more cows and represented 18 percent of the total number of cows.

**TABLE 7-6. COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 69 New York Dairy Farms, 1994- 2003**

Selected Factors	1994	1995	1996	1997
Milk receipts per cwt. milk	\$13.48	\$13.10	\$15.03	\$13.71
<u>Size of Business</u>				
Average number of cows	199	221	240	257
Average number of heifers	154	166	174	191
Milk sold, cwt.	41,723	46,870	50,756	56,097
Worker equivalent	5.36	5.91	6.13	6.52
Total tillable acres	489	523	555	589
<u>Rates of Production</u>				
Milk sold per cow, lbs.	21,014	21,182	21,150	21,792
Hay DM per acre, tons	3.4	3.1	3.0	2.7
Corn silage per acre, tons	16	16	16	16
<u>Labor Efficiency</u>				
Cows per worker	37	37	39	39
Milk sold per worker, lbs.	778,408	793,069	827,994	860,386
<u>Cost Control</u>				
Grain & concentrate purchased as % of milk sales	28%	26%	30%	32%
Dairy feed & crop expense per cwt. milk	\$4.64	\$4.26	\$5.37	\$5.33
Operating cost of producing cwt. milk	\$10.45	\$10.36	\$12.01	\$11.63
Total cost of producing cwt. milk	\$11.43	\$13.25	\$14.87	\$14.26
Hired labor cost per cwt.	\$2.05	\$2.03	\$2.16	\$2.09
Interest paid per cwt.	\$0.78	\$0.88	\$0.86	\$0.89
Labor & machinery costs per cow	\$999	\$990	\$1,064	\$1,033
Replacement livestock expense	\$7,825	\$6,610	\$9,047	\$10,671
Expansion livestock expense	\$18,529	\$15,244	\$19,728	\$15,138
<u>Capital Efficiency</u>				
Farm capital per cow	\$6,306	\$6,137	\$6,147	\$6,183
Machinery & equipment per cow	\$1,105	\$1,072	\$1,078	\$1,104
Real estate per cow	\$2,708	\$2,619	\$2,604	\$2,555
Livestock investment per cow	\$1,547	\$1,512	\$1,498	\$1,508
Asset turnover ratio	0.54	0.53	0.59	0.55
<u>Profitability</u>				
Net farm income without appreciation	\$85,395	\$82,874	\$101,015	\$64,744
Net farm income with appreciation	\$100,377	\$96,905	\$114,128	\$71,284
Labor & management income per operator/manager	\$24,610	\$21,083	\$29,816	\$8,660
Rate return on:				
Equity capital with appreciation	7.0%	5.9%	7.4%	2.3%
All capital with appreciation	7.0%	6.6%	7.4%	4.5%
All capital without appreciation	5.8%	5.6%	6.5%	4.1%
<u>Financial Summary, End Year</u>				
Farm net worth	\$803,558	\$844,438	\$911,618	\$923,186
Change in net worth with appreciation	\$46,877	\$45,333	\$61,487	\$10,897
Debt to asset ratio	0.38	0.40	0.41	0.43
Farm debt per cow	\$2,361	\$2,380	\$2,489	\$2,638

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). All measures of profitability exhibit wide variability from year-to-year and are highly correlated with milk price received.

TABLE 7-6. COMPARISON OF FARM BUSINESS SUMMARY DATA (Continued)
Same 69 New York Dairy Farms, 1994 - 2003

1998	1999	2000	2001	2002	2003
\$15.66	\$15.06	\$13.36	\$15.88	\$12.88	\$13.23
275	289	304	326	342	360
210	218	230	247	265	274
59,376	64,491	68,270	72,715	78,599	81,838
6.79	7.14	7.34	7.86	8.19	8.59
612	641	658	686	715	738
21,630	22,298	22,473	22,292	22,981	22,753
3.3	3.2	3.5	3.2	3.4	3.0
21	16	15	17	15	16
41	40	41	41	42	42
874,466	903,232	930,106	925,128	959,700	952,712
25%	24%	27%	25%	29%	30%
\$4.97	\$4.70	\$4.54	\$4.92	\$4.74	\$5.00
\$11.43	\$11.15	\$11.25	\$12.36	\$11.10	\$11.56
\$14.33	\$14.10	\$14.22	\$15.42	\$14.11	\$14.35
\$2.21	\$2.32	\$2.37	\$2.55	\$2.63	\$2.65
\$0.88	\$0.77	\$0.91	\$0.81	\$0.59	\$0.54
\$1,109	\$1,198	\$1,214	\$1,287	\$1,301	\$1,259
\$11,834	\$15,155	\$16,888	\$14,768	\$12,220	\$15,917
\$15,884	\$15,452	\$25,976	\$29,106	\$13,592	\$13,105
\$6,262	\$6,511	\$6,651	\$6,694	\$6,807	\$6,672
\$1,159	\$1,231	\$1,284	\$1,275	\$1,294	\$1,256
\$2,485	\$2,511	\$2,510	\$2,532	\$2,559	\$2,515
\$1,512	\$1,549	\$1,608	\$1,694	\$1,785	\$1,781
0.63	0.61	0.56	0.64	0.54	0.55
\$183,801	\$176,834	\$61,805	\$160,820	\$33,523	\$38,712
\$223,266	\$217,558	\$112,363	\$251,346	\$79,081	\$100,464
\$69,092	\$60,454	\$-1,226	\$49,197	\$-21,035	\$-17,943
16.9%	14.2%	4.4%	14.6%	1.3%	2.8%
12.8%	11.1%	5.7%	11.3%	2.7%	3.4%
10.5%	8.9%	3.2%	7.2%	0.8%	0.9%
\$1,075,618	\$1,185,447	\$1,204,600	\$1,370,001	\$1,354,464	\$1,390,243
\$154,908	\$120,391	\$20,098	\$159,492	\$-20,565	\$32,581
0.40	0.40	0.41	0.40	0.42	0.37
\$2,580	\$2,650	\$2,700	\$2,745	\$2,859	\$2,624

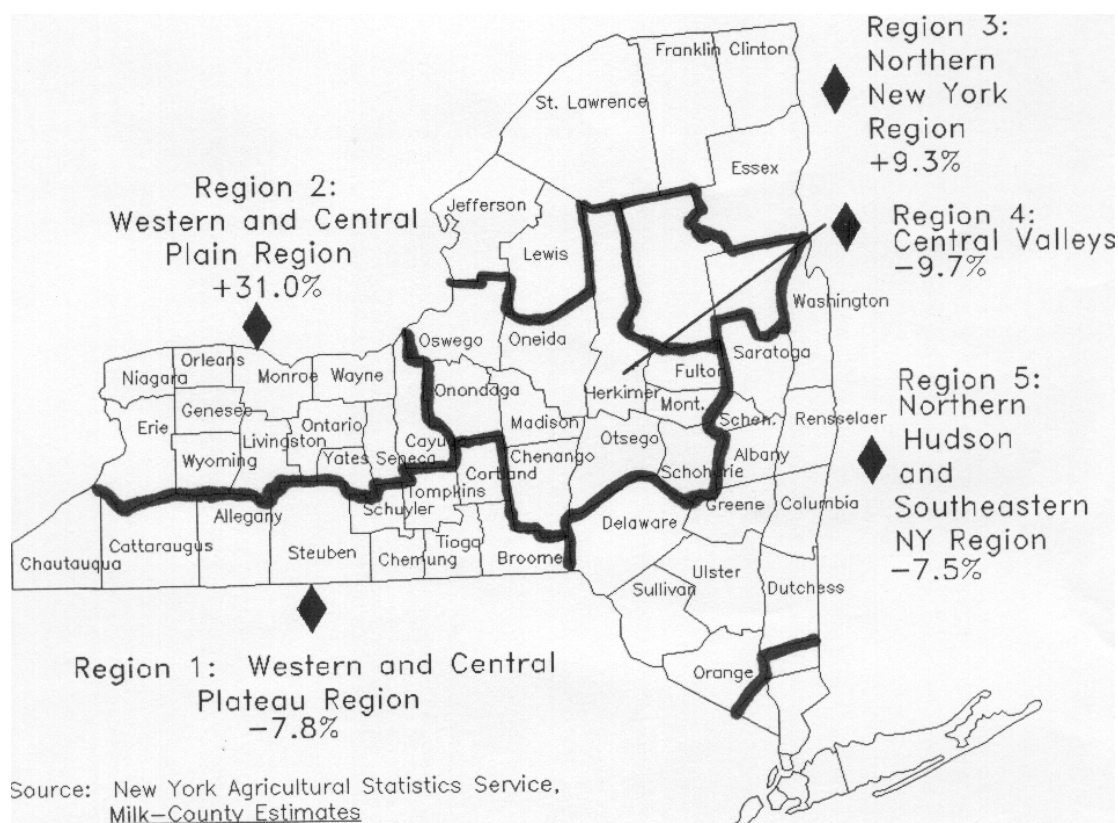
Debt to asset ratio and debt per cow have remained stable while farm net worth almost doubled. During this time, crop yields have fluctuated, largely due to weather. Purchased grain and concentrate as a percent of milk sales has varied only from 24 to 32 percent, with the high being in 1997 and the low in 1999.

TABLE 7-7. COMPARISON OF DAIRY FARM BUSINESS DATA BY REGION
222 New York Dairy Farms, 2003

Item	Western & Central Plateau Region	Western & Central Plain Region	Northern New York	Central Valleys	Northern Hudson & South- eastern New York
Number of farms	27	56	29	34	76
ACCUAL EXPENSES					
Hired labor	\$70,457	\$346,819	\$146,999	\$102,917	\$62,060
Feed	143,450	562,438	301,100	179,726	125,402
Machinery	54,078	141,642	81,471	71,904	44,071
Livestock	77,544	372,656	178,867	144,303	83,903
Crops	21,650	79,609	41,377	33,167	22,176
Real estate	22,329	71,875	38,115	33,849	24,221
Other	40,104	149,943	83,331	63,384	34,634
Total Operating Expenses	\$429,612	\$1,724,982	\$871,260	\$629,250	\$396,467
Expansion livestock	509	41,034	15,976	12,027	846
Extraordinary expense	353	0	888	0	296
Machinery depreciation	26,554	81,097	54,567	48,037	17,762
Building depreciation	17,747	62,422	45,359	31,996	7,463
Total Accrual Expenses	\$474,775	\$1,909,535	\$988,050	\$721,310	\$422,834
ACCUAL RECEIPTS					
Milk sales	\$431,955	\$1,683,774	\$896,713	\$654,920	\$380,493
Livestock	27,392	163,702	87,427	47,635	26,781
Crops	10,181	37,324	29,456	27,317	15,607
Government receipts	21,660	32,347	24,779	30,541	26,363
All other	5,653	24,300	13,962	15,340	6,394
Total Accrual Receipts	\$496,841	\$1,941,447	\$1,052,337	\$775,753	\$455,638
PROFITABILITY ANALYSIS					
Net farm income (w/o appreciation)	\$22,066	\$31,912	\$64,287	\$54,443	\$32,804
Net farm income (w/ appreciation)	\$39,495	\$119,139	\$126,086	\$117,191	\$52,037
Labor & management income	-\$19,360	-\$55,610	\$2,463	\$773	-\$12,428
Number of operators	1.59	1.98	1.75	1.83	1.76
Labor & mgmt. income/operator	-\$12,176	-\$28,086	\$1,407	\$422	-\$7,061
BUSINESS FACTORS					
Worker equivalent	4.28	12.10	6.98	5.20	4.34
Number of cows	149	557	306	237	135
Number of heifers	119	423	242	179	108
Acres of hay crops ^a	226	465	385	272	224
Acres of corn silage ^a	110	444	305	199	102
Total tillable acres	419	957	709	561	377
Pounds of milk sold	3,217,896	12,751,169	6,941,540	4,859,546	2,813,697
Pounds of milk sold/cow	21,618	22,912	22,690	20,509	20,807
Tons hay crop dry matter/acre	2.4	3.6	3.5	3.2	2.5
Tons corn silage/acre	18.5	17.4	16.5	16.3	17.0
Cows/worker	35	46	44	46	31
Pounds of milk sold/worker	751,845	1,053,817	994,490	934,528	648,317
% grain & conc. of milk receipts	32%	30%	32%	27%	32%
Feed & crop expense/cwt. milk	\$5.13	\$5.03	\$4.91	\$4.38	\$5.24
Fertilizer & lime/crop acre	\$20.42	\$29.29	\$20.44	\$21.51	\$28.06
Machinery cost/tillable acre	\$219	\$263	\$219	\$241	\$191

^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, 1993-2003**



**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</u> ^b	(million pounds)				
1993	2,145.9	2,872.3	2,124.0	2,813.3	1,458.6
2003	1,978.5	3,763.5	2,321.5	2,540.0	1,348.5
Percent change	-7.8%	+31.0%	+9.3%	-9.7%	-7.5%
<u>2003 Cost of Producing Milk</u> ^c	(\$ per hundredweight milk)				
Operating cost	\$11.35	\$11.83	\$10.54	\$10.71	\$11.45
Total cost	15.33	14.25	13.73	14.65	15.40
Average price received	13.42	13.20	12.92	13.48	13.52
Return per cwt. to operator labor, management & capital	\$0.68	\$0.25	\$0.93	\$1.12	\$1.16

^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, 1993 - 2003**

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)	(\$/gallon)	(\$)	(\$/hour)
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	9.26
2003	194	283	102.00	1.516	21,300	9.93

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, 1989 - 2003**

Year	Dairy Cows		Machinery ^a		Farm Real Estate	
	Value/Head	1977=100	1977=100		Value/Acre	1977=100
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
2003	1,300	263	325		1,650	281

SOURCE: NYASS, New York Agricultural Statistics and New York Crop and Livestock Report. USDA, ASB, Agricultural Prices.

^aUnited States average; 1995 - 2003 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 201 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 201 New York Dairy Farms, 2003							
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
25.0	1,230	29,621,550	25,936	4.8	24	63	1,318,484
13.6	575	13,326,860	23,910	4.0	20	50	1,098,081
9.9	407	8,649,121	23,088	3.7	19	45	977,732
6.8	291	6,294,352	22,320	3.3	18	41	859,182
5.2	187	3,752,374	21,283	3.0	17	37	766,221

4.1	132	2,520,975	20,323	2.8	16	34	678,657
3.3	98	1,764,687	19,022	2.5	15	30	583,854
2.7	74	1,300,287	17,040	2.3	14	28	521,424
2.0	59	1,066,952	15,419	2.0	13	25	433,011
1.6	43	677,333	12,546	1.3	9	19	290,550

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	
\$383		18%	\$285	\$819	\$550	\$3.42	
566		24	385	1,015	737	4.02	
654		26	429	1,125	842	4.34	
744		28	466	1,224	914	4.54	
802		30	501	1,288	998	4.75	

858		31	543	1,379	1,056	5.01	
901		32	588	1,461	1,108	5.33	
956		34	637	1,544	1,170	5.60	
1,028		37	725	1,697	1,244	6.05	
1,161		45	1,032	2,273	1,391	7.19	

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
201 New York Dairy Farms, 2003**

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.	
\$3,463	\$14.52	\$1,091	\$6.98	\$2,080	\$12.50	
3,133	13.78	1,576	8.49	2,562	13.25	
3,013	13.56	1,775	9.54	2,774	13.71	
2,934	13.40	1,920	10.20	2,924	14.20	
2,813	13.22	2,078	10.64	3,066	14.70	
2,680	13.08	2,334	11.12	3,193	15.30	
2,518	12.96	2,480	11.75	3,348	15.84	
2,284	12.82	2,631	12.28	3,470	16.83	
2,059	12.66	2,799	12.79	3,638	18.59	
1,653	12.28	3,131	14.68	4,189	23.89	
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
\$250,155	\$892	0.27	\$440,526	\$1,286	\$122,035	\$75,039
113,434	617	0.19	204,354	847	42,519	26,487
67,691	446	0.14	123,989	623	20,099	12,896
47,327	337	0.11	83,175	498	4,975	4,430
38,324	228	0.07	61,522	420	-7,327	-4,784
26,926	147	0.05	46,056	317	-18,178	-11,346
10,601	79	0.02	32,938	235	-36,786	-22,928
-5,999	-30	-0.01	18,882	141	-61,125	-48,264
-34,173	-176	-0.06	-2,852	-21	-111,381	-77,244
-145,107	-498	-0.21	-75,812	-314	-247,974	-178,965

Financial Analysis Chart

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

TABLE 7-12. FINANCIAL ANALYSIS CHART 201 New York Dairy Farms, 2003							
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
\$127	\$764	2.76	3.09	5%	\$322	45%	15.88
235	586	1.34	1.66	8	1,165	27	3.32
319	491	1.10	1.28	12	1,739	20	2.44
383	408	0.97	1.02	15	2,193	15	1.97
452	358	0.85	0.81	17	2,592	12	1.59
492	306	0.68	0.67	18	2,920	7	1.33
536	248	0.52	0.47	20	3,194	3	1.11
598	170	0.39	0.25	23	3,525	-1	0.94
666	29	0.11	-0.02	26	4,097	-7	0.75
834	-281	-0.98	-0.99	36	5,493	-22	0.40
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%	0.03	0.00	36%	12%		
0.16	85	0.13	0.00	10	8		
0.27	78	0.23	0.03	6	5		
0.40	71	0.30	0.15	4	4		
0.54	64	0.36	0.26	1	2		
0.67	59	0.42	0.36	0	1		
0.87	53	0.47	0.45	-2	0		
1.15	46	0.55	0.60	-5	-2		
1.56	38	0.65	0.73	-11	-4		
3.60	24	0.91	1.07	-25	-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		
.76	\$1,401	\$532	\$4,654	\$325,104	\$4,149,148		
.61	1,963	838	5,604	126,563	2,079,473		
.57	2,200	1,024	6,163	64,780	1,459,084		
.52	2,439	1,170	6,562	41,577	1,191,429		
.48	2,743	1,341	6,936	24,558	931,933		
.45	3,033	1,528	7,479	12,738	709,541		
.41	3,576	1,731	8,244	2,783	571,301		
.36	4,081	1,899	8,989	-9,267	411,425		
.31	4,716	2,256	9,979	-33,514	295,956		
.22	8,048	3,371	13,770	-162,076	133,294		
^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.							

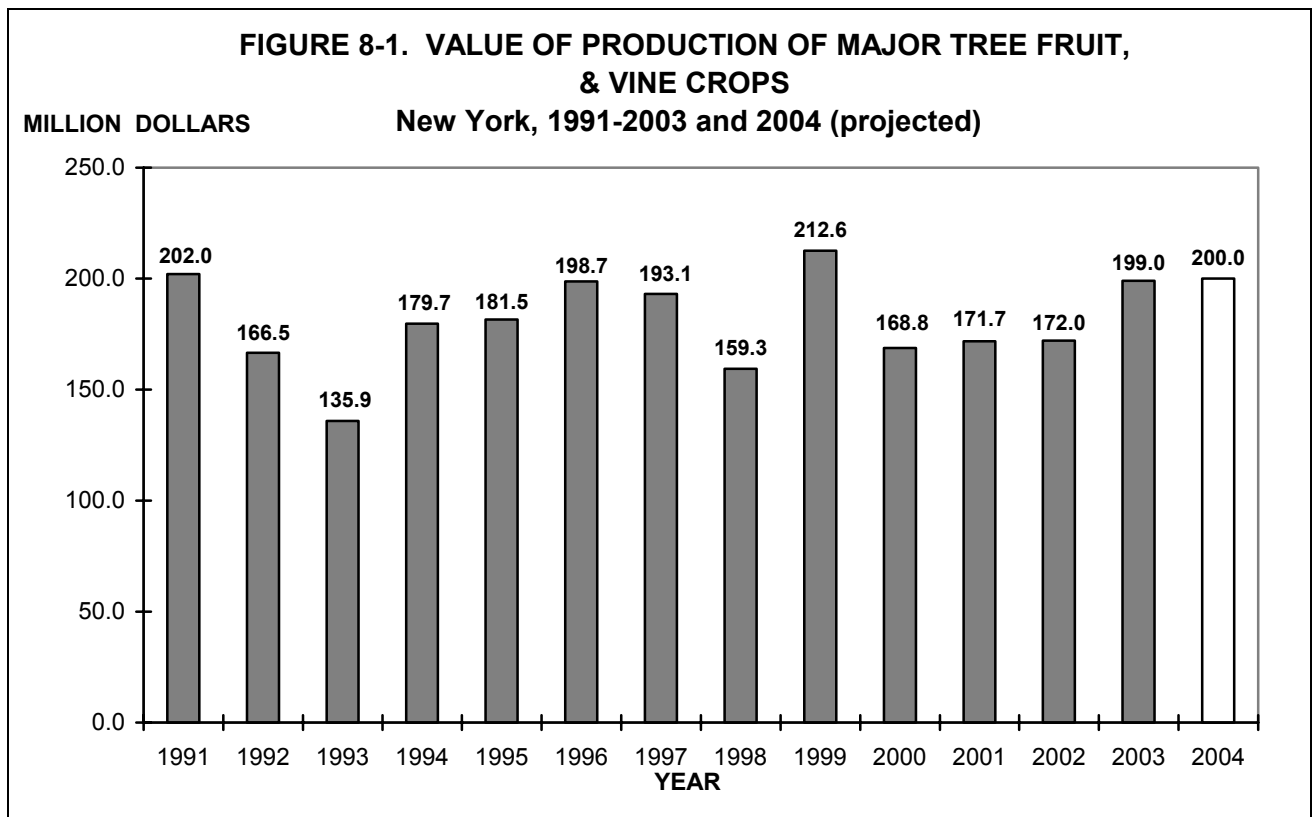
Chapter 8. Fruit

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 about two percent nationally. The national production of apples, peaches, and sweet cherries were forecast to increase compared with last year's production, while decreased production was indicated for grapes, tart cherries, and pears. The national production of apples was forecast at 225 million bushels, a considerable increase of ten percent above last year's short crop, but 1 percent below the average of the past five years. Grape production was expected to total 6.1 million tons, a decrease of eight percent from last year's crop, and a very manageable crop size.

In New York, apple production is indicated to be 25.4 million bushels, eight percent above last year. Indicated production is nine percent above the average production of the last 5 years. Grape production of 145 thousand tons was estimated, 27 percent below last year's large, poor quality crop. Total production of the six major fruit and vine crops of 707 thousand tons is projected for the State, two percent below last year, but well above the total from 2002 when the production of both apples and grapes were extremely short.

The utilized value of the major fruit tree and vine crops in New York since 1991 and the projected value for 2004 is shown below. With a very good year for apples offsetting low production and a somewhat short grape crop, the value of the state's major fruit tree and vine crop is projected at \$200 million, slightly above last year, but below the record \$213 million realized in '99.



Source: New York Agricultural Statistics, 2003.

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

Fruit	New York				United States			
	2001	2002	2003	2004*	2001	2002	2003	2004*
----- thousand tons -----								
Apples	500	340	495	535	4,712	4,262	4,307	4,729
Grapes	149	156	198	145	6,569	7,339	6,573	6,073
Tart Cherries	7	6	4	4	185	31	113	107
Pears	11	10	15	16	1026	890	928	908
Peaches	6	5	7	6	1,204	1,268	1,260	1,299
Sweet Cherries	1	0	1	1	230	181	240	277
Total New York's Major Fruit Crops	674	517	720	707	13,939	13,971	13,610	13,393

*indicated

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

Fruit	New York				United States			
	2000	2001	2002	2003	2000	2001	2002	2003
----- dollars per ton -----								
Apples								
Fresh	340	368	500	460	356	458	516	590
Processed	130	133	153	144	101	108	130	130
All Sales*	234	238	324	302	256	316	378	418
Grapes	298	320	307	249	403	449	387	401
Tart Cherries	360	392	1012	628	374	372	896	720
Pears	353	401	374	373	264	275	310	303
Peaches	800	622	476	704	388	418	400	378
Sweet Cherries	1,370	1,530	1,730	1,950	1,340	1,230	1,550	1,400

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

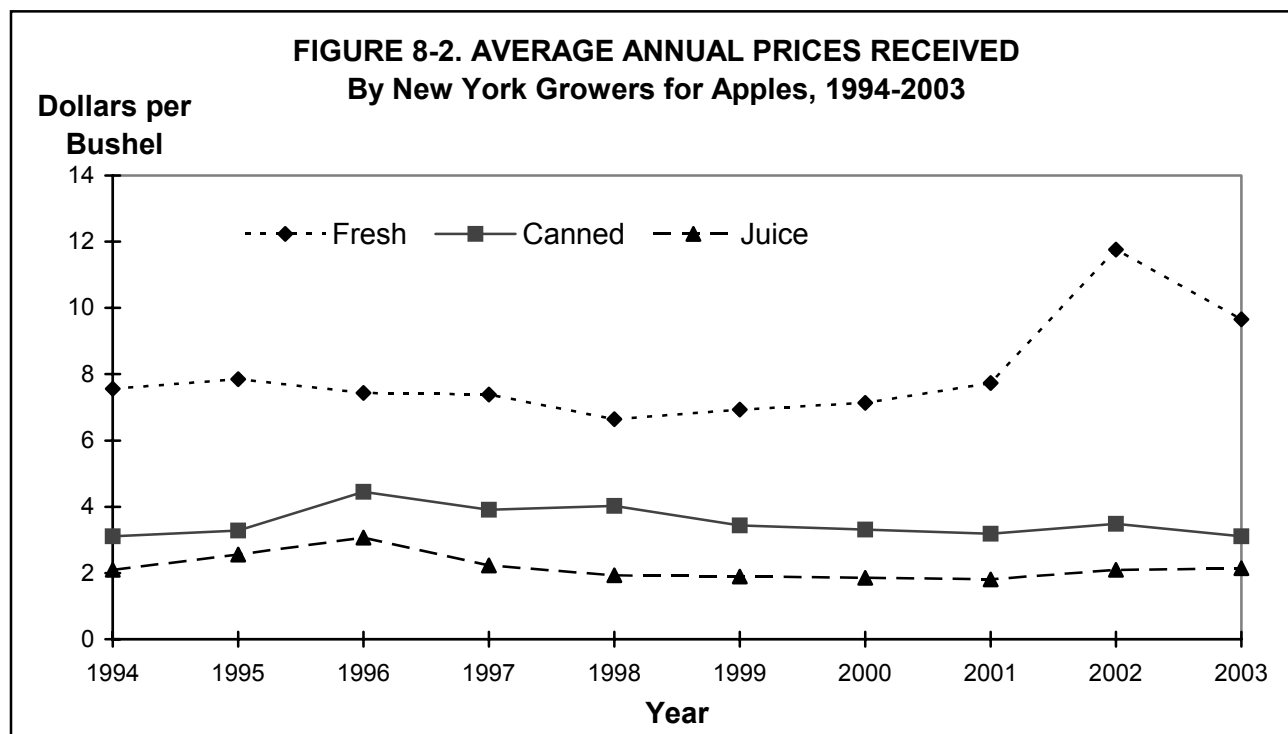
Fruit	New York				United States			
	2000	2001	2002	2003	2000	2001	2002	2003
----- million dollars -----								
Apples								
Fresh	78.2	77.3	86.8	112.7	1,116	1,251	1,385	1,577
Processed	30.9	34.6	24.5	35.3	205	201	196	207
All Sales*	109.1	111.9	111.3	148.0	1,321	1,452	1,588	1,784
Grapes	45.9	47.7	47.6	37.9	3,098	2,948	2,842	2,576
Tart Cherries	3.5	2.8	6.4	2.3	52	57	28	82
Pears	4.6	4.0	3.7	5.5	250	263	264	270
Peaches	4.5	3.7	2.4	4.2	482	483	488	455
Sweet Cherries	1.2	1.6	.6	1.1	275	271	274	344
Total New York's Major Fruit Crops*	168.8	171.7	172.0	199.0	5,478	5,474	5,477	5,511

*May not add from total of fresh and processed due to rounding errors. Source: NASS, USDA, Noncitrus Fruits and Nuts 2003 Summary, July 2004.

**TABLE 8-4. APPLE PRODUCTION, UNITED STATES,
1999-2003, Five-Year Average Production, and 2004 Forecast
1,000 42-Pound Bushels**

States/Regions	5-Year Average 1999-2003*	2003*	2004 USDA Estimate**	2004 Compared to USDA 5-Year Average % Change	2004 vs. 2003 % Change
Maine	1,193	1,048	1,071	-10.2	2.3
New Hampshire	762	619	667	-12.5	7.7
Vermont	1,012	1,000	857	-15.3	-14.3
Massachusetts	1,093	1,012	976	-10.7	-3.5
Rhode Island	60	55	55	-8.7	0.0
Connecticut	464	512	476	2.6	-7.0
New York	23,452	23,571	25,476	8.6	8.1
New Jersey	1,095	952	952	-13.0	0.0
Pennsylvania	10,819	10,524	9,905	-8.5	-5.9
Maryland	879	952	810	-7.9	-15.0
Virginia	7,190	6,429	6,190	-13.9	-3.7
West Virginia	2,438	2,071	2,024	-17.0	-2.3
North Carolina	3,748	3,214	3,095	-20.6	-7.4
South Carolina	348	143	143	-58.9	0.0
Georgia	276	310	333	20.7	7.7
Total East	54,829	52,412	52,912	-3.5	1.0
Ohio	2,138	2,143	2,119	-0.9	-1.1
Indiana	1,187	1,214	1,190	0.3	-2.0
Illinois	1,141	1,250	1,333	16.9	6.7
Michigan	20,429	20,000	16,429	-19.6	-17.9
Wisconsin	1,602	1,619	1,476	-7.8	-8.8
Minnesota	576	643	619	7.4	-3.7
Iowa	199	143	262	31.6	83.3
Missouri	981	952	857	-12.6	-10.0
Kansas	91	81	114	25.7	41.2
Kentucky	176	179	190	8.4	6.7
Tennessee	232	286	238	2.7	-16.7
Arkansas	109	62	67	-38.6	7.7
Total Central	28,860	28,571	24,895	-13.7	-12.9
Total East & Central	83,689	80,983	77,807	-7.0	-3.9
Colorado	495	524	571	15.4	9.1
New Mexico	95	48	NA	NA	NA
Utah	562	667	643	14.4	-3.6
Idaho	2,095	1,667	2,381	13.6	42.9
Washington	122,143	107,143	128,571	5.3	20.0
Oregon	3,781	3,167	4,048	7.1	27.8
California	13,838	10,714	10,476	-24.3	2.2
Arizona	800	167	714	-10.7	328.6
Total West	143,809	124,095	147,405	2.5	18.8
TOTAL U.S.	227,498	205,079	225,212	-1.0	9.8
TOTAL NORTHEAST	43,267	42,317	43,269	0.0	2.3

*2004 and 5-year average production from NASS, USDA, Non-Citrus Fruits and Nuts Summary July 2004.
**NASS, USDA, Crop Production, October 2, 2004.



Source: New York Agricultural Statistics, 2003.

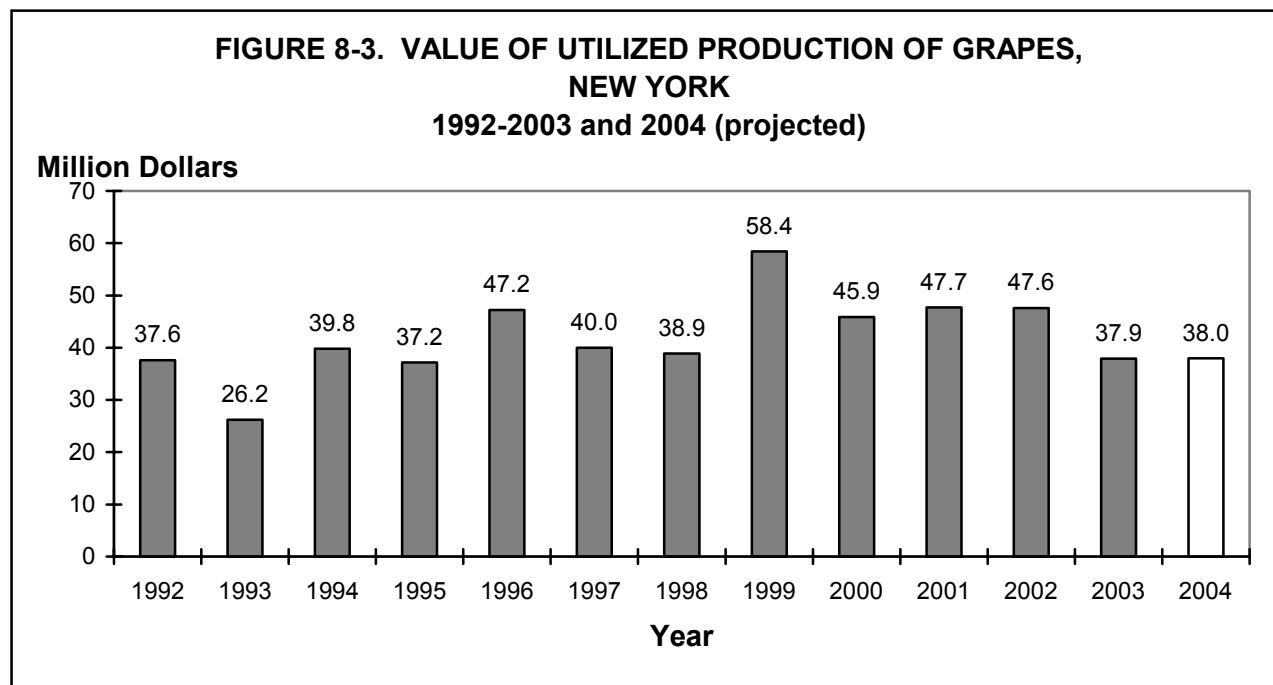
Over the past decade until 1996, prices for processed apples were fairly constant. In 1996, prices for canned and juice apples increased dramatically while the price for fresh apples decreased. The value of the 1996 apple crop was 138.9 million dollars, buoyed by record prices for processed fruit. Since 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 2003, production recovered and fresh apple prices were extremely strong, although below prices for the short crop in 2002. The apple crop value in 2003 was a record \$148 million. This year's value, with slightly higher production and slightly lower prices, should be similar to last year's record value.

In October 2004, the average price for fresh apples in New York State was seven percent below the price in 2003, but still strong by historical standards. Washington's crop rebounded 20 percent above last year's short crop, and is five percent above the average of the past five years. Fresh apple prices for New York growers may weaken as the larger Washington crop impacts the market. However, a bright spot for New York growers is the export potential. Apple production in the European Union is down slightly this year, but is 13 percent below the average of the past five years. While production recovered somewhat in large producing EU countries such as Italy and France, short crops in Germany, Spain, and the Netherlands pushed down EU production. New York fresh apple exports are roaring ahead, above last year's pace, especially on the strength of exports to the United Kingdom and Canada (typically the state's two largest export destinations). It appears that New York will exceed the one million bushel threshold in exports for only the second time, due to the short crop in the EU and the weak US dollar relative to the Euro, the British pound, and the Canadian dollar. Fresh apple prices will probably average about 21 cents per pound for the marketing season, below the strong prices of the last two years, but well above returns for other recent years.

Announced processing apple prices in 2004 were similar to a year ago. For the second consecutive year, out-of-state buyers were quite active, and that has helped to maintain processing prices. The state's apple crop should reach a value of \$147 million, similar to last year's record value. (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 145,000 tons, about 16 percent below the average of the last five years. Quality was much better than last year, when a cool, wet harvest season led to slow ripening and over 40 thousand tons of unharvested grapes. Market conditions were unfavorable for juice grape growers. The big story was the winter injury in the Finger Lakes, which greatly reduced the *V.vinifera* crop, and placed 20 to 30 percent of the *vinifera* acreage in a replant situation. When the final crop value estimate is available, it will likely show a crop value of \$38 million, up slightly from last year due to higher prices for wine grapes, but a low value compared with the historical crop values of the past 10 years (Figure 8-3).



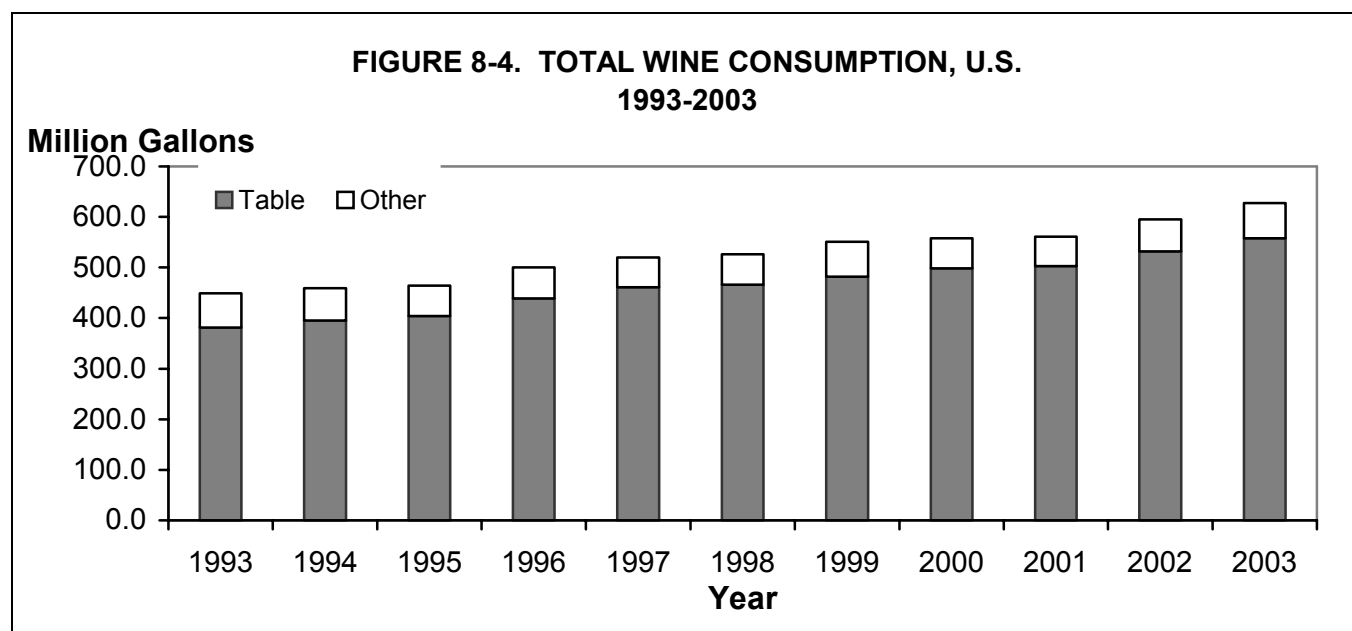
Source: New York Agricultural Statistics, 2003.

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 8-4). 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. US consumption in 2003 was 627 million gallons, an increase of five percent over the previous year.

To sum up the situation in the US wine market and the near term outlook for the rest of 2004 and 2005, supplies of grapes are more in balance with demand, and prices for grapes are firming up. The growth in imports has slowed due to the declining value of the US dollar. Plentiful supplies in the last few years had led to the development of new "extreme-value" labels, some with innovative packaging of premium varietals. A year ago, wineries and retailers faced their lowest margins in years. In 2005, while competitive pricing is still the norm, margins should be improved.

Concords are the predominant variety grown and processed in New York (Table 8-5). There were 104,000 tons of Concords New York-grown grapes processed in 2003, similar to the previous year, but 11 percent below the five-year average. Over the past five years, Concords have comprised 73 percent of total tonnage utilized. The second leading variety is Niagara with 10.3 percent of tonnage followed by Catawba

with 4.7 percent. *Vinifera*, with an average of just 4,456 tons utilized, accounted for just 2.8 percent of the NY crush over the last five years. This year, with the loss of about 73 percent of the Finger Lakes *vinifera* crop, the total tonnage of *vinifera* processed will probably fall to about 2,700 tons for the state.



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

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 Blanc, which increased dramatically in 2002. Native American varieties used for juice (i.e. Concord and Niagara) were in a cycle of relatively high prices through 2001, but now are in a declining cycle (Table 8-6).

Reflecting the short supply locally, grape prices generally were up for all major categories (Native, Hybrid, and *V. vinifera*). Canandaigua Wine Company, the major buyer of wine grapes in New York, listed price increases of \$30 per ton for Aurore, \$25 for Delaware, and \$15 for Concord. Canandaigua listed slightly decreased prices for Catawba and Elvira. There was an announcement of a cutback in contracted tonnage of several thousand tons of Catawba. The overall average price for native varieties and hybrids, when weighted by volume of purchases, will be slightly higher than last year, although the price for Catawba will be considerable lower due to the cutback in contracted acreage.

Prices offered by Finger Lakes wineries for *vinifera* grapes were higher than last year for all major varieties, both red and white. The average prices for all *vinifera* in the state of New York increased for 2004 reflecting the freeze damaged short supply. This will put *vinifera* prices on an upward track after last year's substantial decrease (Table 8-6). Prices are likely to remain strong over the next three years, as growers replant to rebuild supply to its previous level, and beyond, to reflect increased demand for *vinifera*.

**TABLE 8-5. GRAPES: NEW YORK GROWN
Received By Wineries and Processing Plants, 1999-2003**

Variety	1999	2000	2001	2002	2003	5-Year Avg.
----- tons -----						
Concord	154,500	113,300	107,200	107,770	104,000	117,354
Niagara	17,200	13,900	15,100	18,880	18,000	16,616
Catawba	9,600	6,400	7,760	6,680	7,650	7,618
Elvira	4,540	3,660	3,950	4,200	5,250	4,320
Delaware	1,180	630	550	820	550	746
Ives	210	140	150	165	180	169
Aurora	4,240	4,060	2,880	4,100	3,620	3,780
de Chaunac	940	670	850	590	320	674
Baco Noir	730	720	990	930	1,220	918
Seyval Blanc	850	550	610	590	480	616
Cayuga White	860	740	670	830	650	750
Rougeon	660	540	680	625	530	607
Vitis Vin.(all)	4,030	4,670	4,410	4,620	4,550	4,456
Other varieties	<u>2,460</u>	<u>2,020</u>	<u>2,200</u>	<u>2,200</u>	<u>2,000</u>	<u>2,176</u>
Total, all varieties	202,000	152,000	148,000	153,000	149,000	160,800

SOURCE: New York Agricultural Statistics, 2003.

**TABLE 8-6. GRAPES: PRICES PAID FOR NEW YORK GROWN GRAPES PROCESSED
1999-2003**

Variety	1999	2000	2001	2002	2003	5-Year Avg.
<u>American Varieties</u>						
Catawba	243	246	252	237	242	244
Concord	261	263	287	266*	187*	242
Delaware	279	272	259	284	284	276
Elvira	238	244	250	259	264	251
Ives	384	385	381	302	349	360
Niagara	271	248	240	246*	207*	249
<u>French American Hybrid</u>						
Aurora	248	240	244	245	260	247
Baco Noir	409	405	442	362	388	401
Cayuga White	401	412	398	415	394	404
de Chaunac	285	391	375	321	342	343
Rougeon	404	384	382	315	313	360
Seyval Blanc	346	392	377	533	452	420
<u>Vitis Vinifera</u>						
All varieties	1,290	1,310	1,316	1,454	1,264	1,327
TOTAL	283	295	316	300	240	287

*Preliminary estimates of future payments by cooperatives have been included based upon historical data.
SOURCE: Fruit, 975-2-04 NY Agricultural Statistics Service.

Most growers' revenues (assuming a mix of American, hybrid, and *vinifera* varieties), will be below last year, with lower production not being offset by higher prices. Furthermore, with

substantial replant costs to replace freeze damaged vines, costs will be higher. It requires over \$14,000 total costs, including about \$10,000 in cash costs, to bring an acre of *vinifera* grapes into full production. Furthermore, the loss in production capacity will result in lower crops for at least the next two years.

Growers with hybrids and native varieties had less freeze damage, and the environment for pricing wine grapes looks somewhat more promising with the reduced supply of grapes in the western US, and the weaker US dollar which is making imported concentrate and bulk wine more expensive.

Small wineries in the Finger Lakes with quality wines and good marketing skills experienced modest sales growth (four to five percent) so far this year. Winery visitation is up slightly. The environment for price increases is tough at the current time, but some wineries have had success in upgrading their product offering by marketing limited production of reserve *vinifera* wines at higher price points. Many wineries expect slightly increased dollars spent per visitor for the entire '04 fiscal year. Nevertheless, this was a substantial change for the area's wineries that had been experiencing growth in retail sales of five to ten percent a year for the last several years until 2003.

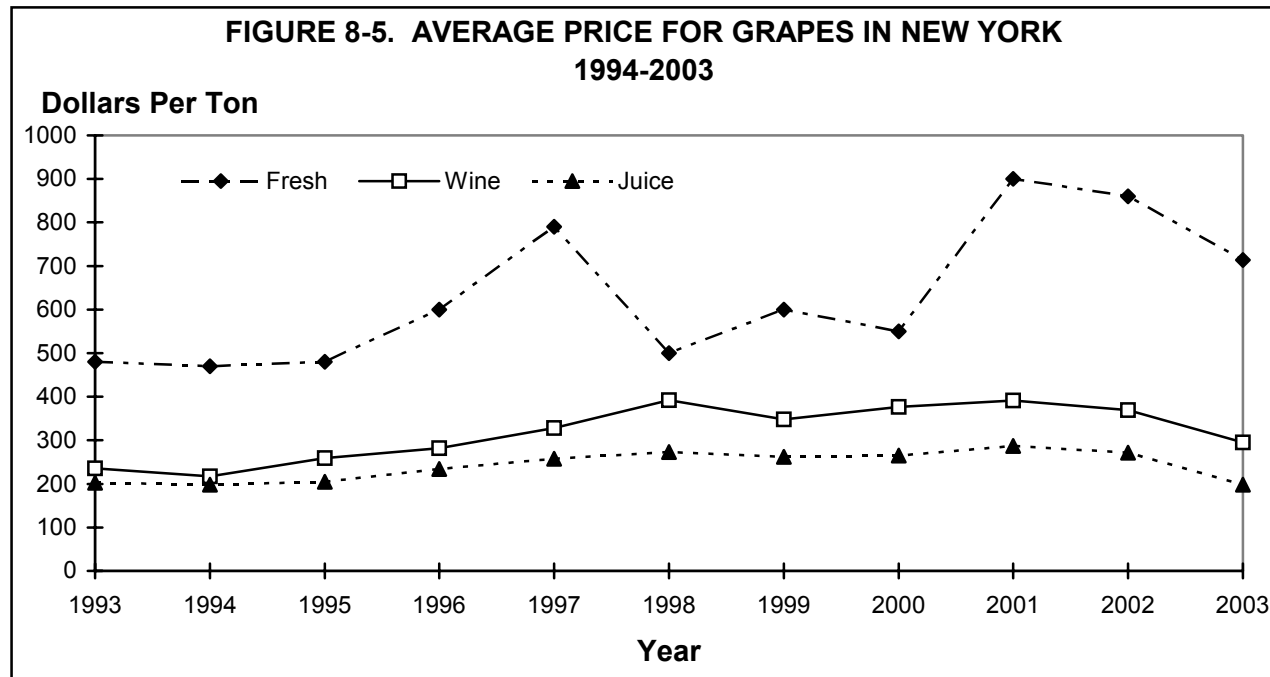
There was disappointment that direct interstate shipment was not approved in Albany. Had the measure been approved, it would have permitted wineries to sell out of state, making them less reliant on sales at the winery. The most immediate challenge for small wineries in the next two to three years will be to sustain modest sales growth while facing the challenge of sourcing grapes for their current product lines, given the acreage that was damaged by the freeze. Even if wineries are able to maintain their volume, they will experience higher costs and reduced profits for at least the next two years with the necessity to buy in more grapes.

The national crop of juice grapes was down considerably, e.g. down 12 percent for National Grape Cooperative's Concord processing compared with a year ago. However, the cooperative is still being affected by the poor quality, large 2003 crop. National Grape Cooperative processes about 40 percent 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; however the new challenge is from the introduction by competitors of hundreds of low carb/low calorie alternative products.

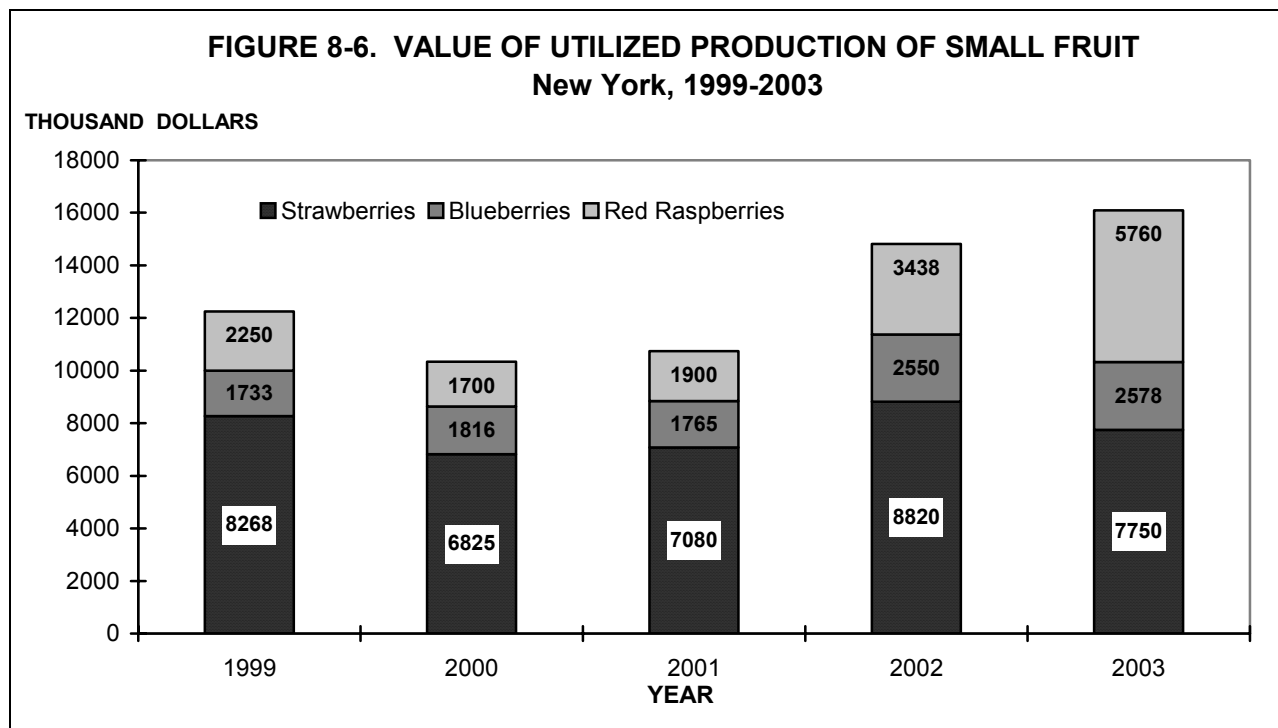
Cash prices for Concord grapes were quite interesting and unusual in 2004. Two major processors paid \$235 to \$240 per ton, while two other processors dropped their prices to \$145 per ton for 16-degree brix. Such a gap in prices offered is unprecedented and perhaps unsustainable in the longer run. At the current time, the gap is based on the premium brand image of Welch's and new products to hold market share; and the stiff competition in the fruit juice category as other processors look for the cheapest raw product ingredients, regardless of variety or region or country where the grapes are grown.

(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.)

The value of small fruit production is expanding rapidly in New York state (Figure 8-6), and exceeded 16 million last year. Most of the production is sold through direct marketing. The value of strawberries has been relatively stable over the past five years at \$6.8 to \$8.8 million. Growth has occurred mainly with red raspberries, reaching \$5.8 million last year, but also with blueberries, now at about \$2.6 million in utilized value.



Source: New York State Agricultural Statistics, 2003.



Source: New York State Agricultural Statistics, 2003.

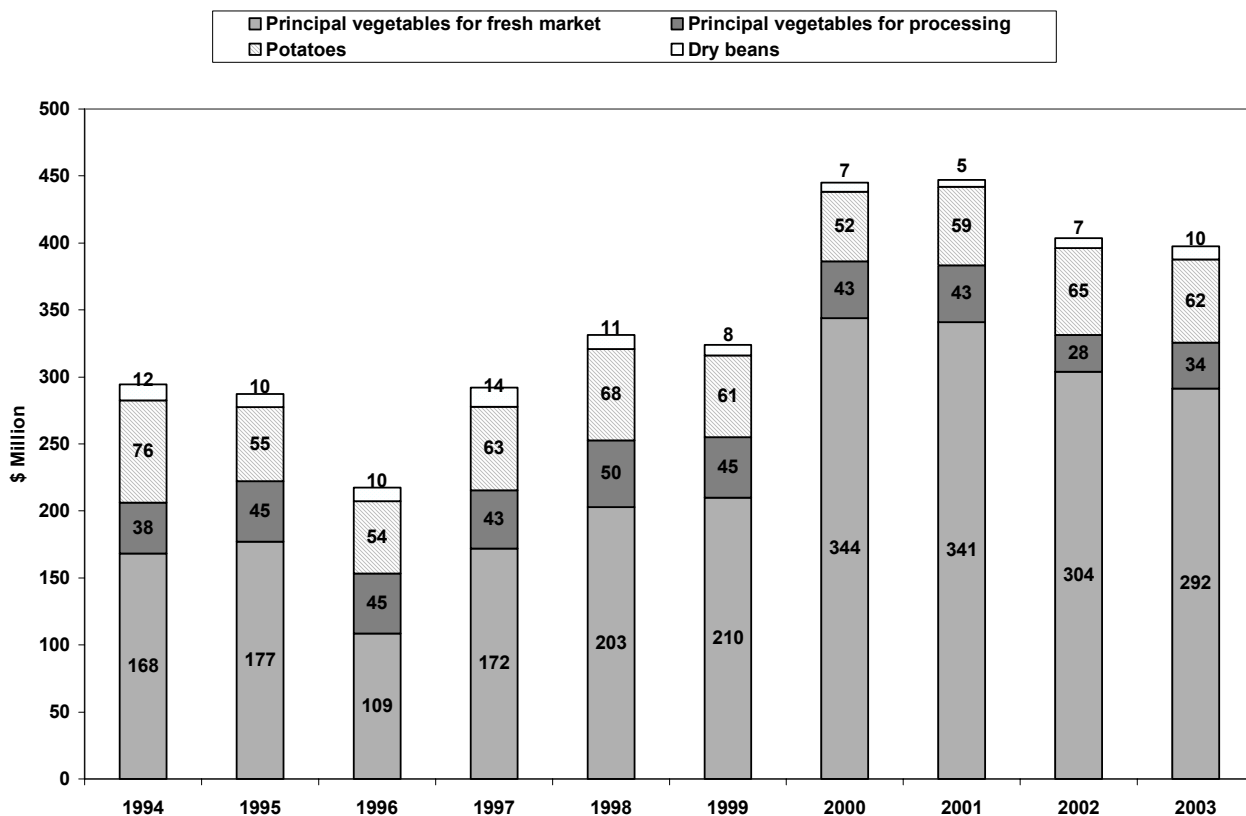
Chapter 9. Vegetables

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 2003 totaled \$398 million (Figure 9-1). In 2003, a cool, wet spring delayed planting. Wet, saturated soils continued into May and June causing yields to suffer, and an early frost in October ended most vegetable production activities.

New York ranked sixth in the nation for the value of principal fresh market vegetable production and eighth for the value of principal processed vegetable production in 2003. The value of New York's principal fresh market vegetables totaled \$292 million this year, and fresh market production was estimated at 15.0 million hundredweight (cwt.). Principal processing vegetables were valued at \$34.3 million in 2003, and production totaled 248 thousand tons.

FIGURE 9-1. VALUE OF PRODUCTION OF PRINCIPAL VEGETABLES FOR FRESH MARKET AND PROCESSING, POTATOES, AND DRY BEANS, NEW YORK, 1994-2003



Source: New York Agricultural Statistics, 2003 Annual Bulletin.

Total U.S. vegetable and melon production fell 3 percent in 2003 as inclement spring and summer weather limited yields and reduced shipments. Vegetable output in 2003 was 8 percent below the 1999 peak but 3 percent above the average for the 1990s.

Table 9-1 compares production value per acre for selected principal vegetable crops produced in New York from 2001 to 2003. Tomatoes generated the highest per acre value (\$11,304) in four consecutive years. Tables 9-2 thru 9-4 show production values, production levels, and average farm prices for major vegetable crops produced in New York from 2001 to 2003 and compare them with U.S. production.

Fresh Market Vegetables

The 2003 value of principal fresh market vegetable production in New York was \$291.5 million, about 5 percent of the U.S. total, up from 3 percent in 2002. The top four fresh market vegetables produced in New York were sweet corn, cabbage, snap beans, and onion. Four crops had increased production values between 2002 and 2003 – onion (up 103 percent), squash (up 25 percent), sweet corn (up 8 percent) and tomatoes (up 8 percent).

In 2004, harvested area of four selected fresh market vegetables (sweet corn, cabbage, tomatoes, and snap beans) is estimated at 54,600 acres in New York, down 5 percent from the 57,500 acres harvested in 2003. Long periods of rain, saturated fields, and cool weather during planting season caused this decrease. Sweet corn, snap beans, and cabbage all experienced decreased harvested acreage because of the rainy spring. Tomatoes remained the same as last year.

TABLE 9-1. VALUE PER ACRE OF PRODUCTION FOR SELECTED PRINCIPAL VEGETABLE CROPS IN NEW YORK, 2001-2003				
	2001	2002	2003	Change 2001-2002
<u>Vegetables for Fresh Market</u>	----- dollar /acre-----			%
Sweet corn	2,047	2,628	2,368	-10%
Cabbage	6,717	4,585	4,327	-6%
Onion	3,203	2,561	4,765	86%
Snap beans	3,526	3,706	2,724	-26%
Cucumbers	4,675	4,891	2,604	-47%
Tomatoes	9,504	8,889	11,304	27%
Pumpkins	3,738	3,778	1,868	-51%
Squash	3,808	4,585	6,184	35%
Cauliflower	5,375	4,444	2,625	-41%
<u>Vegetables for Processing</u>				
Sweet corn	404	369	590	60%
Snap beans	516	521	630	21%
Green peas	708	526	662	26%
Cabbage for kraut	1,452	N/A	N/A	N/A
Fall Potatoes	2,524	2,950	2,848	-3%
Dry Beans	215	298	417	40%

Source: New York Agricultural Statistics, 2003 Annual Bulletin.

TABLE 9-2. VALUE OF PRODUCTION, SELECTED VEGETABLE CROPS, NEW YORK AND UNITED STATES, 2001-2003

	New York				United States				NY as % of U.S.
				% Change				% Change	
	2001	2002	2003	2002-2003	2001	2002	2003	2002-2003	2003
	--- (\$ million) ---			%	--- (\$ million) ---			%	%
Vegetables for Fresh Market									
Sweet Corn	68.4	78.3	84.3	8%	523.6	509.4	559.7	10%	15%
Cabbage	83.5	48.6	42.4	-13%	332.6	307.9	276.8	-10%	15%
Onions	36.6	28.0	56.7	103%	680.4	765.0	918.8	20%	6%
Snap Beans	40.2	37.8	26.7	-29%	278.5	283.6	270.3	-5%	10%
Cucumbers	20.1	22.5	12.5	-44%	205.7	207.8	189.3	-9%	7%
Tomatoes	28.5	24.0	26.0	8%	1,131.4	1,252.8	1,289.3	3%	2%
Pumpkins	23.9	23.8	9.9	-58%	70.9	82.7	N/A	N/A	N/A
Squash	14.9	18.8	23.5	25%	173.8	204.3	N/A	N/A	N/A
Cauliflower	4.3	4.0	2.1	-48%	172.7	188.3	231.3	23%	1%
<i>Total Principal Fresh Market Vegetables^a</i>	340.8	303.9	291.5	-4%	5,254.1	5,667.7	5,834.1	3%	5%
Vegetables for Processing									
Sweet Corn	11.8	8.2	8.5	37%	229.2	208.7	229.8	10%	4%
Snap Beans	11.5	11.1	13.8	24%	111.1	120.2	114.5	-5%	12%
Green Peas	12.3	8.1	9.8	21%	103.2	88.4	117.1	32%	8%
Cabbage for Kraut	3.8	N/A	N/A	N/A	8.5	N/A	N/A	N/A	N/A
<i>Total Principal Processing Vegetables^a</i>	42.5	27.5	34.3	25%	1,263.0	1,351.8	1,327.3	-2%	3%
Potatoes	58.8	64.9	61.8	-5%	4,722.5	4,228.9	3,299.2	-22%	2%
Dry Beans	4.8	7.3	10.0	37%	426.5	513.8	411.9	-20%	2%

^a Items included between U.S. and New York are different.

Source: ERS, USDA, Vegetables and Melons Situation and Outlook Yearbook, 2004.
New York Agricultural Statistics, 2003 Annual Bulletin.

The estimated area for harvest of 11 selected fresh market vegetables (snap beans, broccoli, cabbage, carrots, cauliflower, celery, sweet corn, cucumbers, head lettuce, bell pepper, and tomatoes) in the U.S. during the summer quarter is forecast to be 310,000 acres in 2004, down 2 percent from last year. Acreages decreased in sweet corn, cabbage, head lettuce, snap beans, and tomatoes, while acreages increased in broccoli, carrots, and cucumbers.

New York onion growers planted 13,400 acres in 2004, up 11 percent from last year. Harvested onion acreage is expected to total 12,000 acres, 100 more than the final harvested acreage of the year before. Acreage increased from last year's poor crop to historical average levels. Growers were able to get onto many fields early to plant onions. New York's onion crop for 2004 is forecast at 4.8 million hundredweight

(cwt.), up 26 percent from last year's crop of 3.8 million cwt. In mid-August, however, a hail storm damaged acreage in Orange County, the largest onion producing area in the State. Early September brought 4 to 5 inches of rainfall to the area as the remnants of Hurricane Ivan passed over New York. Despite the rain and hail, most growers had high yields, and growers in the northern regions report this year's crop as the best ever. If realized, the expected yield of 400 cwt. per acre would be the highest since 1954.

Nationally, onion growers expect to harvest 168,050 acres of onions in 2004, up 5 percent from last year. Storage onion growers plan to harvest 110,350 acres in 2004, up 3 percent from last season. U.S. summer storage onion production is forecast at 54.9 million hundredweight (cwt.) in 2004, up 11 percent from last year. Quality and yield were good for major production areas.

TABLE 9-3. PRODUCTION OF SELECTED VEGETABLE CROPS,
NEW YORK AND UNITED STATES, 2001-2003

	New York				United States				NY as % of U.S.
	2001	2002	2003	% Change 2002-2003	2001	2002	2003	% Change 2002-2003	2003
	--- (Million cwt) ---				--- (Million cwt) ---				%
Vegetables for Fresh Market				%				%	
Sweet Corn	3.84	3.28	4.09	25%	26.8	26.5	29.0	9%	14%
Cabbage	5.52	4.13	3.82	-7%	25.5	24.2	22.4	-8%	17%
Onions	4.22	2.58	3.81	47%	70.0	69.8	69.7	0%	5%
Snap Beans	0.64	0.56	0.39	-30%	6.2	6.0	5.7	-4%	7%
Cucumbers	0.73	0.80	0.53	-36%	10.4	10.9	9.6	-13%	6%
Tomatoes	0.48	0.38	0.32	-15%	37.7	39.6	35.1	-11%	1%
Pumpkins	1.34	1.07	0.74	-31%	8.1	7.9	-	-	-
Squash	0.62	0.70	0.87	25%	7.8	8.6	-	-	-
Cauliflower	0.11	0.09	0.06	-38%	5.9	5.8	6.5	11%	1%
Total Principal Fresh Market Vegetables^a	18.03	14.03	15.10	8%	279.9	278.4	277.5	0%	5%
	--- (1,000 tons) ---				--- (1,000 tons) ---				%
Vegetables for Processing				%				%	
Sweet Corn	161	89	109	22%	3,148	3,068	3,266	6%	3%
Snap Beans	66	64	77	22%	688	794	728	-8%	11%
Green Peas	39	22	28	26%	391	350	468	34%	6%
Cabbage for Kraut	73	-	-	-	174	-	-	-	-
Total Principal Processing Vegetables^a	377	203	248	22%	14,631	16,991	15,503	-9%	2%
	--- (1,000 cwt) ---				--- (1,000 cwt) ---				%
Fall Potatoes	5,942	5,500	6,510	18%	437,673	458,171	458,854	0%	1%
Dry Beans	194	333	446	34%	19,610	30,312	22,515	26%	2%

^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, 2001-2003								
	New York				United States			
	2001	2002	2003	% Change 2002-2003	2001	2002	2003	% Change 2002-2003
	--- (\$/cwt) ---			%	--- (\$/cwt) ---			%
Vegetables for Fresh Market								
Sweet Corn	17.8	23.9	20.6	-14%	19.5	19.2	19.3	1%
Cabbage	16.8	13.1	11.1	-15%	13.4	12.9	12.6	-2%
Onion	9.7	12.2	14.9	22%	10.7	12.1	14.6	21%
Snap Beans	63.0	67.4	68.0	1%	45.0	47.6	47.0	-1%
Cucumbers	27.5	27.2	23.6	-13%	19.8	19.0	19.8	4%
Tomatoes	59.4	63.5	80.6	27%	30.0	31.6	36.7	16%
Pumpkins	17.8	22.2	13.4	-40%	8.8	10.5	-	-
Squash	23.8	27.0	26.9	0%	22.2	23.1	24.8	7%
Cauliflower	39.6	44.1	37.0	-16%	29.2	32.2	35.5	10%
	--- (\$/ton) ---			%	--- (\$/ton) ---			%
Vegetables for Processing								
Sweet Corn	73.7	69.7	78.4	12%	73.0	68.0	70.4	4%
Snap Beans	174.0	175.0	178.0	2%	161.0	151.0	157.0	4%
Green Peas	312.0	366.0	350.0	-4%	264.0	253.0	250.0	-1%
Cabbage for Kraut	51.5	-	-	-	47.4	48.7	-	-
	--- (\$/cwt) ---			%	--- (\$/cwt) ---			%
Fall Potatoes	9.9	11.8	9.5	-19%	10.8	9.2	7.2	-22%
Dry Beans	24.7	22.2	22.4	1%	22.1	17.1	17.8	4%

Source: ERS, USDA, Vegetables and Melons Situation and Outlook, 2004.
New York Agricultural Statistics, 2003 Annual Bulletin.

Processed Vegetables

The production of New York processing vegetables was valued at \$34.3 million in 2003, 25 percent higher than 2002, and about 3 percent of the U.S. total in 2003, an increase from 2 percent of the U.S. total in 2002. The 2003 value of processing sweet corn, snap beans, and green peas increased 37 percent, 24 percent, and 21 percent, respectively, from the year before.

Total New York acreage is estimated to be up 12 percent in 2004 from the year before. Processors contracted 21,300 acres of green peas in New York in 2004, up 25 percent from last year. Processors contracted 20 percent more acres of sweet corn than they did last year. Producers planted 22,000 acres of snap beans this year, down 4 percent from last year.

U.S. vegetable processors contracted 1.24 million acres of the five major vegetable crops (snap beans, sweet corn, cucumbers for pickles, green peas, and tomatoes) in 2004. This acreage is down 2 percent from last year for comparable production states. Acreage increased for cucumbers, pickles, and tomatoes, and decreased for snap beans, sweet corn, and green peas from last year.

Potatoes

The 2003 value of potato production in New York was \$61.8 million, 5 percent lower than in 2002. The increase in production value is mainly from higher prices. Production totaled 6.51 million hundredweight (cwt.), up 18 percent from the 5.50 million cwt. produced in 2002. However, the price was down in 2003.

New York potato growers planted an estimated 20,000 acres of potatoes in 2004. This is down 10 percent from 2003 and is the lowest planted acreage on record. Acreage for harvest is estimated at 19.7 thousand acres, down 9 percent from a year earlier.

U.S. area planted to fall potatoes for 2004 is estimated at 1.04 million acres, down 6 percent from last year and 8 percent below 2002. Harvested acres are estimated at 1.02 million, down 6 percent from 2003 and 7 percent below two years ago. This reduction is due in part to low prices and changes in dietary trends.

Dry Beans

In 2003, production of dry beans in New York totaled 446,000 cwt., up 34 percent from 2002. Acres harvested totaled 24,000 acres, down 500 acres from a year before. The average yield was at a record high of 1,860 pounds per acre. The 2003 dry bean production in New York was valued at \$9.99 million, up 35 percent from 2002. In 2003 a 23 percent reduction in harvested area (to 1.35 million acres) and 4 percent lower yields sent dry bean production down 26 percent to 22.5 million cwt. in the U.S. Output was reduced for 8 of the 13 identified classes, with notable declines for navy beans (down 53 percent) and pinto beans (down 21 percent).

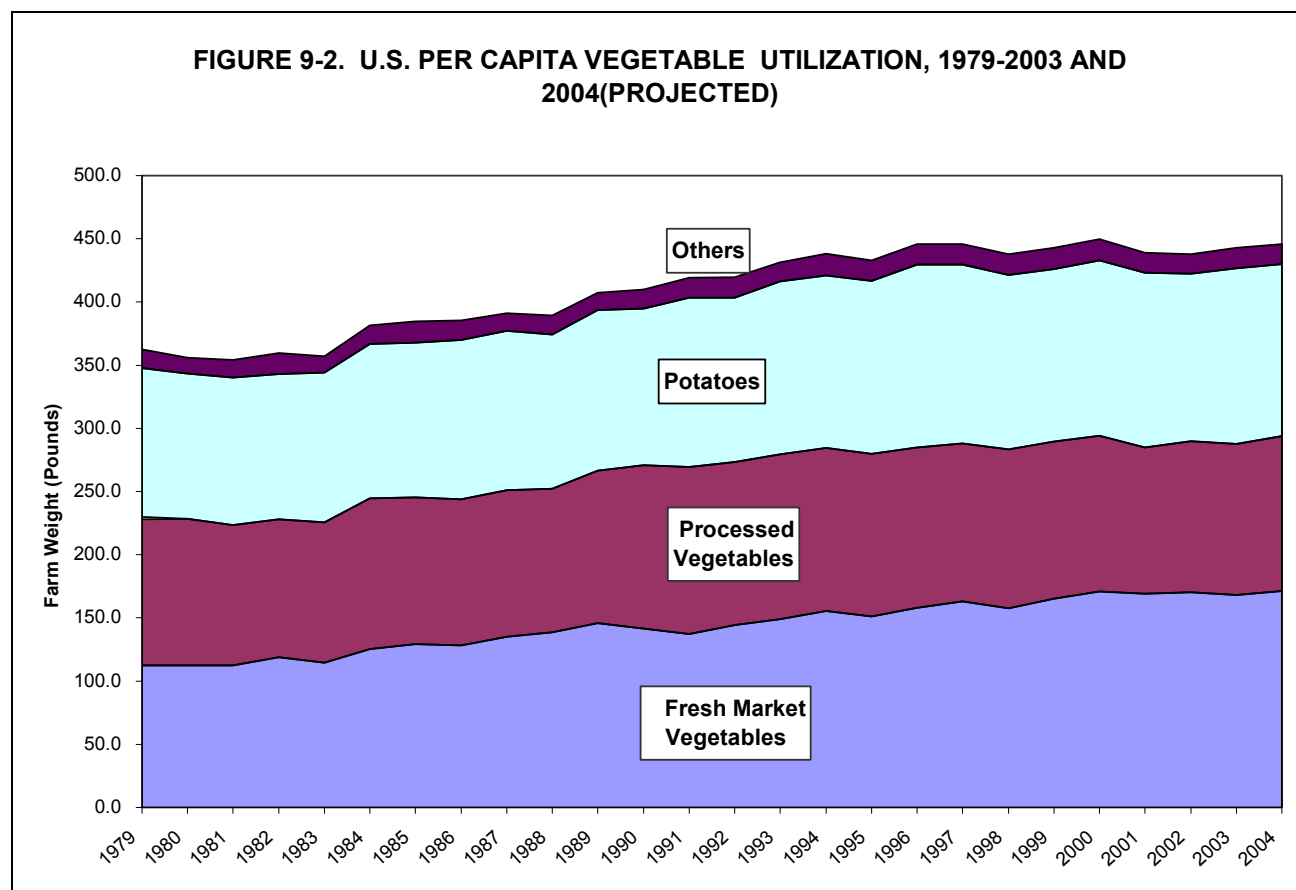
In 2004, U.S. dry bean growers expect to harvest 1.33 million acres -- 2 percent lower than 1 year earlier. Plant area increased just 1 percent in response to sluggish dry bean prices, relatively unstable domestic and export demand, and more attractive prices and revenue streams for alternative crops. With some exceptions, such as black beans and navy beans, production is expected to decline and price should continue to strengthen during the 2004/2005 season.

Consumption

In 2003, total per capita vegetable and melon use increased 1% to 443 pounds (Figure 9-2). Per capita use of fresh-market vegetables (excluding melons, potatoes, sweet potatoes and mushrooms) declined 1% to 141.3 pounds. Including melons, potatoes, sweet potatoes, and mushrooms, fresh-market vegetable consumption totaled 222.4 pounds -- up 1% from 1 year earlier.

On a per capita use basis, freezing vegetables (excluding potatoes) declined 1 percent to 21.2 pounds in 2003. Including potatoes, freezing vegetable use rose 3 percent to 78.8 pounds per person. Increases were noted for broccoli (up 23 percent), cauliflower (up 19 percent), spinach (up 15 percent), and green peas (up 9 percent), with declines coming in carrots (down 21 percent) and sweet corn (down 4 percent). The sizeable gain in broccoli largely reflects a reported doubling of output within the previously shrinking domestic industry.

Per capita use of canning vegetables (excluding potatoes) declined fractionally to 97.2 pounds. Aside from chili peppers, cabbage, and cucumbers for pickles, estimated use of all major canning vegetables all increased or remained constant.



Source: ERS, USDA, Vegetables and Melons Situation and Outlook, 2004.

There were several notable changes in vegetable consumption a year ago. These changes included a 21% gain in fresh-market spinach use to 1.7 pounds -- the highest per capita spinach use since 1949. Spinach consumption, which peaked at 2.9 pounds in 1939, is expected to continue trending higher in 2004 as spinach finds favor as both a tasty and nutritious salad ingredient and versatile side dish. Fresh-market sweet corn consumption rose 8 percent to a record 9.7 pounds. Despite various low-carb diets, consumers continue to be drawn to the improved quality and value offered by today's new varieties. Supported by ever-increasing imports, asparagus for fresh consumption rose 15 percent to 1.1 pounds per capita -- the highest fresh-market use since 1947.

In 2004, per capita vegetable consumption is estimated to increase about 1 percent to 446 pounds. Increased use is expected for fresh-market vegetables, melons, and processing vegetables, with declining use expected for potatoes and sweet potatoes. With strong romaine lettuce shipments, per capita use of leaf and romaine lettuce is expected to reach a record high of 10 pounds in 2004. Little change is expected for dry bean use.

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

Item	Average 1997-2001	2002	2003	2004 ^b
---- Pounds/ person ----				
Lettuce, all	31.0	32.1	30.9	31.3
Iceberg/head	23.5	22.5	21.4	21.3
Leaf /romaine	7.4	9.6	9.5	10.0
Tomatoes	17.7	19.2	18.1	19.1
Onions	18.6	19.3	18.9	19.1
Carrots	10.3	8.4	8.8	8.4
Sweet Corn	9.0	9.0	9.7	9.7
Cabbage	8.5	8.3	7.5	7.9
Bell Peppers	6.7	6.8	7.0	7.2
Cucumbers	6.4	6.5	6.1	6.3
Broccoli	5.5	5.4	5.7	5.8
Snap Beans	1.8	2.1	2.0	2.1
Cauliflower	1.7	1.4	1.7	1.7
Asparagus	0.8	1.0	1.1	1.1
Total ^a	165.3	170.14	168.13	171.25

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

^b 2004 figures are projected estimates.

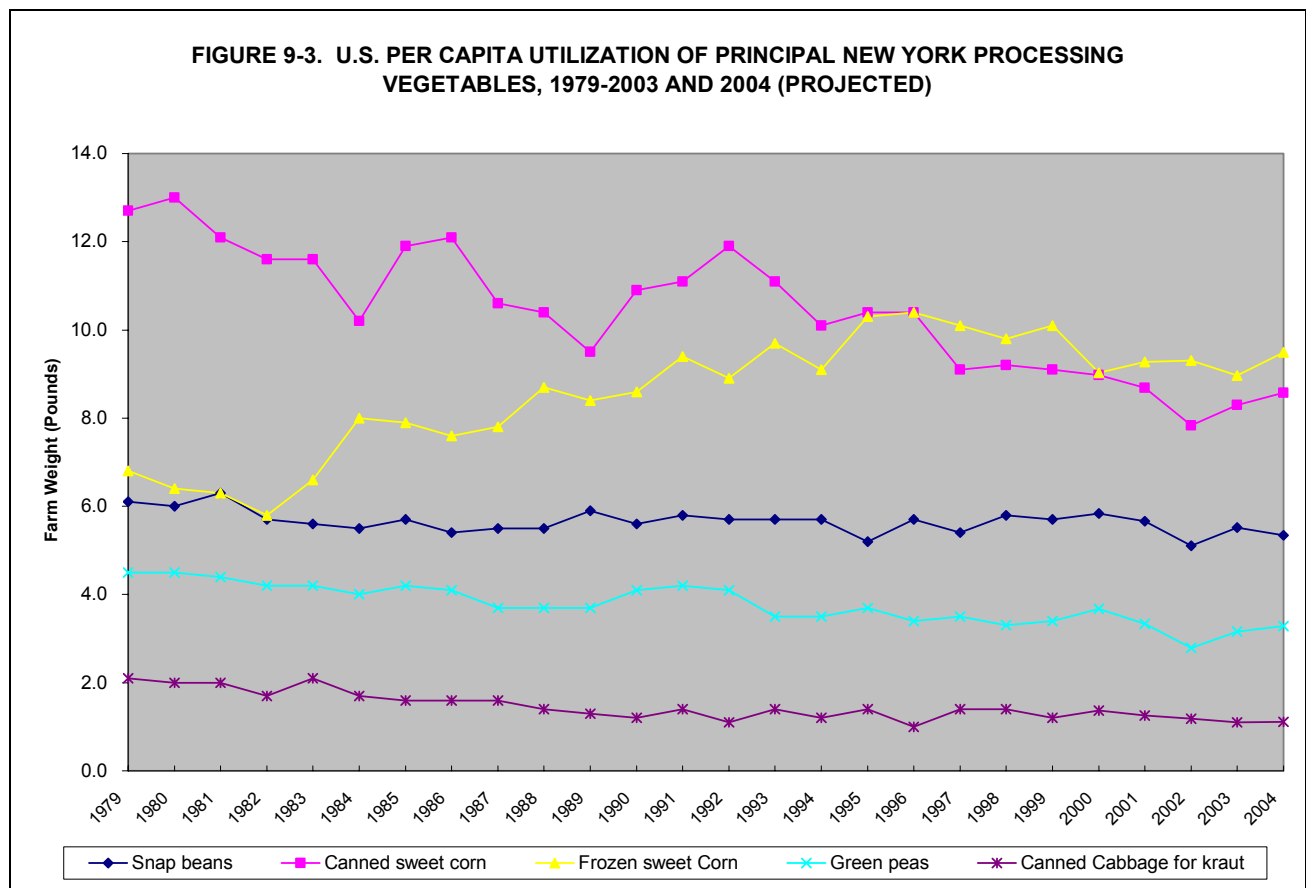
Source: ERS, USDA, *Vegetable and Melons Situation and Outlook*, July, 2004.

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

Item	Average 1997-2001	2002	2003	2004 ^a
---- Pounds, fresh-equivalent ----				
Fresh market	47.4	44.6	47.0	45.6
Processing	91.2	87.7	91.8	90.4
Freezing	58.4	55.1	57.6	56.6
Chipping	16.0	16.4	17.2	17.1
Dehydrating	15.1	14.8	15.5	15.2
Canning	1.7	1.4	1.5	1.5
Total	138.6	132.3	138.8	136.0

^a 2004 estimates are projected figures.

Source: USDA, *Vegetable and Specialties – Situation and Outlook Yearbook*, July 2004.



Source: ERS, USDA, Vegetables and Melons Situation and Outlook, 2004.

Chapter 10. Ornamentals

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The U.S. wholesale value of floriculture crops for all growers with \$10,000 or more in sales is estimated at \$5.07 billion in 2003, down less than 1 percent from the revised 2002 valuation (Table 10-1). Floriculture crops are defined by the USDA National Agricultural Statistics Service as any item considered in the categories of bedding/garden plants, cut cultivated greens, cut flowers, flowering potted plants, foliage plants, floriculture propagative materials. Data for flowering potted plants and foliage plants represent only items intended for indoor or patio use.

In 2003, California is again the leading state with wholesale production valued at just over \$1 billion, down 2 percent from the previous year. Florida ranked second with \$823 million in wholesale value, down 1 percent from 2002. These two states account for 36 percent of the total ornamental crop value. The top five states are California, Florida, Michigan, Texas, and New York which account for \$2.66 billion, or 52 percent of the total wholesale value of floriculture crops. In 2003, New York floriculture production was valued at \$196 million, up 5 percent from 2002.

Total wholesale value of floriculture crops grown by operations exceeding the \$100,000 sales level is \$4.76 billion for 2003, virtually unchanged from the revised 2002 total. These operations account for 94 percent of the total value of floriculture crops, but comprise only 40 percent of all growers. California has 21 percent of the total wholesale value for the 36 states surveyed. Florida ranks second with 17 percent. Michigan, Texas, and New York round out the top five States with 7 percent, 6 percent, and 4 percent, respectively.

TABLE 10-1. EXPANDED WHOLESALE VALUE OF PRODUCTION OF FLORICULTURE, 2002 AND 2003, BY TOP SEVEN STATES IN 2003 ^a			
State	2002	2003	Change 2002-2003
--- Million dollars---			
California	1,020	1,003	-1.7%
Florida	833	823	-1.2%
Michigan	327	342	4.6%
Texas	307	294	-4.3%
New York	187	196	4.8%
Pennsylvania	192	185	-3.7%
Ohio	194	182	-6.4%
U.S. Total^b	5,089	5,068	-0.4%
^a Expanded wholesale value of sales as reported by growers with \$100,000 or more in sales of floriculture crops plus a calculated wholesale value of sales for growers with sales below \$100,000. The value of sales for growers below the \$100,000 level was estimated by multiplying the number of growers in each size group by the mid-point of each dollar value range. ^b Total growers are located in the 36 surveyed states. Crops include cut flowers, cut cultivated greens, potted flowering plants, potted foliage plants, bedding and garden plants, and propagative materials. Source: Floriculture Crops, USDA, NASS, April 2004.			

In 2003, 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 decreased 7.5 percent to \$99.3 million. Potted flowering plants were second with sales valued at \$47.9 million, an increase of 5.1 percent. While U.S. cut flower production continued to recede, New York growers realized great increases of 30 percent in production value for cut flowers (\$5.6 million) in 2003. 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. Wholesale value of foliage plants in New York was \$3.9 million in 2003, decreasing by 3.7 percent from 2002.

In the U.S., wholesale value of bedding and garden plants from operations with annual sales of \$100,000 or higher totaled \$2.42 billion in 2003, 1 percent above a year earlier. This represents 51 percent of the wholesale value of all reported crops. California, Michigan, Texas, Ohio, and Florida, the top five states in this category, account for 41 percent of the total bedding and garden value. Of the specific bedding plants in the survey, potted Geraniums (from both cuttings and seed) sold for the highest value to growers, \$150 million, up 1 percent from the previous year. Pansy/Viola flats contributed the second largest amount at \$118 million.

Potted flowering plants, for indoor or patio use, by operations with annual sales of \$100,000 or higher are valued at \$829 million in 2003, down 2 percent from 2002. California accounts for 23 percent of the category's total value. Poinsettias, which make up \$252 million of the category, are virtually unchanged in total value from 2002. Potted orchids are up 8 percent for 2003, while spring flowering bulbs are up 1 percent. All other categories show decreases.

Wholesale value of domestically produced cut flowers by operations with annual sales of \$100,000 or higher reached \$425 million in 2003, down less than 1 percent from 2002. California's value is \$306 million, 72 percent of the total cut flower value in the 36 surveyed states. The top three valued cut flower categories are lilies at \$69.8 million, roses at \$51.9 million, and tulips at \$29.6 million.

TABLE 10-2. VALUE OF FLORICULTURE PRODUCTION BY PLANT CATEGORY, NEW YORK AND UNITED STATES, 2002-2003^a

	New York			U.S.		
	2002	2003	2002-2003 Change	2002	2003	2002-2003 Change
	--- Million dollars ---			--- Million dollars ---		
Bedding/Garden Plants	107.2	99.3	-7.5%	2,401	2,424	1.0%
Potted Flowering Plants	45.5	47.9	5.1%	844	829	-1.8%
Cut Flowers	4.3	5.6	30.4%	427	425	-0.5%
Foliage Plants	4.1	3.9	-3.7%	623	623	0.0%
Propagative Materials	9.0	5.4	-40.2%	346	351	1.5%
Cut Cultivated Greens	-	-	-	114	109	-4.6%
Total of Reported Crops	170.1	162.0	-4.8%	4,754	4,760	0.1%

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

Source: Floriculture Crops 2004, USDA, National Agricultural Statistics Service.

The 2003 value of foliage plant production from operations with annual sales of \$100,000 or higher, at \$623 million, is virtually unchanged from the previous year. Florida continues to dominate this category with 64 percent of the total value. Potted foliage plants represent 87 percent of the total foliage value. The remainder of the value is from hanging baskets.

Total value of sales of propagative materials for cut flowers, potted flowering plants, annual bedding and garden plants, herbaceous perennials, foliage, and cut cultivated greens by operations with annual sales of \$100,000 or higher is \$351 million in 2003, 1 percent above the previous year. Propagative material for annual bedding and garden plants accounts for 50 percent of the total, or \$177 million.

Cut cultivated greens produced by operations with annual sales of \$100,000 or higher are valued at \$109 million in 2003, down 5 percent from 2002. Florida's value, at \$83.4 million, represents 77 percent of the category total. Value of Leatherleaf ferns, at \$48.7 million, is down 9 percent from last year. The other cut cultivated greens value is virtually unchanged from a year earlier.

TABLE 10-3. VALUE OF FLORICULTURE PRODUCTION BY PLANT CATEGORY, TOP FIVE LEADING STATES, 2003 ^a							
		Value	Top Five States				
	Rank	(\$ Million)	1	2	3	4	5
Total Value			CA	FL	MI	TX	NY
		\$4,760	985	803	323	285	170
			21%	17%	7%	6%	4%
Bedding/Garden Plants	1		CA	MI	TX	OH	FL
		\$2,424	305	230	204	133	124
		51%	13%	9%	8%	5%	5%
Potted Flowering Plants	2		CA	FL	TX	NY	NC
		\$829	193	91	47	46	43
		17%	23%	11%	6%	5%	5%
Foliage Plants	3		FL	CA	TX	HI	NC
		\$623	400	99	26	15	7
		13%	64%	16%	4%	2%	1%
Cut Flowers	4		CA	FL	WA	HI	OR
		\$425	306	22	18	17	11
		9%	72%	5%	4%	4%	3%
Propagative Materials	5		FL	CA	MI	PA	WA
		\$351	83	65	48	24	16
		7%	24%	19%	14%	7%	4%
Cut Greens	6		FL	CA	OR	HI	-
		\$109	83	17	6	1	-
		2%	77%	15%	6%	1%	-
^a Sales by operations with annual sales of \$100,000 or more.							
Source: Floriculture Crops 2004, USDA, National Agricultural Statistics Service.							

Number of floriculture growers continues to decrease in the U.S. The total number of growers for 2003 is 11,913, down 8 percent compared with the 2002 revised count of 12,916. The number of growers in all size groups experienced decreases from the previous year. The number of growers with annual sales of \$100,000 or more dropped to 4,741 in 2003, from 4,974 in 2002. The number of growers producing bedding and garden plants is 3,212 in 2003, down 156 growers from 2002. The number of cut flower growers, at 548, is 70 less than the previous year. The number of growers for cut cultivated greens in 2003, at 205, is 39 below 2002. The number of foliage producers, at 1,604, is 67 lower than 2002.

With respect to floriculture crops, average sales per grower continue to rise as fewer farm operations become bigger. The addition of more open-field production area to existing farm acreage, while keeping greenhouse and covered acreage unchanged, has caused average floriculture sales per acre to fall. Floriculture sales per grower increased, on average, in all four U.S. regions, growing the fastest in the Midwest as sales of bedding and garden annual flowering plants led growth. Even as average floriculture sales of large growers (operations with more than \$100,000 in annual sales) rose slightly, average sales per acre of total production area dropped sharply to \$84,012 in 2003 from \$93,349 in 2002. This is because large farm operations have added more open field production and reduced greenhouse and shade-covered areas. Only growers in the Midwest, particularly Missouri, Kansas, Michigan, Wisconsin, and Ohio, raised their sales per acre in 2003.

The number of commercial growers of floriculture crops in New York also decreased for the sixth consecutive year from 896 growers in 2002 to 875 growers in 2003. 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 exceed \$1 million in the U.S. (dominated by growers in the West and South) and is about \$694,208 in New York (Table 10-4).

TABLE 10-4. FLORICULTURE CROPS -- NUMBER OF LARGE GROWERS, AVERAGE SALES AT WHOLESALE PER GROWER, AND AVERAGE SALES PER ACRE OF TOTAL PRODUCTION AREA OF LARGE GROWERS, BY TOP SEVEN STATES IN 2002-2003

	Number of Growers		Average Sales per Grower			Average Sales per Acre		
					2002-2003			2002-2003
State	2002	2003	2002	2003	Change	2002	2003	Change
	---Number---		---Dollars per grower---			---Dollars per acre---		
California	559	536	1,791,038	1,837,513	2.6%	89,512	89,650	0.2%
Florida	697	642	1,163,481	1,250,966	7.5%	47,200	48,956	3.7%
Michigan	358	353	855,506	914,317	6.9%	75,370	85,113	12.9%
Texas	218	197	1,360,138	1,445,381	6.3%	212,116	37,688	-82.2%
New York	255	245	635,173	694,208	9.3%	188,034	192,588	2.4%
Pennsylvania	256	231	622,793	676,429	8.6%	196,990	215,503	9.4%
Ohio	245	235	705,992	707,536	0.2%	186,815	193,811	3.7%
U.S. Total	4,974	4,741	980,299	1,022,400	4.3%	93,349	84,012	-10.0%
1. Based on wholesales of growers with \$100,000 or more in annual floriculture sales. Growers are located in the 36 surveyed states.								
2. Crops include cut flowers, cut greens, potted flowering plants, potted foliage plants, bedding and garden plants, and propagatives.								
Source: Floriculture Crops 2004, USDA, National Agricultural Statistics Service.								

Chapter 11. Agriculture and the Environment

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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 nutrient management rules for 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. Based on our collective judgement that agricultural environmental considerations and programmatic developments are prominent enough to merit regular attention of educators, industry leaders, public officials and individual farm managers, “Agriculture and the Environment” became a permanent addition to the Outlook conference beginning in 2003. In adding this dimension to the annual conference, we recognized that the entirety of agricultural environmental issues is beyond the scope of a single chapter of the annual proceedings. Hence, we opted for a rotating structure that focuses on a selected topic each year, providing a historical grounding as well as a contemporary update, while at the same time providing timely, but less comprehensive, updates on pressing agricultural environmental issues. Over a period of years, we anticipate that this rotating structure will provide a baseline library of accessible materials for understanding the context of critical agricultural environmental issues as well as an efficient forum for providing periodic updates and anticipated changes to policies in this arena.

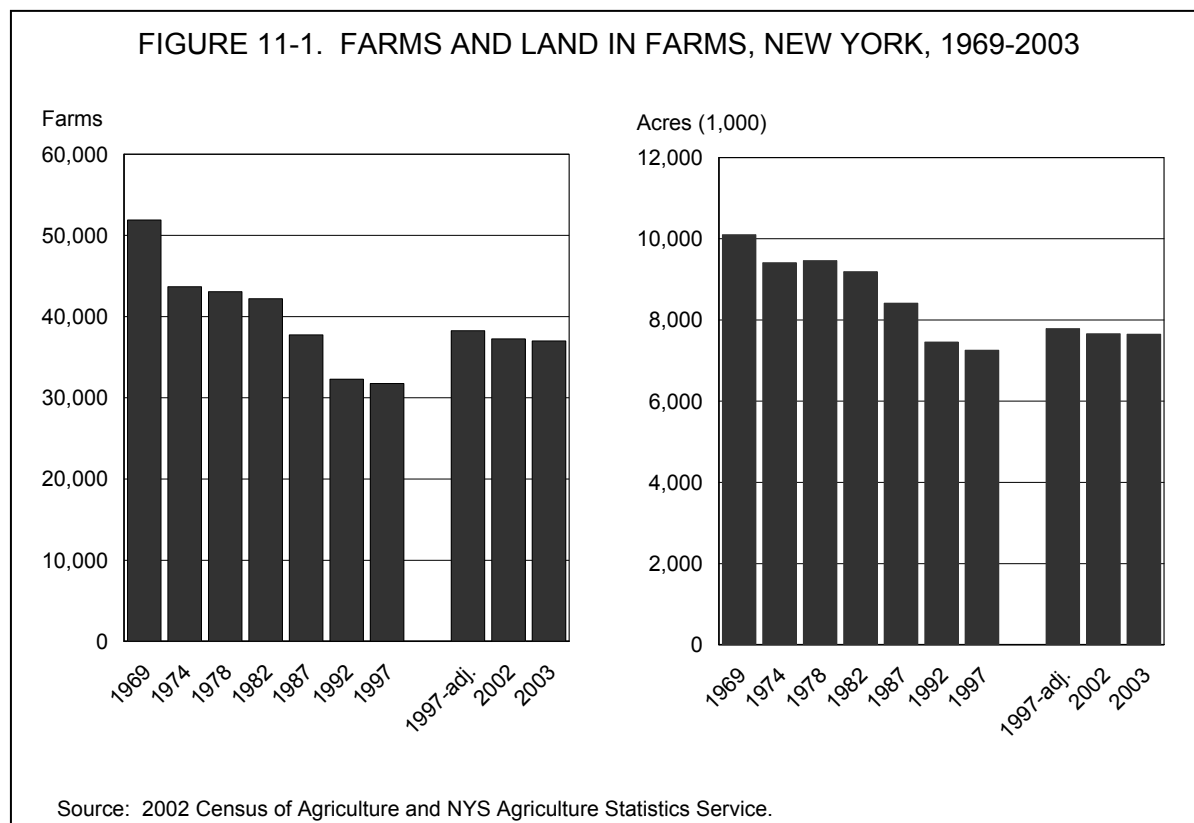
In addition, our intent remains to capture both sides of the continuing evolution in agricultural policy and the environment, including both the viewpoint that farming and agricultural land provide external benefits to society and the countervailing concern that agricultural practices result in environmental damages. We channel the 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 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. It follows that separation of land and water issues when crafting agricultural environmental policy can lead to efforts that 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. Such a holistic approach would necessarily coordinate efforts to protect farms and farming with environmental protection objectives.

Last year’s chapter centered on water quality issues, with a focus on the historical development of the USDA Conservation Reserve Program and CAFO regulations under the Clean Water Act. The focus of this

year's chapter is to document the continual, gradual evolution of agricultural land use policy while also showcasing recent developments in program administration. Special attention is given to farmland protection planning efforts in more than 40 New York counties. To maintain currency, we also provide updates on federal water quality programs in NY State, with attention given to changes in the CAFO permitting process that occurred in 2004.

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 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 and, due to consolidation and other socio-economic trends, the number of farms has declined. 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. Corresponding trends in farm numbers and farm acreage in New York are shown in Figure 11-1.

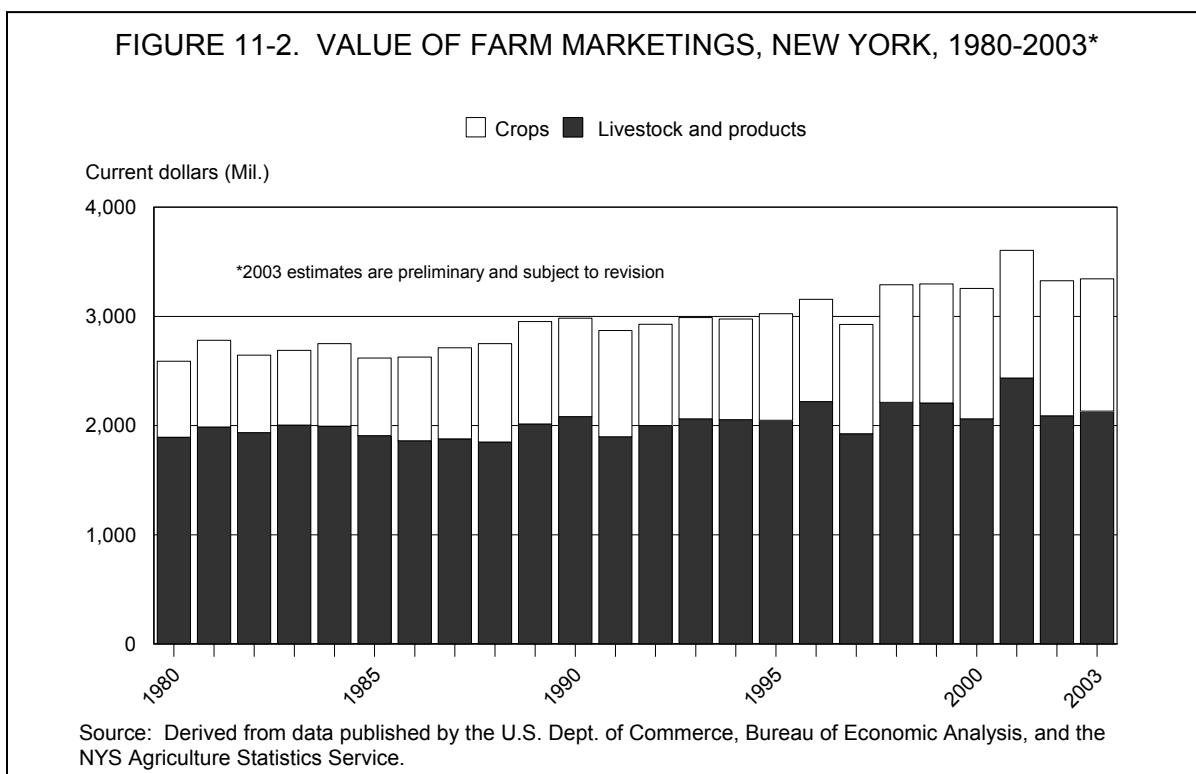


In June 2004 the USDA released results from the 2002 Census of Agriculture. New measures were taken to correct for under-counting of farm operations. Importantly these adjustments resulted in notable, perhaps even dramatic, changes in our understanding of farm operations and acreage in New York State:

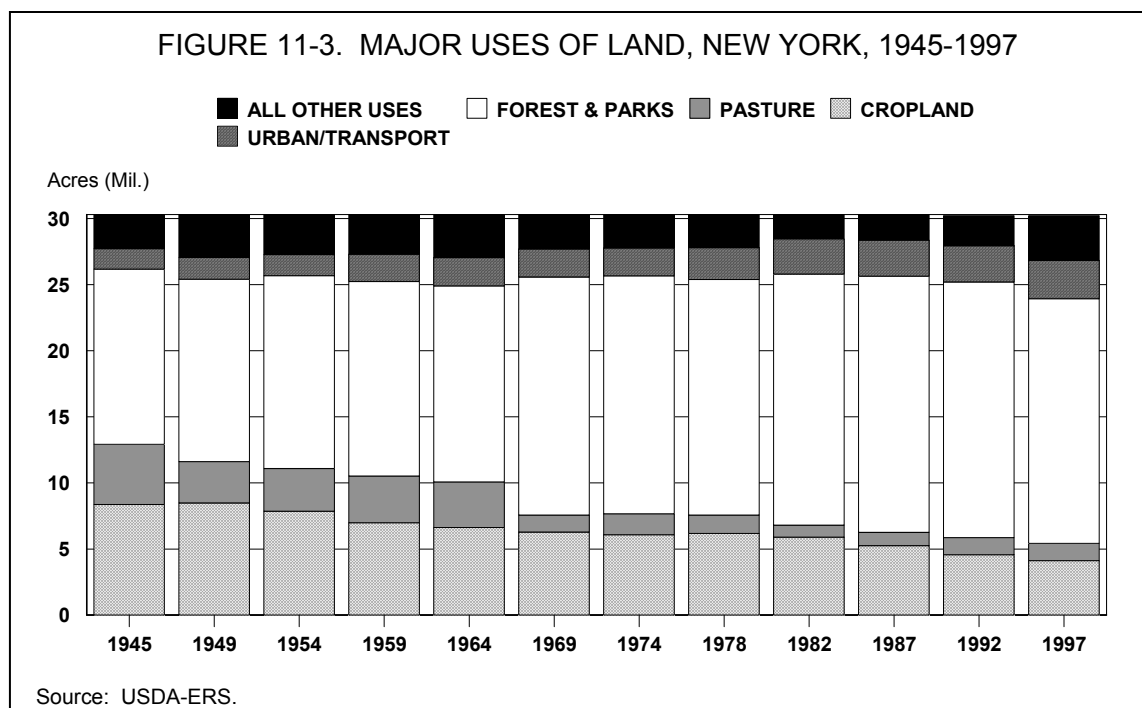
- Estimated farm operations in New York increased by about 20% over the 1997 Census count, from slightly more than 32,000 farms to more than 38,000. Increases in farm numbers reported for 2002 and 2003 using this adjusted baseline are in the 37,000 range.

- Land in farms increased by 500,000 acres (8%) over the acreage counted as land in farms in the 1997 Census. Today, farm operators are estimated to own or lease 7.65 million acres of land.

In the aggregate, these farms 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. To a certain extent this volume is concentrated: USDA data show that more than a quarter of these farms have low sales but reach the \$1000 sales threshold used to count a Census farm.



As for nonagricultural land, USDA data published shortly after completion of the 1997 Census of Agriculture classifies nearly 60% of all land in New York as forest—some 17.7 million acres. Because over-all 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 in 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% 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.

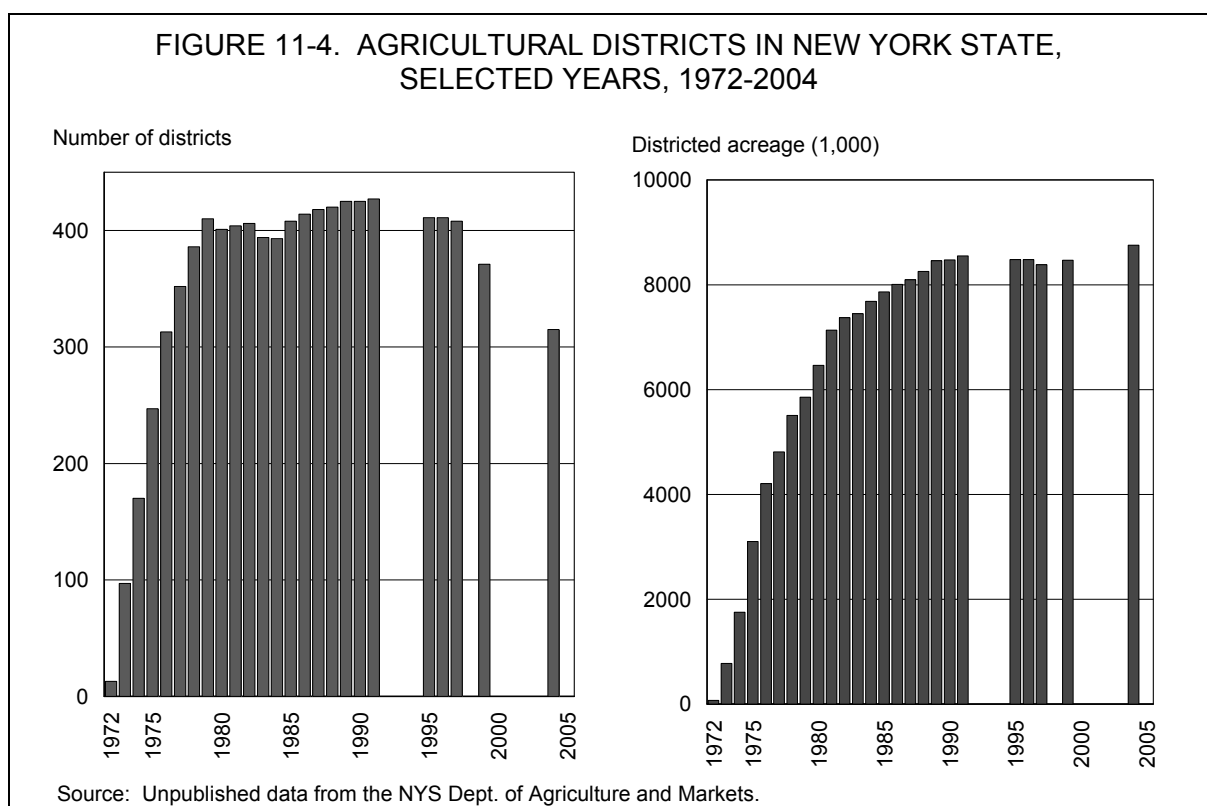
Enactment of the Agricultural Districts Law in 1971 makes local efforts to create agricultural districts the focal point for farm protection efforts in New York. The Agricultural Districts Law recognizes that viable agricultural land is one of the State's most important and irreplaceable environmental 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% 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.¹ 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 relatively stable at about 8.5 million acres since that time. Today, New York's districted land base of 8.55 million acres represents 28% 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 6.3 million acres or 72% of all districted acreage is farmed by 21,600 farm operators. For comparative purposes, the USDA estimates that 7.65 million acres are presently owned or leased by 37,000 farms in New York (see Figure 11-1).



In sharp contrast to districted acreage, the number of agricultural districts has declined from nearly 430 districts in the early 1990s to 315 in calendar year 2004. Much of this change in district numbers is attributable to administrative adjustments in conjunction with eight-year reviews of district boundaries. To manage the administrative load and streamline administration costs, concerted efforts have been made in several counties to consolidate districts. The consolidations better reflect the facts on the ground while affording local officials opportunities to more effectively manage the eight-year district reviews prescribed by State law.

¹ A 2003 amendment establishes an annual 30-day period during which a farmer can submit proposals to include viable land within an already certified agricultural district. This provision is designed to accommodate new, start-up farm operations who wish to access the benefits of district participation.

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 have the effect of a tax exemption and remove the land's nonagricultural value from the property tax roll, and have proved to be a significant source of financial benefit to farmland owners. As shown in Table 11-1, agricultural assessments generate significant and persistently increasing tax savings for participating farmland owners; aggregate benefits now are now approaching \$80 million per year.

TABLE 11-1. ESTIMATED FARMLAND PROTECTION OUTLAYS IN NEW YORK, 1996-2002							
	1996	1997	1998	1999	2000	2001	2002**
	----- Dollars (Mil.) -----						
NYS Purchase of Development Rights (1996)*	3.7	3.5	4.5	7.7	12.0	8.0	16.0
NYS Farmer's School Tax Credit (1997)	0.0	12.4	18.5	19.0	19.6	20.7	21.5
NYS Agricultural Assessments (1971)	56.5	55.1	57.8	60.7	67.4	68.0	79.2
NYS Farm Building Exemptions (1969)	8.9	9.0	8.8	8.8	9.4	10.0	10.8
*Year of program inception in parentheses.							
**Preliminary estimate, subject to revision.							
Source: Estimated or extrapolated 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.							

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 \$10.8 million in property tax savings during the 2002 tax year (Table 11-1).

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. Availability of state support for agriculture and farmland protection planning at the local level has spurred considerable planning effort tailored to food and agricultural issues. These plans are prepared under the direction of county Agricultural and Farmland Protection Boards (AFPB). These boards have representation from the farm community, the county planning agency, county real property tax coordinators, Cornell Cooperative Extension, local Soil and Water Conservation Districts, and local not-for-profit land trusts and conservancies. Fifty-four of New York's 57 counties have established an AFBP and are, therefore, eligible to apply for agricultural and farmland protection planning and implementation grants. To date, as showcased in the next section, 42 county legislative bodies have ratified county agricultural and farmland protection plans.

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 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 1996-2002 span are estimated at about \$55.4 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 2002, tax benefits from this law are estimated to be at \$21.5 million (see Table 11-1).

County Farmland Protection Plans²

To encourage local planning efforts more closely tailored to issues and concerns for food and agriculture, 1992 amendments to the Agricultural Districts Law gave the Commissioner of Agriculture and Markets new authority to cost share with local governments on the preparation of agricultural and farmland protection plans. To date, as shown in Table 11-2, 42 of 57 New York counties (excluding the five boroughs of New York City) have completed and received approval of an agricultural and farmland protection plan. Approval requires review of the plan at the state level and ratification by the county legislative body.

² This section updates findings reported in 2001. See: Maureen Maloney Robb and Nelson Bills, "Farmland Protection Planning in New York," EB 2001-04, Department of Applied Economics and Management, Cornell University, April 2001 (<http://aem.cornell.edu/outreach/extensionpdf/eb0104.pdf>).

**TABLE 11-2. NEW YORK'S AGRICULTURE AND FARM-
LAND PROTECTION PLANS BY YEAR OF COMPLETION,
MAY 2004**

County	Year	County	Year
Cayuga	1996	Ontario	2000
Erie	1996	Rockland	2000
Orange	1996	Schoharie	2000
Suffolk	1996	Schuyler	2000
Washington	1996	Seneca	2000
Essex	1997	Chautauqua	2001
Onondaga	1997	Delaware	2001
Ulster	1997	Franklin	2001
Wayne	1997	Oneida	2001
Dutchess	1998	Rensselaer	2001
Saratoga	1998	St. Lawrence	2001
Tompkins	1998	Steuben	2001
Cortland	1999	Broome	2002
Monroe	1999	Fulton	2002
Niagara	1999	Genesee	2002
Oswego	1999	Schenectady	2002
Otsego	1999	Greene	2003
Sullivan	1999	Herkimer	2003
Tioga	1999	Jefferson	2003
Chenango	2000	Albany	2004
Montgomery	2000	Clinton	2004

Source: New York State Department of Agriculture and Markets.

At present, seven additional counties (Alleghany, Lewis, Putnam, Madison, Westchester, Wyoming, and Yates) have received state funding and have a plan under preparation. At the other extreme, plans prepared in several counties are now probably somewhat dated. Planning documents in several New York counties date to the mid-to-late 1990s. Regardless, these plans, while providing guidance for planning at the local level, also provide a useful reference point for identifying underlying themes and points of convergence around opportunities and challenges for New York agriculture. Policymakers at both the state and local levels need a clear understanding of the vision and direction of local planning efforts as a precondition for framing new policy and fine-tuning existing law and public policies.

As noted in the previous section, agricultural and farmland protection plans are developed under the supervision of county Agricultural and Farmland Protection Boards (AFPB). These boards have broad representation from the farm community, the county planning agency, county real property tax coordinators, Cornell Cooperative Extension, local Soil and Water Conservation Districts, and local not-for-profit land trusts and conservancies. The expectation is that the plans will include the location of any land or areas proposed to be protected from conversion to nonfarm use, an analysis of the value of farmland to the agricultural economy of the county, their open space value, the consequences of possible conversion, and the level of conversion pressure on the lands or areas proposed to be protected. The plans also specify and describe the activities, programs, and strategies intended to be used in a county to promote food and agriculture and to

ensure the continued use of good farmland for farming purposes. The process of developing a farmland protection plan is usually data driven. Most counties gathered primary data through mail surveys of producers or by conducting focus group discussions. A few counties solicited responses from farmland owners as well. All counties compiled secondary data from such sources as agricultural censuses, agricultural district reviews, real property tax rolls, planning departments, and soil and water conservation services.

The boards must conduct at least one public hearing and the plan must be approved by the county legislative body. In addition, the plan must be submitted to the Commissioner for approval. County boards are given wide latitude on strategies for developing the plan. In some cases, the planning effort has been internalized and conducted by staff in local agencies. In several other circumstances, the plan preparation has been turned over to hired, outside consultants. Article 25-AAA provides for a matching grant program to fund the cost of county agricultural and farmland protection planning activities. The State provides funding for grants up to \$50,000. To date, the Commissioner has obligated slightly more than \$2 million in state matching funds in support of this program.

The impetus for planning seems timely for several reasons. The planning exercise provides a forum for discussing proactive steps the industry and governments might take to protect the agricultural land base while increasing the vibrancy of local food and agricultural industries. Broader representation on county AFPBs increases the possibilities for agricultural concerns to be heard in government while giving voice to environmental and open space advocates in the wider community. While there is no legal obligation to prepare an agricultural and farmland protection plan, having a protection plan insures eligibility for other agricultural protection or other state grant funds.

Agricultural and farmland protection plans have a social, political, and economic context. Key social and political elements in New York farmland policy have been mentioned above in describing the Agricultural District Law. The New York legislation, glancing back to its inception nearly 30 years ago, is arguably one of nation's most successful farmland protection programs. Using conventional measures of success—acreage enrolments, monetary benefits, nurturing of the farm and food industry, and so on—districts have become an enduring and necessary feature of New York's farm policy landscape. The districts program stresses voluntary participation and heavy dependence on local initiative to administer the program and to tailor it to local needs. State government, on the other hand, functions largely as an enabler and as a partner with localities who wish to step forward with protection initiatives. The districts law has a limited regulatory texture and overt steps are taken to minimize any impacts on the decision-making prerogatives of individual landowners.

Preparation of agricultural and farmland protection plans has these basic precepts in place as well. The overriding issue behind all protection plans is that, once productive farmland is converted to nonfarm uses, it is lost forever to agriculture. Suburban-style development expanding out from urban centers creates problems of farmer/neighbor relations. Development fragments productive lands as a whole farm or several roadside parcels are sold for development, or land is prematurely retired from production. Loss of too many farms will also lead to loss of necessary agricultural services. The influence of external forces, whether regional, national, or international in scope, is clearly recognized in this planning environment.

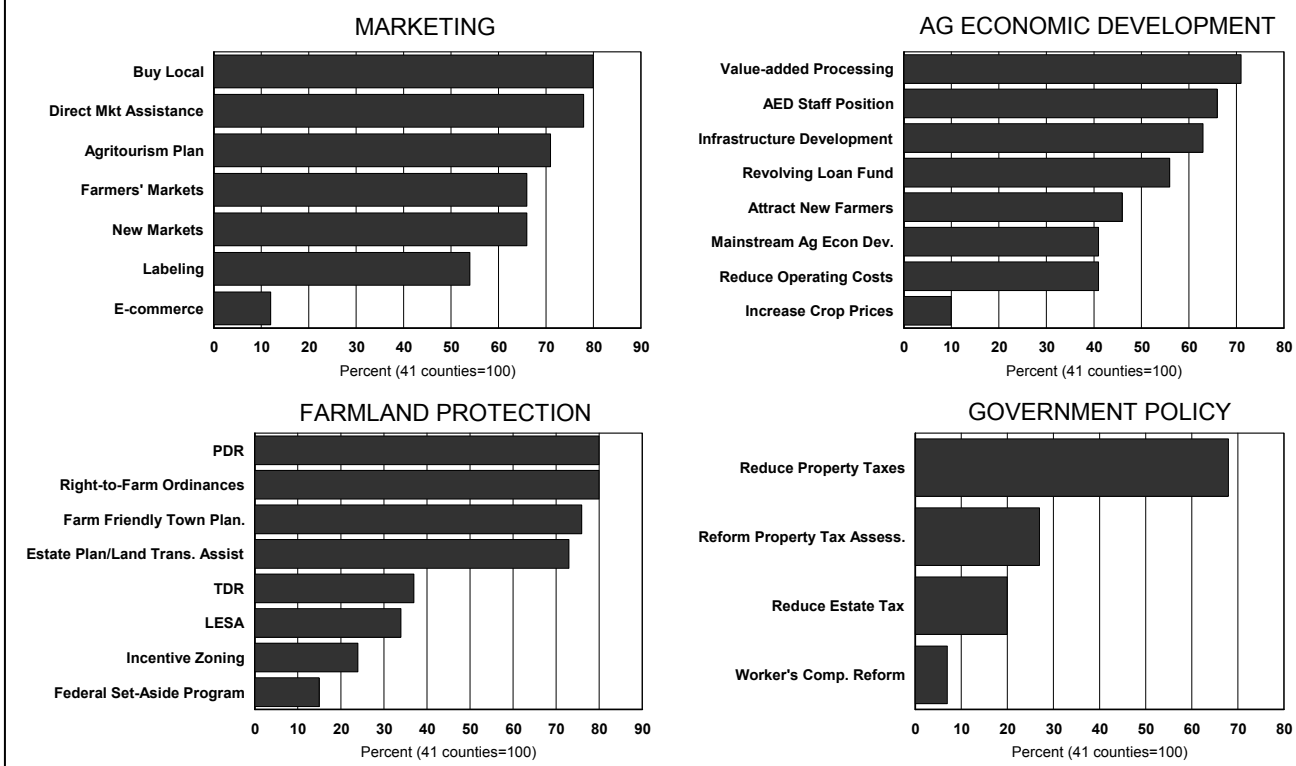
Our review of each plan identified many common themes. There is no basis for assigning a quantitative weight or rank to each of these themes. And making counties the unit of study makes no direct accounting of important indicators of industry size, such as number of farms, farmland acreage, or volume of sales. Thus, at first glance, it might appear that the county plans, displaying such an expansive set of planning targets, tend to marginalize the traditional concern with farmland protection. However, a more apt interpretation is that the plans reflect a general consensus that land protection issues cannot be considered in a vacuum. This consensus vindicates the legislature's intent to reinvigorate the debate over sustaining New York's farm

and food industries. The economic health of the industry and the prospects for giving the local farm economy more vibrancy uniformly receives equal billing in the planning documents.

This wider focus builds on the simple but crucial distinction between farmland and farming, the presence of the latter being a necessary precondition for pursuing protective measures for the former. To that end, all counties include recommendations for sustaining, protecting, and enhancing the agricultural industry in their agricultural and farmland protection plans. Although not detailed here, county plans uniformly call for redoubled efforts to engage and educate the nonfarm public, including local public officials, on these issues along with addressing the challenges and prospects for continued farm and food production in the local community.

Beyond educational needs, planning recommendations for new or more robust initiatives under each theme are displayed in Figure 11-5. Distinctions between efforts that target “marketing” and “ag-based economic development” are usually elusive. There is some tendency to use the words interchangeably to refer to steps that increase or stabilize the cash flow of farm and agribusiness firms. The line of demarcation for the purposes of this report link marketing issues to tactics that are directly tied to product sales. In this category, mentioned most frequently were encouraging local consumers to buy local products, closely followed by recommendations for “direct market assistance”. These recommendations refer to mechanisms and arrangements where producers can receive technical assistance on marketing solutions on a one-on-one basis.

FIGURE 11-5. PROPOSED INITIATIVES IN AGRICULTURE AND FARMLAND PROTECTION PLANS FOR 41 NEW YORK COUNTIES



About two-thirds of the plans make reference to the prospects for agritourism and allied efforts to market local produce through farmers' markets. A similar number made recommendations tailored to

opening “new” markets and more involvement in agritourism planning. At the other end of the spectrum, county plans do not share the growing national excitement over e-commerce. One reason might be timing. Interest in the Internet has grown geometrically in the recent past; another consideration is that individual farm and food firms, given the technology now available, can easily integrate the Internet into their own marketing model.

Profitable farming is generally acknowledged to be the most effective means of maintaining and protecting farmland. Several county plans stress the importance of engaging the wider economic development community in order to more effectively “mainstream” or give more priority to opportunities for ag-based economic development. Thus, a frequently stated recommendation in the Marketing and Agricultural Economic Development category is creation of an agricultural economic development (AED) specialist position (Figure 11-5). About two-thirds of all county plans have recommended creating an AED specialist position to implement all other aspects of the protection plan.

Few county plans fail to recommend marketing local products. Concern over profitability appears to drive this recommendation to increase local sales. However, local marketing recommendations follow no set formula. Proposals extend from the creation of a county’s or region’s own recognizable logo or label to increasing retail sales within the immediate area through creation or expansion of farmers’ markets or other direct marketing strategies. About 70% of all county plans encourage proposals for value-added processing of local farm commodities. Other components of local marketing recommendations include collaboration between producers and restaurants or other food-using institutions locally; involvement of more producers in catalogue or Internet sales; community supported agriculture (CSA) farms; and cooperation among various community agencies such as tourism and economic development to include agricultural events and sites on the county Internet web page.

County agricultural and farmland protection plans identify many entry points for governmental action. Some entry points go directly to concerns about farmland protection and the use of incentive programs to foster the continuation of farming and maintenance of the farmland base. Others relate more generally to the role of government in facilitating and enhancing local food and farm enterprises. Throughout, however, paramount among those concerns about government policy are issues related to desired adjustments in the tax liabilities incurred by farmland owners and farm operators. The preoccupation with the local tax picture goes across the board to all levels of government. A few counties mentioned possible reforms in the federal estate tax and a few others called for reform of the New York State Worker’s Compensation Program (Figure 11-5). Because of policy developments at the state level, concern over worker’s compensation insurance has receded in recent years. Concern over federal estate taxes is part of a national discussion about tax levies on the assets of business owners when these assets are transferred between generations.

Relatively more attention, however, was given to the local real estate property tax. Nearly 70% of the plans we reviewed called for additional programs to afford owners of farm real estate more tax relief. Slightly more than half that number called for reform all of local property assessment practices. The discussion around such reform for the property tax stems from the belief that the property assessing function often suffers from inconsistent assessor training and insufficient knowledge of agricultural appraisal technique by the assessing community. It is believed there is inconsistency in assessment practices between assessment jurisdictions within a single county that can lead to inequities and distorted investment decisions by farmers in some cases. As noted in an earlier section of this chapter, concerns about the local property tax persist despite reductions available under current law estimated at more than \$111 million in calendar 2002 (see Table 11-1).

All agricultural and farmland protection plans addressed the tools and steps governments might take to protect farmland (Figure 11-5). The planning recommendations realized for farmland protection encompass proposals to implement farmland protection “tools” or programs but also extend to wider concerns about comprehensive planning, conducted at the town level throughout New York State. About three-quarters of all

counties made recommendations to foster “farm friendly” town planning. This reflects both the farm community’s instinctive reservations about excessive land use regulation and a growing awareness among farm operators that community growth and development must be managed. A handful of county plans also made reference to detailed planning and zoning techniques with references to the implementation of incentive zoning mechanisms (Figure 11-5).

Closely allied with the larger farm-friendly planning concern is the issue of the farm community’s “right to farm”. Development of county- and/or town-level right-to-farm ordinances is included in 80% of all county plans. There is no standard definition of a right-to-farm ordinance. Nationally, there is a body of state law dealing with right-to-farm issues. Without exception, these state laws relate to farmers’ standing in court when allegations are made that the farm, or certain farming practices, constitute a public or private nuisance. New York has two right-to-farm laws, each dealing with conditions that affect the creation of a nuisance.

The motivation for county and town right-to-farm laws is less clear. It is unlikely that local efforts would preempt state law, but they may reinforce it. The local ordinance may also give local governments in a home rule state a forum to reaffirm local support for the farm industry and for farmers who conduct their operations in a conscientious manner. The discussion surrounding promulgating such laws and ordinances at the local level also is viewed as another opportunity to educate local officials about the economic, social, and environmental benefits of production agriculture to the local economy and about state agricultural laws.

Another issue closely related to the land use planning apparatus of local governments has to do with information systems to inform decisions on land conversions. Among these is a system, nationally recognized through promotion by the U.S. Department of Agriculture, referred to as LESA. This acronym stands for “land evaluation and site assessment” and represents a process where a decision over land conversions would be informed by evaluations of land quality for farming and subjective determinations of the suitability of a particular land parcel or site or conversion to a new use.

Several counties, once again, focused attention on estate planning and the possibility that land transfers between generations play directly into options for farmland protection. In large part this appears to be due to the nexus between techniques for separating development rights to farmland and effective estate planning for farmland owners. Transfers of estates between generations may afford opportunities to manage federal estate liabilities while achieving farmland protection goals for particular land parcels. More than half of the county agricultural and farmland protection plans explicitly identified estate planning and land transfer as a farmland protection option (Figure 11-5). A handful of county plans also made reference to federal set-aside programs and their roles in farmland protection. These recommendations are now largely dated by changes in federal farm legislation which have phased out supply control/income management set-asides for federal program crops.

Some counties have chosen to broaden the discussion of land management issues under headings such as “natural resources” or “land conservation and stewardship”. Embedded in these discussions is the treatment of incentive-based programs that focus on the acquisition (PDR) or transfer (TDR) of farmland development rights. The discussion over farmland development rights and their applicability in New York communities has evolved over nearly three decades, beginning with an initial program design and implementation in Suffolk County, New York in the mid-1970s. That innovative development rights acquisition program for farmland continues on Long Island and has helped spur a national discussion over farmland development rights purchases or development rights transfers as a mechanism to promote the continuation of agriculture and maintain open space. Interest in such programs is clearly evidenced in county agricultural and farmland protection plans throughout the State, with most intense interest in more metropolitan settings. Purchase of development rights (PDR) is the most often-recommended land preservation technique, with 80% of all counties making recommendations for sustaining or decelerating efforts to acquire development rights to

farmland. Slightly more than a third of all county plans make reference to the possibility of arranging for transfers of development rights.

Environment (Water Quality)

Environmental policies toward 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 & 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 right 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.

In this subsection we build upon last year's more comprehensive presentations to provide brief updates on the USDA's Conservation Reserve Program (CRP) and the CAFO program under the Clean Water Act.

An Update on the CRP

The Conservation Reserve Program (CRP) remains the nation's premier land conservation program, compensating land owners to retire over 36 million acres nationally of environmentally sensitive cropland in 2004. The CRP now consists of three programs – the General Sign-Up CRP, the Continuous Sign-Up Program, and the Conservation Reserve Enhancement Programs (CREP). Briefly, in the General Sign-Up CRP, producers with eligible lands compete nationally for acceptance based on an environmental benefits index (EBI) during specified enrollment periods, with maximum rental rates determined by soil type. For the Continuous Sign-Up, producers with eligible lands may enroll certain high priority conservation practices, such as filter strips and riparian buffers, at any time during the year without competition. Additional financial incentives are included over and above the maximum soil rental rate. In the CREP, federal/state partnerships, implement projects designed to address specific environmental objectives through targeted enrollments. Sign-up is held on a continuous basis and additional financial incentives are provided.

Table 11-3 provides current summary statistics for the various CRP programs for New York.

TABLE 11-3. SUMMARY STATISTICS NY STATE CRP PROGRAMS, OCT. 2004			
New York	General Sign-Up CRP	Continuous Sign-Up	CREP
Number of Farms	1,239	528	173
Total Acres	48,495	8,386	2,842
Average Rental Rate (\$)/Acre	40.35	53.14	125.97
Average Acres/Contract	39.10	16.80	16.40
Source: http://www.fsa.usda.gov/dafp/cepd/stats/Oct2004.pdf , and Don Pettit, Assistant State Conservationist for Programs, USDA/NRCS, Syracuse, NY.			

An Update on CAFOs

Background. 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.

In July 1999, New York State initiated a SPDES (State Pollution Discharge Elimination System) permit for livestock and poultry farms in accordance with the federal Clean Water Act. This initial permit expired in five years with a revised permit replacing it in July 2004 (GP-04-02). In revising this permit, input was received from a CAFO work group consisting of representatives from: New York Farm Bureau, Citizen’s Campaign for the Environment, NYS Poultry Association, Northeast Dairy Producers Association, private sector Farm-Environmental Planners, Cornell University and Cooperative Extension, NYS Department of Agriculture & Markets, NYS Soil & Water Conservation Committee, NYS Soil & Water Conservation District Employee’s Association, and USDA Natural Resources Conservation Service.

The group met through the fall, winter, and spring of 2003-04 to work on details of the revised permit. Draft of the revised permit was published on February 24, 2004 with public comment taken until March 31, 2004. DEC scheduled several informational meetings across the state to engage producers and others interested in the permit. The revised permit was published and came into effect on July 1, 2004 and will be replaced in 5 years on June 30, 2009. The permit, forms, and other documents are available by calling the DEC Division of Water (518-402-8111) or from their website <http://www.dec.state.ny.us/website/dow/cafohome.html>.

The remainder of this section discusses key provisions and requirements of the revised permit, with focus on who has to get a permit, what on-farm practices are required for operations operating with a permit, and when designated operations have to meet permitting requirements.

Who has to get a permit? Permits are required for operations classified as Concentrated Animal Feeding Operations, more commonly referred to as CAFOs. CAFOs are Animal Feeding Operations (AFOs) subject to 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. Two categories of CAFOs, Medium and Large, each with different permitting requirements, are identified.

Under the revised permit, operations are to be designated as CAFOs on the basis of the number of animals within the predominant animal category, in contrast to previous focus on the total livestock weight, or animal units on a given operation. That is, if any category of animals on an operation exceeds thresholds listed in Table 11-4, the operation may be designated as a medium or large CAFO. Thus, if an individual operation has 701 milk cows and 50 heifers, it would be designated as a large CAFO. In contrast, an operation with 699 milk cows and 999 heifers would not be classified as a large CAFO.

The animal number threshold of the predominant class of livestock is the only criteria defining large CAFOs. For medium CAFOs, the revised permit requires farms meeting the animal number threshold to also have a discharge. A discharge is the flowing out or release of manure, wastewater, or contaminated runoff from the production area (barn, barnyards, feed storage areas, etc.) that is conveyed through a man-made device and enters the waters of the State. This includes waters that originate outside the production area and runs through the facility or otherwise contacts confined animals. If a discharge occurs in any climatic condition, regardless of size of storm or season of year, a permit is required.

TABLE 11-4. 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 (30,000)
Broilers other than liquid manure handling system	37,500	125,000
Layers with (other than) liquid handling system	9,000 (25,000)	30,000 (82,000)
Veal calves	300	1,000
Horses	150	500

The language of the revised permit attempts to clear up confusion created in the 1999 SPDES permit that only required a “potential to discharge” for both large and medium CAFOs. A medium CAFO Designation Worksheet is available to assist farms meeting the animal number threshold to determine if they discharge. Such facilities would likely have all production, feed, and manure storage areas under roof located on a flat, well-drained site a considerable distance from a watercourse, including man-made ditches. The operation would also be applying manure to cropland in accordance to a Nutrient Management Plan meeting the NRCS 590 (Nutrient Management) Standard. These facilities can then certify with DEC they do not discharge. DEC may review a farm’s no-discharge determination periodically.

Over 600 NY farms – approximately 135 large CAFOs and 480 medium CAFOs are participating in the permit program.

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, 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.

For a designated operation to meet the requirements of the permit, the basic element is the design and implementation of 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 USDA NRCS standards can be obtained from your local USDA Service Center, Soil & Water Conservation District, or downloaded from http://efotg.nrcs.usda.gov/efotg_locator.aspx?map=NY. (Click on any county; Click on SECTION IV on left side of screen; Click on A. Conservation Practices.).

CNMPs need to be designed and/or approved by a New York State certified farm-environmental planner. An updated list of planners can be found in the AEM Planner Directory 2003-2004 (<http://www.agmkt.state.ny.us/SoilWater/AEM/planner0304.pdf>).

To a great extent, the on-farm management practices required for operations operating with a permit remain unchanged from the initial 1999 general permit. However, farm managers should be aware that some subtle changes in requirements have occurred in the revised permit: these include production practices to be applied around the production areas, managing manure application to fields, and increased maintenance and record keeping requirements.

The bulk of these changes apply to large CAFOs only, but all permitted CAFOs will now be subject to annual reporting requirements under the revised permit. Both large and medium CAFOs are required to submit the Annual Compliance Report to DEC by March 31 for the previous year. As outlined by federal rules, the annual report will document:

- The numbers of each class of livestock in the operation,
- Amount of manure produced in the past 12 months,
- Number of acres included in the nutrient management plan,
- Number of acres that received manure in the past 12 months,
- Amount of manure exported from the farm in the past 12 months,
- Summary of any discharges and instances of non-compliance, and
- Explanation of changes to the operation and CNMP.

In addition to information required by the EPA CAFO rules, New York CAFOs will report on progress in the implementation of their CNMP. The DEC will use the estimated costs to better establish costs incurred by the New York livestock industry for complying with the permit.

When do designated operations have to meet the permit requirements? All existing CAFOs were to have their CNMP completed and certified by June 30, 2004, the end of the initial permit. All large CAFOs in NY have completed this primary requirement of the initial permit, developing a CNMP for their farms. The deadline for medium CAFOs for development of their CNMP was June 30, 2004. Approximately 20% of the medium CAFOs are still working to finish their CNMP and are technically out of compliance. However, at this time, the DEC has not taken enforcement action. They have, instead, contacted these farms to inquire about progress of their plans and to estimate an anticipated completion date.

Farms that are expanding or building new facilities that will change their status from nonregulated to medium, or from medium to large must notify DEC before initiating operation at the new size. This is done by submitting a Notice of Intent. Similar notification must also be submitted when farm ownership changes.

The new permit defines time periods for completing and certifying a CNMP for new and expanding CAFOs as follows:

- Expanding to medium CAFO size—2 years from receipt of Notice of Intent (NOI).
- Expanding from medium to large CAFO size—at time of NOI.
- New medium CAFOs—2 years from receipt of NOI.
- New large CAFOs—at time of NOI.

With respect to compliance, the revised permit requires all large CAFOs to have their CNMP completely implemented by December 31, 2006. Medium CAFOs will have the full five years of the permit, i.e. though June 30, 2009, to complete the implementation of their plans with adherence to the following schedule:

- All nonstructural practices in place by October 1, 2007.
- “High risk conditions” addressed by October 1, 2008.

- Annual completion of at least one item in the CNMP.
- Complete implementation by June 30, 2009.

As noted previously, required annual reports must demonstrate consistent progress in implementation.

Nonstructural practices would include manure spreading schedules, crop rotations, maintenance of existing water control structures, cleaning of lots, and other activities not requiring significant construction or additions to facilities. The permit draft requires that structural improvements be made on medium CAFOs that address high risk conditions early. Such conditions have a likelihood of significant water quality impacts if recommended structural changes are not made. The farmer and planner are to identify such conditions by using the Agricultural Environmental Management (AEM) Tier II Worksheets. These worksheets can be found at <http://www.agmkt.state.ny.us/SoilWater/AEM/AEMWorksheetTOC.html>.

It is also important to note that manure storage structures not designed and constructed to meet NRCS specifications constitute a 'high risk condition' found on several medium CAFOs in the State. Procedures for addressing these are currently being developed and will likely require inspection and certification by a professional engineer. Other 'high risk conditions' would depend on the specific farm and specific site conditions. They may include runoff from bunker silos, inadequately treated milkhouse waste or other process water, or runoff from barnyards or other areas where animals congregate.

Concluding Thoughts

Although this is a chapter in an Outlook conference, much of our focus herein has been retrospective, with implications for current and future decision-making. To this point we have deliberately focused on detailing policy events in which the cumulated gradual shifts over the years have been augmented by new information or action in the past year.

Because of the turmoil associated with the recent election and the corresponding fact that many policy initiatives were placed on hold, it is particularly difficult at this time of this year to predict future policy evolution with respect to agriculture and the environment. As a result, our recommendation remains that farms that intend to be in operation over the long term should continue to incorporate potential gains from farmland protection policies and costs associated with agricultural-environmental compliance into future farm planning in order to avoid costly errors.

Undoubtedly policy changes will occur in this upcoming year and those that follow. On the environmental compliance side there has already been policy movement to earmark funding to help farms achieve state AEM program objectives, and there have been additional initiatives to provide funds to aid operations in complying with CAFO permitting rules. We also expect that temporarily shelved initiatives to move beyond water quality and focus on agricultural-environmental relationship surrounding air quality and odors will re-emerge at the federal level. Geographically, opportunities available to farm operators are expected to shift with the continued expansion of the NYS Conservation Reserve Enhancement Program throughout the State and in targeted areas. Those who live in the Upper Susquehanna River basin should also expect increased attention/scrutiny with the inclusion of NY as a partner in the Chesapeake Bay watershed protection program. Such geographical shifts will likely be accompanied, or motivated, by a continued shift from conservation programs emphasizing land retirement, as has been the longstanding method of the various Farm Bill reserve programs, to programs involving greater investments in conservation management on environmentally targeted "working lands" remaining in agricultural production. In short, although difficult to predict specifically, there is one general certainty: policy evolution that affects decision-making at the farm level will continue. Corresponding with the above recommendation, operators should monitor any local opportunities through ties with CCE, Soil and Water Districts, AFPBs and other agencies or organizations.

Farmland protection policy continues to attract the attention of local communities and the State legislature. Despite substantial existing property tax relief, tax liabilities on farmland and farm businesses continue to be a flashpoint for land use policy. Expect continued discussions of options for affording farm operators additional opportunities to reduce property tax liabilities, either through tax rebates or offsets on state income tax payments. Similarly, look for accelerated concern about the economic vibrancy of farm businesses and the steps that local governments might take to assure continued use of open land for agricultural purposes. These steps will undoubtedly include continued efforts to identify the funding needed to operate compensatory programs that lead to the acquisition of development rights and conservation easements. Also, there appears to be an emergent consensus that farmland protection planning efforts at the local level, while useful, have become dated in many cases and require continued state support and financial assistance. This recognition will probably generate a focused discussion on new approaches to increasing the visibility of farm and food considerations in local land-use planning efforts.

OTHER A.E.M. EXTENSION BULLETINS

EB No	Title	Fee (if applicable)	Author(s)
2004-18	Dairy Farm Business Summary, Western and Central Plateau Region, 2003	(\$12.00)	Knoblauch, W., Putnam, L., Karszes, J., Allhusen, G., Grace, J., Petzen, J. and A. Dufresne
2004-17	Income Tax Management and Reporting For Small Businesses and Farms	(\$20.00)	Cuykendall, C., and G. Bouchard
2004-16	Dairy Farm Business Summary, Southeastern New York Region, 2003	(\$12.00)	Knoblauch, W., Putnam, L., Kiraly, M., Walsh, J., Hadcock, S. and L. Hulle
2004-15	Dairy Farm Business Summary, Central Valleys Region, 2003	(\$12.00)	LaDue, E., Karszes, J., Balbian, D., Radick, C., Staehr, A., Maxwell, D. and L. Putnam
2004-14	Dairy Farm Business Summary, Intensive Grazing Farms, New York, 2003	(\$16.00)	Conneman, G., Grace, J., Karszes, J., Benson, A., Putnam, L., Staehr, A., and J. Degni
2004-13	A New Producer Milk Marketing Contract©: Costs, Risks, Benefits, and Feasibility of a Cooperative Financing Model	(\$12.00)	Richards, S.
2004-12	Using Crop Insurance: Profiles of 13 farmers who use crop insurance as a risk management tool	(\$12.00)	Richards, S., Sheils, C., Jacobs, E., Ashton, J., McGonigal, J., and J. Forrett
2004-11	Dairy Farm Business Summary, Western and Central Plain Region, 2003	(\$12.00)	Knoblauch, W., Putnam, L., Karszes, J., Hanchar, J., Murphy, J. and J. Barry
2004-10	Dairy Farm Business Summary, Northern Hudson Region, 2003	(\$12.00)	Conneman, G., Putnam, L., Wickswat, C., Buxton, S. and J. Karszes
2004-09	Dairy Farm Business Summary, New York Large Herd Farms, 300 Cows or Larger, 2003	(\$16.00)	Karszes, J., Knoblauch, W. and L. Putnam
2004-08	Starting An Ag Business? A Preplanning Guide	(\$7.00)	Richards, S.

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