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Chapter 1. Economic Situation

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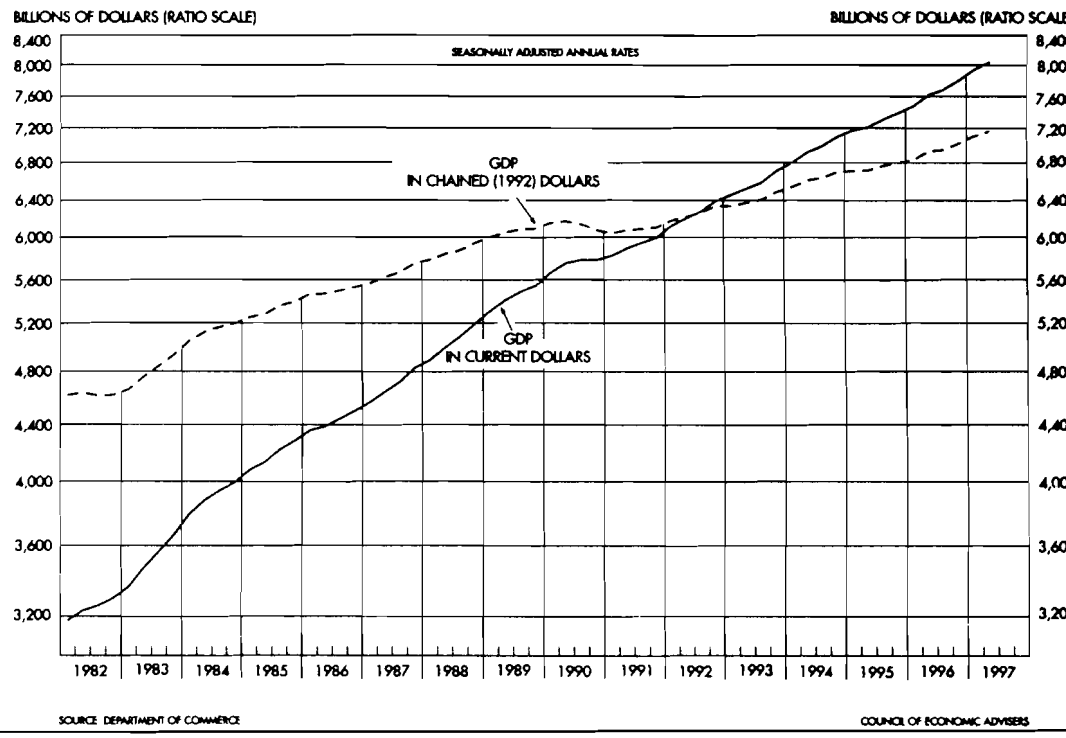
This chapter discusses the current economic situation, some long-run trends that may affect the economy in the next 10 years, and developments in the agricultural sector. The last section summarizes views about the economy in 1998.

Current Situation

The current performance of the economy is quite remarkable. Real Gross Domestic Product (GDP) has been growing steadily for the past six years (Figure 1-1), and 1997 is an especially strong year. Nominal GDP in the third quarter 1997 is up 5.9% over third quarter 1996, while real GDP is up 4.0% over the same period. For all of 1997, real GDP is expected to be 3.7% above 1996.

FIGURE 1-1. GROSS DOMESTIC PRODUCT, 1982-97



Notwithstanding this robust growth, the rate of inflation is low; the Consumer Price Index (CPI) will be up perhaps 2.4% in 1997. The September 1996 to September 1997 increase for the CPI was only 2.2%. The unemployment rate has dropped below 5% and will average about 5% for all of 1997. Nonetheless, employment costs will have increased 3% or less in 1997.

The high rate of real growth combined with the low rate of inflation is a bit of a puzzle. Economists have a concept called the nonaccelerating inflation rate of unemployment (NAIRU), which is the rate of

unemployment at which the rate of inflation is constant. This rate of unemployment has been thought to be in the range of 5.6 to 6.0%. Thus, unemployment rates above 6% would reduce the rate of inflation, while unemployment rates below 5.6% would increase the rate of inflation. But the unemployment rate has been 5.6% or less since 1995, and inflation has not accelerated.

A similar concept is the nonaccelerating inflation rate of capacity utilization, which was thought to be about 82% of capacity. In other words, if the utilization of total manufacturing capacity exceeded 82%, the rate of inflation would increase, and strong statistical support was found for this notion through 1982. Each one point increase in capacity utilization above 82% was estimated to increase the CPI by 0.5 point. But, since 1982, the empirical relationship has been weakening. An analysis using data for 1983-96 found that a one point increase in capacity utilization above 82% might increase the CPI by 0.1 point, but this result was not statistically significant (*Economic Review*, Federal Reserve Bank of Dallas, First Quarter 1997).

Because the experience of recent years seems "too good to be true," the economic data are being examined for any shred of evidence of inflation and/or an economic downturn. One consequence is much uncertainty, which is reflected in the volatility of the stock market. Financial markets are requiring continual reassurance that all is indeed well, and they tend to react dramatically to any hint of negative news.

The question, what rate of real growth can be sustained without accelerating inflation, is important for economic policy. Past policy has been based on the assumption that real growth in GDP should be limited to about 2.5% per year to avoid increased inflation. If this is wrong, then we have been placing unnecessary restrictions on growth.

Growth has occurred especially in personal consumption expenditures and private investment (Table 1-1). Growth in government purchases has been constrained. Per capita disposable income, both in nominal and real terms, continued to grow in 1997 (Figure 1-2). After adjusting for inflation and growth in population, disposable income will be almost 2% larger in 1997 than in 1996. Saving as a percent of disposable income remains low (Table 1-2). I return to this point in the next section. Figure 1-3 and Table 1-3 provide additional information about the components of gross private investment.

TABLE 1-1. COMPONENTS OF GROSS DOMESTIC PRODUCT, 1988-97

Year	Gross domestic product	Personal consumption expenditures	Gross private domestic investment	Government purchases of goods and services	Net exports of goods and services
		billions of current dollars			
1988	5,050	3,350	774	1,032	-106
1989	5,439	3,595	829	1,095	-80
1990	5,744	3,839	800	1,176	-71
1991	5,917	3,975	736	1,226	-20
1992	6,244	4,220	790	1,264	-30
1993	6,558	4,459	876	1,283	-61
1994	6,947	4,717	1,008	1,313	-91
1995	7,265	4,958	1,038	1,356	-86
1996	7,636	5,208	1,116	1,407	-95
1997-I[a]	7,934	5,406	1,194	1,433	-99
-II	8,034	5,432	1,242	1,449	-89
-III	8,132	5,528	1,254	1,458	-107

[a] Annualized rates.

The robust economy has resulted in increased tax collections. This, combined with constraints on spending, resulted in a deficit in the federal budget of only $23 billion in Fiscal 1997 (Table 1-4). As Figure 1-4 illustrates, the federal budget deficit has been narrowing since 1992.

FIGURE 1-2. DISPOSABLE PERSONAL INCOME AND SAVING, 1982-97

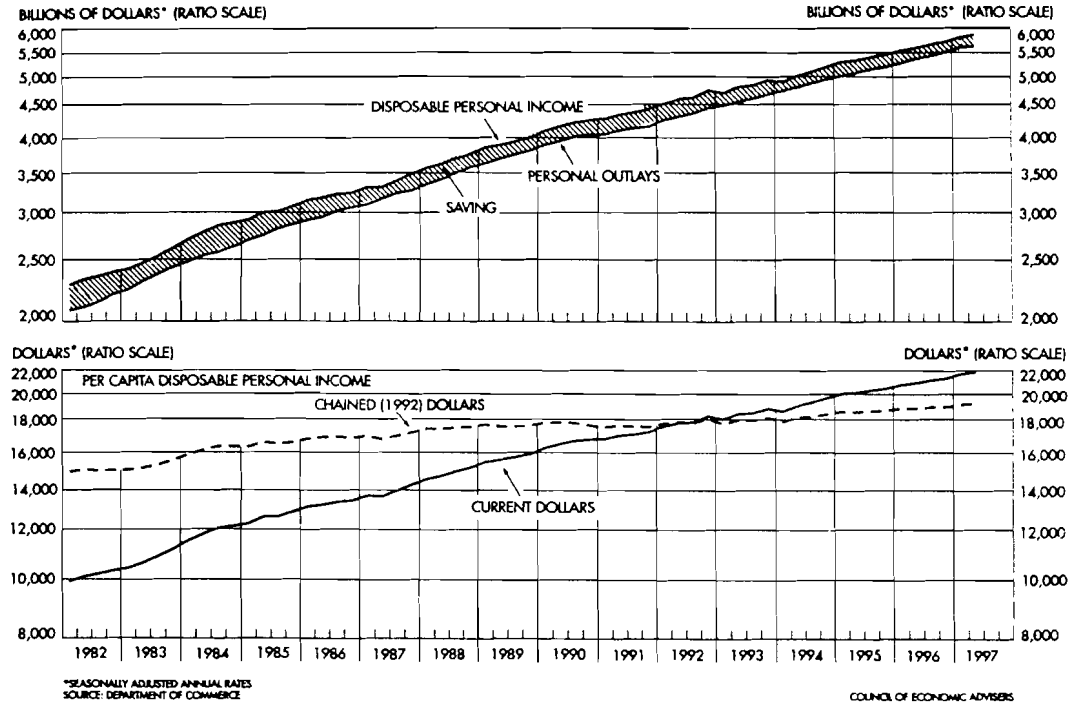


TABLE 1-2. PER CAPITA DISPOSABLE INCOME, SAVING, AND POPULATION, 1990-97

Year	Disposable personal income	Saving as percent of disposable income	Population
	$ per capita	*%*	*millions*
1990	16,721	5.3	250.0
1991	17,242	6.0	252.7
1992	18,113	6.2	255.4
1993	18,706	5.1	258.2
1994	19,381	4.2	260.7
1995	20,349	4.8	263.2
1996	21,117	4.3	265.6
1997[a]	21,865	4.2	267.5

[a] Second quarter, annual rate.

FIGURE 1-3. COMPONENTS OF GROSS PRIVATE DOMESTIC INVESTMENT, 1992 DOLLARS

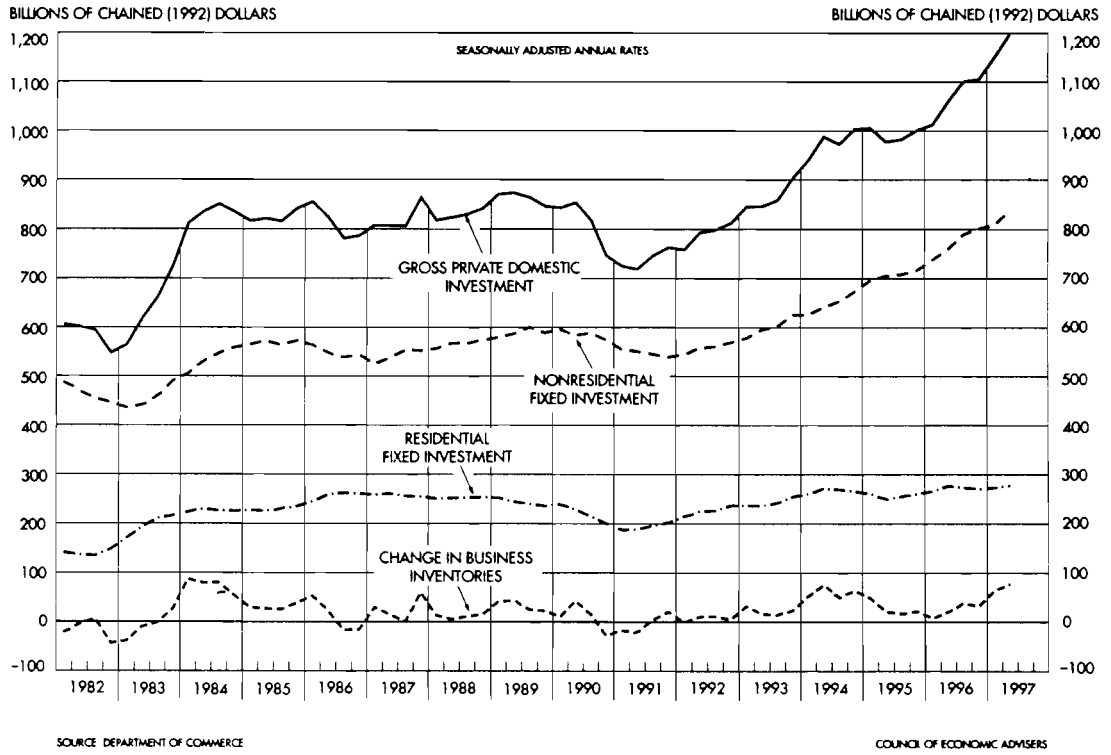


TABLE 1-3. NEW CONSTRUCTION, 1988-97

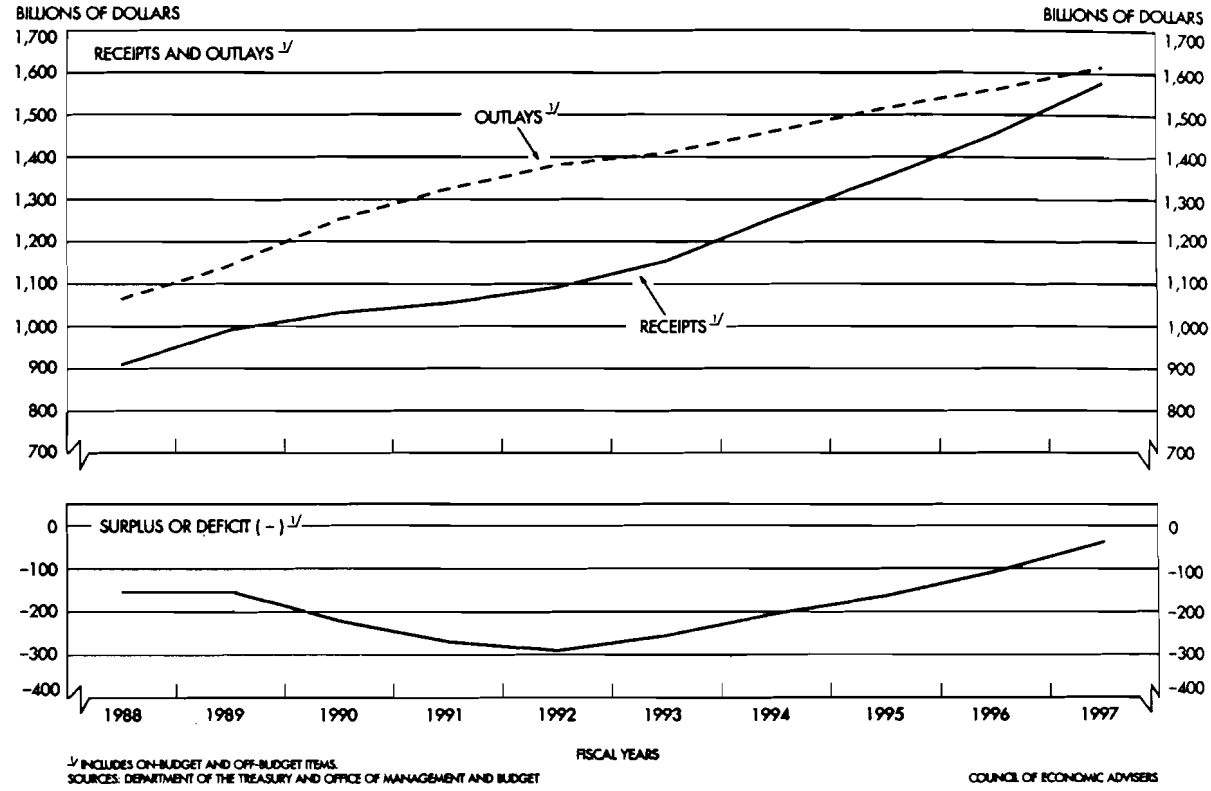
Year	Total new construction	Private residential	Private commercial industrial	Federal, state & local	New private housing	Private housing permits	New private homes sold
	billions of dollars				*1,000 units*		
1988	456	198	110	95	1,488	1,456	676
1989	470	197	118	98	1,376	1,338	650
1990	468	183	119	108	1,193	1,111	534
1991	424	158	94	110	1,014	949	509
1992	452	188	82	116	1,200	1,095	610
1993	479	210	84	116	1,288	1,199	666
1994	520	239	93	120	1,457	1,372	670
1995	534	231	108	127	1,354	1,332	667
1996	569	247	119	132	1,477	1,426	757
1997[a]	596	258	126	138	1,503	1,402	815

[a] Annualized rate for June 1997.

TABLE 1-4. FEDERAL FINANCES AND GROSS DEBT, SELECTED YEARS				
Fiscal year	Receipts	Outlays	Deficit	Gross Federal debt
		billions of dollars		
1980	517	591	-74	909
1985	734	946	-212	1,818
1990	1,032	1,253	-221	3,207
1991	1,055	1,324	-269	3,598
1992	1,091	1,382	-290	4,002
1993	1,154	1,409	-255	4,351
1994	1,259	1,462	-203	4,644
1995	1,352	1,516	-164	4,921
1996	1,453	1,560	-107	5,181
1997	1,579	1,602	-23	5,360[a]

[a] Estimate.

FIGURE 1-4. FEDERAL GOVERNMENT RECEIPTS, OUTLAYS AND DEFICIT, 1988-97



Industrial production continues to grow, consistent with the growth of the economy. Production was up in most sectors of the economy (Table 1-5 and Figure 1-5). Defense and space equipment production, which had been decreasing in recent years, has stabilized in the past year (Figure 1-5). Capacity utilization is over 84% (Table 1-5). Changes in the money supply and in the CPI are graphed in Figure 1-6. The relationship, if any, is tenuous. The changes in unit labor costs, discussed above, are shown in Table 1-6. Growth in these costs has been low notwithstanding the low rate of unemployment (Figure 1-7).

TABLE 1-5. INDUSTRIAL PRODUCTION AND CAPACITY UTILIZATION, 1989-97

Year	Indexes of: Total production	Manufacturing	Utilities	Tools	Capacity utilization rate
		1992 = 100			percent
1988	97.3	97.1	93.9	94.9	83.9
1989	99.0	99.0	97.1	95.9	84.0
1990	98.9	98.5	98.3	97.0	82.3
1991	96.9	96.2	100.4	98.4	79.2
1992	100.0	100.0	100.0	100.0	80.4
1993	103.4	103.7	103.9	102.1	81.6
1994	108.6	109.4	105.3	103.7	83.7
1995	112.1	113.2	109.1	105.7	83.8
1996	115.2	116.3	112.8	106.8	83.1
1997[a]	122.4	124.2	116.3	108.9	84.4

[a] September 1997.

FIGURE 1-5. MEASURES OF INDUSTRIAL PRODUCTION AND CAPACITY UTILIZATION, 1993-97

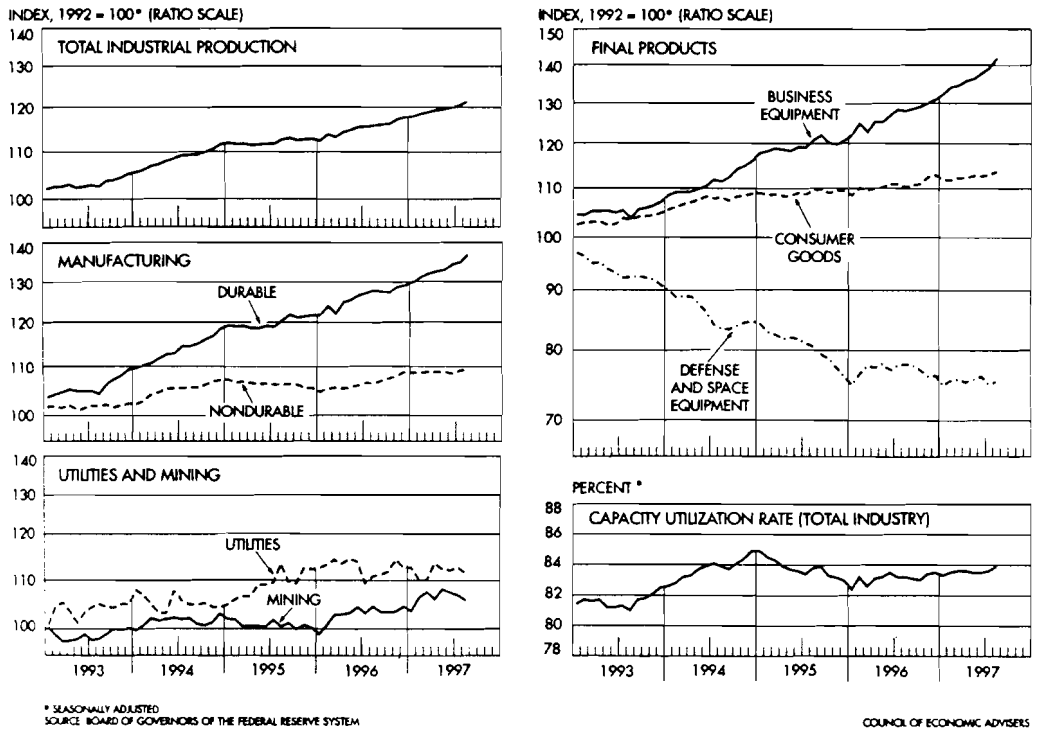
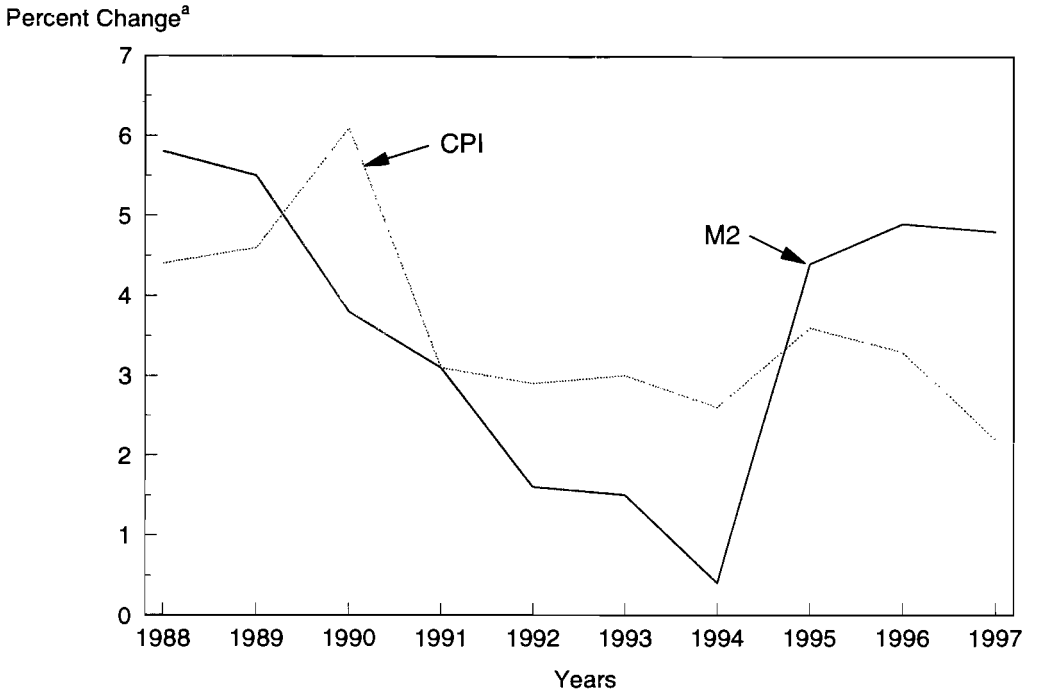


FIGURE 1-6. ANNUAL PERCENT CHANGE IN CPI AND MONEY SUPPLY, 1988-97



[a] December to December change, except July 1996 to July 1997. M2 is based on currency, checkable deposits, and savings deposits.

TABLE 1-6. INDEXES OF LABOR PRODUCTIVITY AND COMPENSATION, BUSINESS SECTOR, 1988-97

Year	Output per hour	Compensation per hour	Unit labor costs
		1992 = 100	
1988	94.6	83.5	88.2
1989	95.4	85.8	89.9
1990	96.1	90.7	94.4
1991	96.7	95.1	98.3
1992	100.0	100.0	100.0
1993	100.2	102.6	102.4
1994	100.6	104.3	103.7
1995	101.2	108.2	107.0
1996	102.0	110.4	108.2
1997[a]	103.6	114.0	110.0

[a] Second quarter, seasonally adjusted. Source: Department of Labor, Bureau of Labor Statistics.

Data on consumer and producer prices are provided in Tables 1-7 and 1-8. As noted earlier, the various measures of the rates of inflation are all small. Interestingly, the growth in medical costs in 1997 has been only 2.6%. It should be noted, in any case, that some prices will grow faster and others grow slower than the overall average. The facts that prices of medical care have grown faster than average or that prices of energy have grown less than average are not, in and of themselves, bad. Rather, these prices reflect the costs (relative to demand) of providing these various goods and services.

FIGURE 1-7. U.S. EMPLOYMENT AND UNEMPLOYMENT, 1988-96

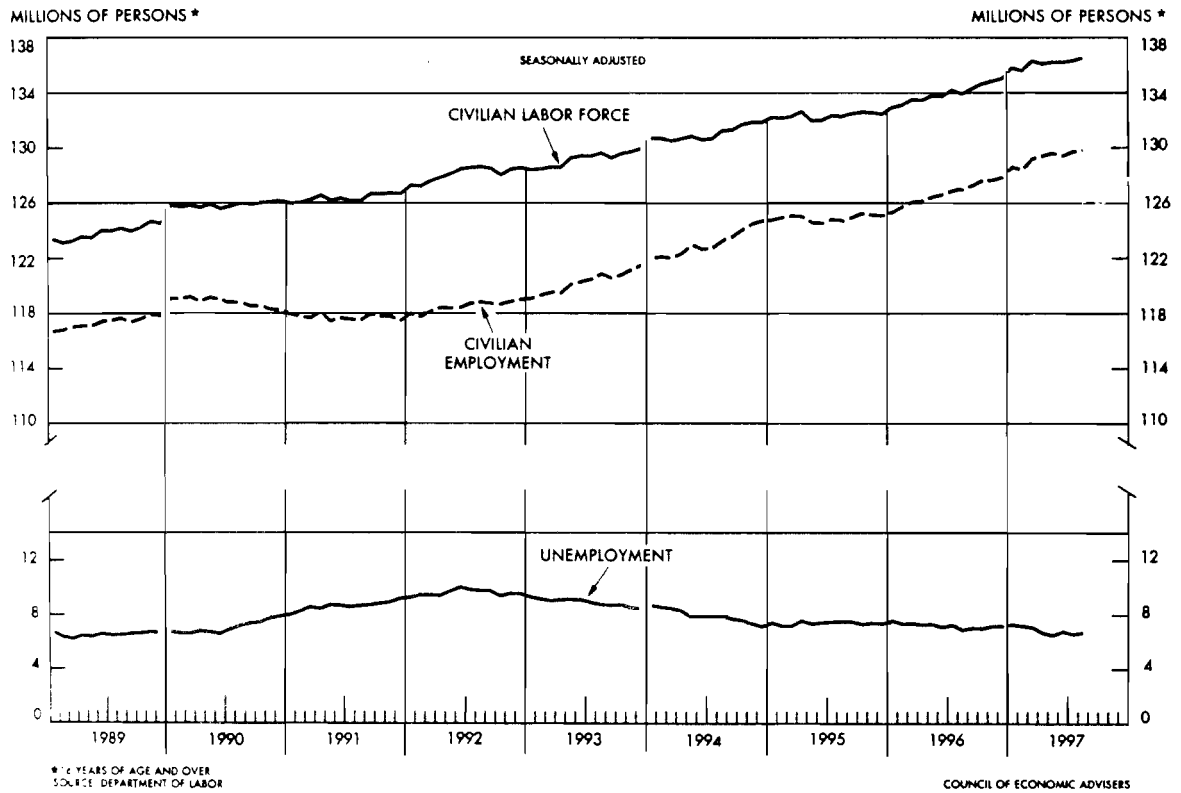


TABLE 1-7. CONSUMER AND PRODUCER PRICE INDICES, 1988-97

Year	Consumer price index		Producer price index		
	All items	Food	All finished goods	All intermediate goods	All crude materials
	(1982-84 = 100)			*(1982 = 100)*	
1988	118.3	118.2	108.0	107.1	96.0
1989	124.0	125.1	113.6	112.0	103.1
1990	130.7	132.4	119.2	114.5	108.9
1991	136.2	136.3	121.7	114.4	101.2
1992	140.3	137.9	123.2	114.7	100.4
1993	144.5	140.9	124.7	116.2	102.4
1994	148.2	144.3	125.5	118.5	101.8
1995	152.4	148.4	127.9	124.9	102.7
1996	156.9	153.3	131.3	125.8	113.8
1997[a]	160.5	157.6	131.0	125.1	106.7

[a] July index number. Source: Bureau of Labor Statistics.

TABLE 1-8. CHANGES IN SELECTED CPI COMPONENTS			
Component	December 1995 weights in the price index	Sept. 1997 price index	% Change in component from Sept. 1996 to Sept. 1997
	percent	*1982-84=100*	*percent*
All items	100.0	161.2	+2.2
Housing	41.3	157.7	+2.5
Transportation	17.0	144.3	+0.8
Food	15.8	157.9	+2.1
Apparel	5.5	133.0	+1.1
Medical care	7.4	235.4	+2.6

Source: Bureau of Labor Statistics. Beginning with January 1998 data, the CPI will employ updated weights and a new geographic sample of prices.

Robust growth in the economy has been driven importantly by personal consumption expenditures. These expenditures have, in turn, been partly based on installment credit, but the level of credit outstanding in 1997 is about the same as in 1996 (Table 1-9). Hence, the amount of credit relative to expenditures declined slightly in 1997. A growing economy also has meant that imports have grown faster than exports. Thus, the U.S. balance of trade widened a bit in 1997 (Figure 1-8).

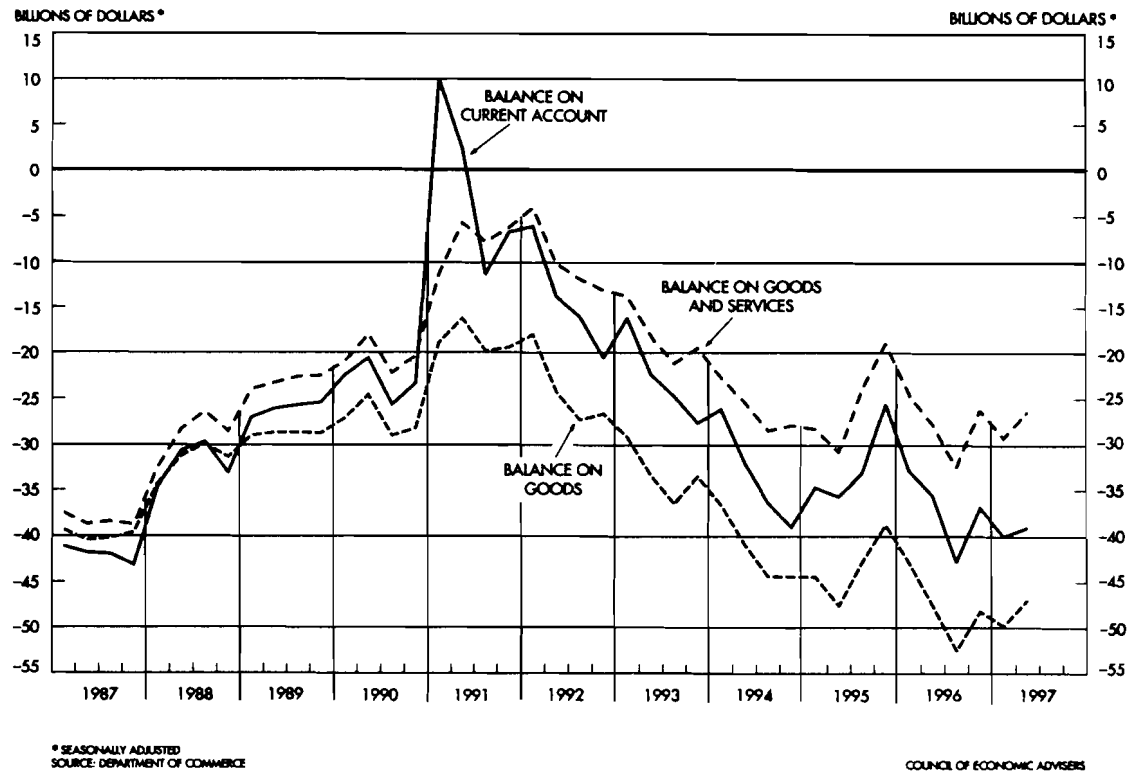
TABLE 1-9. CONSUMER INSTALLMENT CREDIT AND PERSONAL CONSUMPTION EXPENDITURES, 1988-97					
Date	Personal consumption expenditures[a]	Installment & non real estate credit outstanding	Auto loans	Auto loans as a percent of total installment credit	Total installment credit as a percent of personal consumption expenditures
	- - - billions of dollars - - -			*- - - percent - - -*	
December 1988	3,350	730	286	39.2	21.8
December 1989	3,595	780	290	37.2	21.7
December 1990	3,839	794	283	35.6	20.7
December 1991	3,975	779	263	33.8	19.6
December 1992	4,220	783	263	33.6	18.6
December 1993	4,459	843	287	34.0	18.9
December 1994	4,717	965	326	33.8	20.5
December 1995	4,958	1,101	362	32.9	22.2
December 1996	5,208	1,184	390	32.9	22.7
July 1997[a]	5,486	1,225	399	32.6	22.3

[a] Annual totals.

Longer-Term Trends

A number of major trends will influence economic performance over the next 10 to 15 years. (1) Computer-, communication-, and bio-technology are obvious sources of change. New financial instruments, which help manage financial and price risk, are examples of over-looked improvements. (2) Shifts in government policy have resulted in a trend toward deregulation of markets and freer trade. Thus, the national economy is more closely linked with international events than it used to be, and the federal budget is essentially in balance. (3) The U.S. economy depends on plentiful and cheap energy, and energy consumption

FIGURE 1-8. U.S. BALANCE OF TRADE, 1987-97

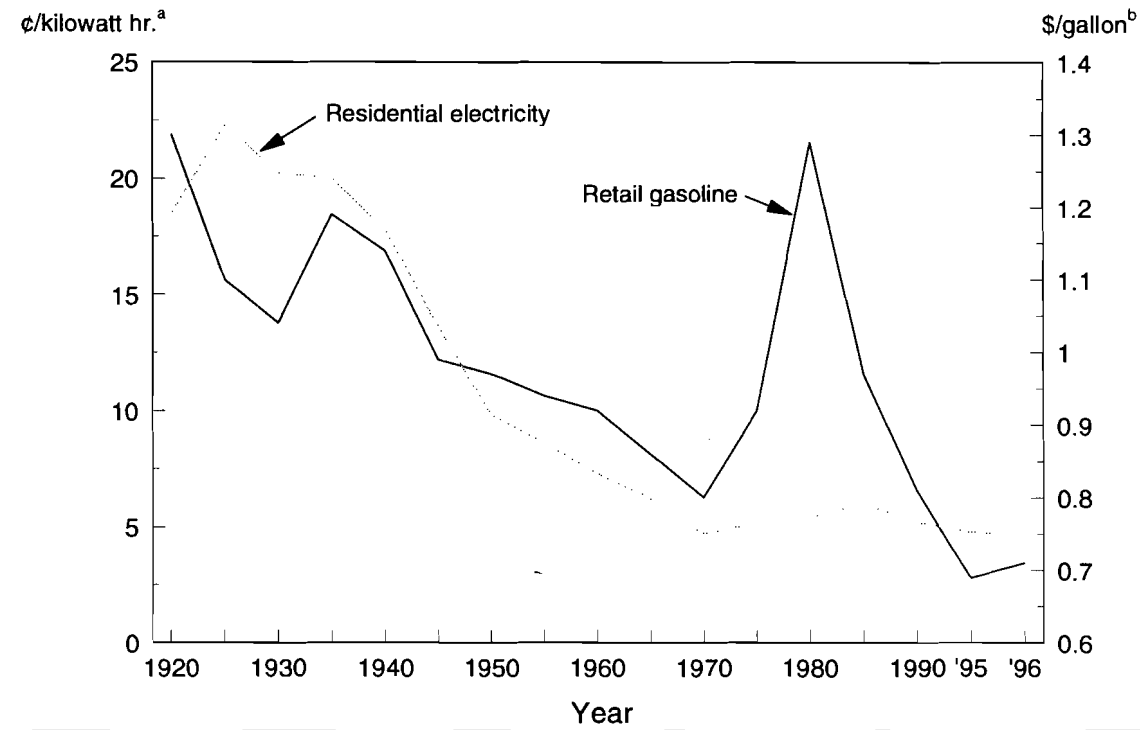


continues to increase. (4) Growth in the U.S. population is slowing, but the proportion of the population age 65 and older has been increasing and will grow dramatically starting about 2005. More on these two points below. (5) The economy is not only growing, but is becoming more complex. Increased complexity has been accompanied by more market concentration and power for (some) individual firms. These changes place a premium on management skills and ethics. Management mistakes can have very large financial consequences. The labor force also needs improved skills. This, in turn, raises concerns about the quality of education, rewards and incentives, and possible economic inequality. How do we improve "human capital" and provide equality of opportunity for the citizenry?

All of these trends are important, but in the limited space available, I elaborate on just two. **First**, what are the implications of trends in energy supplies and uses? The major sources of energy in the U.S. are relatively cheap. The energy component of the CPI has increased only 5 percent in the last 15 years. The real price of gasoline is below that of most years since 1920, and electricity used in the home has been stable at relatively low levels for the last 25 years (Figure 1-9).

The relatively low prices, combined with increases in real income, have meant an increase in energy consumption in the U.S., notwithstanding conservation efforts. Total consumption in the past year is about 35 percent larger than it was in 1970. Fossil fuel consumption – mainly petroleum and coal – is up almost 25 percent (Table 1-10). The gap between domestic consumption and domestic production is widening, and hence the U.S. is increasingly a net importer of energy. This is especially true for petroleum. For the first seven months of 1997, net imports constituted 47 percent of domestic use, and about 17 percent of imports came from the Persian Gulf region (U.S. Department of Energy, *Monthly Energy Review*, September 1997).

FIGURE 1-9. SELECTED ENERGY PRICES, 1920-96



[a] In 1981 dollars. [b] In 1981 dollars. Lead regular prices, 1920-75; average all grades 1980-current.

TABLE 1-10. ENERGY SUPPLY AND DISPOSITION, U.S., QUADRILLION BTUs

	Production		Consumption		Net
Year	Fossil fuels	Total	Fossil fuels	Total	Imports
1970	59.2	62.1	63.5	66.4	-5.7
1975	54.7	59.9	65.4	70.5	-11.8
1980	59.0	64.8	70.0	76.0	-12.2
1985	57.5	64.9	66.2	74.0	-7.9
1990	58.6	67.9	72.0	81.3	-14.1
1991	57.8	67.5	71.2	81.1	-13.4
1992	57.6	66.9	72.5	82.1	-14.6
1993	55.7	65.2	74.1	83.9	-17.2
1994	57.9	67.4	75.6	85.6	-18.6
1995	57.4	67.8	76.4	87.2	-17.9
1996	58.4	69.1	78.9	90.0	-19.3
1997 (6 mo.)	29.1	34.4	39.8	45.3	-10.2

Source: *Monthly Energy Review*, U.S. Department of Energy, September 1997.

Although demand for petroleum is growing, so are proven supplies; this is partly related to improved recovery techniques from known oil fields. Assuming no major political disruptions, the prices of energy are likely to remain relatively stable over the next 10 years (e.g., see *Business Week*, November 3, 1997). However, political disruptions in the Middle East are possible, and an "oil price shock" is, thus, possible. No

one can put a probability on such a shock, but if it occurs, the impact on the U.S. economy would be negative.

Another consequence of increased consumption of fossil fuels is air pollution. The passage and implementation of the Clean Air Act in 1970 has meant, however, that the U.S. has been successful in reducing many air pollutants (Table 1-11). For example, the level of carbon monoxide output in 1995 was 28 percent below the level in 1970 and 58 percent below the level projected to have occurred without the Clean Air Act. On average, air pollutants in 1995 are 45 percent below the 1970 actual levels. The Clean Air Act has been a successful public policy in terms of the effects on pollution output.

TABLE 1-11. CHANGE IN U.S. AIR POLLUTION, 1970-95

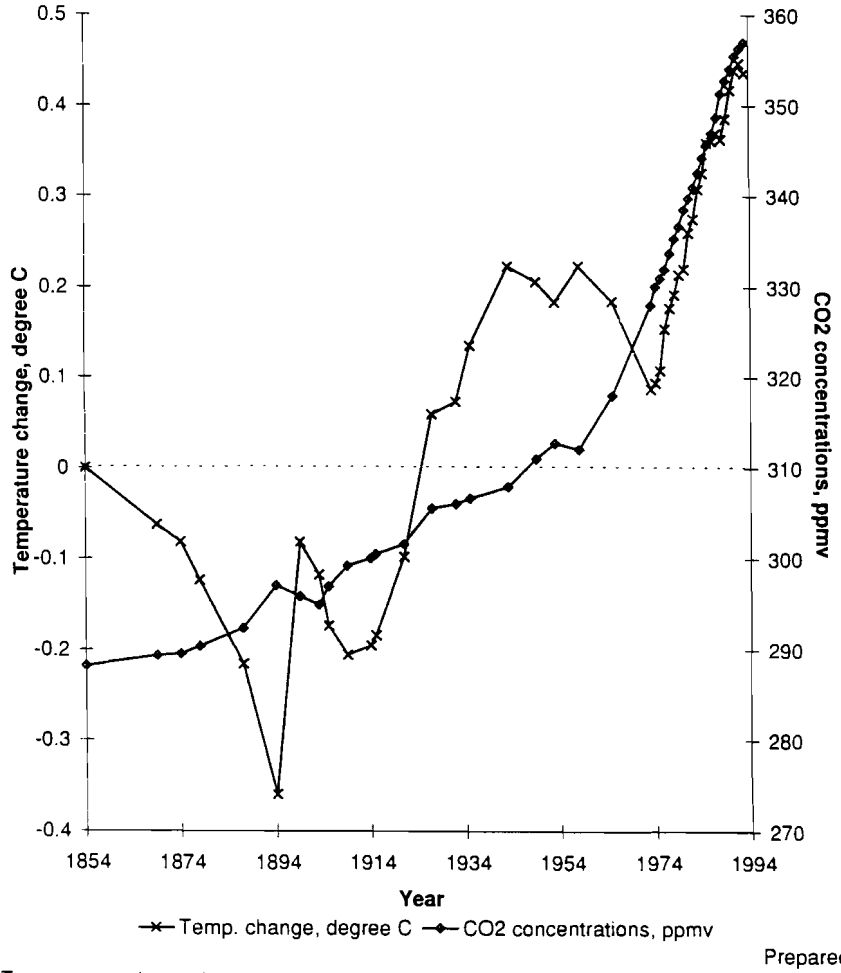
Pollutant	1970 Actual amount	1995 Actual amount	Projected emissions 1995 w/o CAA	1995 Actual amounts, percentage reductions: From actual 1970	1995 Actual amounts, percentage reductions: From 1995 projected w/o CAA
	------- *million tons* -------			------- *percent* -------	
Carbon monoxide	128.1	92.1	219.5	-28	-58
Nitrogen oxide	20.6	21.8	36.0	+6	-39
Volatile organics	30.6	22.9	78.2	-25	-71
Sulfur dioxide	31.3	18.3	40.4	-42	-55
Particulate matter, small (thousand tons)	12.2	2.5	8.8	-80	-72
Lead (thousand tons)	219.5	5.0	465.0	-98	-99
Average percentage change			+119%	-45	-66

Source: Chapman, Duane. *Environmental Economics: Theory, Application, and Policy.* Addison Wesley Tongman, forthcoming. Table 11-2.

Burning fossil fuels unavoidably results in the generation of carbon dioxide. The increase in atmospheric carbon dioxide over the past 140 years is shown in Figure 1-10. This growth is well-known, and many scientists believe that the result will be a warmer earth. Figure 1-10 suggests an upward trend in temperatures, at least in the Northern Hemisphere. But temperatures are influenced by a variety of factors, and consequently the role carbon dioxide plays is uncertain. If the earth does warm by 2 or more degrees Celsius, the net impact on the planet will be negative. This raises the difficult question, what policy decisions should be taken now to reduce carbon emissions? The potential benefits are uncertain, but if negative consequences occur because of inaction now, they will be difficult to reverse.

Second, I look briefly at the potential effects of demographic changes, especially an aging population. The U.S. population is expected to continue to grow slowly. The fertility rate (the average number of births per woman during childbearing years), however, has been declining steadily and is now about 2.0 in the U.S. (essentially at a replacement level). In other developed countries, the fertility rate is about 1.5 (implying negative population growth). At the same time, people are living longer. The U.S. does have net positive immigration, mostly of younger people. If trends in fertility rates persist on a world-wide basis, the world's total population could start to decline in 50 to 100 years. Children would have relatively few siblings, cousins, and aunts and uncles. Rather, they would have parents, grandparents, and perhaps great-grandparents.

FIGURE 1-10. TEMPERATURE AND CARBON DIOXIDE FLUCTUATIONS IN THE NORTHERN HEMISPHERE, 1850-1990



Temperature change is expressed as a 10 year moving average of differences from the 1854 value.

Prepared by:
Neha Khanna
11/11/97

Source: Chapman, Duane. *Environmental Economics: Theory, Application, and Policy.* Addison Wesley Tongman, forthcoming. Figure 19-2.

In the next 10 years, however, the U.S. population will continue to grow, but at less than one percent per year. The proportion of the population age 65 and over has increased from 10% in 1972 to 12.6% in 1996. It will remain relatively constant at about 12.6% for the next few years, though of course the total number of "senior citizens" will increase. Starting about 2005, the proportion of the population age 65 and over will increase rather dramatically (Table 1-12). The baby boom generation will start reaching 65. Florida perhaps provides a glimpse of the future; almost 19% of their population is above 64 (Table 1-13).

Aging affects saving and consumption. The life cycle model in economics suggests that the elderly will dissave; i.e., spend more than their income. Empirical analysis indicates, however, that this may not be true. But even if older people save more than they spend, the proportion of income saved will likely decrease. Also, national, tax-financed, pay-as-you-go pension and health plans will be seriously effected.

Government "saving" will be reduced; a larger proportion of tax funds will go for the increased costs of Medicare and Medicaid and for Social Security.

TABLE 1-12. PROJECTIONS OF U.S. RESIDENT POPULATION, MIDDLE SERIES

Year	Total	Age 65 up	Age 65 up
	------ *millions* ------		*percent*
1996	265.3	33.8	12.6
2000	274.6	34.7	12.6
2005	286.0	36.2	12.6
2010	297.7	39.4	13.2
2025	335.0	61.9	18.5

TABLE 1-13. STATES WITH LARGEST PERCENT OF POPULATION AGE 65 AND OVER, 1995

State	Percent
1. Florida	18.6
2. Pennsylvania	15.9
3. Rhode Island	15.7
4. West Virginia	15.3
5. Iowa	15.2
18. New York	13.4

The elderly have different consumption patterns than the young, but it is difficult to predict all of the changes that will occur in consumption. Consider the case of food: older persons on average eat fewer calories than the young. But older persons often demand more services with their food than when they were younger. The affluent elderly eat out (and there are many affluent older persons). Many older people consume food prepared in various health-care programs and facilities. Consequently, more services, hence costs, are attached to food.

I have tried to analyze the effects of the changing age distribution on food expenditures, but so many variables influence food expenditures that it is difficult to isolate the net effects of each. My research does suggest that expenditures on food continue to increase as income increases. Each one dollar increase in real disposable income appears to increase real, per capita expenditures on food by seven or eight cents. Net of the effects of income and prices, however, per capita expenditures on food seem to have trended downward from 1974 to 1996. That is, real per capita expenditures on food in 1996 -- $1893 per person -- were about $150 larger than they were 20 to 25 years ago, but this modest increase is apparently the result of two offsetting sets of forces. Larger incomes (and perhaps other variables correlated with income) have contributed to larger expenditures on food, but still other variables, perhaps associated with demographic changes, are apparently reducing expenditures on food. This negative trend may be as much as $10 per person per year. Clearly, the agricultural sector needs to be sensitive to the potential effects of an aging population on the demand for its products. Our economy has tended to develop new products that appeal to the young and middle aged; it is important that we also remember the niche represented by the old.

Farm Sector Overview

Net farm income in the U.S. in 1996 was large relative to the levels of the past 10 years. Farm income will be somewhat smaller in 1997, but still comparable to the levels of the past 10 years (Table 1-14 and Figure 1-11). The relatively large income in 1996 reflected exceptionally high grain prices, and grain prices, though lower, have remained strong in 1997 (Table 1-15).

TABLE 1-14. U.S. AND NEW YORK NET FARM INCOME, 1987-97

Year	United States				New York
	Gross cash income	Cash production expenses	Net cash income	Net farm income[a]	Net farm income
	billions of dollars				*millions of dollars*
1987	165.0	112.9	52.0	37.4	626.3
1988	173.6	121.0	52.5	38.0	519.8
1989	180.3	127.5	52.8	45.3	646.8
1990	187.0	134.1	52.9	44.8	609.3[b]
1991	184.3	134.0	50.4	38.6	495.1
1992	188.7	133.6	55.1	47.5	563.0
1993	200.1	141.2	58.8	43.1	590.3
1994	198.3	147.6	50.7	48.3	462.2
1995	205.0	153.9	51.2	36.7	272.8
1996	220.6	160.6	59.9	52.2	462.5
1997[c]	218.1	163.4	54.7	45.9	--

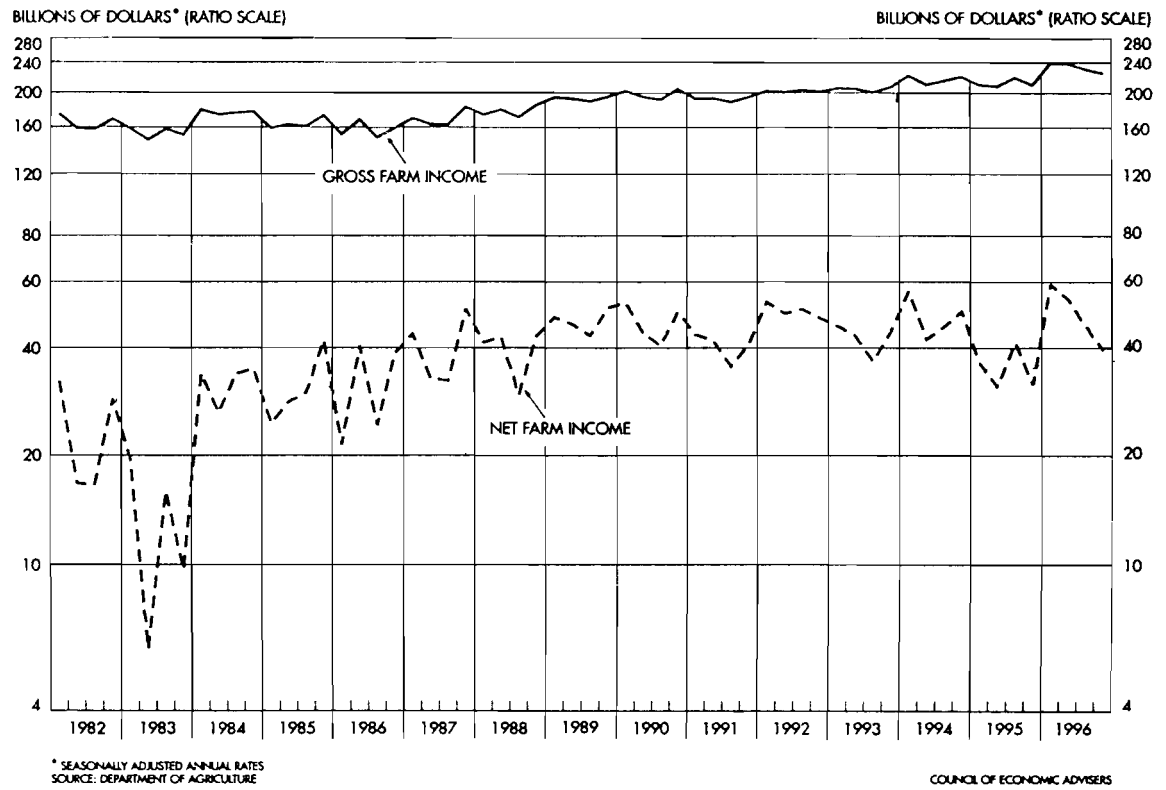
[a] Cash income adjusted for change in inventory value and nonmoney income. [b] Series revised 1990 to date. [c] Forecast.
Source: ERS, USDA.

TABLE 1-15. PRICES RECEIVED AND PAID BY FARMERS, 1988-97

Year	Prices received by farmers			Prices paid by farmers		Ratio
	Crops	Livestock	All farm products	Production items	Production items incl. interest, taxes & wage rates	
	(1990-92 = 100)					*percent*
1988	104	93	99	90	92	108
1989	109	100	104	95	97	108
1990	103	105	104	99	99	105
1991	101	99	100	100	100	99
1992	101	97	98	101	101	97
1993	102	100	101	103	102	98
1994	105	95	100	106	106	94
1995	112	92	102	109	109	92
1996	126	99	112	115	114	98
1997[a]	115	100	107	116	116	92

[a] Third quarter.

FIGURE 1-11. U.S. GROSS AND NET FARM INCOME, 1982-96

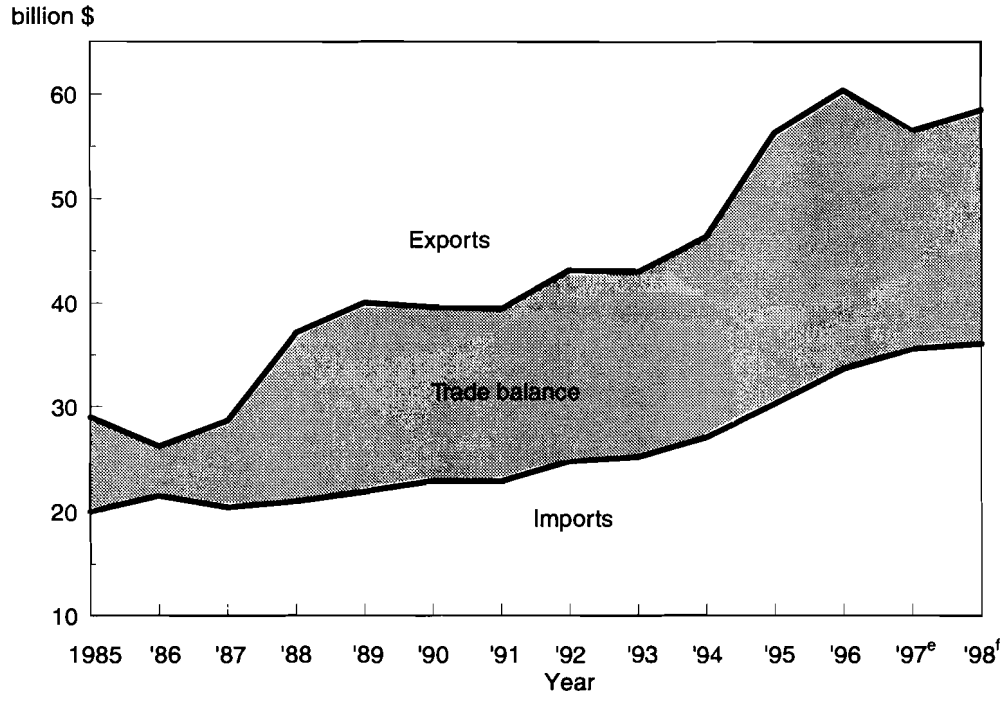


Net farm income in New York State in 1996 was 70% above 1995, but 1996 was not an exceptionally high year (Table 1-14). High grain prices are, of course, a mixed blessing for New York. They are beneficial to grain farmers, but mean higher feed costs for the livestock sector. The USDA does not make early estimates of farm income by state, but New York's farm income will be down sharply in 1997. Lower milk prices have not been completely offset by reduced feed costs.

Grain prices are relatively high in 1997, notwithstanding good crops, because both domestic and export demand are strong. The value of aggregate agricultural exports was down slightly in 1997 from 1996, but still is large by historical standards. Export demand is forecast to continue strong in 1998 (Figure 1-12).

The role of government payments in farm income is changing. These payments were an important contributor to net farm income. Now, funds devoted to deficiency payments are being used for production flexibility payments that will be phased out. Also, CRP payments have become a part of the mix. While payments have varied from year to year, they have not trended upward (Table 1-16); in contrast, property taxes and motor vehicle fees have grown. Thus, the net contribution of government transactions to farm income has declined. For example, in 1990, net government transactions (payments less property and vehicle taxes) contributed $3.1 billion to farm income of $44.8 billion; in 1996, net government transactions were only $29.5 million; direct payments to farmers were essentially offset by property and vehicle taxes.

FIGURE 1-12. AG EXPORTS, IMPORTS AND TRADE BALANCE, 1985-98



[e] Estimate based on fiscal year. [f] Forecast.

TABLE 1-16. GOVERNMENT CASH PAYMENTS TO PRODUCERS, 1989-98

Fiscal year	Production flexibility	Deficiency	CRP	All other	Total
			million dollars		
1989	0	5,798	0	209[a]	6,011
1990	0	4,178	0	192[a]	4,370
1991	0	6,224	0	107[a]	6,341
1992	0	5,491	0	356	5,847
1993	0	8,607	0	536	9,143
1994	0	4,391	0	666	5,057
1995	0	4,008	0	126	4,134
1996	5,141	567	0	97	5,807
1997[e]	6,334	-1,128	1,676	184[b]	7,067
1998[f]	5,644	0	1,841	667[b]	8,152

[a] Includes dairy termination payments. [b] Includes other conservation payments. [e] Estimate. [f] Forecast.

Another consequence of changing farm programs is that government ownership of feed grain stocks has declined to zero. The size of stocks has also trended downward (Table 1-17). The variability of grain prices, observed in the past eight years, is likely to continue. Farmers must learn to manage the price risk associated with the new economic climate. Farm incomes will, if anything, be more variable than they have been in the past. The cushion provided by grain stocks and payments is disappearing.

TABLE 1-17. FEED GRAIN STOCKS, U.S., 1987/88 TO 1997/98

Crop year	Ownership: Government	Ownership: Private	Total	Government/total
	------- million metric tons -------			percent
1987/88	34.1	99.5	133.6	25.5
1988/89	18.6	47.3	65.9	28.2
1989/90	10.5	35.0	45.5	23.1
1990/91	11.3	36.4	47.7	23.7
1991/92	3.2	30.7	34.0	9.4
1992/93	1.6	61.4	63.1	2.5
1993/94	1.3	26.1	27.4	4.7
1994/95	1.2	44.1	45.3	2.6
1995/96	0.9	13.5	14.4	6.2
1996/97[e]	0.1	27.0	27.1	0.4
1997/98[f]	0.0	24.3	24.3	0.0

[e] Estimate. [f] Forecast.

Relative to total GDP, farming is a small part of the U.S. economy, and becoming a smaller part. The farm sector's net income in 1997, an estimated $45.9 billion, is 0.6% of the nation's GDP. But, for this income, farmers provide most of the raw commodities that are the basis for feeding the U.S. population, and allow the U.S. to be a net exporter of farm products. In moving commodities from farmer to consumer, much value added and employment is generated (some of which is discussed elsewhere in this Handbook). In terms of its contribution to a broader food and fiber sector and to the well-being of consumers, farming remains important.

Summary and 1998 Outlook

Last year, John Brake was optimistic about the 1997 outlook, but he under-estimated the performance of the economy. He expected real GDP to grow about 3%; it has grown about 3.7%. Brake expected the CPI to increase 3.0%, or slightly more; it will have increased about 2.4% for all of 1997. He thought that the unemployment rate would remain flat at 5.2 to 5.4%, but it has averaged approximately 5% for the year.

The current, fourth quarter performance of the U.S. economy remains remarkable. Real GDP is growing at 3.5%; the CPI increased only 2.1% from October to October; the unemployment rate was 4.7% in October. The index of leading indicators is maintaining a steady upward march.

Nonetheless, the consensus of estimates for 1998 suggests a marked slowing of the economy. The combined views of a variety of forecasts are summarized in the following percentage changes:

	1996 Actual	*1997 Estimate*	*1998 Forecast*
Real GDP (percent change)	2.8	3.7	2.6
CPI (percent change)	2.9	2.4	2.5
Unemployment (rate)	5.4	5.0	4.9
Employment costs (percent change)	2.8	3.0	3.2
3-month treasuries (rate)	5.0	5.2	5.4

The performance of the economy is expected to deteriorate slowly through the year, with real GDP growing at perhaps 2.8% in the first quarter and at 2.2% by the fourth quarter. Likewise, the CPI may be increasing at 3% per year by the fourth quarter of 1998.

Recently, analysts have been revising their estimates of real growth downward. They see weaker consumer spending, partly related to the uncertainty created by stock market volatility. Also, in a normal business cycle, inventories tend to build up relative to demand; consequently, firms cut output to match consumption. Exports are also expected to weaken because of the slower growth in other economies, particularly in Asian countries like Indonesia, South Korea, and Taiwan.

The reductions in forecast growth rates by analysts have averaged about 0.5%. Thus, the current consensus about growth in real GDP may be nearer 2% than the 2.6% figure quoted above. Some recent estimates were in the 1.0 to 2.5% range. In sum, the current economy is doing great, but the consensus view is for far more modest growth in 1998.

Chapter 2. Marketing Costs

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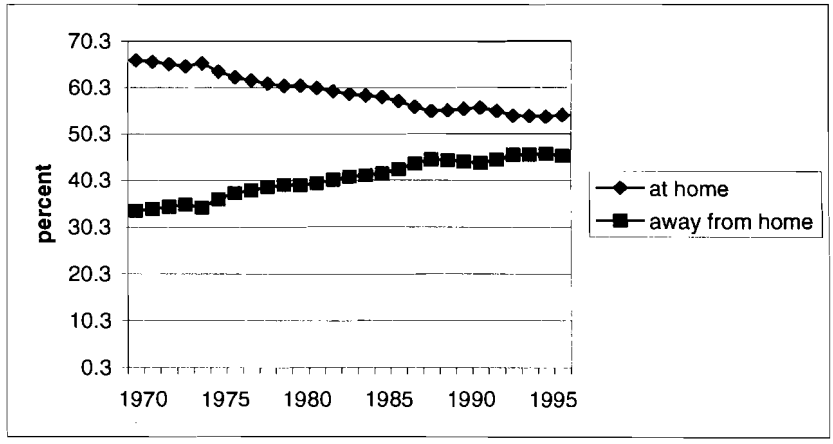
Kristen S. Park, Extension Support Specialist

Increases in foodservice sales are a clear indication that consumers are willing to pay to eat what they want when and where they want it. Although tapering off in recent years, foodservice sales have steadily eroded food store sales and in 1996 contributed 45.6 percent of total food expenditures. Most of the foodservice sales increases in the last decade were from table serve chains (e.g. The Olive Garden), and the limited menu fast food chains (e.g. McDonald's), although new competitors have emerged such as the carry-out food stores Boston Market and Harry's-in-a-Hurry which offer meal solutions that can be consumed at home (McKinsey & Company, 1996). The increase in these carry out, food stores has prompted traditional supermarkets to expand their offerings of prepared foods for consumption either at or away from home. In 1995, supermarket prepared foods/meals accounted for an estimated 9 percent of sales of foods fully prepared away from home (McKinsey & Company, 1996). This demand for more convenience in the form of prepared meals has stirred the food retail industry creating changes in the market system from shipper to retailer.

Consumers have been increasing the proportion of food eaten away-from-home steadily since the recession of the late 1980s and early 1990s when consumers took a break from eating away-from-home and conserved food dollars by eating more home meals. In 1996, away-from-home food expenditures accounted for 45.6 percent of total food expenditures down slightly from 46 percent in 1995 (Figure 1). While supermarkets may be hopeful that this drop in food-away-from-home sales in 1996 was the start of a new trend to recapture consumers' food dollars by offering convenient meal solutions, other market trends may have influenced this slight dip.

FIGURE 2-1. PERCENT OF TOTAL CONSUMER FOOD EXPENDITURES, AT HOME AND AWAY FROM HOME

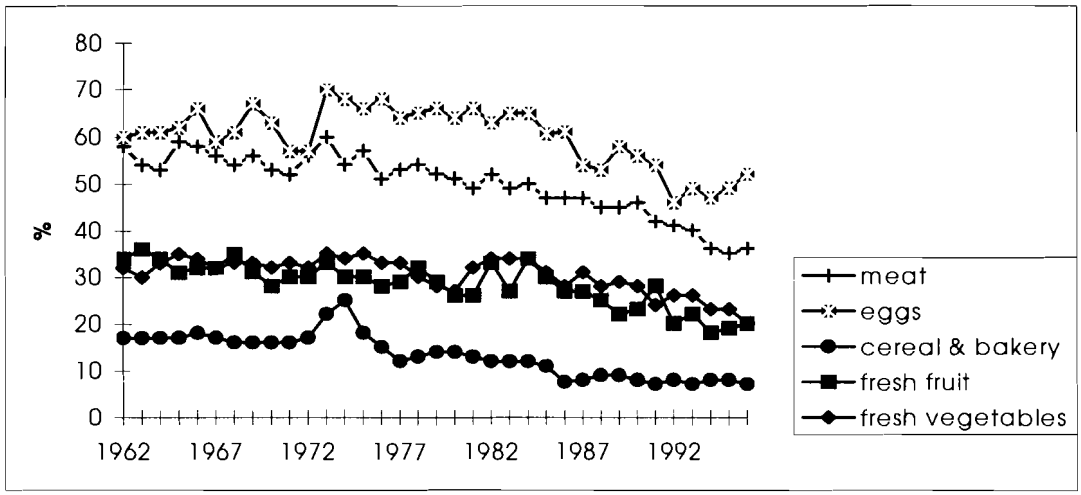


Source: USDA-ERS, Putnam, Judith Jones and Jane E. Allshouse, *Food Consumption, Prices, and Expenditures*, data file supplement.

The prepared foods, or meal solutions, offered by supermarkets have impacted the market system, since these items have greater processing costs, as well as greater labor, shrink, packaging, equipment, and handling costs. Added costs increase market system expenditures while not affecting in a significant way farm f.o.b. prices. This also means that changes in farm f.o.b. prices are having less impact on consumer prices than in the past. For example, tight supplies of grain and wheat in 1996 caused many farm prices to rise. Retail food prices, however, did not respond to these increases. Consequently overall food prices continued with a stable increasing trend and, in 1996, rose a modest 3.3 percent.

In 1996, farm value share of consumers' retail price averaged 23 percent which was a small increase over 1995 when farm share was only 22 percent. One reason for this small increase may be due to the jump in grain and wheat prices in 1996 which affected the farming sector but which had less affect on overall retail prices. The farm value share has increased in recent years for some commodities, such as eggs, meat and fresh fruit where processing is less important (Figure 2-2). Fresh vegetables, however, which have undergone great strides in convenience packaging and precut salads and vegetables returned a smaller farm value share in 1996-20 percent-down from 23 percent in 1995.

FIGURE 2-2. FARM SHARE OF RETAIL PRICE
Selected Categories, 1962-1996

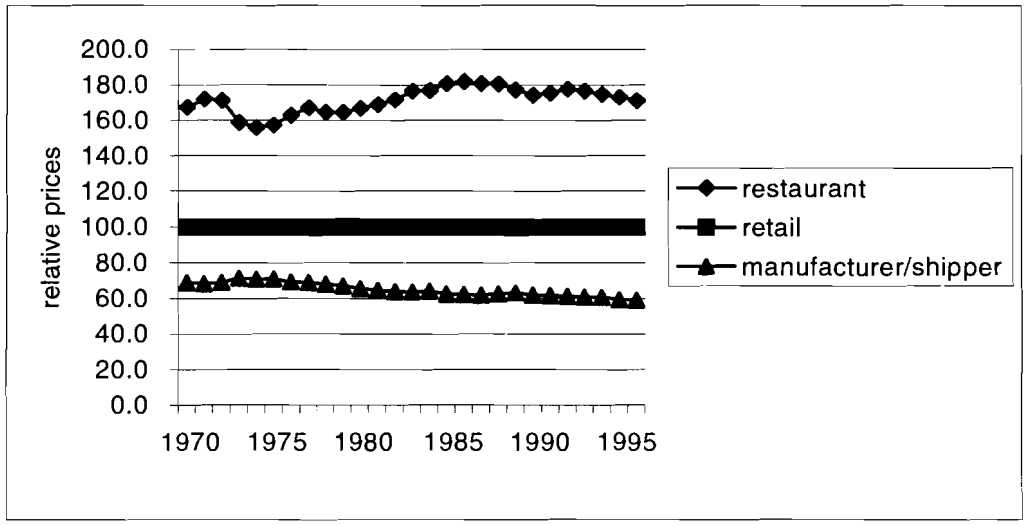


Source: Elitzak, Howard, USDA-ERS, Food and Rural Economics Division. November 1997.

Understanding how retailers establish prices is also key to understanding consumer versus farm f.o.b. prices and the widening spread between the two. Prices at the supermarket level are established by buyers and category managers using a variety of methods. Prices in each department of the supermarket are set to achieve a desired gross margin. The gross margin must be sufficient to cover the cost of selling the product, including costs for product preparation, packaging, pricing, handling (stocking, etc.), checkout, and overhead as well as provide a profit. Each product within a department may be assigned a different gross margin depending on such factors as rate of turnover, promotions, and prices being charged by local competitors. Very often a number of these factors come to bear in deciding on a final retail price. Unlike other types of retail stores, supermarkets do not employ a standard or fixed mark-up in establishing retail prices.

Manufacturers' and shippers' shares of retail prices have also been slipping, showing a downward trend since the mid-1970s (Figure 2-3).

FIGURE 2-3. RELATIVE PRICES OF FOOD AT THREE STAGES OF THE SYSTEM

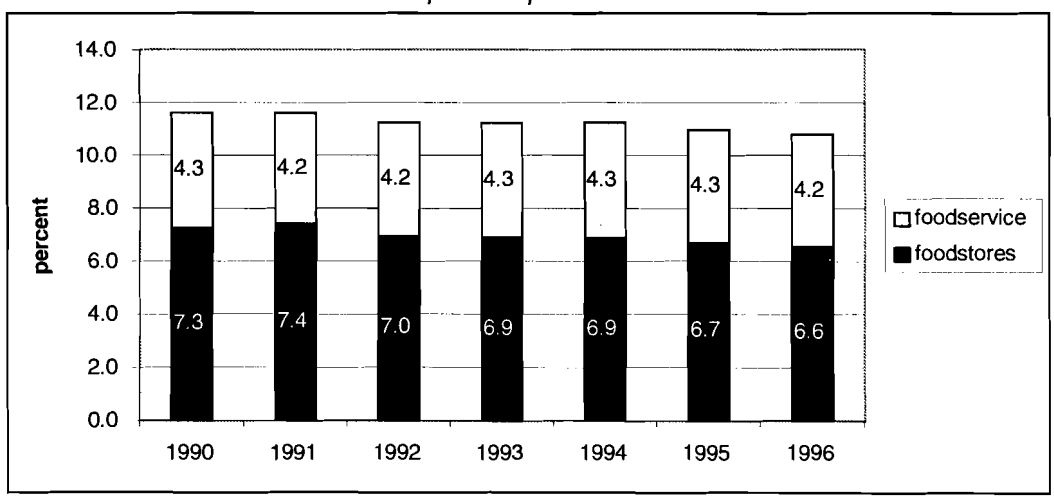


Source: USDA-ERS, Putnam, Judith Jones and Jane E. Allshouse, *Food Consumption, Prices, and Expenditures*, data file supplement.

In 1996, the U.S. spent a total of 10.8 percent of its total disposable personal income on food (Figure 2-4). This was down slightly from 11.0 percent in 1995. The share of disposable income spent in food stores in 1996 was 6.6 percent of disposable income, down from 6.9 percent in 1994. Foodservice expenditures as a percent of disposable income also decreased slightly from 4.3 percent in 1995 to 4.2 percent of disposable income in 1996.

FIGURE 2-4. FOOD MARKETING SYSTEM'S SHARE OF DISPOSABLE PERSONAL INCOME

% of disposable personal income



Source: Gallo, Anthony, USDA-ERS, Food and Rural Economics Division, November 1997.

When food, beverage and tobacco sales are taken as a percent of private final consumption expenditures (a figure smaller than disposable income), the U.S. reports the lowest consumer food costs in the world (Table 2-1). The United Nations reports food expenditures as a percent of personal expenditures as ranging from 13.5 percent from the U.S. to as high as 62.3 percent from the Sudan. Other developed countries such as France and The Netherlands report 20.6 and 16.6 percent respectively of personal expenditures going towards food.

TABLE 2-1. FOOD, BEVERAGES AND TOBACCO AS PERCENT OF PRIVATE FINAL CONSUMPTION EXPENDITURES

Country	Expenditures
	%
Australia	22.4
Colombia	37.1
France	20.6
The Netherlands	16.6
Portugal	39.5
Sudan	62.3
Sweden	23.4
United Kingdom	24.7
United States	13.5

Total sales from the U.S. food marketing sector in 1996 were $890 billion, an increase of $28 billion or 3.2 percent from 1995 to 1996 (Table 2-2). Over half, 57 percent, of the $28 billion increase in food marketing sales came from increases in sales from retail food stores. Only 25 percent of the $28 billion increase came from foodservice sales. Sales from alcoholic drinks sold in restaurants and bars increased almost 8 percent from a year ago, and packaged alcoholic beverages which are sold in liquor stores and other retail stores were up only very slightly.

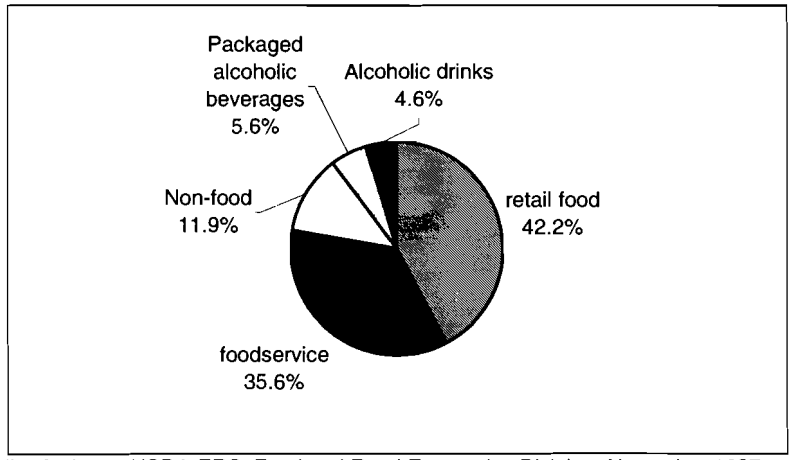
TABLE 2-2. FOOD MARKETING SALES

Sector	Sales 1995	Sales 1996	Increase	Growth
	--$ billion--		--$ b--	%
Retail food	360	376	16	4.4
Foodservice	310	317	7	2.3
Nonfood	105	106	1	1.0
Packaged alcoholic beverages	49	50	1	2.0
Alcoholic drinks	38	41	3	7.9
Total	862	890	28	3.2

Source: Gallo, Anthony, USDA-ERS, Food and Rural Economics Division, November 1997.

Retail food sales may be rebounding slightly from encroaching foodservice sales. For the second year, the proportion of food sales through retail outlets has increased at the expense of foodservice. In 1996 retail food sales were 42.2 percent of total food marketing sales up from 41.8 percent in 1995 and 40.7 percent in 1994. Foodservice sales accounted for 35.6 percent of food marketing sales in 1996, and slight decrease from 36.7 percent in 1995 and 36.0 percent in 1994 (Figure 2-5).

FIGURE 2-5. PROPORTION OF FOOD MARKETING SALES

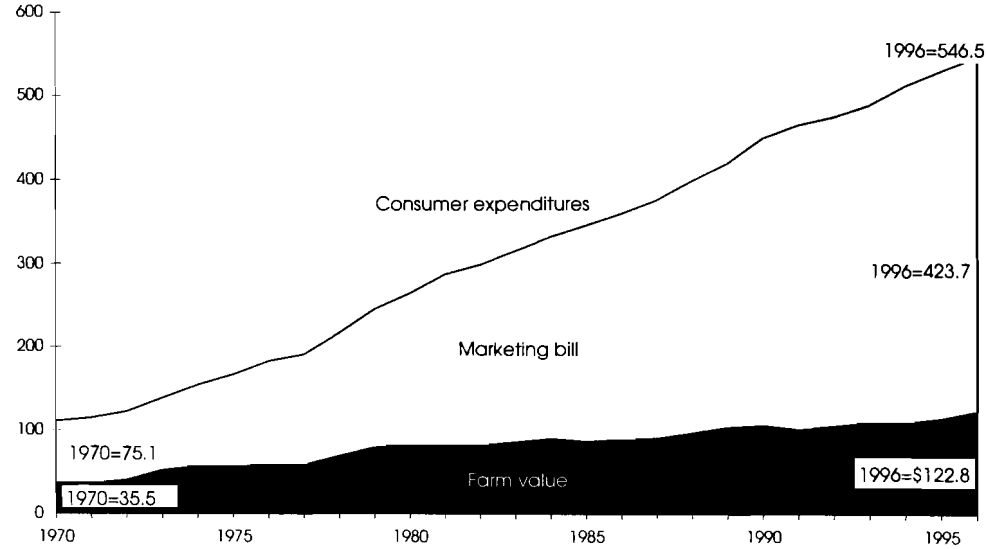


Source: Gallo, Anthony, USDA-ERS, Food and Rural Economics Division, November 1997.

In 1996, consumers spent $546.5 billion on food from U.S. farms (Figure 2-6). Consumers' U.S. food expenditure can be divided into the farm value share and marketing expenditures. The farm value share is the portion of consumers' food expenditures that farmers receive. In 1996, this amounted to $122.8 or 22.5 percent of total expenditures up slightly from 21.5 percent in 1995. In 1970, the farm share was 32 percent of consumers' U.S. food expenditures.

The marketing bill is the portion of the food expenditures spent on marketing functions including: processing, wholesaling, transportation, and retailing. In 1996, the marketing bill amounted to $423.7 billion or 77.5 percent of U.S. food expenditures. Although the marketing bill share decreased slightly between 1995 and 1996, in general, the portion spent on marketing functions has been increasing steadily. In 1970, marketing constituted 68 percent of consumer expenditures on food from U.S. farms.

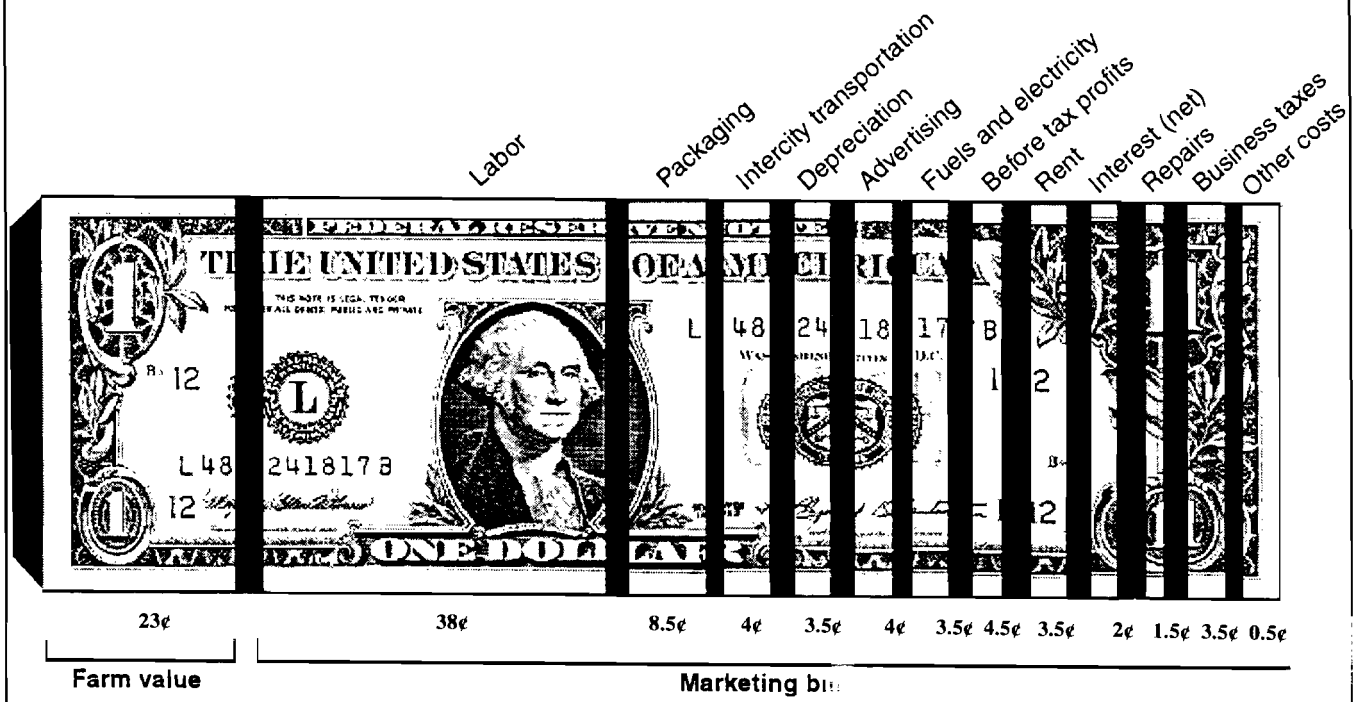
Figure 2-6. DISTRIBUTION OF FOOD EXPENDITURES



Source: Elitzak, Howard, USDA-ERS, Food and Rural Economics Division. November 1997.

The average farmer received about 23¢ out of every dollar consumers spent on food in 1996 (Figure 2-7). By far the largest marketing expense in the food system is labor. The labor involved in marketing alone accounted for 38 percent of the total food bill in 1996, a slight increase from 37 percent in 1995. Packaging was the next largest component of the food bill and was 8.5¢ in 1996, a slight drop from 1995 due to decreases in paper product costs. After-tax profits also increased in 1995 from 3¢ to 4¢. Items which fell in 1995 included advertising, interest and other costs.

FIGURE 2-7. WHAT A DOLLAR SPENT ON FOOD PAID FOR IN 1996



Includes food eaten at home and away from home. Other costs include property taxes and insurance, accounting and professional services, promotion, bad debts, and many miscellaneous items

Source: Elitzak, Howard, USDA-ERS, Food and Rural Economics Division, November 1997.

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Chapter 3. Cooperatives

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Brian M. Henehan, 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 Cooperative Service of RBS, 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 1995-96[1]

Major Business Activity	Number		Net Volume ($ billion)		Net Income ($ million)	
	1995	1996	1995	1996	1995	1996
Marketing	2,085	2,012	69.5	79.3	1,417.5	1,181.0
Farm Supply	1,447	1,403	21.2	23.6	804.7	941.5
Related Service	474	469	3.3	3.1	135.6	125.0
TOTAL	4,006	3,884	93.8	106.1	2,357.8	2,247.5

[1] Totals may not add due to rounding.
Source: Farmer Cooperative Statistics, 1995, Rural Business - Cooperative Service, USDA, RBS Service Report 52, Washington, DC and Farmer Cooperative Statistics, 1996, Rural Business - Cooperative Service, USDA, RBS Service Report 53, Washington, D.C., October 1997.

The number of cooperatives in the United States has continued to decline to a total of 3,884 in 1996, a net decrease of 122 associations. This is primarily due to ongoing consolidation and merger of local marketing and supply cooperatives in the Mid-west. Total net business volume which excludes intercooperative business amounted to $106 billion, a 13 percent increase from the previous record of $94 billion set in 1995. Total net income for 1996 was $2.24 billion, down from the previous high of $2.36 billion in 1995.

Combined assets in 1996 for all cooperatives totaled $42.6 billion, a 6 percent increase from 1995. Total liabilities of $25.2 billion increased more than 6 percent from the previous year. Net worth totaled $17.4 billion, up nearly 5 percent.

Estimated number of full-time employees in cooperatives for 1996 totaled 174,795 down from 175,399 in 1995.

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 1993 and 1995. 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 ACTIVITY, 1993 and 1995[1].

Major Business Activity	Number Headquartered in State		Net Volume	
	1993	1995	1993	1995
			($ million)	
Marketing:				
Dairy	63	61	1,154.8	1,228.8
Fruit & Vegetable	11	10	178.4	293.0
Other Marketing[2]	8	7	136.8	81.2
TOTAL MARKETING	82	78	1,287.9	1,603.0
Supply:				
Crop Protectants			26.6	13.4
Feed			190.7	123.8
Fertilizer			33.9	24.1
Petroleum			218.8	143.2
Seed			20.4	7.6
Other Supplies			177.8	136.0
TOTAL SUPPLY	21	12	668.2	448.3
Service[3]	5	5	101.7	201.9
TOTAL	108	95	2,240.0	2,253.2

Source: Farmer Cooperative Statistics, 1993, Service Report 43, USDA, CS, RDA, Washington, DC., November 1994 and Farmer Cooperative Statistics, 1995, RBS Service Report 52, USDA, RB-CS, Washington, DC, November 1996.

[1] Totals may not add due to rounding.

[2] Includes wool, poultry, dry bean, grains, livestock 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 1995 showed a net decrease of 13 cooperatives from 1993 with a decrease in dairy cooperatives and a significant decrease in the number of supply cooperatives due to a major regional supply cooperative's restructuring. Total net business volume increased by $13 million, an increase of less than one percent from 1993. Supply cooperative volume decreased by $220 million while cooperative marketing volume increased by over $275 million. Dairy and fruit & vegetable marketing cooperatives showed substantial increases in volume over the two year period. Total volume of other marketing cooperatives declined particularly in the livestock industry, in part due to the merger of a livestock cooperative.

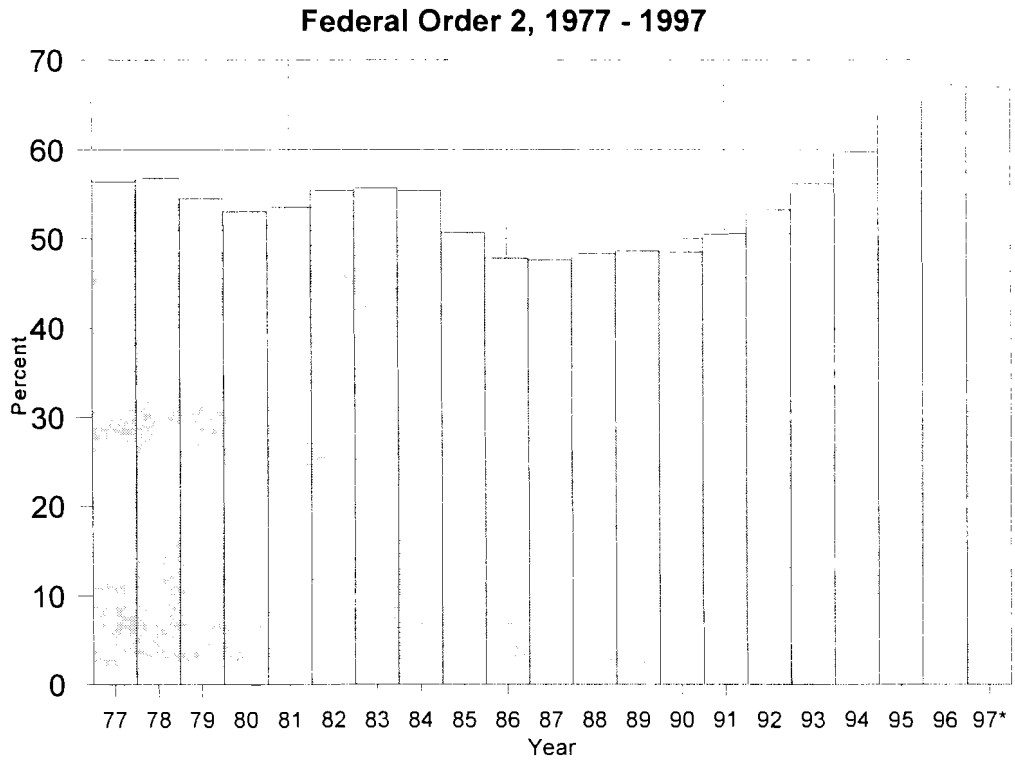
New York Cooperative Performance

In general, major cooperatives operating in New York had improved financial performance in 1997. We will start by examining cooperative share of producer milk receipts, review important developments in cooperatives, and finally look at some major factors likely to influence cooperatives in the coming year.

As indicated by Figure 3-1, the proportion of milk receipts handled by Milk Marketing Order 2 dairy cooperatives declined slightly in 1997. However, two-thirds of all milk is still marketed through cooperatives. This is the second highest cooperative share in recent history, and is up almost 20 percentage points from less than a decade ago.

As predicted last year, the structure of dairy marketing cooperatives has experienced significant change during the last 12 months. In April, Atlantic Dairy Cooperative, headquartered outside of Philadelphia PA, merged with Land O' Lakes. On January 1, 1998, four of the largest milk marketing cooperatives in the U.S. have approval from their members to merge operations. The name of the new organization is Dairy Farmers of America. The merger includes Milk Marketing, Inc., which merged with Eastern Milk Producers just two years ago. Mid-American Dairymen, another cooperative in the

Figure 3-1. COOPERATIVE SHARE OF PRODUCER MILK RECEIPTS



* 1997 based on first eight months
Source: Market Administrator's Office, NY-NJ Federal Milk Marketing Order.

merger, acquired two major northeast milk processing firms during the year. The structural changes have been promoted as a way to increase coordination of processing and marketing activities, improve returns to members, and better position the cooperatives to enter global markets.

Despite the significant fluctuation in milk prices over the last year, the financial performance of northeast milk marketing cooperatives increased across the board in 1997.

Dairy related cooperatives continue to experience the effects of reduced number of dairy cows and the need to spread increased fixed costs over a greater volume. On January 1, Northeast Dairy Herd Improvement Association (NeDHIA) formed an alliance with Dairylea, named Dairy One. The move was designed to improve the sub-par operating performance of NeDHIA. Laboratory operations and transportation functions have already been combined. Both the major artificial insemination cooperative and livestock marketing organization in the northeast achieved break-even performance in 1997.

The major supply cooperative in the Northeast again reported positive net income in 1997, although slightly lower than the previous year. Most of its divisions showed continued improvement.

The major vegetable and fruit processing cooperative in the state reported a turn around compared to the year earlier. Also, they were able to significantly reduce their high debt load that was due to a processing company via a leveraged buy-out. This was accomplished by selling off non-core division, and forming a strategic alliance with another major New York vegetable processing company.

The major grape cooperative in New York reported increased sales and net income, despite the fact that due to weather conditions the 1996 grape harvest was of the lowest quality on record. Demand for purple grape juice was particularly strong due to medical research reports relating health benefits to grape juice.

The farm credit cooperatives had good financial performance during the year. Also there was another merger of New York ACA's during the year.

Cooperative Outlook

Generally, New York and northeast cooperatives are in good financial condition and well positioned for the coming year. The one major factor that could have a negative impact is the depressed dairy economy due to low milk prices. This could depress the performance of credit, farm supply, artificial insemination, and dairy herd improvement organizations.

The Northeast Dairy Compact and its expansion into other states has caused conflicts between dairy marketing cooperatives. Compact organizing efforts will receive significant attention in 1997.

Fruit and vegetable marketing cooperatives could experience a significant increase in earnings and returns to members in 1997.

Chapter 4. Finance

Eddy L. LaDue, Professor

Table 4-1. United States Farm Balance Sheet
Current Dollars, December 31
Excluding Operator Households

Item	1970	1980	1985	1990	1995	1996	1997[d]
				billion dollars			
Assets							
Real Estate	202	783	586	626	756	811	855
Livestock	24	61	47	71	58	60	59
Machinery	30	80	83	85	87	89	90
Crops[a]	9	33	23	23	25	27	28
Purchased Inputs	c	c	1	3	3	4	5
Financial Assets	14	26	33	38	49	47	48
Total	279	983	773	846	978	1038	1085
Liabilities & Equity							
Real Estate Debt	28	90	100	75	79	82	83
Nonreal Estate Debt[b]	21	77	78	63	72	75	77
Total	49	167	178	138	151	157	160
Owner Equity	230	816	595	708	827	881	925
Total	279	983	773	846	978	1038	1085
Percent Equity	82	83	77	84	85	85	85

[a] Excludes crops under CCC loan.
[b] Excludes CCC loans.
[c] Not available.
[d] Forecast

Table 4-2. Changes in Structure, United States Farm Balance Sheet
Current Dollars, December 31
Excluding Operator Households

Item	1970	1980	1985	1990	1995	1996	1997[c]
				percent of total			
Assets							
Real Estate	72	80	76	74	77	78	79
Livestock	9	6	6	8	6	6	5
Machinery	11	8	11	10	9	9	8
All Other[a]	8	6	7	8	8	7	8
Total	100	100	100	100	100	100	100
Liabilities							
Real Estate Debt	57	54	56	54	52	53	52
Nonreal Estate Debt[b]	43	46	44	46	48	47	48
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, Economic Research Service, USDA, AIS-66, September 1997.

Table 4-3. Distribution of United States Farm Debt by Lender
Current Dollars, December 31
Excluding Operator Households

Item	1970	1975	1980	1985	1990	1995	1996[c]
				billion dollars			
Real Estate							
Farm Credit System	6.4	14.5	33.2	42.2	25.8	24.8	25.9
Individuals & Others	10.3	15.8	27.8	25.8	15.1	18.0	18.5
Commercial Banks	3.3	5.6	7.8	10.7	16.2	22.3	23.4
Farm Service Agency	2.2	3.0	7.4	9.8	7.6	5.1	4.7
Insurance Companies	5.1	6.2	12.0	11.3	9.7	9.1	9.5
CCC-Storage	.2	.2	1.5	.3	a	0	0
Total	27.5	45.3	89.7	100.1	74.4	79.3	82.0
Nonreal Estate[b]							
Commercial Banks	10.5	19.0	30.0	33.7	31.3	37.7	38.5
Farm Service Agency	.7	1.6	10.0	14.7	9.4	5.1	4.9
Merchants & Dealers	4.7	8.4	17.4	15.1	12.7	16.2	17.4
Farm Credit System	5.3	10.7	19.7	14.0	9.8	12.5	14.0
Total	21.2	39.7	77.1	77.5	63.2	71.5	74.8

[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	1970	1975	1980	1985	1990	1995	1996[b]
				percent of total			
Farm Credit System	24	30	32	32	26	25	25
Commercial Banks	28	29	23	25	35	40	40
Farm Service Agency	6	5	11	14	12	7	6
Insurance Companies	11	7	7	6	7	6	6
Individuals & Others	31	29	27	23	20	22	23
Total[a]	100	100	100	100	100	100	100

[a] Excludes crops under CCC loan.
[b] Forecast

Source: Agricultural Income and Finance, Economic Research Service, USDA, AIS-66 September 1997.

Table 4-5. New York Farm Balance Sheet
Current Dollars, December 31
Excluding Operator Households

Item	1970	1975	1980	1985	1990	1995	1996
				million dollars			
Assets							
Real Estate	2614	4881	6178	6520	7858	8664	9034
Livestock	536	653	1527	983	1258	1138	1176
Machinery	785	1303	1718	1875	1847	1797	1781
Crops[a]	204	396	561	491	540	352	383
Purchased Inputs	c	c	c	27	74	88	119
Financial Assets	135	140	145	175	197	261	246
Coop. Investments	180	341	462	493	470	410	428
Total	4454	7714	10591	10564	12244	12710	13167
Liabilities & Equity							
Real Estate Debt	353	634	1038	1125	906	860	843
Nonreal Estate Debt[b]	411	748	1582	1472	1268	1318	1269
Total	764	1382	2620	2597	2174	2178	2112
Owner Equity	3690	6332	7971	7967	10070	10532	11055
Total	4454	7714	10591	10564	12244	12710	13167
Percent Equity	83	82	75	75	82	83	84

[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	1970	1975	1980	1985	1990	1995	1996
				percent of total			
Assets							
Real Estate	59	63	58	62	64	68	69
Livestock	12	9	15	9	10	9	9
Machinery	17	17	16	18	15	14	13
All Other	12	11	11	11	11	9	9
Total[a]	100	100	100	100	100	100	100
Liabilities							
Real Estate Debt	46	46	40	43	42	39	40
Nonreal Estate Debt[b]	54	54	60	57	58	61	60
Total	100	100	100	100	100	100	100

[a] Excludes crops under CCC loan.
[b] Excludes CCC loans.

Source: Economic Research Service, USDA. Data revised November 1997.

Table 4-7. New York Farm Debt by Lender
Current Dollars, December 31
Excluding Operator Households

Item	1970	1975	1980	1985	1990	1995	1996
				million dollars			
Real Estate							
Farm Credit System	98	262	367	449	407	335	303
Individuals & Others	142	214	373	363	217	257	264
Commercial Banks	69	101	108	89	116	147	157
Farm Service Agency	34	45	145	192	157	117	112
Insurance Companies	7	8	26	26	9	4	7
CCC - Storage	3	4	19	6	a	0	0
Total	353	634	1038	1125	906	860	843
Nonreal Estate							
Commercial Banks	155	266	632	597	417	374	328
Farm Service Agency	26	37	284	287	219	176	107
Merchants & Dealers	91	164	338	257	216	274	296
Farm Credit System	139	281	328	331	416	494	538
Total[b]	411	748	1582	1472	1268	1318	1269

[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	1970	1975	1980	1985	1990	1995	1996
				percent of total			
Farm Credit System	31	39	27	30	38	38	40
Commercial Banks	29	27	28	26	25	24	23
Farm Service Agency	8	6	17	19	17	14	10
Insurance Companies	1	1	1	1	a	a	a
Individuals & Others	31	27	27	24	20	24	27
Total	100	100	100	100	100	100	100

[a] Less than .5 percent.

Source: Economic Research Service, USDA. Data revised November 1997.

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

Year	Nonaccrual	Nonperforming
	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 (6/30)	1.5	2.0

Source: Annual and Quarterly Reports.

Table 4-10. Nonaccrural, Nonperforming, and Total Delinquent
Farm Nonreal Estate Loans
United States Commercial Banks, December 31

Year	Nonaccrual	Nonperforming[a]	Delinquent[b]
		percent of loan volume	
1982	1.3	2.5	5.1
1983	2.7	3.8	6.3
1984	4.1	5.2	7.8
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
1993	1.2	1.4	2.2
1994	0.9	1.1	2.0
1995	0.9	1.1	2.1
1996	1.0	1.3	2.4
1997 (6/30)	0.9	1.4	2.4

[a] Includes nonaccrural 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 Progam Direct Loans
Farm Service Agency

Date	Farm Ownership[a]		Operaing 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

[a] Includes limited resource loans.

Source: FmHA 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

During 1996, the value of US farm real estate increased seven percent, largely based on increased optimism from higher prices for many grains. New York State farm real estate value increased a more reserved four percent reflecting the lower level of importance of grains, but supported by good milk prices. The value of other assets changed modestly, resulting in six and four percent increases in total assets for the US and New York, respectively.

Total outstanding farm debt increased about four percent in 1996 for the nation as a whole, but decreased modestly for New York. Commercial banks are the largest lender to agriculture in the US with a 40 percent market share, but the Farm Credit System occupies that position in New York State. During the 1990's, the major change in market share has been a decrease for the Farm Service agency and an increase for Individuals and Others, particularly merchants and dealers.

Loan quality for the Farm Credit System continues to improve and is at a very acceptable level. Commercial bank loan quality has been excellent for several years. Farm Service agency guaranteed loans have low delinquency rates. FSA direct loans, however, continue to experience high but slightly declining delinquency. The resilience of the high delinquency rate is, of course, partly a function of the low level of new loans and the strong borrowers rights approach to delinquencies in FSA legislation.

FIGURE 4-1. ANNUAL AVERAGE SHORT TERM INTEREST RATES

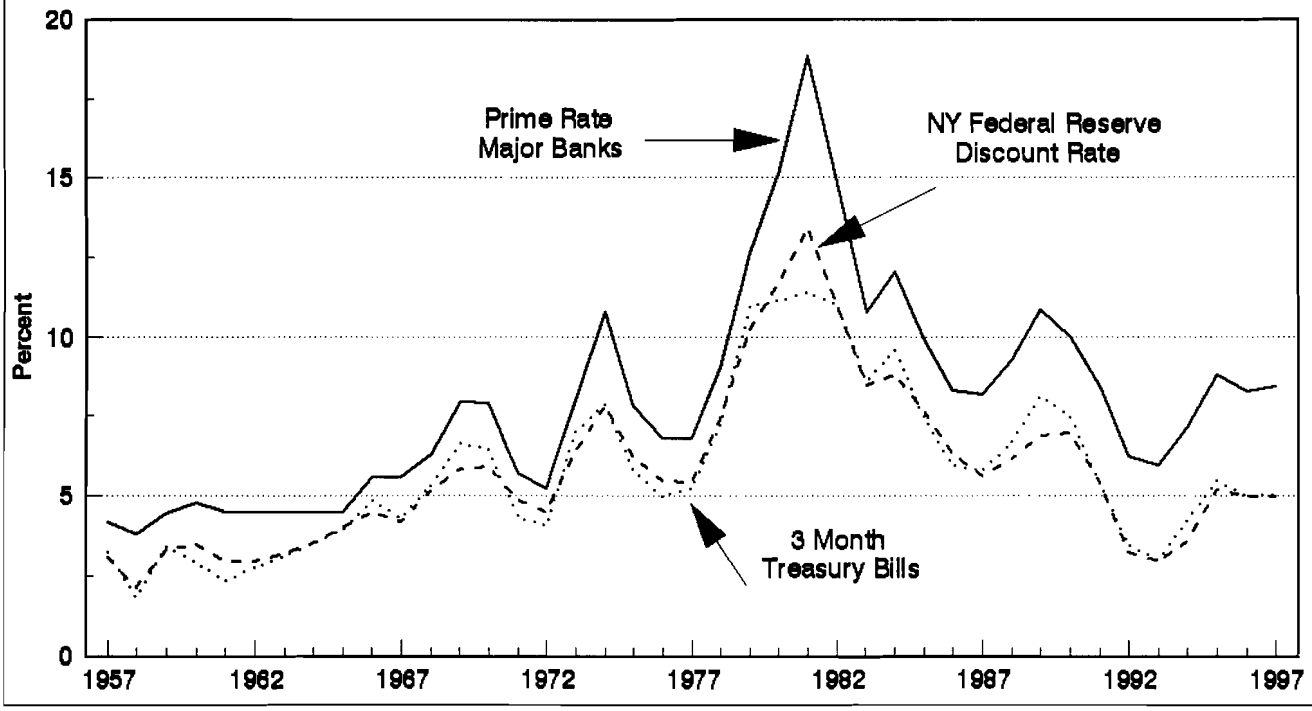
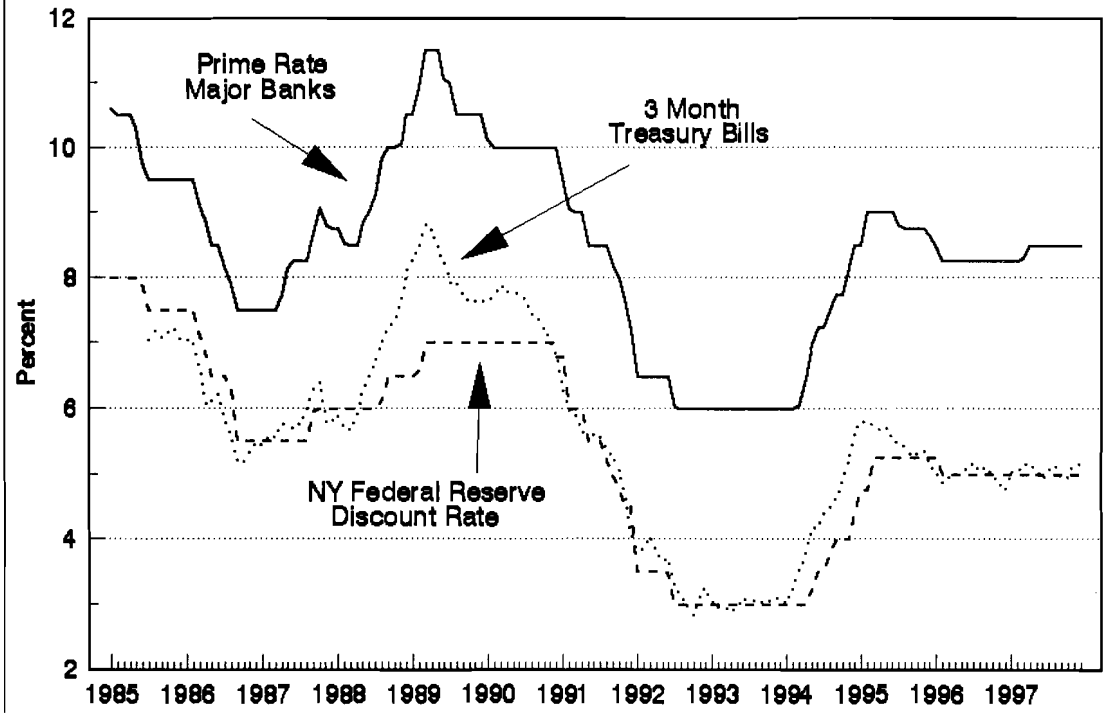
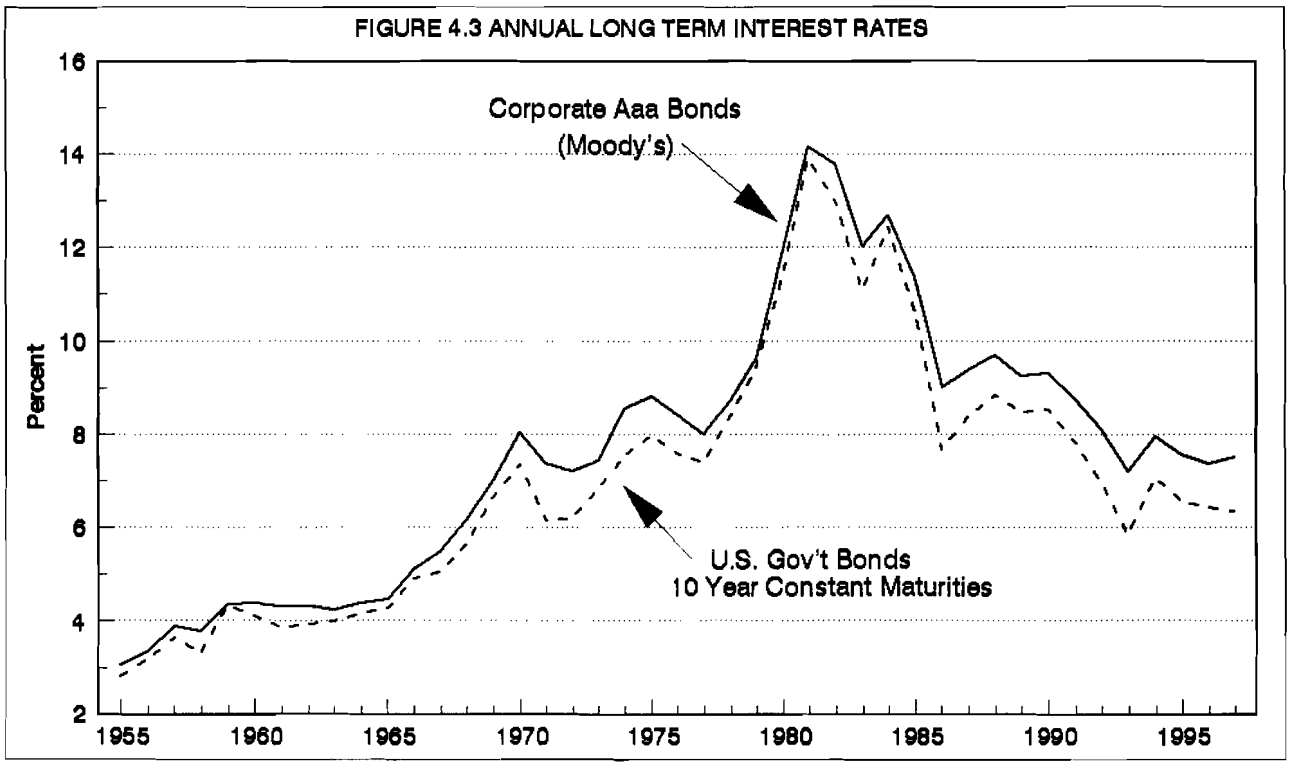


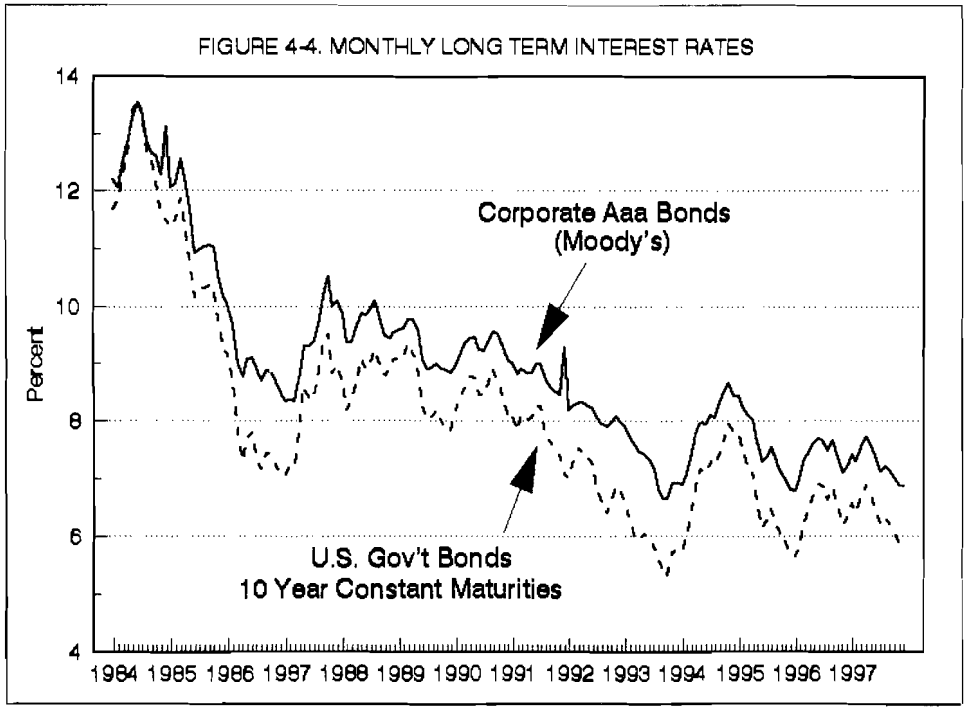
FIGURE 4-2. MONTHLY SHORT TERM INTEREST RATES



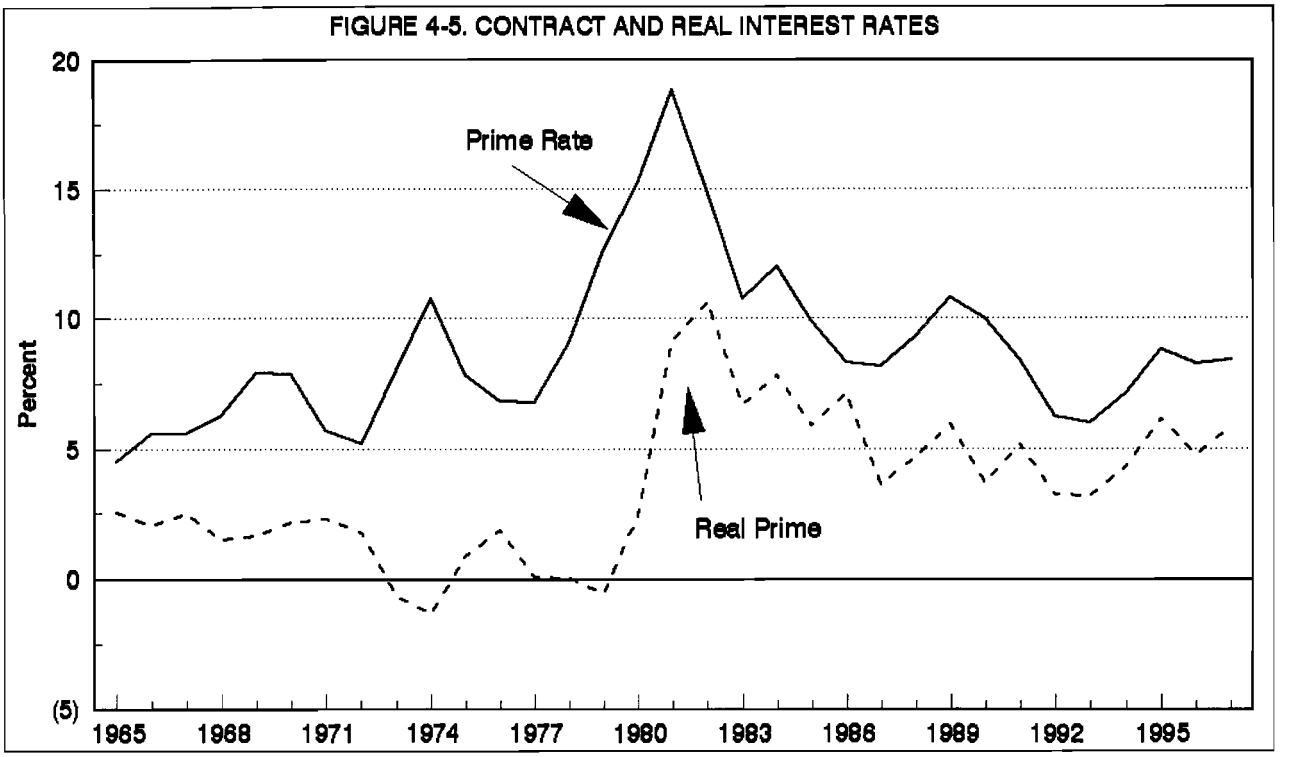
3 Month Treasury Bills		
	1996	1997
Jan.	5.02	5.05
Feb.	4.87	5.00
Mar.	4.96	5.14
Apr.	4.99	5.17
May	5.02	5.13
June	5.11	4.92
July	5.17	5.07
Aug.	5.09	5.13
Sept	5.15	4.96
Oct.	5.01	4.96
Nov.	5.03	
Dec.	4.87	



Basic short term interest rates have been remarkably constant throughout most of 1996 and 1997. The three month treasury bill has hovered around five percent for nearly two years. The prime rate increased a quarter of a percent in March 1997 in response to Federal Reserve Bank credit tightening actions, but has been constant at 8.5 percent since then.



U.S. Govt. Bonds 10 Year Constant Maturity		
	1996	1997
Jan	6.80	7.42
Feb	6.99	7.31
Mar	7.35	7.55
Apr	7.50	7.73
May	7.62	7.58
June	7.71	7.41
July	7.65	7.14
Aug	7.49	7.22
Sept	7.68	7.16
Oct	7.39	7.01
Nov	7.10	
Dec	7.20	



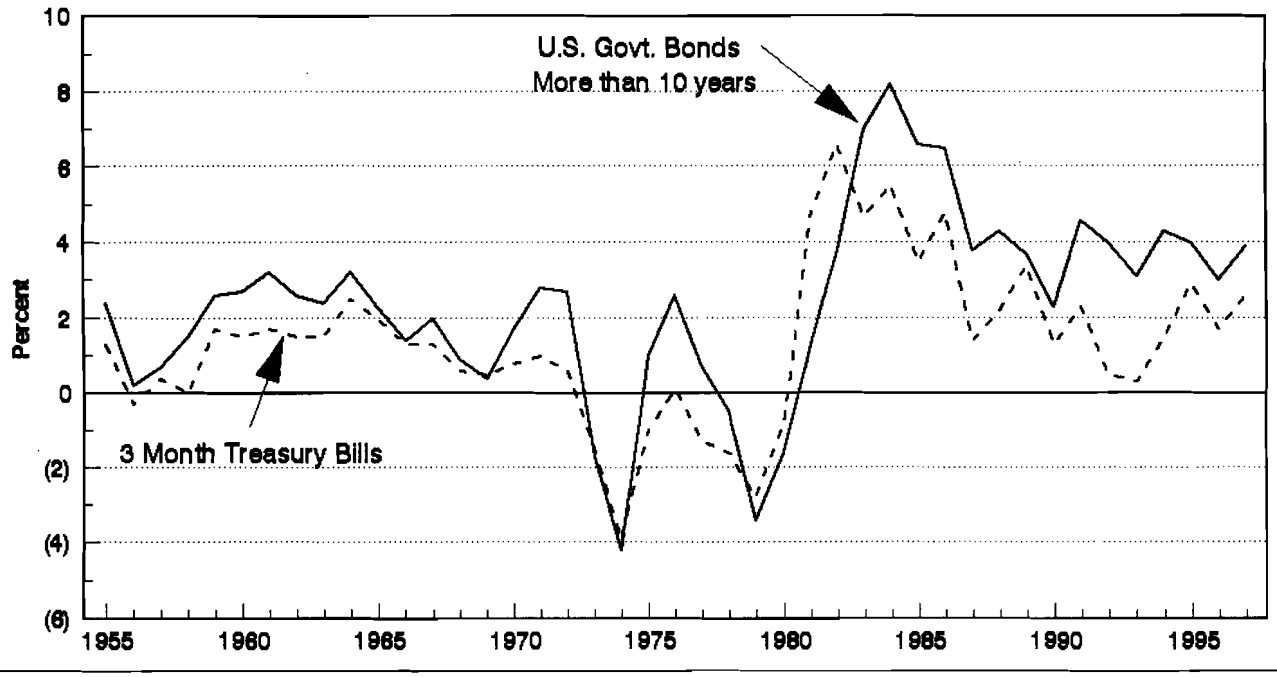
Basic long term interest rates increased modestly early in 1997 and then declined to below year earlier levels by year end. Because of the early year increase, average interest rates for 1997 were slightly above 1996 levels. Late in 1997 long term rates were approaching the lowest levels achieved in the last 30 years.

With constant interest rates and slightly lower inflation, real interest rates increased during 1997. The real t-bill rate is up to 2.6 percent and the real prime rate is up to nearly 6 percent. Both are relatively high by historical standards.

The late 1997 yield curve was lower and flatter than in late 1996. Long term rates were only one percent or less higher than short term rates. This means that the short run cost of selecting a fixed rate loan rather than a variable rate loan was again quite low. Fixed rate loans in the eight to nine percent range were widely available in late 1997.

At this point there appears to be little basis for expecting basic short term interest rates to change much in 1998. The rate of growth of the economy is expected to slow down during the year. This reduces the demand for money and, thus, should put downward pressure on interest rates. Offsetting this is the expectation that inflation rates will increase modestly during the year. Even if the change in inflation is the more important factor influencing rates, the relatively high 1997 real rates leave some room for inflation to rise without pushing rates significantly higher. The reduced growth rate of the economy also reduces the likelihood that the Federal Reserve will find it necessary to push rates up to control inflation. However, the expected rate of growth is high enough that economic stimulation with downward pressure on rates should also be unnecessary.

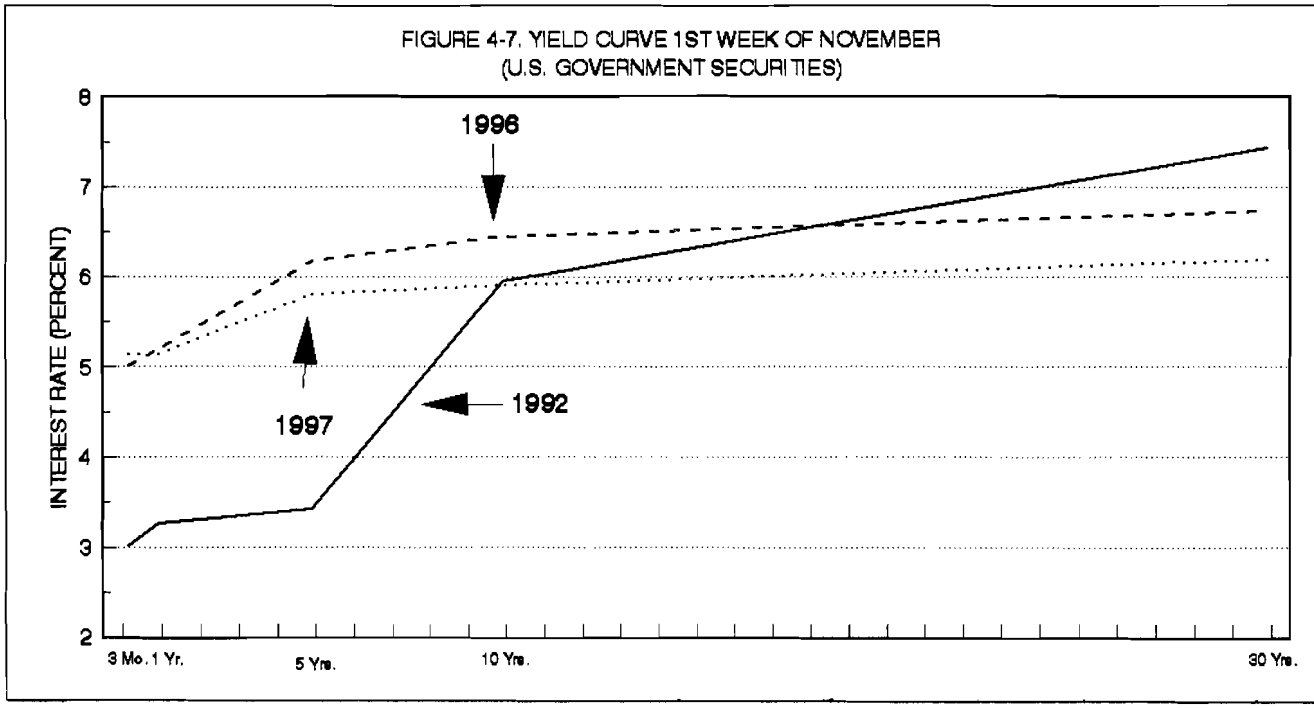
FIGURE 4-6. LONG AND SHORT TERM REAL INTEREST RATES



Although long term interest rates are expected to average about the same or slightly lower in 1998 as 1997, the pattern of rate movement will nearly opposite that for 1997. During 1998, long term rates will increase gradually, along with the inflation rate. The total increase will likely be about one half percent during the year.

Short and intermediate term interest rates to farmers will likely see little change during 1998. Long term rates will start at near 30 year lows and increase somewhat during the year. Early 1998 should be a good time to lock in fixed rates on at least part of the long term needs of the business.

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



Chapter 5. Grain and Feed

William G. Tomek, Professor

The world and U.S. wheat markets had relatively tight supplies in 1995-96 and 1996-97, with correspondingly high prices (Table 5-1). Production is up worldwide in 1997-98, and prices are forecast to decrease about $0.75 per bushel, on average, from the 1996-97 level. Ending stocks as a percent of use are expected to be near the average level experienced in the past 10 years.

TABLE 5-1. PRODUCTION, STOCKS AND PRICES OF WHEAT, WORLD AND U.S., 1987-98

	World Wheat					U.S. Wheat			
Year	Production	Use	Export trade	Ending stocks	Stocks as % of use	Production	Ending stocks	Stocks as % of use	Average price per bu.
	- - - million metric tons - - -				*percent*	*million bushels*		*percent*	*dollars*
1987-88	496	525	112	150	29	2,108	1,261	47	2.57
1988-89	495	525	103	120	23	1,812	702	29	3.72
1989-90	538	532	102	121	23	2,037	536	24	3.72
1990-91	588	564	102	145	26	2,736	866	35	2.61
1991-92	542	559	123	129	23	1,981	472	20	3.00
1992-93	562	545	124	147	27	2,459	529	21	3.24
1993-94	559	563	118	141	25	2,396	568	23	3.26
1994-95	525	549	111	118	21	2,321	507	20	3.45
1995-96	537	550	114	105	19	2,183	376	16	4.55
1996-97[a]	583	580	117	109	19	2,285	444	19	4.30
1997-98[b]	603	583	113	129	22	2,527	665	28	3.55

[a] Preliminary. [b] Forecast.
Source: Various issues of *World Agricultural Supply and Demand Estimates*, ERS and FAS, USDA.

The corn crop in 1997 is estimated to be the third largest in history, both in the U.S. and worldwide (Table 5-2). Nonetheless, the demand for corn is strong, and year-end stocks are expected to be about 10% of use in the U.S. and 11% of use worldwide. By historical standards, these are relatively small stocks-to-use ratios. Only 1995-96 had a smaller ratio in the U.S. Thus, while corn prices may be slightly below the 1996-97 level, they are forecast to be at the third highest level in the last 10 years.

As indicated in Table 5-3, the production of corn, oats, soybeans, and wheat in New York State all increased in 1997. Corn and oats both had larger acreage and larger yields than the prior year, and while wheat acreage was down slightly in 1997, yields were up sharply. This was consistent with the national experience of relatively large wheat yields. Soybean acreage is trending upward. New York output of the various grains is a tiny proportion of the national totals. But, the State's output of corn is the largest since 1981 (when over 77 million bushels was produced on 830,000 acres), and the State's output of soybeans is the largest in history. This suggests that New York prices will be somewhat lower **relative to** national prices than has been the historical experience.

TABLE 5-2. PRODUCTION, STOCKS AND PRICES OF CORN, WORLD AND U.S., 1987-98

Year	World Corn					U.S. Corn			
	Produc-tion	Use	Export trade	Ending stocks	Stocks as % of use	Produc-tion	Ending stocks	Stocks as % of use	Average price per bu.
	- - - - - - million metric tons - - -				percent	million bushels		percent	dollars
1987-88	450	467	57	149	32	7,131	4,259	56	1.94
1988-89	401	460	66	89	19	4,929	1,930	27	2.54
1989-90	461	477	74	73	15	7,526	1,344	17	2.36
1990-91	478	471	59	80	17	7,934	1,521	20	2.28
1991-92	487	488	67	79	16	7,475	1,100	14	2.37
1992-93	533	509	70	105	21	9,482	2,113	25	2.07
1993-94	471	506	67	72	14	6,336	850	11	2.50
1994-95	560	539	72	94	17	10,103	1,558	17	2.26
1995-96	515	544	78	66	12	7,374	426	5	3.24
1996-97[a]	590	572	72	84	15	9,293	884	10	2.70
1997-98[b]	569	588	73	65	11	9,359	928	10	2.65

[a] Preliminary. [b] Forecast.
Source: Various issues of *World Agricultural Supply and Demand Estimates*, ERS & FAS, USDA.

TABLE 5-3. CROP PRODUCTION, UNITED STATES AND NEW YORK, 1995-97[a]

Crop	Acres harvested			Yield per acre			Production		
	1995	1996	1997	1995	1996	1997	1995	1996	1997
United States	million acres			bushels			million bushels		
Feed grains	82.5	94.5	92.9	2.54[b]	2.83[b]	2.86[b]	209.2[c]	267.3[c]	265.2[c]
Wheat	60.9	62.9	63.6	35.8	36.3	39.7	2,183	2,285	2,527
Soybeans	61.6	63.4	69.8	35.3	37.6	39.2	2,177	2,382	2,736
New York	thousand acres			bushels			thousand bushels		
Corn grain	610	630	660	105	107	116	64,050	67,410	76,560
Oats	90	75	110	59	57	60	5,310	4,275	6,600
Wheat	125	150	135	55	43	52	6,875	6,450	7,020
Soybeans	63	77	107	38	37	39	2,394	2,849	4,173
				tons			thousand tons		
Corn silage	485	510	N.A.	14.0	15.5	N.A.	6,790	7,905	N.A.
All hay	1,600	1,510	1,500	2.16	2.30	2.33	3,448	3,468	3,488

[a] All 1997 data are preliminary. U.S. estimates as of 11/10/97; NY estimates as of 10/10/97.
[b] Metric tons.
[c] Million metric tons.
Source: USDA *World Agricultural Supply and Demand Estimates* and New York Crop Reporting Service.

More detail about supply, disappearance, stocks, and prices at the national level is provided in Table 5-4. The price ranges forecast for 1997-98 crop year are made by the USDA. They expect prices to be lower for feed grains, wheat, and soybeans. Corn prices, however, could be roughly the same as last year. Soybean prices are projected down almost one dollar a bushel.

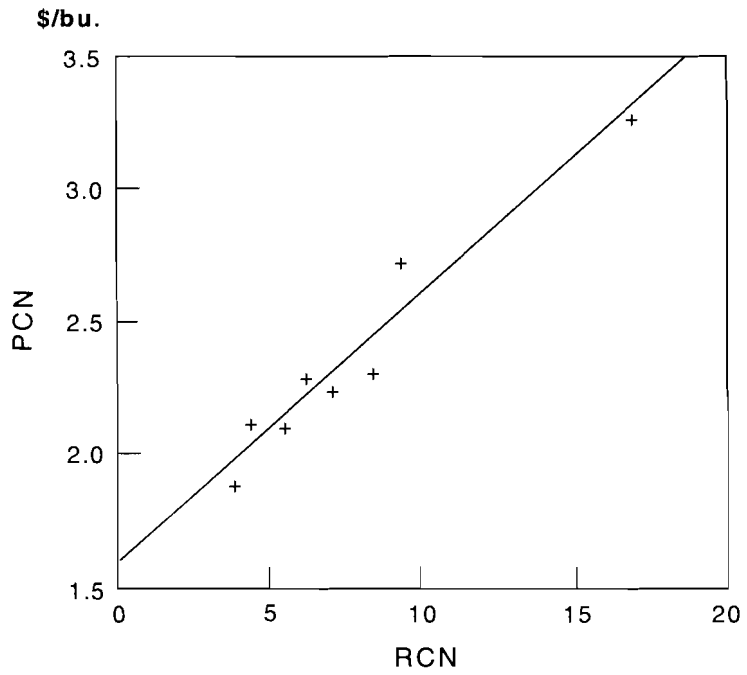
TABLE 5-4. BALANCE SHEETS, 1994-95 THROUGH 1997-98				
Item	1994-95	1995-96	1996-97 (est.)	1997-98 (proj.)
Supply		**FEED GRAINS**[a] (*million metric tons*)		
Beginning Stocks (Sept. 1)	27.4	45.3	14.4	27.0
Production	284.6	209.2	267.3	265.2
Imports	3.3	2.7	2.8	2.8
Total	315.2	257.2	284.6	295.0
Disappearance				
Feed and Residual	159.1	133.4	156.9	160.2
Food, Industrial and Seed	48.4	46.3	49.1	51.1
Total Domestic	207.5	179.8	206.0	211.3
Exports	62.4	63.0	51.5	56.0
Total Disappearance	269.9	242.8	257.6	267.3
Ending Stocks	45.3	14.4	27.0	27.8
Season average farm price, corn, per bu.	$2.26	$3.24	$2.70	$2.45-$2.85
Supply		**WHEAT** (*million bushels*)		
Beginning Stocks (June 1)	568	507	376	444
Production	2,321	2,183	2,285	2,527
Imports	92	68	92	95
Total	2,981	2,757	2,753	3,065
Disappearance				
Food	853	883	892	910
Seed	89	104	103	100
Feed and Residual	344	153	314	325
Total Domestic	1,287	1,140	1,308	1,335
Exports	1,188	1,241	1,001	1,075
Total Disappearance	2,475	2,381	2,310	2,410
Ending Stocks (May 31)	507	376	444	655
Season average farm price	$3.45	$4.55	$4.30	$3.40-$3.70
Supply		**SOYBEANS** (*million bushels*)		
Beginning Stocks (Sept. 1)	209	335	183	132
Production	2,517	2,177	2,382	2,736
Imports	5	4	9	4
Total	2,731	2,516	2,575	2,872
Disappearance				
Crushings	1,405	1,370	1,436	1,500
Exports	838	851	882	980
Seed, Feed	72	72	79	77
Residual	81	40	46	60
Total Disappearance	2,396	2,333	2,443	2,617
Ending Stocks (Aug. 31)	335	183	132	255
Season average farm price	$5.48	$6.72	$7.38	$5.90-$6.90

[a] Marketing year beginning September 1 for corn and sorghum, June 1 for barley and oats.

Source: *World Agricultural Supply and Demand Estimates*, USDA, November 10, 1997.

These data can be summarized via scatter plots. In Figure 5-1, the season average price of corn in the U.S. is plotted against the total crop year disappearance divided by year-ending stocks for all feed grains. Disappearance includes all uses (feed, food, industrial, exports, and seed). Only data for the crop years 1989-90 through 1996-97 are plotted. Government programs have had little, if any, effect from 1989-90 onward, and hence the data shown should be relevant to current circumstances. The 1997-98 forecast is not plotted. Figure 5-2 provides similar information for soybeans. The highest price, the point in the upper right-hand corner, is the 1995-96 crop year for corn and the 1996-97 year for soybeans; the lowest prices are for the 1992-93 crop year.

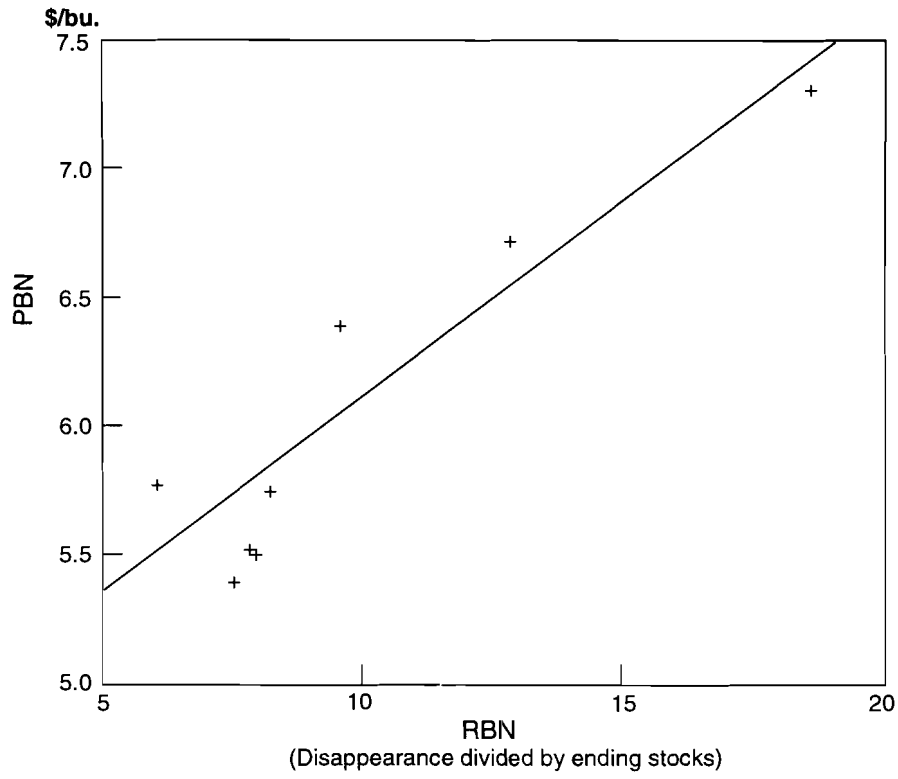
FIGURE 5-1. CORN PRICES VERSUS USE/STOCKS RATIO FOR FEED GRAINS, U.S., 1989-90 TO 1996-97



For 1997-98, the USDA forecasts of disappearance and stocks of feed grains implies a ratio of about 9.6, and the associated point on the (statistically fitted) line in Figure 5-1 is $2.56 per bushel. This compares with the mid-point of the forecast price range by USDA of $2.65 per bushel. For soybeans, the disappearance-to-stocks ratio is forecast to be 10.3, and the associated estimate of price using the fitted line of Figure 5-2 is $6.19 per bushel. This estimate is within the range of the USDA forecasts, but well below the mid-point of the range ($6.40 per bushel).

Alternatively, the futures prices on November 10 (reflecting the USDA data released on that day) imply farm-level prices may be higher than those forecast from historical relationships. The futures market for soybeans suggests that farm prices will be at least at the upper end of the range ($6.90) of the USDA forecast. The futures prices for corn also appear to imply farm prices a bit above the mid-point ($2.65) of the USDA forecast. The USDA forecasts are conditioned by the information available at a point in time; in contrast, futures markets are continually adjusting to new information. The expected disappearance-to-

FIGURE 5-2. SOYBEAN PRICES VERSUS USE/STOCKS RATIO FOR SOYBEANS, U.S., 1989-90 TO 1996-97



ending-stocks ratio is being re-thought continuously in a futures market, as new information becomes available about exports, world-wide crop conditions, etc. Market participants seem to think that the use-to-stocks ratio will be larger than those estimated by the USDA in early November.

For the five crop years 1992-93 through 1996-97, the farm price of corn in New York State averaged $2.61 per bushel in November, the harvest-time low, and $3.23 per bushel in July, the seasonal high month (Figure 5-3). This average is influenced by the exceptional price rise in 1995-96 from $3.12 in November to $5.03 in July, but prices do rise seasonally on average. With a relatively large crop, a normal seasonal price rise should occur in 1997-98. If, however, the market's current expectations about a large demand are not realized, then prices will not increase seasonally; indeed, they could decline.

No one can forecast the possible changes in demand between now and July, and consequently a price risk exists in storing corn (and other crops). Those storing corn can, if they wish, hedge by selling May or July futures. This will be profitable **if** the current local cash price is below the current price of the futures contract by at least the cost of storage. For example, if the May futures were $2.90 per bushel and if the local cash price were (in November) $2.50, then initiating the hedge at $2.90 would assure approximately a $0.40 per bushel return to storage through the end of April. Assuming that historical relationships among prices hold, this return is assured whether the price of corn falls or rises from harvest until May.

The prices of livestock feed are, of course, correlated with the prices of major ingredients (Table 5-5). Since the prices of feed grains and soybean meal should be down a bit, at least during the first half of

1998, feed costs for dairy and poultry producers also should be down. Prices during the last half of the year will be influenced by expectations about the new crop.

FIGURE 5-3. MONTHLY PRICES OF CORN, NEW YORK STATE

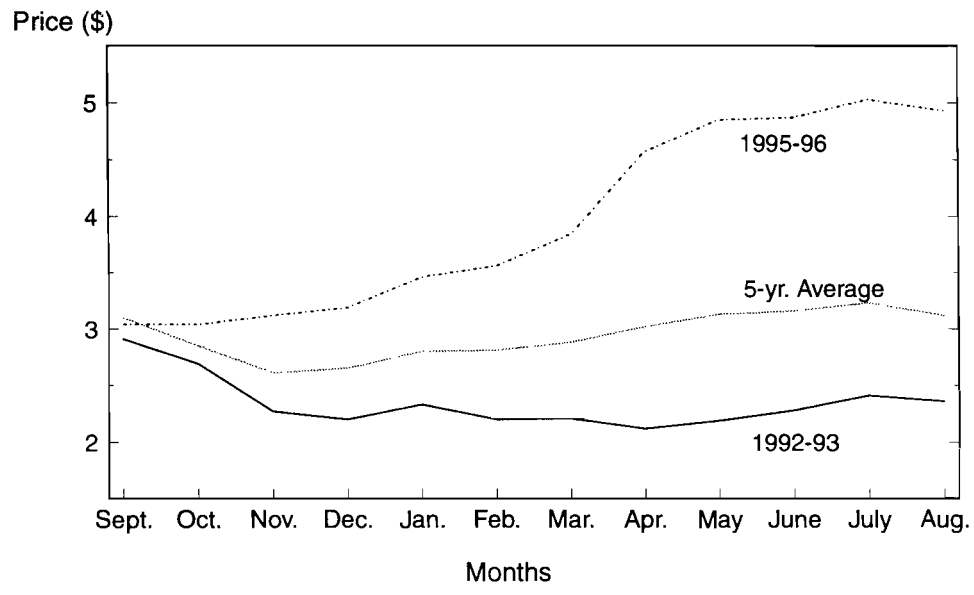


TABLE 5-5. PRICES PAID BY FARMERS, NORTHEAST REGION U.S., SELECTED FEEDS/FEEDSTUFFS, 1988-97

Year[a]	Mixed dairy feed 16% protein	Complete laying feed	Corn meal	Soybean meal
	- - - $ per ton - - -		*- - - $ per cwt. - - -*	
1988	181	195	8.13	15.65
1989	189	207	8.75	15.88
1990	177	194	8.88	13.25
1991	172	188	8.40	12.90
1992	174	194	8.60	12.70
1993	171	201	8.33	13.35
1994	181	211	9.28	14.10
1995	175	199	8.40	12.80
1996	226	243	11.30	15.80
1997	216	260	10.90	18.00

[a] Beginning in 1995, prices refer to April 1.
Source: *New York Agricultural Statistics, 1996-97,* New York Agricultural Statistics Service.

In sum, stocks of grains and oilseeds appear ample relative to demand, and prices for the current crop year are expected to be below those of last year. The USDA is forecasting substantially lower prices for wheat and soybeans, and only slightly lower prices for corn. Futures markets, at least in mid-November, suggest that grain prices could be above those forecast by the USDA.

Chapter 6. Dairy — Markets and Policy

Mark W. Stephenson, Senior Extension Associate

1998 Dairy Outlook

Positive Factors:

- Quality of feeds is good in most parts of the Northeast
- Strong economy and consumer demand
- Replacement cow and bred heifer prices are low

Negative Factors:

- Forage yields were down and stocks are light in some areas
- Alfalfa is expensive

Uncertainties:

- Outcome of Minnesota Court case appeal
- Proposed rule for federal order reform
- El Nino

New York Dairy Situation and Outlook
1995, 1996, Preliminary 1997, and Projected 1998

Item	1995	1996	1997	1998	Percent Change 96-97	Percent Change 97-98
Number of milk cows (thousand head)	703	702	698	696	-0.6	-0.3
Milk per cow (lbs.)	16,562	16,423	16,573	16,700	0.9	0.8
Total milk production (million lbs.)	11,643	11,529	11,568	11,623	0.3	0.5
Blended milk price ($/cwt.) [a]	12.56	14.41	12.75	13.07	-11.5	2.5

[a] New York–New Jersey blend price, 201–210 mile zone, 3.5 percent fat, this price excludes any premiums, assessments, or hauling fees.

Table 1. U.S. Milk Supply and Utilization, 1991–1998.

	1991	1992*	1993	1994	1995	1996* [a]	1997 [b]	1998 [c]
Supply								
Cows Numbers (thous.)	9,826	9,688	9,589	9,500	9,458	9,351	9,250	9,150
Production/cow (lbs)	15,031	15,574	15,704	16,175	16,433	16,498	16,950	17,400
Production	147.7	150.9	150.6	153.7	155.4	154.3	156.8	159.2
Farm Use	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.3
Marketings	145.7	149.0	148.8	152.0	153.8	152.8	155.4	157.9
Beginning Commercial Stocks	5.1	4.5	4.7	4.5	4.3	4.1	4.7	4.5
Imports	2.6	2.5	2.8	2.9	2.9	2.9	2.9	2.9
Total Supply	**153.5**	**156.0**	**156.3**	**159.4**	**161.0**	**159.8**	**162.9**	**165.3**
Utilization								
Commercial Disappearance	138.6	141.3	145.1	150.3	154.8	155.0	157.3	160.6
Ending Commercial Stocks	4.5	4.7	4.5	4.3	4.1	4.7	4.5	4.3
DEIP	0.7	1.5	1.4	2.4	1.9	0.1	1.1	0.4
Net Removals (excluding DEIP)	9.7	8.4	5.3	2.4	0.2	0.0	0.0	0.0
Total Use	**153.5**	**156.0**	**156.3**	**159.4**	**161.0**	**159.8**	**162.9**	**165.3**

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.

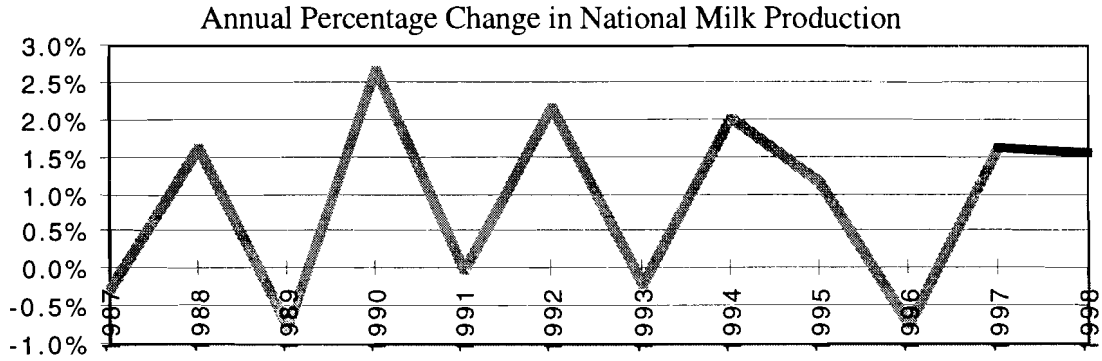
The U.S. Dairy Situation and Outlook

Milk Supplies

The year of 1997 has been a year of recovery for milk supplies. In 1996, a shortage of grains and the resulting high concentrate prices tightened national milk supplies rather dramatically. Over the last decade, our milk supply has grown at an average rate of just less than one percent annually. We have certainly had deviations from that average, but in the past ten years the only comparable loss in milk production occurred in 1989 as a result of a widespread drought in the Upper Midwest. The chart below shows that deviations around the average increase have had an "up one year, down the next" characteristic. The past couple of years are an exception to that pattern and my projections for 1998 also differ.

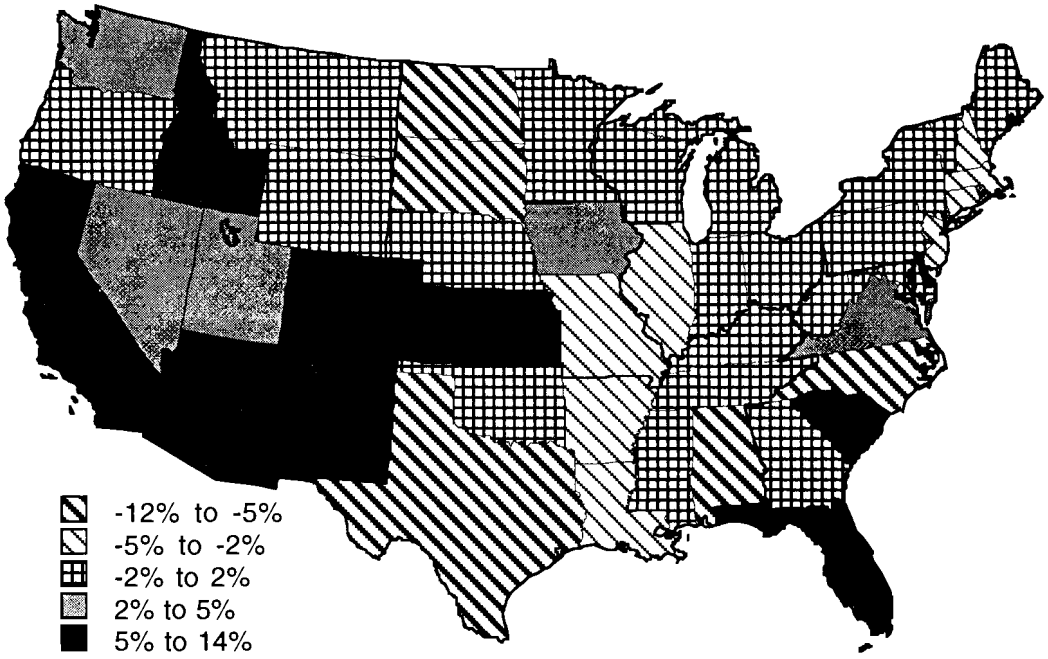
Milk supplies are a function of the number of cows in the national herd and the pounds of milk produced per cow. In years with particularly low milk prices and/or high cull cow prices and/or lack of forage, we often observe a larger than normal loss of cows. In years with low milk prices and/or high concentrate costs, we see lower than average increases in milk per cow. The average two percent increases in pounds of milk produced per cow is a function of better management practices and genetic gain. In years with high concentrate prices, management decisions to feed less grain may mask the gains in the gene pool, but those gains have occurred and will be expressed in a more normal year. That is the phenomenon that we have seen in 1997 and I expect additional catch-up to be seen in productive efficiency in 1998. With somewhat tight supplies of hay through the winter, I expect a slightly larger than normal loss of cows next year moderating the increase in total milk production.

An unusually dry summer in the southern portion of the Northeast has yielded poor forage harvests. Some of those same conditions have affected portions of New York state resulting in inadequate forage supplies for some producers. Alfalfa yields in the Northeast were generally down this year



but much of the harvest has been of high quality. Nationally, hay supplies are short and excellent quality hay is not available at any price. This has greater implications for western dairies where forage purchases are the norm. The growth in western milk supplies is anticipated to be dampened as a result of the forage situation. The chart below shows that the majority of the growth in the first six months of 1997 milk supplies has come from the West. One indication of the impact of forage shortages on 1998 milk supply growth is that there is a greater reluctance to increase herd sizes and that is reflected in the cost of replacement animals. The National Agricultural Statistics Service survey of replacement cow prices shows that this value has dropped by about five percent from year earlier levels.

Percentage Change In Milk Supplies For The First Six Months, 1996–1997



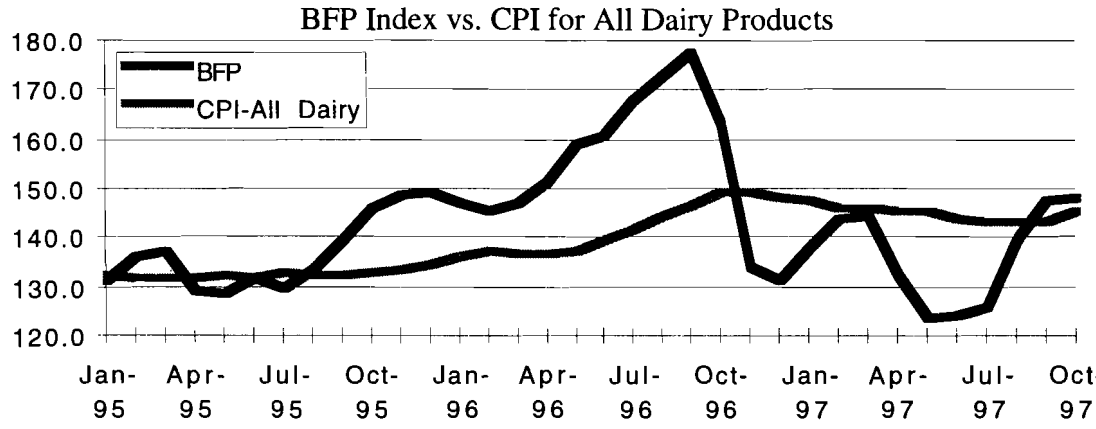
The total supply of dairy products available for consumption is somewhat more than milk production, it is also the imports of dairy products into the country and the stocks of dairy products carried over from a previous period. Imports of dairy products under the section 22 quota allowance have been very stable for the past five years and are expected to be at similar levels in 1998. However, in the past few years there has been a story to tell about stocks. With volatile prices in the 1990s the dairy industry has chosen to hold smaller inventories of product and it was against this trend that we witnessed cheese stocks growing through 1996 and much of 1997. Cheese stocks grew in spite of the fact that cheese processing was very similar to year earlier levels. Consumers reacted to the higher price of dairy products by not purchasing as much. With milk supplies growing and cheese manufacturing not increasing, the balancing has been done with nonfat dry milk. Production of nonfat dry milk is up about sixteen percent above year earlier levels and stocks are currently 266 percent above the same time period last year.

Milk Demand

In the Fall of 1996 dairy product prices hit record high levels. Many folks were unsure as to what consumer reaction to these high prices would be. Comments had ranged from "consumers don't care what the price of milk is" to "consumers resist high prices and volatility". By the time we reached the fourth quarter of 1996, commercial disappearance of cheese, butter and soft products had declined from year earlier levels and when we ushered in the new year, it was clear that fluid milk purchases had also dropped. Rather than the two to three percent growth that had been experienced in the first half of the 1990s, commercial disappearance of all dairy products showed almost no growth in 1996.

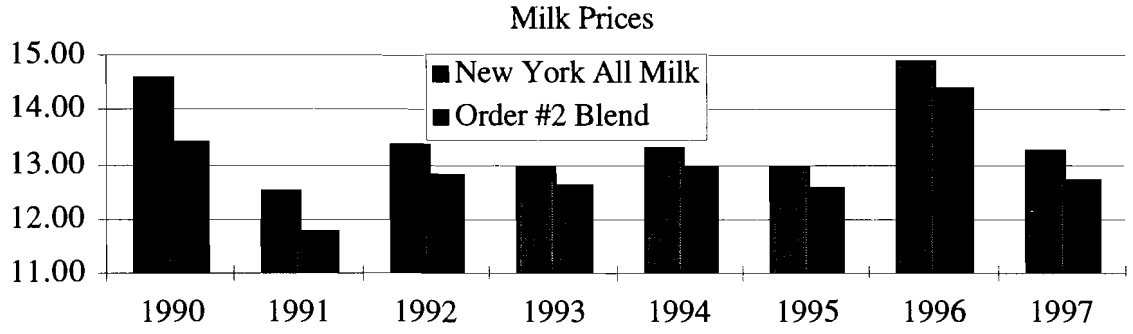
Consumers were isolated from much of the price volatility as retailers are hesitant to expose buyers to all of the movement in dairy product prices. When farm milk prices are rapidly increasing, as they were throughout 1996, the marketing chain from processors through retailers absorb much of the increased costs and when farm milk prices are dropping, they attempt to recover those losses. The graphic below shows the consumer price index for all dairy products from 1995 through October of 1997. The basic formula price of milk is also indexed on the chart and clearly shows that although retail prices do rise *and* fall, the movement is not as great as farm milk prices.

The largest decline in commercial disappearance, our estimate of consumption, occurred in the second quarter of 1997. There is some lagged effect of price on consumption behavior, but demand for dairy products appears to have increased in the latter half of 1997. Forecasts for a sustained growth in our economy and the return of retail price levels that consumers find more acceptable should provide strong sales opportunities for dairy products in 1998.



Milk Prices

Milk prices have been the source of a great deal of discussion in 1997. Falling from historically high levels in 1996, this summer's trough seemed particularly cruel. Average milk prices for 1997 will not look unusual for the 1990s. In fact, as the chart below shows, 1991 was a far worse price year, and several other years in the decade have yielded lower farm prices.



Much of the discussion this summer has surrounded the relationship between farm and retail prices for dairy products. The chart of indices on the previous page would suggest a least two things: The marketing chain did not pass along all of the farm level increases to consumers in 1996, and as we close 1997, the relationship between farm and retail prices has returned to early 1995 levels. This is not to suggest that 1995 price relationships were right, or somehow better, but at the time, no one was suggesting that price transmission in the marketing chain was flawed.

Looking ahead to 1998, I am forecasting a strong average milk price without the peaks and valleys of the past two years. Beginning with fundamentals, a modest strengthening of consumer demand for dairy products cannot be reconciled with the more modest increase in milk supplies except as we draw down on stocks. This suggests that milk prices will send signals to producers for more milk. My basic formula price forecast is expecting about a 25 cent increase over 1997 and a New York-New Jersey federal order blend price of 32 cents per cwt. more.

Policy

Prior to the 1985 Farm Bill, congress legislated policy and experts within USDA attempted to use their best judgements, with input from the industry, to achieve those policy goals. However, the 1985 Farm Bill was the first time that congress took it upon itself to legislate regionally different levels for federal order prices. Since that time, factions in the industry have not focused on national policy goals but rather have sought specific changes through political activity. Recently, a decision

from a federal District Court Judge in Minnesota added the judicial system to the tools that dairy interests can effectively use for regional gain.

The judge ruled that USDA had insufficiently justified the levels of class I differentials in use in 28 federal orders and enjoined USDA from enforcing those differentials. Simple math would suggest that the Northeast could lose as much as one dollar per cwt. in the short run from such a decision. USDA has filed an appeal and requested a stay of the decision until the appeal is heard. This could have tremendous implications for immediate milk pricing and could impact the way that USDA thinks about the federal order reform process that is under way.

We are expecting a proposed rule for the federal order reform that was mandated in the 1996 FAIR Act shortly after the first of the year. This proposed rule would be the first time that the industry will get a glimpse as to how the USDA is contemplating putting the pieces of a reform package together. USDA has shown us some options that they have been considering, but many of the options for basic formula price replacement and class I differentials would yield quite different results than the current system for the Northeast. Prior to the judge's ruling, the country seemed to be settling into an endorsement of option 1a for class I differentials. This would have been a modest change from the current system and little different for the Northeast. The successful legal challenge to class I differentials probably means that USDA will be even more careful to document how proposed differentials conform to the principles of the 1937 Agricultural Agreement Act.

Summary

Economists have a Latin phrase that we are fond of using to qualify projections. *Ceteris paribus* literally means "with all other factors remaining the same" and at the time I write this dairy outlook several factors are in doubt—the Minnesota court case ruling, the proposed rule for federal order reform, and impacts of El Niño to name a few. My expectation is that USDA will be able to secure a stay of the court ruling and, although it may take national hearing to enter the testimony, USDA will be able to justify Class I differentials in all federal orders. The proposed rule for federal order reform is just that–proposed–and the final rule won't be issued until later in 1998. Moreover, it will not be voted on and implemented until the beginning of 1999, so it should not be an issue for 1998 prices. Finally, El Niño. The "child" is currently throwing a tantrum in California with heavy coastal rains and in Oceania, the opposite effect occurs. If this persists throughout the winter, western growth in milk production may be small and perhaps world markets will tighten. Both of these results would be a positive effect on Northeastern milk prices. All factors considered, the market place in 1998 should provide a good deal of the financial relief that producers have been looking forward to.

Table 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, 1989–1997.

	1989	1990	1991	1992	1993	1994	1995	1996[a]	1997[b]
Farm Milk ($/cwt.):									
All Milk (ave. fat)	13.56	13.74	12.27	13.15	12.84	13.01	12.78	14.74	13.26
M–W or BFP (3.5%)	12.37	12.21	11.05	11.88	11.80	12.03	11.83	13.39	11.94
Support (3.5%)	10.47	9.89	9.90	9.96	9.98	9.99	9.99	10.25	10.10
Milk Price: Concentrate Value	1.65	1.72	1.58	1.69	1.65	1.62	1.63	1.60	1.52
Assessment	0.00	0.01	0.05	0.13	0.15	0.17	0.15	0.03[c]	0.00
Cheddar Cheese, Blocks ($/lb.):									
CCC Purchase	1.166	1.111	1.110	1.116	1.119	1.120	1.120	1.145	1.130
Wholesale, NCE/Chicago Mercantile Exchange	1.350	1.315	1.204	1.282	1.286	1.287	1.304	1.466	1.290
Butter ($/lb.):									
CCC Purchase, Grade A or higher, Chicago	1.263	1.017	0.983	0.807	0.708	0.668	0.770	0.650	0.650
Wholesale, Gr. A, Chicago Merc. Exchange	1.269	1.006	0.983	0.815	0.744	0.674	0.751	0.998	1.030
Nonfat Dry Milk									
CCC Purchase, Unfortified ($/lb.)	0.774	0.831	0.850	0.948	1.002	1.034	1.034	1.065	1.047
Wholesale, Central States	1.055	1.066	0.942	1.092	1.120	1.079	1.086	1.222	1.100
Retail Price Indices (1982–84=100.0)									
Whole Milk	114.3	126.7	122.4	126.4	127.9	131.2	132.3	142.4	144.4
Cheese	117.6	131.2	132.8	135.5	135.3	136.4	137.9	144.7	147.7
All Dairy Products	115.6	126.5	125.1	128.5	129.4	131.7	132.8	142.1	145.1
All Food	125.1	132.4	136.3	137.9	140.9	144.3	148.4	153.7	158.0
All Consumer Prices	124.0	130.7	136.2	140.3	144.5	148.2	152.4	156.9	160.7

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] The Federal Agriculture Improvement and Reform Act of 1996 terminated the authority to assess marketings of milk on and after May 1, 1996.

The Northeast Dairy Situation and Outlook

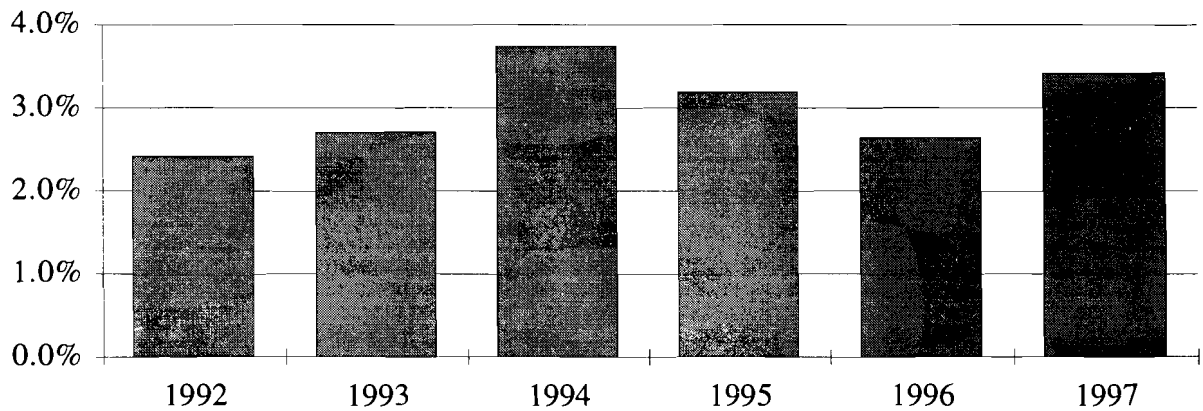
Number of Producers Delivering Milk
Northeast Federal and State Marketing Orders*
1991–1997

Markets	1991	1992	1993	1994	1995	1996[a]	1997[b]
New York-New Jersey	12730	12161	12046	11609	11352	10855	10307
New England	4795	4686	4456	4133	4102	4019	3880
Middle Atlantic	5458	5546	5396	5292	4967	4990	5006
E. Ohio-W. Pennsylvania	4685	4553	4357	4205	3983	3856	3660
Western New York	838	822	705	640	583	553	522
Regional Total	30497	29760	28953	27873	26982	26269	25372

Source: Annual Federal Milk Order Market Statistics and Annual Statistical Reports for State Orders.
* Simple average for 12 months.
[a] Revised.
[b] Projected.

In the five federal and state orders shown above, farm loss has averaged about three percent per year over the period from 1991–1997. In 1994, farm loss approached four percent balancing the smaller losses in 1992–1993. In 1996, the smaller than average farm loss may be attributable to a year of strong milk prices. The corollary is that in 1997, farm loss was slightly above trend, in part a result of lower milk prices in the summer. For any particular order, losses may appear to be higher than the actual loss of farm numbers. For example, in August, a large fluid plant was pooled on the Middle Atlantic order that had previously been in the New York–New Jersey order. This makes farm loss look higher in Order #2 than it really is.

Annual Percent Loss of Dairy Farms in Region

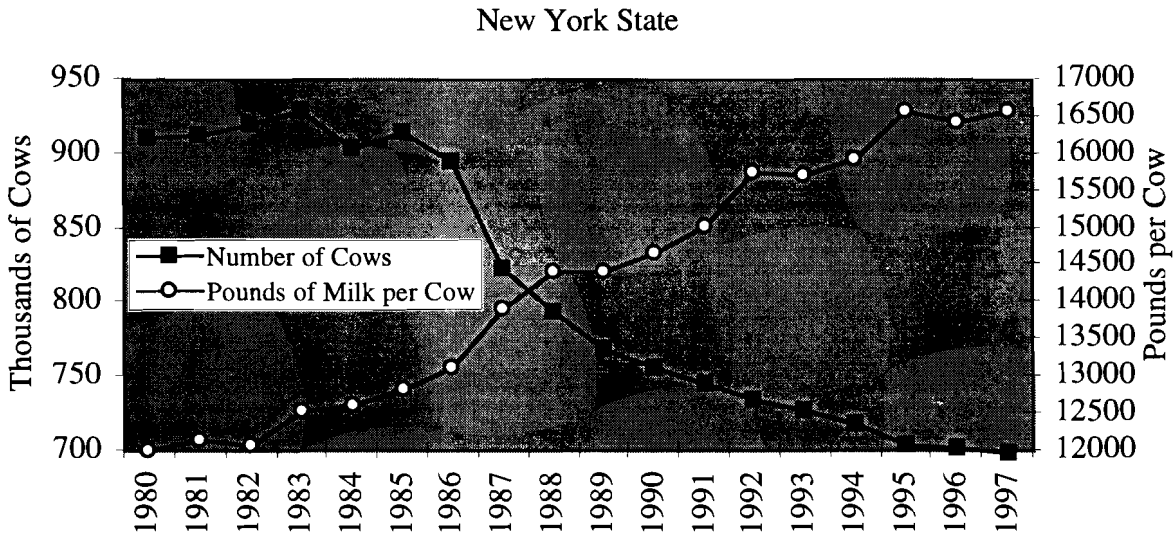


Receipts of Milk from Producers by Regulated Handlers, Million Pounds
Northeast Federal and State Marketing Orders
1991–1997

Markets	1991	1992	1993	1994	1995	1996[a]	1997[b]
New York-New Jersey	11075	11254	11452	11519	11935	11721	11797
New England	5309	5478	5345	5099	5370	5383	5425
Middle Atlantic	6222	6543	6381	6295	6210	6092	6544
E. Ohio-W. Pennsylvania	3517	3622	3546	3575	3476	3282	3302
Western New York	1228	1273	1117	1057	969	972	951
Regional Total	27351	28170	27841	27545	27960	27450	28019

Source: Annual Federal Milk Order Market Statistics and Annual Statistical Reports for State Orders.
[a] Revised.
[b] Projected.

Milk production in the federal and state orders is estimated to be up by more than two percent over year earlier levels. This is not an unusual gain as last year production had declined by nearly the same amount. Expensive concentrates in 1996 decreased the milk production per cow and 1997's value is an indication that a return to more normal input costs have also returned increases in milk per cow. Substantial milk increases in the Middle Atlantic federal order are primarily the result of a former New York-New Jersey plant now being pooled on the Middle Atlantic order.



Source: Milk Production, US Department of Agriculture.

Producer Milk Used in Class I by Regulated Handlers, Million Pounds
Northeast Federal and State Marketing Orders
1991–1997

Markets	1991	1992	1993	1994	1995	1996[a]	1997[b]
New York-New Jersey	4477	4434	4604	4779	4804	4785	4707
New England	2746	2686	2626	2518	2574	2598	2590
Middle Atlantic	3155	3143	2877	2825	2774	2903	2968
E. Ohio-W. Pennsylvania	1872	1866	1820	1790	1794	1754	1740
Western New York	492	472	452	432	435	419	407
Regional Total	12742	12601	12379	12344	12381	12459	12412

Source: Annual Federal Milk Order Market Statistics and Annual Statistical Reports for State Orders.
[a] Revised.
[b] Projected.

In 1996, the dairy industry was congratulating itself on successful advertising campaigns that had turned around the deteriorating sales of fluid milk. The table above does indicate that in 1996 regional sales of fluid milk turned the corner from the slump of the previous three years. However, in 1997 we witnessed a decline in beverage milk sales from the year earlier levels. The high prices in late 1996 had made their way into the retail stores and appears to have dampened sales. One of the industry's old dogma's that consumers don't care about the cost of dairy products is challenged by the data.

Percent Class I Utilization by Regulated Handlers
Northeast Federal and State Marketing Orders
1991–1997

Markets	1991	1992	1993	1994	1995	1996[a]	1997[b]
New York-New Jersey	40	39	40	41	40	41	40
New England	52	49	49	49	48	48	48
Middle Atlantic	51	48	45	45	45	48	45
E. Ohio-W. Pennsylvania	53	52	51	50	52	53	53
Western New York	40	37	40	41	45	43	43
Regional Average	46.6	44.7	44.5	44.8	44.3	45.4	44.3

Source: Annual Federal Milk Order Market Statistics and Annual Statistical Reports for State Orders.
[a] Revised.
[b] Projected.

Minimum Class I Prices for 3.5% Milk
Northeast Federal and State Marketing Orders
1991–1997

Markets	1991	1992	1993	1994	1995	1996[a]	1997[b]
New York-New Jersey [1]	13.16	14.41	14.04	14.59	14.04	16.05	14.19
New England [2]	13.23	14.51	14.14	14.69	14.14	16.15	14.29
Middle Atlantic [3]	13.74	15.02	14.65	15.20	14.65	16.66	14.40
E. Ohio-W. Pennsylvania [3]	12.71	14.00	13.62	14.17	13.62	15.63	13.77
Western New York [3]	13.00	14.29	13.92	14.47	13.92	15.93	14.07

Source: Annual Federal Milk Order Market Statistics and Annual Statistical Reports for State Orders.
[a] Revised.
[b] Projected.
[1] 201–210 mile zone.
[2] 21st zone.
[3] Priced at major city in the marketing area.

In 1993, Class III–A was introduced for milk used in manufacturing nonfat dry milk. For this reason, the 1994–1996 values shown in the table below differ from one another according to the amount of Class III–A product pooled on an order. In some years, the III–A price has pulled the weighted average manufacturing price down by more than 75¢ in some orders. However, strong III-A prices (more than class III in several months) had the opposite impact this year actually increasing average manufacturing prices.

Minimum Manufacturing Prices for 3.5% Milk
Northeast Federal and State Marketing Orders
1990–1996

Markets	1991	1992	1993	1994[c]	1995[c]	1996[a, c]	1997[b, c]
New York-New Jersey [1]	11.06[4]	11.88	11.80	11.59	11.77	13.36	11.97
New England [2]	11.06[4]	11.88	11.80	10.99	11.44	13.28	12.02
Middle Atlantic [3]	11.08[4]	11.90	11.51	11.50	11.60	13.24	11.95
E. Ohio-W. Pennsylvania [3]	11.06	11.88	11.80	11.97	11.82	13.39	11.93
Western New York [3]	11.01	11.83	11.75	11.96	11.48	13.32	12.00

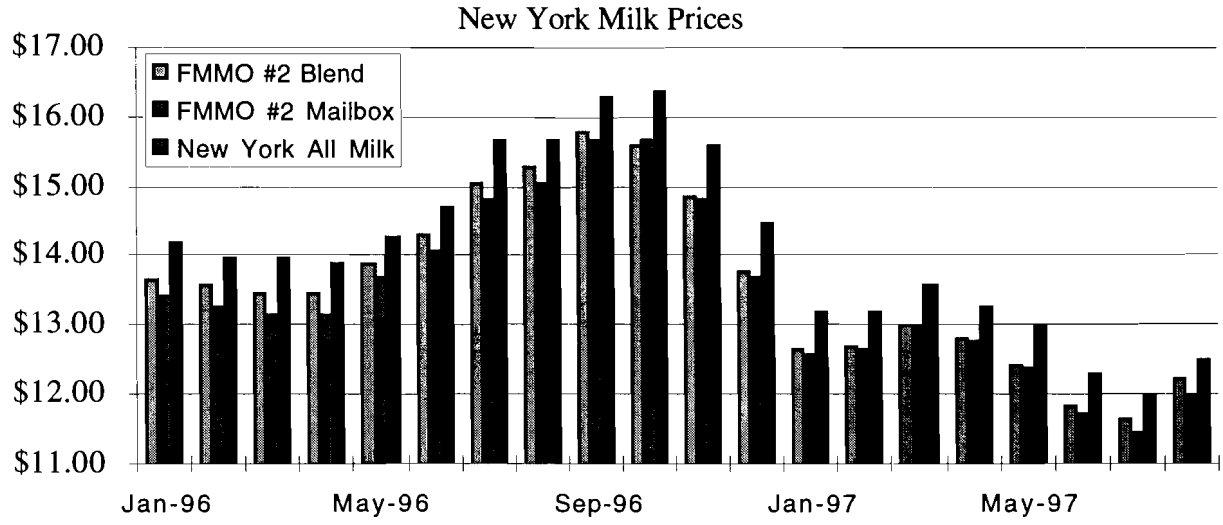
Source: Annual Federal Milk Order Market Statistics and Annual Statistical Reports for State Orders.
[a] Revised.
[b] Projected.
[c] Weighted average blend of Class III and Class III–A prices.
[1] 201–210 mile zone.
[2] 21st zone.
[3] Priced at major city in the marketing area.
[4] Class II price prior to April 1, 1991, Class III price effective April 1, 1991.

Minimum Blend Prices for 3.5% Milk
Northeast Federal and State Marketing Orders
1991–1997

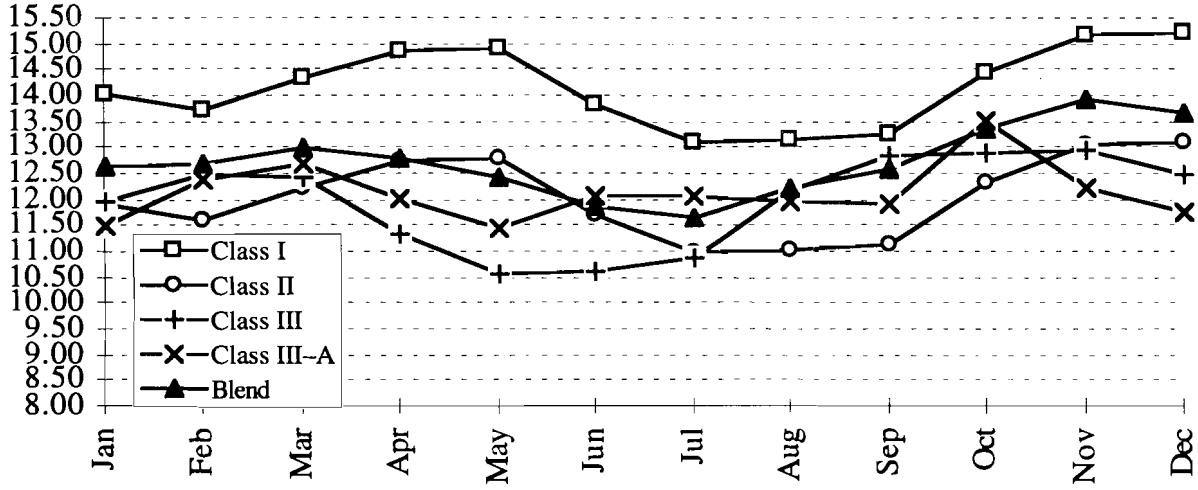
Markets	1991	1992	1993	1994	1995	1996[a]	1997[b]
New York-New Jersey [1]	11.79	12.81	12.61	12.98	12.56	14.41	12.71
New England [2]	12.07	13.08	12.79	13.10	12.66	14.64	12.97
Middle Atlantic [3]	12.45	13.49	13.11	13.35	12.97	14.99	13.27
E. Ohio-W. Pennsylvania [3]	11.95	13.01	12.78	13.12	12.75	14.66	12.90
Western New York [3]	11.77	12.69	12.58	12.88	12.60	14.44	12.90
Regional Average	12.01	13.02	12.77	13.09	12.71	14.63	12.95

Source: Annual Federal Milk Order Market Statistics and Annual Statistical Reports for State Orders.
[a] Revised.
[b] Projected.
[1] 201–210 mile zone.
[2] 21st zone.
[3] Priced at major city in the marketing area.

Several milk prices are often cited. The blend price is the minimum price that processors must pay to producers or their organization (cooperative) for milk purchased. The all-milk price is an estimate of what processors actually paid for milk delivered to their plant. The mailbox price is an estimate of what producers actually received for their milk, net of assessments and hauling costs. The difference between the New York All Milk price and the Mailbox price has averaged about 72¢ per cwt. over the past two years.

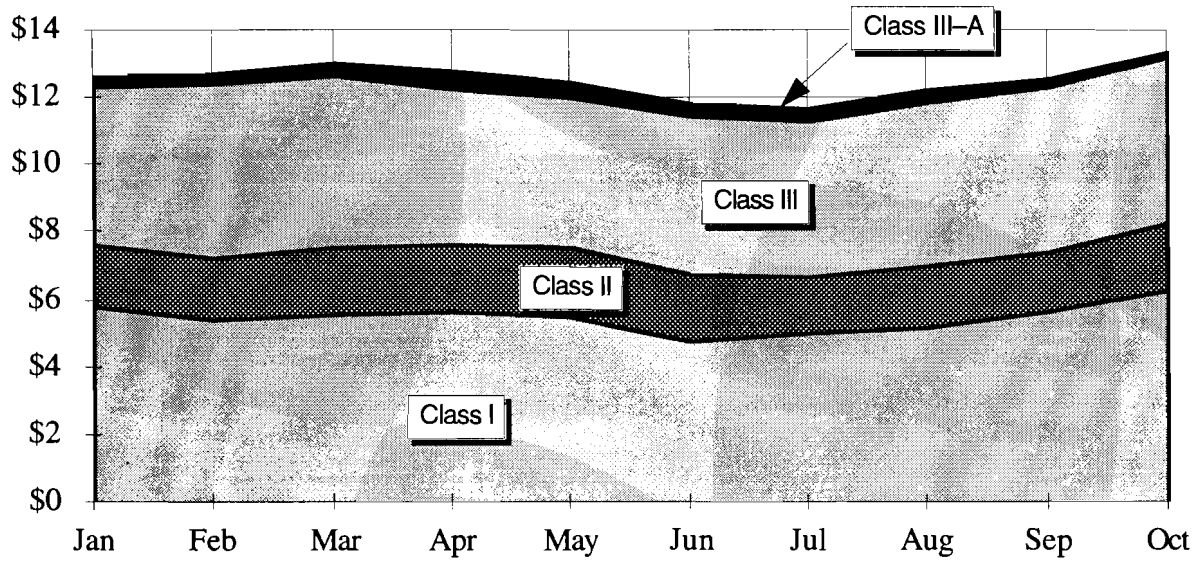


1997
New York–New Jersey Class Prices
3.5% milk fat, 201–210 mile zone



As shown in the chart above, class prices do not move in lockstep. Because of this and because of seasonal differences, the impact on farm prices depends differs from month to month. It has not been characteristic of the III-A price, but in March through October, III-A was greater than the class III price. An even more unusual incident was in June and July when the III-A price was greater than the blend and September when the class III price was greater than the blend. The chart below shows that Class I, or fluid milk, and Class III, predominantly milk used for cheese, have the largest impacts on blend prices in the New York–New Jersey order.

1997 New York–New Jersey Milk Price
Class Contribution to Blend
3.5% milk fat, 201–210 mile zone



MILK PRICE PROJECTIONS*
New York-New Jersey Blend Price, 3.5 Percent, 201-210 Mile Zone
Last Quarter 1994 – 1995

Month	1996	1997	Difference
	(dollars per hundredweight)		
October	15.62	13.37	-2.25
November	14.87	13.97[a]	-0.90
December	13.79	13.70[a]	-0.09
Fourth Quarter Average	14.76	13.68	-1.08
Annual Average	***14.41***	***12.75***	***-1.66***

Month	1997	1998 a	Difference
	(dollars per hundredweight)		
January	12.65	13.38	0.73
February	12.70	12.96	0.26
March	13.02	12.69	-0.33
First Quarter Average	12.79	13.01	0.22
April	12.82	12.45	-0.37
May	12.45	12.33	-0.12
June	11.87	12.24	0.37
Second Quarter Average	12.38	12.34	-0.04
July	11.67	12.49	0.82
August	12.22	12.96	0.74
September	12.59	13.57	0.98
Third Quarter Average	12.16	13.01	0.85
October	13.37	13.99	0.62
November	13.97[a]	14.05	0.08
December	13.70[a]	13.78	0.08
Fourth Quarter Average	13.68	13.94	0.26
Annual Average	***12.75***[a]	***13.07***[a]	***0.32***

* Totals May not add due to rounding.
[a] Projected.

Chapter 7. Dairy -- Farm Management

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Herd Size Comparisons

Data from the 300 New York dairy farms that participated in the Dairy Farm Business Summary (DFBS) Project in 1996 have been sorted into nine herd size categories with the averages for the farms in each category presented in Tables 7-1 and 7-2. Note that after the less than 40 cow category, the herd size categories increase by 15 cows up to 100 cows, then by 50 cows up to 200 cows and by 100 cows up to 300 cows. The 300 or more cow category contains the greatest herd size range with one herd exceeding 2,000 cows.

As herd size increases, the average profitability generally increases (Table 7-1). Net farm income without appreciation averaged $10,342 per farm for the less than 40 cow farms and $259,047 per farm for those with 300 cows and over. This relationship generally holds for all measures of profitability including rate of return on capital.

It is more than size of herd that determines profitability on dairy farms. If size were the only factor, net farm income per cow would be constant throughout all size categories. Farms with 70 to 84 cows averaged $476 net farm income per cow while the 150 to 199 cow dairy farms average only $289 net farm income per cow. The 85 to 99 herd size category had the second highest net farm income per cow at $437. 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
300 New York Dairy Farms, 1996

Number of Cows	Number of Farms	Avg. No. of Cows	Net Farm Income w/o Apprec.	Net Farm Income Per Cow	Labor & Management Inc./Oper.	Return to all Capital w/o Apprec.
Under 40	13	35	$10,342	$295	$-1,495	-2.5%
40 to 54	43	47	12,074	257	-4,641	-2.3%
55 to 69	37	62	22,087	356	-1,625	0.1%
70 to 84	38	75	35,664	476	476	2.5%
85 to 99	16	93	40,669	437	2,909	1.6%
100 to 149	60	122	44,577	365	7,663	3.0%
150 to 199	26	176	50,873	289	7,608	3.6%
200 to 299	32	246	90,922	370	27,809	6.3%
300 & over	35	604	259,047	429	80,897	8.8%

As herd size increased to 70 to 84 cows, net farm income per cow generally increased. Net farm income per cow increased as economies were attained while utilizing family labor. Farms with over 84 cows saw purchased inputs increase per cow before economies of size again appeared. 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 dairy farms with 70 to 84 cows averaged 17,815 pounds of milk sold per cow, 1,768 pounds more per cow than the average of all the smaller farms in the study. The operating costs of producing milk were $10.97 per hundredweight on this group of farms, the lowest of all size categories.

Note: All data in this section are from the New York Dairy Farm Business Summary and Analysis Project unless a specific source is specified.

TABLE 7-2. COWS PER FARM AND RELATED FARM FACTORS
300 New York Dairy Farms, 1996

Number of Cows	Avg. No. of Cows	Milk Sold Per Cow (lbs.)	Milk Sold Per Worker (cwt.)	Till-able Acres Per Cow	Forage DM Per Cow (tons)	Farm Capital Per Cow	Cost of Producing Milk/Cwt.	
							Oper.	Total
Under 40	35	14,249	3,138	3.77	6.26	$7,657	$11.01	$19.38
40 to 54	47	16,116	3,981	3.57	7.68	7,569	11.85	18.63
55 to 69	62	17,775	4,840	3.00	6.81	7,777	11.49	17.27
70 to 84	75	17,815	5,091	3.53	8.33	7,608	10.97	16.25
85 to 99	93	20,067	5,299	3.00	7.83	7,254	11.57	16.50
100 to 149	122	18,397	6,140	3.00	7.57	6,811	11.87	16.16
150 to 199	176	19,188	6,657	2.85	7.58	6,497	12.56	16.02
200 to 299	246	20,676	8,563	2.30	6.67	5,669	12.26	15.04
300 & over	604	21,774	10,001	1.94	6.75	5,591	12.05	14.21

With 21,774 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 300 cows.

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) is a herd management practice 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 5 percent of the 147 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 149 cows reported 13 percent of the herds milking more often than 2X, the 150-199 cow herds reported 15 percent, 200-299 cow herds reported 38 percent and the 300 cow and larger herds reported 80 percent exceeding the 2X milking frequency.

A new technology, bovine somatotropin (bST), was used on a much larger proportion of the large herd farms. bST was used sometime during 1996 on 32 percent of the herds with less than 100 cows, 58 percent of the farms with 100 to 299 cows and on 91 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 790,000 pounds of milk sold per worker while the farms with less than 100 cows averaged less than 500,000 pounds per worker. In addition to achieving the highest productivity per cow and per worker, the largest farms practiced the most efficient use of cropland with 1.94 tillable acres per cow, and the most efficient use of farm capital with an average investment of $5,591 per cow.

The last column in Table 7-2 may be the most important in explaining why profits were significantly higher on the 300 plus cow farms. The 35 farms with 300 and more cows held their average total costs of producing milk to $14.21 per hundredweight, $1.88 below the $16.09 average for the remaining 265 dairy farms. The lower average costs of production plus a similar milk price gave the managers of the 300 plus cow dairy farms profit margins (milk price less total cost of producing milk) that averaged $1.76 per hundredweight above the average of the other 265 DFBS farms.

Ten-Year Comparisons

The total cost of producing milk on DFBS farms has increased $2.18 per cwt. over the past 10 years (Table 7-3). In the intervening years, total cost of production had increased before exhibiting a downward trend. Over the past 10 years milk sold per cow has increased 23 percent and cows per worker by 16 percent on DFBS farms (Table 7-4). Farm net worth has increased significantly, while percent equity has been stable.

TABLE 7-3. TEN YEAR COMPARISON: AVERAGE COST OF PRODUCING MILK PER HUNDREDWEIGHT
New York Dairy Farms, 1987 to 1996

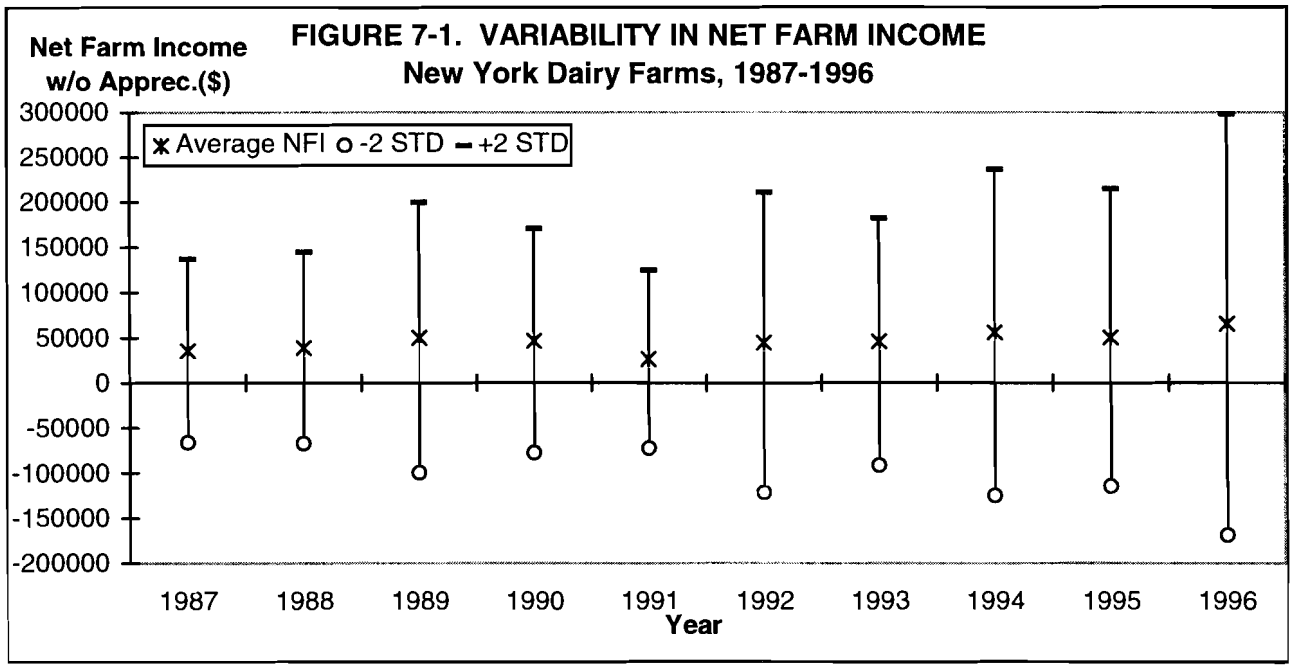
Item	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Operating Expenses										
Hired labor	$ 1.49	$ 1.46	$ 1.62	$ 1.77	$ 1.74	$ 1.80	$ 1.86	$ 1.80	$1.78	$1.89
Purchased feed	3.26	3.73	4.02	4.28	3.88	3.92	3.85	3.89	3.71	4.73
Machinery repair, vehicle expense & rent	.92	.87	.96	1.11	.93	.97	.93	.92	.85	1.02
Fuel, oil & grease	.35	.34	.33	.41	.37	.35	.34	.31	.27	.31
Replacement livestock	.13	.11	.17	.20	.15	.21	.17	.21	.15	.19
Breeding fees	.19	.18	.18	.19	.18	.18	.19	.17	.15	.15
Veterinary & medicine	.28	.28	.30	.32	.33	.35	.37	.40	.39	.42
Milk marketing	.74	.52	.49	.53	.58	.63	.64	.67	.70	.59
Other dairy expenses	.53	.56	.60	.68	.65	.70	.72	.88	.92	.99
Lime & fertilizer	.50	.51	.50	.50	.40	.37	.36	.33	.31	.32
Seeds & plants	.21	.21	.22	.22	.20	.21	.20	.19	.19	.20
Spray & other crop expense	.19	.19	.21	.22	.20	.21	.20	.20	.20	.21
Land, building & fence repair	.20	.22	.27	.32	.19	.24	.21	.21	.16	.23
Taxes	.35	.35	.36	.37	.38	.35	.34	.29	.27	.26
Insurance	.22	.23	.23	.24	.23	.22	.20	.18	.17	.18
Utilities (farm share)	.38	.38	.39	.39	.39	.38	.39	.38	.38	.39
Interest paid	1.04	1.02	1.06	1.05	1.07	.88	.80	.81	.94	.91
Misc. (including rent)	.45	.41	.43	.47	.43	.44	.41	.40	.40	.41
Total Operating Expenses	$11.43	$11.57	$12.34	$13.27	$12.30	$12.41	$12.18	$12.24	$11.94	$13.40
Less: Nonmilk cash receipts	1.84	1.86	1.75	1.75	1.73	1.67	1.65	1.30	1.15	1.07
Increase in grown feed & supplies	.16	.16	.02	.26	.04	.23	.13	.25	.14	.15
Increase in livestock	.10	.08	.12	.15	.18	.08	.22	.21	.25	.18
OPERATING COST OF MILK PRODUCTION	$ 9.33	$ 9.47	$10.45	$11.11	$10.35	$10.43	$10.18	$10.47	$10.40	$12.00
Overhead Expenses										
Depreciation: machinery & buildings	$ 1.43	$ 1.31	$ 1.31	$1.35	$ 1.28	$ 1.19	$ 1.17	$ 1.13	$1.07	$1.04
Unpaid labor	.10	.11	.12	.19	.18	.16	.15	.12	.12	.13
Operator(s) labor [a]	.87	.95	.98	1.10	1.06	.99	1.00	.86	.92	.88
Operator(s) management (5% of cash receipts)	.74	.74	.81	.85	.73	.76	.74	.73	.70	.80
Interest on farm equity capital (5%)	1.15	1.19	1.24	1.24	1.20	1.11	1.11	1.00	.94	.94
Total Overhead Expenses	$ 4.28	$ 4.30	$ 4.46	$ 4.73	$ 4.45	$ 4.21	$ 4.17	$ 3.84	$ 3.75	$3.79
TOTAL COST OF MILK PRODUCTION	$13.61	$13.77	$14.91	$15.84	$14.80	$14.64	$14.35	$14.31	$14.15	$15.79
AVERAGE FARM PRICE OF MILK	$12.89	$13.03	$14.53	$14.93	$12.95	$13.58	$13.14	$13.44	$13.03	$14.98
Return per cwt. to operator labor, capital & mgmt.	$ 2.04	$ 2.14	$ 2.65	$ 2.28	$ 1.14	$ 1.80	$ 1.64	$ 1.72	$ 1.44	$ 1.81
Rate of return on farm equity capital	1.9%	1.8%	3.3%	1.3%	-2.7%	0.2%	-0.4%	0.6%	-1.0%	0.7%

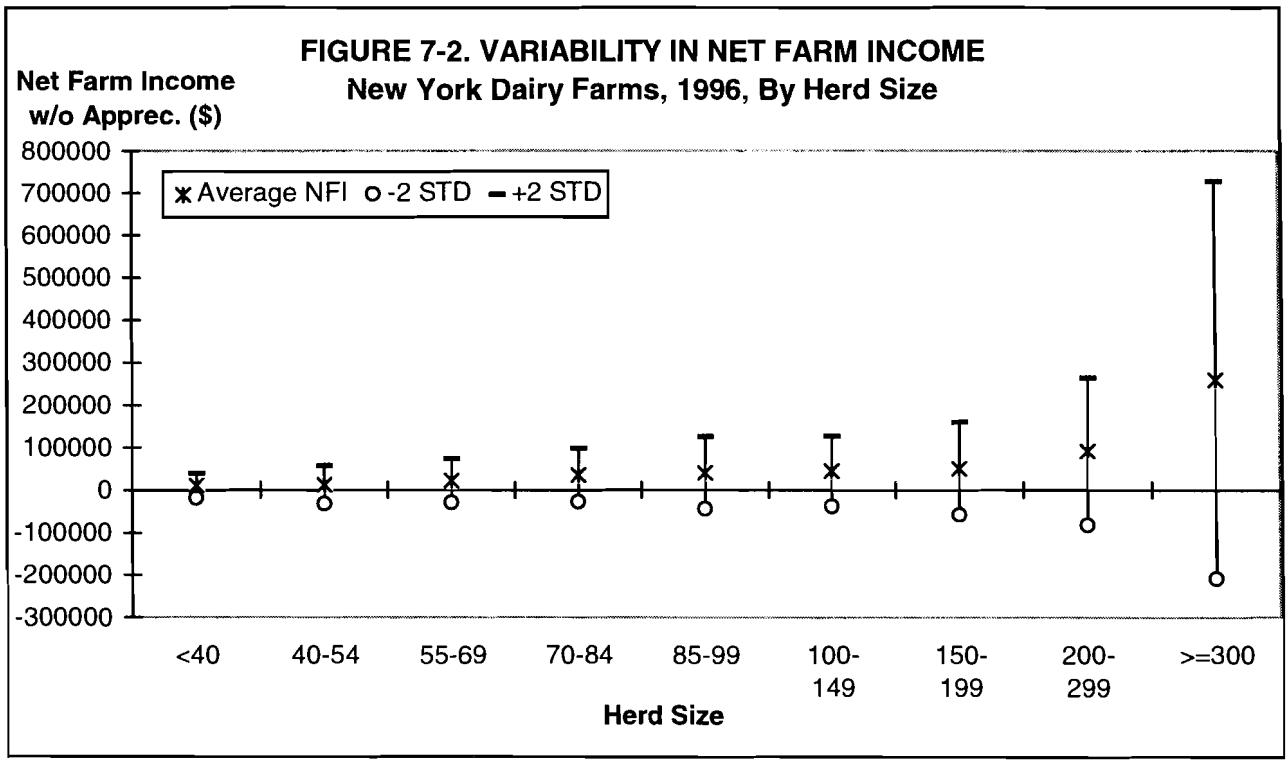
[a] 1986 = $850/month, 1987 = $900/month, 1988 = $1,000/month, 1989 = $1,050/month, 1990 = $1,250/month, 1991 = $1,300/month, 1992 = $1,350/month, 1993 = $1,400/month, 1994 and 1995 = $1,450/month and 1996 = $1,500 of operator labor.

TABLE 7-4. TEN YEAR COMPARISON: SELECTED BUSINESS FACTORS
New York Dairy Farms, 1987 to 1996

Item	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Number of farms	426	406	409	395	407	357	343	321	321	300
Cropping Program										
Total tillable acres	305	302	316	325	330	346	351	392	399	415
Tillable acres rented	105	104	117	121	124	135	135	159	166	183
Hay crop acres	153	156	164	166	169	171	182	195	197	198
Corn silage acres	67	74	81	82	88	98	96	110	117	120
Hay crop, tons DM/acre	2.7	2.6	2.6	2.7	2.4	2.8	2.7	3.0	2.8	2.8
Corn silage, tons/acre	16.2	14.1	13.4	14.4	13.7	14.5	14.9	16.4	15.6	15.9
Fert. & lime exp./tillable acre	$27	$29	$29	$29	$25	$25	$25	$25	$25	$26
Machinery cost/cow	$413	$398	$425	$483	$438	$444	$430	$438	$402	$450
Dairy Analysis										
Number of cows	101	102	104	107	111	123	130	151	160	167
Number of heifers	79	82	83	87	92	96	100	116	121	124
Milk sold, cwt.	16,498	17,200	17,975	19,005	20,060	23,130	24,448	30,335	32,362	33,504
Milk sold/cow, lbs.	16,351	16,882	17,259	17,720	18,027	18,789	18,858	20,091	20,269	20,113
Purchased dairy feed/cwt. milk	$3.21	$3.71	$3.99	$4.27	$3.87	$3.91	$3.85	$3.89	$3.70	$4.73
Purc. grain & conc. as % of milk receipts	24%	28%	27%	28%	29%	28%	29%	28%	27%	30%
Purc. feed & crop exp/cwt. milk	$4.11	$4.62	$4.92	$5.21	$4.67	$4.70	$4.61	$4.61	$4.39	$5.46
Capital Efficiency										
Farm capital/cow	$5,894	$6,133	$6,407	$6,556	$6,688	$6,587	$6,462	$6,398	$6,264	$6,218
Real estate/cow	$2,805	$2,902	$2,977	$2,977	$3,063	$3,015	$2,932	$2,859	$2,763	$2,701
Mach. invest./cow	$1,057	$1,083	$1,154	$1,233	$1,267	$1,203	$1,165	$1,150	$1,098	$1,107
Asset turnover ratio	.45	.45	.48	.48	.43	.47	.46	.50	.49	.55
Labor Efficiency										
Worker equivalent	3.19	3.17	3.30	3.37	3.38	3.60	3.68	4.02	4.40	4.48
Operator/manager equivalent	1.32	1.35	1.39	1.39	1.37	1.41	1.45	1.49	1.56	1.56
Milk sold/worker, lbs.	516,728	542,708	544,598	563,349	593,297	641,893	664,868	755,178	736,269	747,861
Cows/worker	32	32	32	32	33	34	35	38	36	37
Labor cost/cow	$400	$426	$469	$541	$538	$552	$568	$558	$570	$582
Profitability & Financial Analysis										
Labor & mgmt. income/operator	$11,042	$11,911	$18,004	$14,328	$-955	$11,254	$9,000	$14,789	$10,346	$18,651
Farm net worth	$398,209	$426,123	$468,848	$471,322	$480,131	$515,215	$542,126	$608,749	$624,261	$648,186
Percent equity	65%	66%	68%	66%	64%	64%	65%	63%	61%	61%

Distribution of Income





The range in individual farm profitability has been increasing over time. Figure 7-1 shows the average net farm income, plus and minus two standard deviations, over the past ten years. Figure 7-2 shows the variability in net farm income by herd size in 1996, again plus and minus two standard deviations. The range in profit for larger farms is significantly greater than for smaller farms.

TABLE 7-5. COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 74 New York Dairy Farms, 1987 - 1996

Selected Factors	1987	1988	1989	1990
Milk receipts per cwt. milk	$12.83	$13.08	$14.53	$15.02
Size of Business				
Average number of cows	123	130	140	145
Average number of heifers	96	102	107	119
Milk sold, cwt.	21,467	23,096	25,565	26,860
Worker equivalent	3.55	3.74	3.91	4.07
Total tillable acres	343	353	360	402
Rates of Production				
Milk sold per cow, lbs.	17,417	17,780	18,311	18,489
Hay DM per acre, tons	2.7	2.7	2.5	2.8
Corn silage per acre, tons	15	13	13	14
Labor Efficiency				
Cows per worker	35	35	36	36
Milk sold per worker, lbs.	604,701	617,545	653,841	659,959
Cost Control				
Grain & concen. purchased as % of milk sales	23%	27%	27%	27%
Dairy feed & crop expense per cwt. milk	$3.99	$4.54	$4.98	$5.09
Operating cost of producing cwt. milk	$8.63	$8.84	$9.80	$10.67
Total cost of producing cwt. milk	$13.50	$13.75	$14.89	$15.88
Hired labor cost per cwt.	$1.13	$1.15	$1.29	$1.45
Interest paid per cwt.	$0.86	$0.81	$0.87	$0.84
Labor & machinery costs per cow	$832	$858	$926	$1,051
Capital Efficiency				
Farm capital per cow	$6,120	$6,368	$6,742	$7,046
Machinery & equipment per cow	$1,200	$1,223	$1,331	$1,441
Real estate per cow	$2,901	$2,975	$3,072	$3,161
Livestock investment per cow	$1,198	$1,278	$1,378	$1,476
Asset turnover ratio	0.49	0.48	0.53	0.50
Profitability				
Net farm income without appreciation	$59,322	$66,247	$86,445	$74,229
Net farm income with appreciation	$85,745	$84,864	$118,556	$89,546
Labor & management income per operator/manager	$27,604	$32,046	$44,001	$27,435
Rate return on:				
Equity capital with appreciation	8.9%	7.6%	11.0%	4.3%
All capital with appreciation	8.7%	7.2%	10.0%	5.4%
All capital without appreciation	4.8%	4.2%	5.8%	4.0%
Financial Summary, End Year				
Farm net worth	$497,094	$533,784	$612,501	$637,177
Change in net worth with appreciation	$54,454	$43,220	$77,961	$21,841
Debt to asset ratio	0.30	0.30	0.28	0.30
Farm debt per cow	$1,780	$1,846	$1,834	$2,084

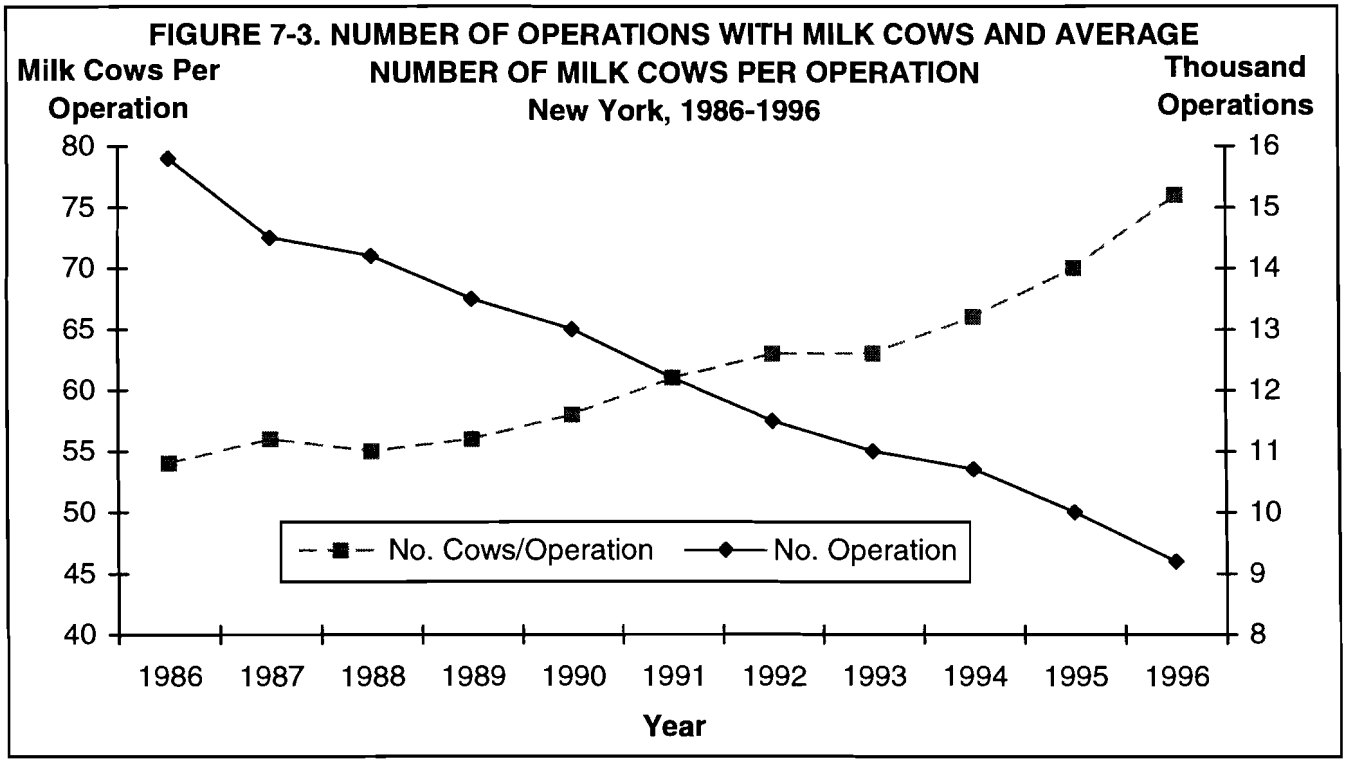
Farms participating in the DFBS each of the last 10 years have increased size of business, labor efficiency and milk sold per cow (Table 7-5). While net farm income has increased, rates of return on capital have not.

TABLE 7-5. COMPARISON OF FARM BUSINESS SUMMARY DATA (Continued)
Same 74 New York Dairy Farms, 1987 - 1996

1991	1992	1993	1994	1995	1996
$12.95	$13.56	$13.21	$13.50	$13.07	$15.03
156	176	196	211	224	236
130	132	146	160	167	174
29,217	34,013	37,799	43,914	47,157	50,140
4.35	4.70	5.04	5.18	5.42	5.66
409	414	438	460	480	516
18,877	19,295	19,296	20,833	21,014	21,214
2.5	2.8	2.7	3.0	2.7	2.7
13	14	14	16	14	15
36	37	39	41	41	42
671,652	723,691	749,986	847,763	870,060	886,420
29%	28%	28%	27%	27%	29%
$4.75	$4.73	$4.63	$4.52	$4.38	$5.29
$9.92	$9.92	$9.89	$9.87	$10.22	$11.20
$15.00	$14.76	$14.72	$14.68	$14.88	$16.03
$1.45	$1.45	$1.53	$1.47	$1.40	$1.44
$0.90	$0.75	$0.73	$0.69	$0.79	$0.77
$1,032	$1,031	$1,060	$1,085	$1,042	$1,115
$7,169	$7,239	$7,410	$7,375	$7,280	$7,261
$1,492	$1,476	$1,519	$1,545	$1,520	$1,528
$3,241	$3,344	$3,441	$3,368	$3,309	$3,275
$1,492	$1,486	$1,512	$1,531	$1,509	$1,481
0.45	0.47	0.44	0.47	0.44	0.50
$41,332	$79,770	$71,490	$93,682	$78,424	$116,049
$67,383	$104,941	$89,603	$114,632	$101,361	$132,423
$2,974	$34,548	$20,551	$38,376	$22,663	$52,847
1.3%	5.4%	2.9%	4.3%	0.4%	4.6%
3.5%	5.5%	3.9%	4.7%	2.8%	5.5%
1.0%	3.2%	2.2%	3.3%	1.9%	4.1%
$656,833	$727,276	$767,849	$830,411	$874,224	$953,627
$11,357	$53,598	$36,790	$55,740	$44,055	$73,041
0.32	0.31	0.31	0.30	0.31	0.30
$2,114	$2,056	$2,042	$2,035	$2,017	$1,967

Debt to asset ratio has remained stable while debt per cow increased and farm net worth almost doubled. During this time, crop yields have not increased, while purchased grain and concentrate as a percent of milk sales has increased slightly.

Milk Cow Operations and Milk Cow Inventory



As the number of milk cow operations decreases, the average number of milk cows per operation increases as shown by the above chart. There were 5,300 less milk cow operations in 1996 than there were in 1987. The average number of milk cows per operation has increased by 20 cows, or 36 percent over the same period. On January 1, 1997, 36 percent of the total milk cows were in herds with 50-99 head, 49 percent were in herds with over 100 milk cows, and 15 percent were in herds with less than 50 head.

TABLE 7-6. MILK COW OPERATIONS AND MILK COW INVENTORY by Herd Size, 1987 to 1997

	MILK COW OPERATIONS BY HERD SIZE & TOTAL, 1987-1996 (Number of Milk Cows in Herd)							MILK COWS ON FARMS, JAN. 1 BY HERD SIZE & TOTAL, 1988-1997 (Number of Milk Cows in Herd)						
Year	1-29	30-49	50-99	100-199[a]	200 plus	Total	Year	1-29	30-49	50-99	100-199[a]	200 plus	Total
	(Number of Operations)							(Thousand Head)					
1987	3,300	4,300	5,000	1,900		14,500	1988	32	171	332	281		816
1988	3,200	3,850	5,300	1,850		14,200	1989	30	144	335	271		780
1989	2,700	3,400	5,400	2,000		13,500	1990	29	121	321	289		760
1990	2,650	3,150	5,300	1,900		13,000	1991	27	116	319	288		750
1991	2,500	2,900	5,000	1,800		12,200	1992	24	111	314	291		740
1992	2,600	2,600	4,400	1,900		11,500	1993	27	97	300	306		730
1993	2,400	2,500	4,200	1,500	400	11,000	1994	22	87	297	189	130	725
1994	2,400	2,200	4,200	1,500	400	10,700	1995	21	92	277	178	142	710
1995	2,100	2,200	4,000	1,300	400	10,000	1996	19	79	259	196	147	700
1996	1,800	2,000	3,700	1,300	400	9,200	1997	20	85	250	195	150	700

[a]100 plus category prior to 1993.
Source: NYASS, New York Agricultural Statistics, 1996-1997.

Prices Paid and Received by New York Dairy Farmers

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 7-7. PRICES PAID AND RECEIVED BY NEW YORK FARMERS FOR SELECTED ITEMS
Northeast[a], 1986-1997

Year	Mixed Dairy Feed 16% Protein	Soybean Meal 44% Protein	Fertilizer, Urea 45-46%N	Fertilizer 10-20-20	Seed Corn, Hybrid[b]	Tractor 50-59PTO[b]
	($/ton)	($/cwt)	($/ton)	($/ton)	($/80,000 Kernels)	($)
1986	163	11.60	200	180	65.60	16,550
1987	153	12.00	190	184	64.90	16,650
1988	181	15.65	208	206	64.20	17,150
1989	189	15.88	227	207	71.40	17,350
1990	177	13.25	215	199	69.90	17,950
1991	172	12.90	243	205	70.20	18,650
1992	174	12.70	221	194	71.80	18,850
1993	171	13.35	226	185	72.70	19,200
1994	181	14.10	233	192	73.40	19,700
1995	175[c]	12.80[c]	316[c]	223[c]	77.10	20,100
1996	226	15.80	328	228	77.70	20,600
1997	216	18.00	287	225	83.50	21,200

Year	Diesel Fuel	Gasoline, Unleaded, Bulk Delivery[d]	New York and New England Wage Rate All Hired Farm Workers	Ground Limestone Spread on Field	Prices Received: Alfalfa Hay Baled[e]	Prices Received: Corn Grain[f]
	($/gal)	($/gal)	($/hr)	($/ton)	($/ton)	($/bu)
1986	0.84	0.94	4.41	23.30	N/A	1.76
1987	0.77	0.91	4.60	24.30	N/A	2.20
1988	0.81	0.94	5.02	23.30	N/A	2.83
1989	0.83	1.05	5.25	24.30	88.00	2.80
1990	1.08	1.19	5.51	25.30	85.50	2.44
1991	1.00	1.25	6.06	23.10	84.50	2.70
1992	0.91	1.18	6.42	25.70	95.50	2.30
1993	0.90	1.20	6.76	26.60	97.00	2.85
1994	0.85	1.14	6.96	27.10	93.00	2.65
1995	0.85[c]	1.17[c]	6.92	22.30[c]	94.00	3.85
1996	1.02	1.30	7.19	23.30	96.50	3.20
1997	0.96	1.33	7.33	27.60	----	----

SOURCE: NYASS, New York Agricultural Statistics.
USDA, NASS, Agricultural Prices.

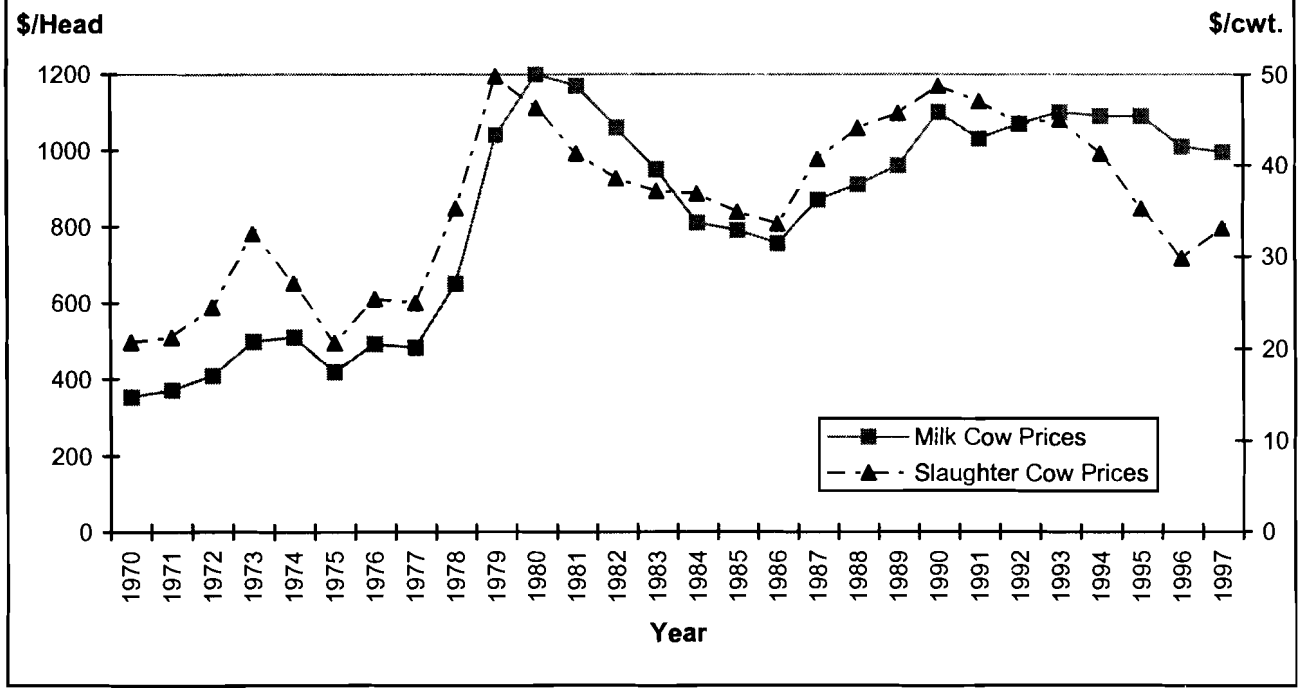
[a]Northeast region includes New England, New York, Pennsylvania, New Jersey, Maryland, and Delaware.
[b]United States average.
[c]Prices prior to 1995 are annual averages. Beginning 1995, prices refer to April 1.
[d]Prices prior to 1993 represent gasoline, regular, bulk delivery.
[e]Marketing year average, June through May.
[f]Marketing year average, October through September.

Milk cow prices remained level for the first part of 1996 then increased to $1,030 in October. In 1997, milk cow prices appear to remain constant most of the year. Slaughter cow prices averaged $3.64 per hundredweight higher than a year earlier. Calf prices averaged $4.68 per hundredweight higher in 1997 compared to 1996. Beef cattle prices average $4.33 per hundredweight higher than a year earlier.

TABLE 7-8. PRICES RECEIVED BY NEW YORK FARMERS FOR SELECTED LIVESTOCK 1996 & 1997

	Milk Cows $/Head		Slaughter Cows $/Cwt.		Calves $/Cwt.		Beef Cattle $/Cwt.	
Month	1996	1997	1996	1997	1996	1997	1996	1997
January	$ 1,010	$ 1,000	$30.10	$30.90	$52.00	$42.40	$31.40	$32.30
February	---	---	31.10	32.10	48.00	49.00	32.50	33.30
March	---	---	30.00	34.50	43.20	41.00	31.00	36.20
April	1,000	1,000	29.70	35.60	51.40	46.90	31.10	37.20
May	---	---	31.00	35.70	60.40	62.20	32.20	37.70
June	---	---	29.60	35.80	44.90	58.50	30.70	37.70
July	1,000	1,000	29.80	35.40	33.20	38.80	30.80	37.10
August	---	---	30.80	32.70	36.70	47.50	31.70	35.80
September	---	---	30.00	31.30	37.80	49.70	30.70	33.30
October	1,030	980	28.90	30.80	41.40	53.10	30.50	32.80
November	---	---	27.60		46.00		29.00	
December	---	---	29.50		35.40		30.50	

FIGURE 7-4. MILK COW AND SLAUGHTER COW PRICES
New York, 1970-1997



SOURCE: New York Agricultural Statistics.

TABLE 7-9. MILK PRODUCTION CASH COSTS AND RETURNS BY REGION
$ Per Hundredweight, 1996

Item	Northeast	Southeast	Upper Midwest	Corn Belt	Southern Plains	Pacific
Gross value of production:						
Milk	$15.19	$17.41	$14.74	$14.88	$15.10	$13.89
Cattle	0.69	0.86	0.89	0.97	0.79	0.57
Other income	0.51	0.50	0.77	0.52	0.40	0.57
Total, gross value of production	16.39	18.77	16.40	16.37	16.29	15.03
Cash expenses:						
Feed						
Concentrates	4.04	5.89	4.19	4.47	5.86	3.13
By-products	0.04	0.45	0.11	0.25	0.19	0.43
Liquid whey	0.14	0.05	0.16	0.24	0.01	0.04
Hay	1.37	0.69	1.04	1.80	2.81	2.45
Silage	1.84	0.98	1.51	1.46	0.14	1.00
Pasture and other forage	0.03	0.06	0.16	0.13	0.08	0.20
Total feed costs	7.46	8.12	7.17	8.35	9.09	7.25
Other						
Hauling	0.68	0.96	0.25	0.43	0.59	0.39
Artificial insemination	0.20	0.12	0.15	0.12	0.05	0.11
Veterinary and medicine	0.44	0.49	0.43	0.40	0.19	0.20
Bedding and litter	0.37	0.00	0.31	0.32	0.00	0.05
Marketing	0.45	0.53	0.25	0.31	0.26	0.44
Custom services and supplies	0.54	0.65	0.34	0.38	0.31	0.40
Fuel, lube, and electricity	0.70	0.34	0.62	0.58	0.49	0.28
Machinery and building repairs	0.93	0.63	1.01	0.87	0.43	0.30
Hired labor	0.61	1.35	0.56	0.61	0.78	0.56
DHIA fees	0.10	0.05	0.07	0.07	0.05	0.07
Dairy assessment	0.03	0.03	0.03	0.03	0.03	0.03
Total, variable cash expenses	12.51	13.27	11.19	12.47	12.27	10.08
General farm overhead	0.53	0.63	0.65	0.56	0.45	0.34
Taxes and insurance	0.44	0.37	0.43	0.31	0.16	0.13
Interest	0.79	0.60	1.16	0.71	0.60	0.64
Total, fixed cash expenses	1.76	1.60	2.24	1.58	1.21	1.11
Total, cash expenses	14.27	14.87	13.43	14.05	13.48	11.19
Gross value of production less cash exp.	2.12	3.90	2.97	2.32	2.81	3.84
Economics (full ownership) costs:						
Variable cash expenses	12.51	13.27	11.19	12.47	12.27	10.08
General farm overhead	0.53	0.63	0.65	0.56	0.45	0.34
Taxes and insurance	0.44	0.37	0.43	0.31	0.16	0.13
Capital replacement	2.02	2.54	2.34	2.07	2.10	1.40
Operating capital	0.11	0.12	0.10	0.11	0.10	0.08
Other nonland capital	0.83	1.55	0.99	0.85	0.87	0.61
Land	0.00	0.00	0.00	0.01	0.00	0.01
Unpaid labor	2.56	0.32	2.15	3.00	0.90	0.45
Total, economic costs	19.00	18.80	17.85	19.38	16.85	13.10
Residual returns to management and risk	-2.61	-0.03	-1.45	-3.01	-0.56	1.93

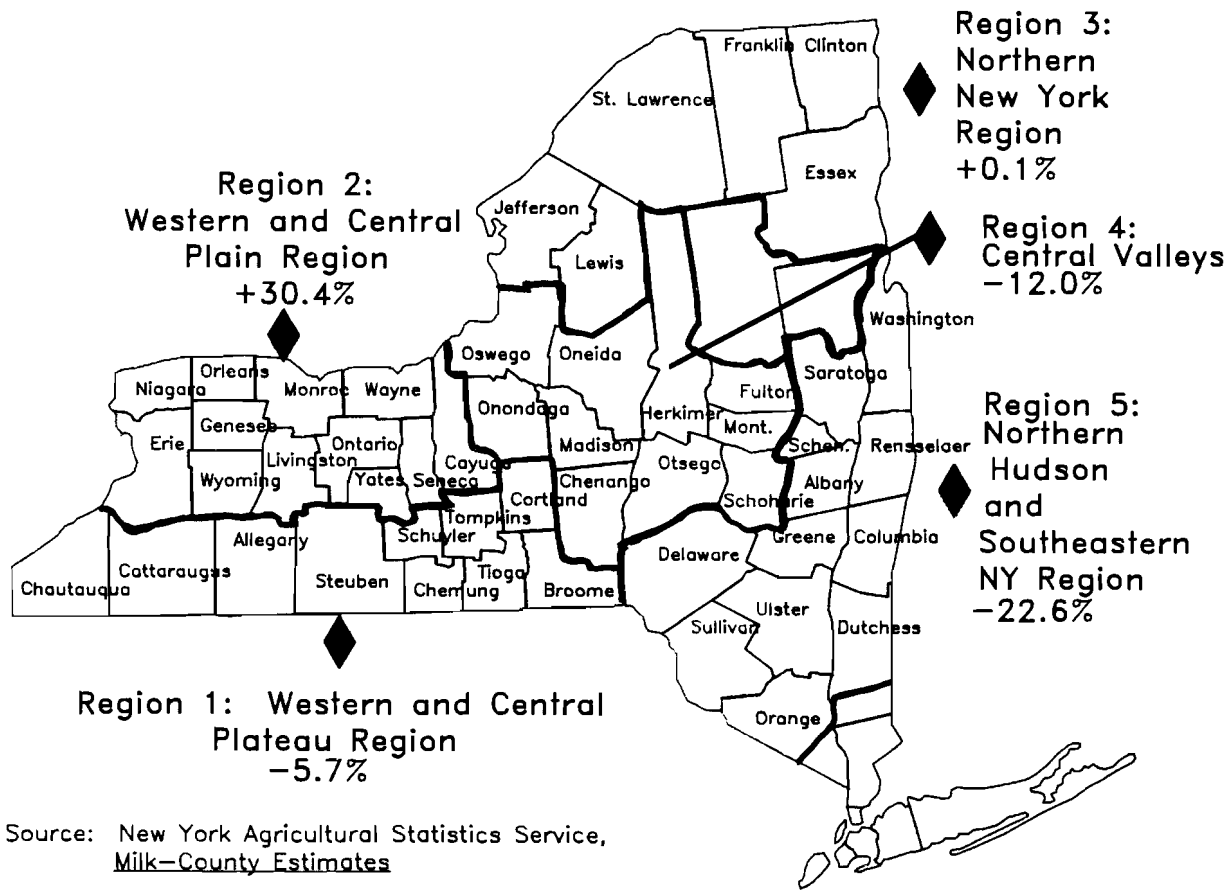
Source: USDA, ERS, Costs of Production

TABLE 7-10. COMPARISON OF DAIRY FARM BUSINESS DATA BY REGION
300 New York Dairy Farms, 1996

Item	Western & Central Plateau Region	Western & Central Plain Region	Northern New York	Central Valleys	No. Hudson & Southeastern New York
Number of farms	61	79	30	47	83
ACCRUAL EXPENSES					
Hired labor	$30,886	$152,642	$28,401	$23,799	$37,531
Feed	100,486	320,724	78,954	88,788	115,261
Machinery	28,918	80,900	28,781	27,993	36,728
Livestock	39,519	163,739	39,160	42,304	58,950
Crops	14,702	43,398	19,171	16,769	20,333
Real estate	18,574	42,922	16,930	18,774	18,371
Other	35,650	106,300	32,216	37,223	38,120
Total Operating Expenses	$268,735	$910,625	$243,611	$255,651	$325,293
Expansion livestock	1,384	27,228	4,924	2,491	3,391
Machinery depreciation	13,113	37,562	18,965	17,026	15,104
Building depreciation	10,702	27,215	9,278	7,082	8,241
Total Accrual Expenses	$293,934	$1,002,630	$276,778	$282,250	$352,029
ACCRUAL RECEIPTS					
Milk sales	$294,373	$1,023,383	$290,458	$293,894	$351,825
Livestock	19,796	79,079	23,575	17,741	22,249
Crops	10,776	9,101	3,197	10,723	9,029
All other	8,951	17,218	7,973	7,259	9,502
Total Accrual Receipts	$333,895	$1,128,780	$325,204	$329,617	$392,603
PROFITABILITY ANALYSIS					
Net farm income (w/o appreciation)	$39,961	$126,150	$48,426	$47,367	$40,574
Net farm income (w/ appreciation)	$51,190	$144,785	$59,287	$52,861	$49,108
Labor & management income	$12,947	$73,371	$20,342	$23,069	$5,389
Number of operators	1.47	1.73	1.38	1.66	1.50
Labor & mgmt. income/operator	$8,807	$42,411	$14,741	$13,897	$3,593
BUSINESS FACTORS					
Worker equivalent	3.29	7.57	3.15	3.15	3.63
Number of cows	108	321	101	105	121
Number of heifers	88	225	83	78	96
Acres of hay crops[a]	169	249	173	161	199
Acres of corn silage[a]	72	232	76	68	94
Total tillable acres	318	651	322	313	354
Pounds of milk sold	2,007,089	6,889,412	1,954,695	1,934,493	2,275,514
Pounds of milk sold/cow	18,649	21,432	19,302	18,383	18,832
Tons hay crop dry matter/acre	2.5	3.2	2.8	3.0	2.2
Tons corn silage/acre	16.4	16.9	13.6	15.9	14.1
Cows/worker	33	42	32	33	33
Pounds of milk sold/worker	610,057	910,094	620,538	614,125	626,863
% grain & conc. of milk receipts	33%	30%	27%	29%	32%
Feed & crop expense/cwt. milk	$5.72	$5.28	$5.02	$5.45	$5.95
Fertilizer & lime/crop acre	$18.35	$27.75	$20.04	$27.19	$28.13
Machinery cost/tillable acre	$150	$206	$172	$167	$168

*Average of all farms in the region, not only those producing the crop.

FIGURE 7-5. PERCENT INCREASE IN MILK PRODUCTION
Five Regions in New York, 1986-1996



Source: New York Agricultural Statistics Service, Milk–County Estimates

TABLE 7-11. MILK PRODUCTION & AVERAGE COST OF PRODUCING MILK
Five Regions of New York, 1996

Item	Region[a] 1	2	3	4	5
Milk Production[b]			(million pounds)		
1986	2,230.9	2,402.0	2,177.2	3,056.9	1,829.4
1996	2,104.2	3,133.1	2,179.7	2,691.0	1,416.5
Percent change	-5.7%	+30.4%	+0.1%	-12.0%	-22.6%
Cost of Producing Milk			($ per hundredweight milk)		
Operating cost	$11.49	$12.08	$10.94	$11.50	$12.65
Total cost	15.79	14.51	15.50	15.76	16.59
Average price received	14.67	14.85	14.86	15.19	15.46
Return per cwt. to operator labor, management & capital	$1.76	$1.77	$2.20	$2.35	$1.54

[a]See Figure 7-5 for region descriptions.
[b]Source: New York Agricultural Statistics Service, Milk-County Estimates.

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 300 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 7-12. FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS
300 New York Dairy Farms, 1996

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
14.1	651	14,248,916	24,025	4.9	21	57	1,138,608
6.8	266	5,607,051	22,037	3.8	19	45	912,193
5.3	186	3,650,914	21,015	3.4	18	40	793,393
4.2	138	2,594,240	20,222	3.1	17	37	679,606
3.5	112	2,027,310	19,078	2.8	16	34	620,615
3.0	89	1,632,345	18,150	2.5	15	31	558,524
2.6	73	1,311,881	17,149	2.3	14	28	505,026
2.2	62	1,075,438	16,328	2.1	13	26	463,816
1.8	50	808,021	14,947	1.8	11	23	388,967
1.4	40	548,071	11,967	1.4	8	19	274,100

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
$434	17%	$229	$683	$601	$3.68
608	24	322	827	787	4.50
685	26	374	904	853	4.83
746	28	411	971	915	5.14
804	30	447	1,036	991	5.38
872	32	479	1,088	1,062	5.66
939	33	520	1,154	1,123	5.96
1,005	36	571	1,251	1,184	6.29
1,083	38	642	1,354	1,280	6.83
1,211	43	801	1,610	1,475	7.80

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 7-12.(CONTINUED) FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS
300 New York Dairy Farms, 1996

Milk Receipts Per Cow	Milk Receipts Per Cwt.	Oper. Cost Milk Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cow	Total Cost Production Per Cwt.
$3,619	$16.22	$1,247	$8.22	$2,152	$13.09
3,313	15.60	1,619	9.87	2,478	14.18
3,158	15.30	1,825	10.57	2,666	14.66
3,008	15.09	1,985	11.15	2,829	15.28
2,868	14.93	2,118	11.53	2,972	15.76
2,709	14.80	2,259	11.96	3,084	16.43
2,564	14.70	2,415	12.42	3,209	17.08
2,431	14.60	2,556	12.96	3,365	17.74
2,226	14.48	2,738	13.91	3,550	19.20
1,796	14.08	3,048	15.79	3,922	23.08

Profitability

Net Farm Income Without Appreciation			Net Farm Income With Appreciation		Labor & Management Income	
Total	Per Cow	As % of Total Accrual Receipts	Total	Per Cow	Per Farm	Per Operator
$321,819	$1,028	30.4%	$347,786	$1,157	$224,564	$162,869
115,924	711	22.1	134,601	843	76,776	52,013
79,222	579	18.2	94,669	688	43,729	32,464
56,906	504	15.7	65,624	580	25,394	21,026
41,652	430	13.4	52,280	512	16,055	12,477
31,778	354	11.3	41,047	426	8,594	6,199
23,448	259	8.5	29,141	330	-50	-55
12,232	146	5.2	18,606	231	-12,439	-10,090
1,044	14	0.5	6,389	78	-25,888	-21,207
-35,684	-377	-15.6	-26,815	-277	-65,783	-52,531

Financial Analysis Chart

The farm financial analysis chart is designed just like the farm business chart on pages 7-14 and 7-15 and may be used to measure the financial health of the farm business.

TABLE 7-13. FINANCIAL ANALYSIS CHART
300 New York Dairy Farms, 1996

Liquidity (repayment)				
Planned Debt Payments Per Cow	Available for Debt Service Per Cow	Cash Flow Coverage Ratio	Debt Payments as Percent of Milk Sales	Debt Per Cow
$55	$873	3.10	2%	$179
195	672	1.87	7	795
306	575	1.47	10	1,411
363	512	1.21	12	1,808
403	463	1.05	14	2,134
445	406	0.90	16	2,509
490	346	0.77	17	2,809
544	254	0.62	20	3,140
630	158	0.27	24	3,541
863	-239	-0.63	40	4,640

Solvency				Profitability	
		Debt/Asset Ratio		Percent Rate of Return with appreciation on:	
Leverage Ratio*	Percent Equity	Current & Intermediate	Long Term	Equity	Investment**
-0.62	97%	0.03	0.00	21%	13%
0.12	89	0.11	0.00	12	9
0.25	80	0.17	0.07	9	7
0.37	73	0.24	0.20	6	5
0.51	66	0.31	0.28	4	4
0.64	61	0.38	0.38	2	2
0.79	56	0.43	0.46	-1	1
0.98	50	0.51	0.57	-4	-1
1.31	43	0.60	0.70	-9	-3
3.50	27	0.86	1.07	-46	-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
.82	$1,235	$524	$4,083	$243,775
.66	1,886	753	5,051	87,972
.59	2,168	895	5,528	58,367
.54	2,423	1,022	5,954	37,579
.50	2,685	1,144	6,387	25,888
.47	3,016	1,323	6,773	17,129
.44	3,479	1,472	7,285	9,226
.39	3,897	1,649	7,873	1,735
.34	4,502	1,896	8,752	-8,219
.25	6,861	2,618	11,530	-65,498

*Dollars of debt per dollar of equity, computed by dividing total liabilities by total equity.
**Return on all farm capital (no deduction for interest paid) divided by total farm assets.

Chapter 8. Fruit

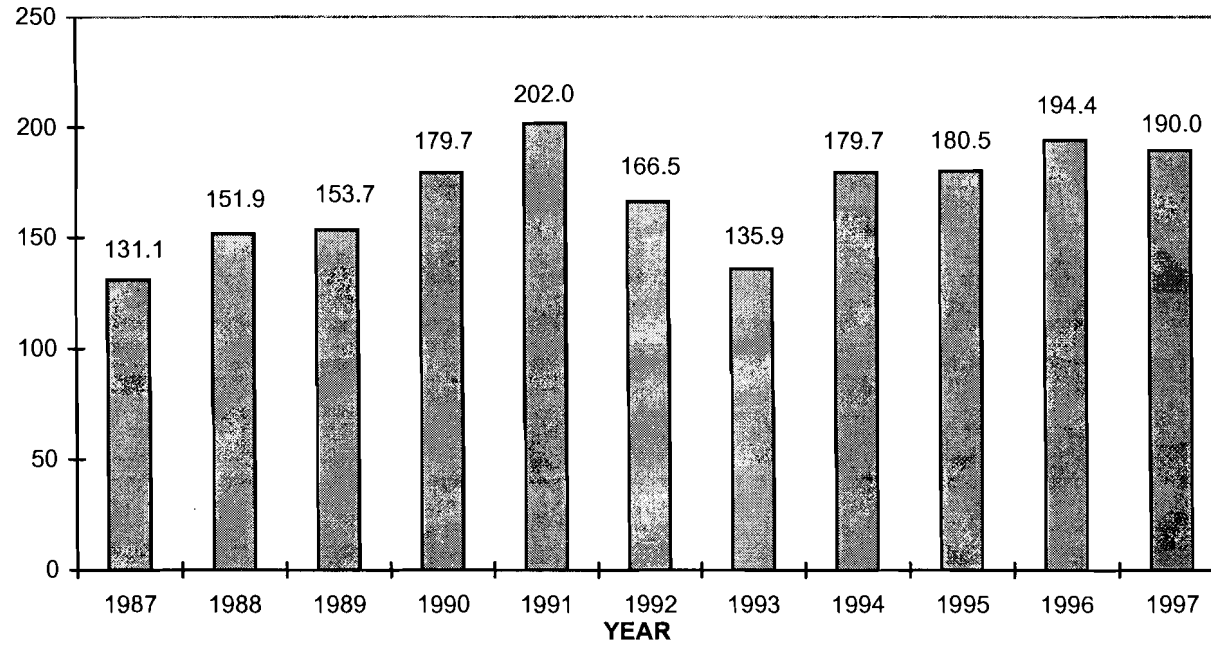
Gerald B. White, Professor

The total production of the 6 tree and vine crops which are important to New York's agricultural economy was projected to increase by 12 percent nationally. The national production of apples, grapes, pears, peaches and sweet cherries were forecast to increase compared with last year's production, while decreased production was indicated for tart cherries. The national production of apples was forecast at 248.2 million bushels, up 1 percent from 1996. Grape production was expected to total 6,659 thousand tons, a high increase of 20 percent. If realized, this will be the largest grape crop on record, surpassing the record crop of 1982. Nationally, grower prices for non-citrus fruit are likely to stay lower through the summer of 1998.

In New York, apple production is indicated to be 26.7 million bushels, up 9 percent from last year. Indicated production is 6 percent above the average production of the last 5 years. Grape production of 155 thousand tons was estimated, 18 percent below last year. Total production of the six major fruit and vine crops of 742 thousand tons is projected for the State, just about the same as the previous year. Total production is at a near normal level.

The utilized value of the major fruit tree and vine crops in New York for the last ten years and the projected value for 1997 is shown below. With a relatively large apple crop, a small grape crop but with relatively high prices, and with increased prices for tart cherries, New York growers expect a reasonably good year in 1998. Consequently, the value of production is estimated at $190 million, a decrease of 2 percent from last year, but the second best season in the last five years.

FIGURE 8-1. VALUE OF PRODUCTION OF MAJOR TREE FRUIT & VINE CROPS
New York, 1987-1996 and 1997 (projected)



Source: New York Agricultural Statistics, 1996-1997.

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

Fruit	New York				United States			
	1994	1995	1996	1997*	1994	1995	1996	1997*
	thousand tons							
Apples	550	555	515	560	5,750	5,293	5,178	5,213
Grapes	190	165	189	155	5,874	5,922	5,458	6,659
Tart Cherries	13	16	10	7	152	198	135	121
Pears	16	15	15	12	1,046	948	821	1,020
Peaches	4	6	6	7	1,257	1,151	1,035	1,322
Sweet Cherries	1	1	1	1	207	166	154	191
Total New York's Major Fruit Crops	774	758	745	742	14,286	13,678	12,871	14,526

*indicated

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

Fruit	New York				United States			
	1993	1994	1995	1996	1993	1994	1995	1996
	dollars per ton							
Apples								
Fresh	348	360	374	354	368	372	480	418
Processed	133	135	141	190	107	114	159	176
All Sales	232	236	242	270	258	258	340	324
Grapes	222	213	222	238	333	321	346	423
Tart Cherries	206	244	100	142	242	320	112	308
Pears	261	303	372	383	245	223	272	375
Peaches	592	502	414	969	320	266	370	378
Sweet Cherries	850	850	960	1,420	1,190	1,040	1,260	1,470

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

Fruit	New York				United States			
	1993	1994	1995	1996	1993	1994	1995	1996
	million dollars							
Apples								
Fresh	69.6	88.2	89.8	88.5	1,126	1,184	1,404	1,319
Processed	31.5	41.5	44.7	50.4	237	283	362	351
All Sales*	101.1	129.7	134.5	138.9	1,364	1,467	1,766	1,670
Grapes	26.2	39.8	36.3	43.8	2,005	1,883	2,046	2,338
Tart Cherries	1.6	2.9	1.1	1.1	33	48	18	41
Pears	3.8	4.8	5.4	5.7	232	233	258	308
Peaches	2.7	1.8	2.3	4.0	399	315	405	380
Sweet Cherries	0.6	0.7	1.0	0.9	191	201	193	223
Total New York's Major Fruit Crops*	136.0	179.7	180.6	194.4	4,224	4,147	4,686	4,960

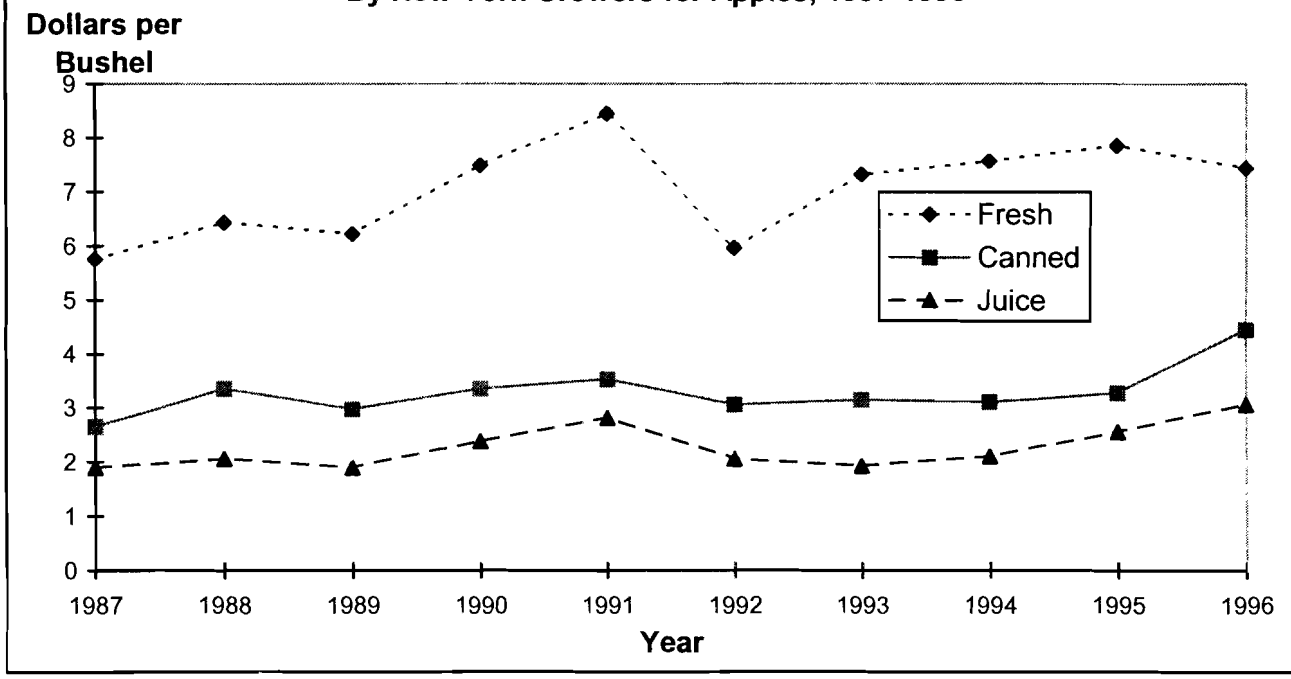
*May not add from total of fresh and processed due to rounding errors.
Source: NASS, USDA, Noncitrus Fruits and Nuts 1996 Summary, July 1997.

TABLE 8-4. APPLE PRODUCTION, UNITED STATES, 1992-1996, Five-Year Average Production, and 1997 Forecast 1,000 42-Pound Bushels

States/Regions	5-Year Average 1992-1996*	1996*	1997 USDA Estimate**	1997 Compared to USDA 5-Year Average % Change	1997 vs. 1996 % Change
Maine	1,533	1,595	1,524	-0.6	-4.5
New Hampshire	1,017	905	976	-4.0	7.9
Vermont	1,012	893	833	-17.6	-6.7
Massachusetts	1,569	1,381	1,381	-12.0	0.0
Rhode Island	129	143	143	10.7	0.0
Connecticut	614	476	476	-22.5	0.0
New York	25,143	24,524	26,667	6.1	8.7
New Jersey	1,595	1,429	1,548	-3.0	8.3
Pennsylvania	11,052	9,310	11,310	2.3	21.5
Delaware	500	357	***	***	***
Maryland	909	690	619	-31.9	-10.3
Virginia	8,191	6,548	5,952	-27.3	-9.1
West Virginia	3,976	2,500	2,619	-34.1	4.8
North Carolina	6,095	4,762	3,810	-37.5	-20.0
South Carolina	1,381	833	1,310	-5.2	57.1
Georgia	652	524	619	-5.1	18.2
Total East	**65,370**	**56,869**	**59,786**	**-8.5**	**5.1**
Ohio	2,405	2,143	1,786	-25.7	-16.7
Indiana	1,538	1,143	1,333	-13.3	16.7
Illinois	1,705	1,262	2,119	24.3	67.9
Michigan	24,119	17,262	23,810	-1.3	37.9
Wisconsin	1,469	1,095	1,500	2.1	37.0
Minnesota	563	500	524	-7.0	4.8
Iowa	262	226	283	8.2	25.3
Missouri	910	762	1,024	12.6	34.4
Kansas	126	48	167	32.0	250.0
Kentucky	367	357	286	-22.1	-20.0
Tennessee	329	262	262	-20.3	0.0
Arkansas	214	167	238	11.1	42.9
Total Central	**34,006**	**25,226**	**33,331**	**-2.0**	**32.1**
Total East & Central	**99,376**	**82,095**	**93,117**	**-6.3**	**13.4**
Colorado	1,700	833	1,190	-30.0	42.9
New Mexico	181	119	***	***	***
Utah	1,071	1,143	786	-26.7	-31.3
Idaho	3,310	4,286	3,095	-6.5	-27.8
Washington	123,095	130,952	123,810	0.6	-5.5
Oregon	3,876	3,310	3,690	-4.8	11.5
California	21,524	21,429	21,429	-0.4	0.0
Arizona	1,552	2,381	1,071	-31.0	-55.0
Total West	**156,310**	**164,452**	**155,071**	**-0.8**	**-5.7**
TOTAL U.S.	**255,685**	**246,548**	**248,188**	**-2.9**	**0.7**

*1996 and 5-year average production from NASS, USDA, Non-Citrus Fruits and Nuts Summary July 1997.
**NASS, USDA, Crop Production, October 1, 1997.
***Forecast discontinued.

FIGURE 8-2. AVERAGE ANNUAL PRICES RECEIVED By New York Growers for Apples, 1987-1996



SOURCE: New York Agricultural Statistics, 1996-1997.

Over the past decade until 1996, prices for processed apples had been fairly constant, while fresh apple prices have more pronounced fluctuations due to particular supply and demand conditions in a given year. In 1996, prices for canned and juice apples increased dramatically while the price for fresh apple decreased. The average price increase for all apples utilized was about 12 percent, or 59 cents per bushel. The value of the 1996 apple crop was a record 138.9 million dollars, buoyed by record prices for processed fruit.

In October 1997, the average price for fresh apples in New York State was 18.5 cents per pound, marginally above last year. Prices started off soft, but strengthened as the season progressed and as the size of the Washington crop (down by 6 percent from last year) became evident. This was a year that definitely rewarded fruit size in the fresh market. Prices were off considerably for 120 count and smaller apples, while larger sizes generally brought higher prices than last year. Exports of fresh apples, after a slow start, picked up considerably, especially to the United Kingdom. For the entire marketing season, New York's average price for fresh apples should be about 18 cents per pound, about 2 percent above last year.

Processing apple prices in 1997 were substantially lower than the record prices of last year. Still prices were in line with those of the recent years prior to 1997, with demand similar to last year, but larger supplies. Several eastern states (e.g. VA, WVA, NC) were down considerably in production relative to the average of the past five years. This kept processing apple prices relatively strong. The price for juice apples settled in at 5-6 cents per pound, due to the reduced world price of apple juice concentrate. Overall, the price of processed fruit in New York should average about 25 percent lower than last year's record prices.

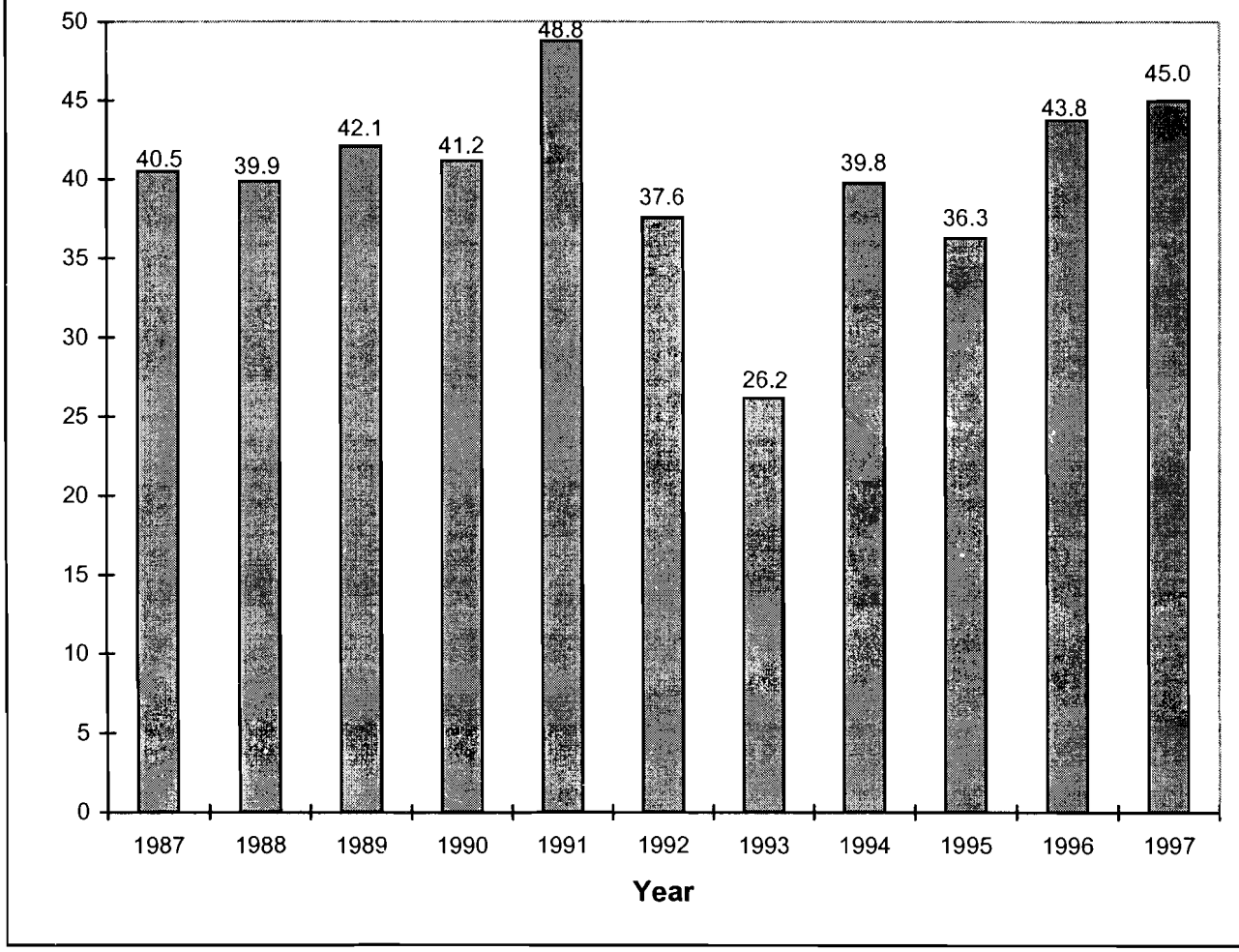
Thus apple growers can expect decreased revenue compared with last year's $138.9 million record. Higher production and slightly higher fresh apple prices will be offset by lower processing prices, yielding a value of utilized production of about $133.4 million. While not as favorable as for the 1996 crop, the realized value will be in line with the best of other recent seasons. (The assistance of Alison DeMarree, Area Specialist, Cornell Cooperative Extension, is acknowledged for this section of the handbook.)

Grapes

Following the record year of 1991, with a large crop, high prices, and excellent quality, the value of the state's grape crop decreased. In 1993, an extremely short crop, as well as low prices, led to an utilized value of only $26.2 million. Production rebounded in 1994 with a large crop; however the overall utilized value was held back by low prices for juice grapes. In 1996, another large crop, increased prices for juice grapes, and strong prices for vinifera grapes led to a crop value of $43.8 million.

Prospects for the utilized value of the State's 1997 crop are for a increased crop value of $45 million. Indicated production was 155 thousand tons, down 18 percent from 1996. The average price received for the 1997 crop will probably increase about 10 percent. Even though production was about 8 percent below average, prices were much stronger than last year, reflecting increased demand for both juice and wine grapes and limited local supply.

FIGURE 8-3. VALUE OF UTILIZED PRODUCTION OF GRAPES 1987-1996 and 1997 (Projected)

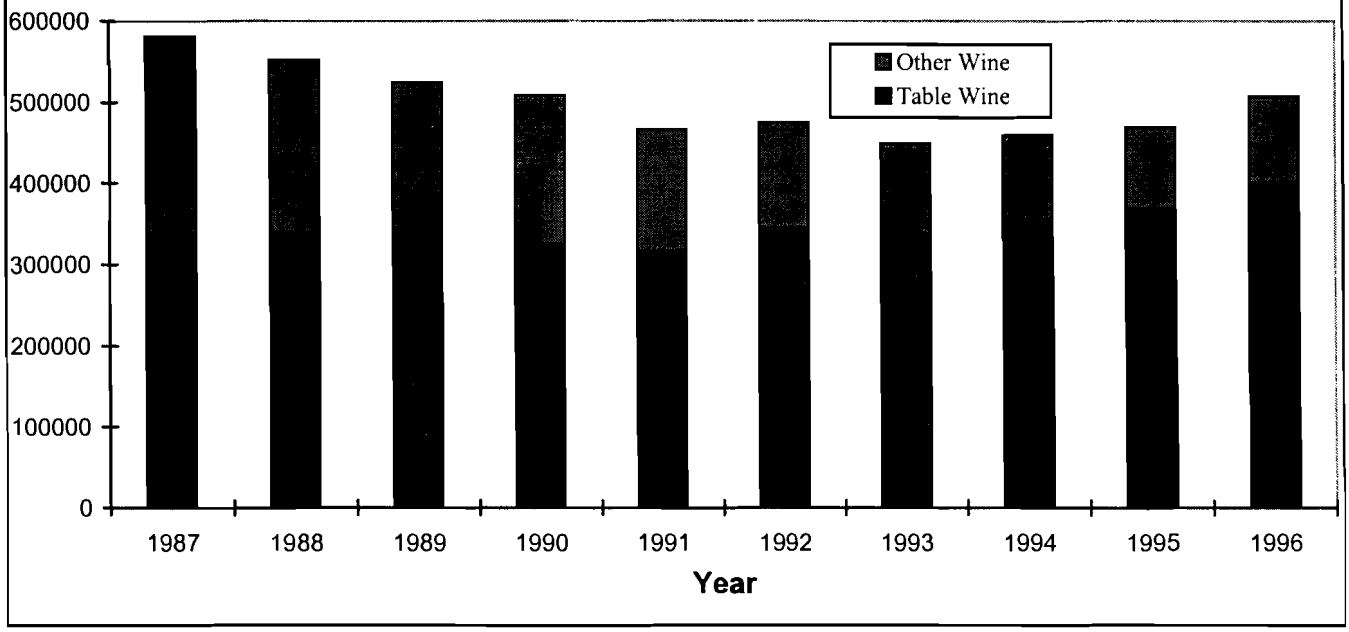


Source: New York Agricultural Statistics, 1996-1997.

Total wine entering distribution channels in 1996 increased 8.3 percent in 1996. The increase in shipments was driven by the third consecutive strong gain in the table wine category (+8.9%). Favorable publicity given to research showing positive health benefits from regular, moderate wine consumption have undoubtedly caused increased consumption.

This trend bodes well for the growing small premium winery sector of New York.

TABLE 8-4. WINE ENTERING DISTRIBUTION CHANNEL, U.S., 1987-1996



Source: Wines & Vines, July 1997.

Concords are the predominant variety grown and processed in New York. There were 139,000 tons of Concords from New York processed in 1996 (see page 8-7). Over the past five years, Concords have comprised 74 percent of total tonnage utilized. The second leading variety is Niagara with 7.6 percent of tonnage followed by Catawba with 5.3 percent. Over the last 5 years, the utilization of Niagara has increased significantly (although production was down 1996) while the utilization of Catawba has decreased significantly.

The average price for Aurora over the last five years has been flat to declining. The prices of other major French American varieties, however, have been increasing. Native American varieties used for juice (i.e. Concord and Niagara) are entering a cycle of increasing prices, while American varieties used primarly in wine are experiencing flat to declining prices.

Vitis Vinifera prices are heavily influenced by the price for Reisling and Chardonnay, which are harvested in larger quantities than other *vinifera* varieties. Most Reisling and Chardonnay sold in the $1,000 - 1,250 per ton range in 1996, while red *vinifera* generally brought $1,100 - 1,600 per ton. Hence, the average *vinifera* price in 1996 was $1,130.

TABLE 8-5. GRAPES: NEW YORK GROWN
Received By Wineries and Processing Plants, 1992-1996

Variety	1992	1993	1994	1995	1996	5-Year Avg.
			tons			
Concord	123,919	82,914	136,000	111,000	139,000	118,567
Niagara	9,676	9,623	15,300	15,600	10,700	12,180
Catawba	10,124	6,636	10,116	8,700	7,900	8,695
Elvira	3,606	3,533	4,826	4,600	5,100	4,333
Delaware	1,937	2,407	2,316	2,350	1,650	2,132
Dutchess	364	223	298	250	120	251
Aurora	7,204	3,121	6,282	5,250	4,900	5,351
de Chaunac	1,385	1,363	1,126	1,450	910	1,247
Baco Noir	1,449	824	923	1,300	1,200	1,139
Seyval Blanc	1,215	575	678	900	900	854
Cayuga White	1,143	313	523	740	1,000	744
Rougeon	587	414	735	800	720	651
Vitis Vin.(all)	2,422	1,115	1,134	3,435	3,700	2,361
Other varieties	2,969	1,939	2,743	2,625	2,200	2,495
Total, all varieties	168,000	115,000	183,000	159,000	180,000	161,000

SOURCE: New York Agricultural Statistics, 1996-1997.

TABLE 8-6. GRAPES: PRICES PAID FOR NEW YORK GROWN GRAPES PROCESSED 1992-1996

Variety	1992	1993	1994	1995	1996	5-Year Avg.
American Varieties						
Catawba	200	203	205	210	215	207
Concord	206	206	195	195*	207*	202*
Delaware	189	200	205	200	210	201
Dutchess	181	195	200	200	200	195
Elvira	196	201	210	210	215	206
Niagara	215	208	213	190*	220*	209*
French American Hybrid						
Aurora	183	205	230	220	230	214
Baco Noir	246	252	270	260	280	262
Cayuga White	242	295	290	240	270	267
de Chaunac	227	245	260	250	280	252
Rougeon	238	252	270	270	280	262
Seyval Blanc	287	250	280	280	290	277
Vitis Vinifera						
All varieties	1,055	1,002	1,000	980	1,130	1,033
TOTAL	218	215	207	216	230	217

*Preliminary estimates of future payments by cooperatives have been included based upon historical data.
SOURCE: Fruit, 975-2-97, NY Agricultural Statistics Service.

The national crop of Concords and Niagara grapes increased substantially in 1997 with the recovery of Washington State's production from 1996's freeze damaged crop.

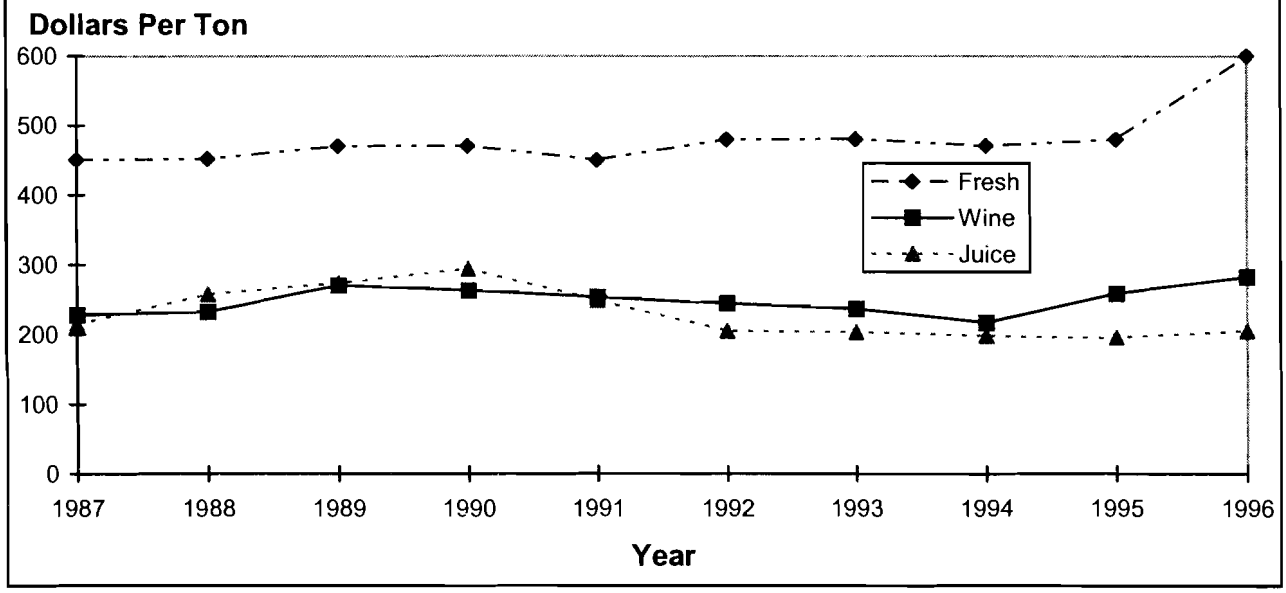
The crop in New York was about one week behind normal from the cool weather early in the growing season. However, warm weather in the fall contributed to almost ideal ripening conditions, and allowed most varieties to attain good maturity levels by harvest. Ripening was further facilitated by lighter than normal crop levels. Virtually all grapes were harvested and competition was strong among processors for the available grapes.

The financial status of juice grape growers continues to improve with the 1997 harvest. National Grape paid a harvest cash advance of $95 per ton, (the highest in recent years) compared to $90 per ton last year. Favorable publicity about the health benefits of grape juice have caused a surge in demand for Concords grapes. With a short crop in New York and Pennsylvania, cash prices were bid up by perhaps 30 percent. Overall profitability for the state's juice grape growers continues to rebound from 1995's dismal returns.

Canandaigua Wine Company (the major purchaser of the State's wine grapes) paid slightly higher prices for most varieties. Concords (+14 percent) and red hybrids (+12 percent) advanced the most, while prices for traditional varieties such as Delaware and Dutchess were unchanged at $200 per ton.

The small winery sector of the State's grape industry continued its strong performance. Several of the Finger Lakes' largest small wineries stepped up their tonnage bought from area growers. Prices advanced for all premium wine varieties, both hybrid and *vinifera*. The average price paid per ton for *vinifera* probably advanced by 10 percent, or over $100 per ton. Late frosts in Virginia and Ohio meant that buyers from other eastern and midwestern states were buying from the state's growers. New York's well managed wineries can look for strong sales increases in the coming year considering the strong consumer demand for premium wines. (The assistance of Tim Martinson, Area Grape Extension Eductor, Finger Lakes, Cornell Cooperative Extension, is acknowledged for this section of the handbook.)

FIGURE 8-5. AVERAGE PRICE FOR GRAPES IN NEW YORK 1987-1996



Source: New York Agricultural Statistics, 1996-1997.

OTHER A.R.M.E. EXTENSION BULLETINS

EB No	Title	Author(s)
97-20	Farm Labor Regulations	Grossman, D.A.
97-19	1997 Farm Income Tax Management and Reporting Reference Manual	Smith, S.F. and C.H. Cuykendall
97-18	Lake Erie Grape Farm Cost Survey, 1991-1995	Shaffer, B. and G.B. White
97-17	LEAP, Lease Analysis Program -- A Computer Program for Economic Analysis of Capital Leases	LaDue, E.L.
97-16	Analyzing Capital Leases	LaDue, E.L.
97-15	Dairy Farm Business Summary, Eastern New York Renter Summary, 1996	Knoblauch, W.A. and L.D. Putnam
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