

Economic Trends and Impacts of the Agriculture Industry in Orange County, N.Y.

Historically, dairy farms and feed production to support the dairy industry have comprised a significant portion of Orange County's agriculture industry. However, with the change in federal dairy policies in the 1980s and the emergence of corporate-sized dairies in the West in the 1990s, family-sized dairy farms in the Eastern states faced a rough economic climate. Orange County, N.Y. was not immune. From 1985 to 2000, dairy cow numbers in the County were cut in half. The amount of hay and corn acreage dropped dramatically as well during this same time period.

Despite the decline in the dairy sector, Orange County's agriculture has adapted to national and local economic forces. At a local level, Orange County has experienced significant growth in population – 31 percent in the last 20 years. Such growth can contribute to higher land and labor costs for farmers, but also can lead to opportunities. In Orange County, the agricultural industry has been transformed from a dairy-commodity industry built on low-valued production to an industry that capitalizes on its urbanization by producing high-valued agricultural products, such as vegetables, as well as greenhouse and nursery products. These crops have a high value to suburban consumers but are costly to transport. As a result, local vegetable producers in large population areas typically find they have a ready market for their products and a comparative advantage. This has been true in Orange County. For similar reasons, the greenhouse and nursery sector of the County's farm economy also has grown in recent years, although it remains significantly smaller than the vegetable sector.

Key Findings of Study

1. Orange County's farm economy produced \$108 million in output value in 2000, which generated an additional \$59 million in related economic activity within other sectors of the local economy.
2. In the last 15 years, growth in Orange County's vegetable and greenhouse/nursery sectors have more than offset the declines experienced in the dairy and feed sectors. Cash receipts for vegetables produced in Orange County were up 52 percent from 1987 to 2000, while cash receipts for the sale of greenhouse and nursery crops more than doubled during this time period.
3. The vegetable sector is the largest segment of the farm economy and accounts for nearly 40 percent of Orange County's agricultural output. However, there have been significant swings in this sector's output in the last decade, suggesting some instability.
4. Few farms with relatively high sales provide most of Orange County's agricultural economic activity. In 1997 the largest 30 percent of the farms accounted for 86 percent of the County's agricultural output.

5. After trending higher for much of the 1980s, farm profitability in Orange County fluctuated widely in the 1990s. These variations likely reflected changes in the vegetable sector over the same period.
6. Growth in vegetable production and the greenhouse/nursery sector have been matched by an increase in Orange County's wholesale trade, and in the case of vegetables, vegetable manufacturing. The decline in the dairy sector caused similar losses in the number of farm supply stores, dairy manufacturers, and dairy wholesalers in Orange County.

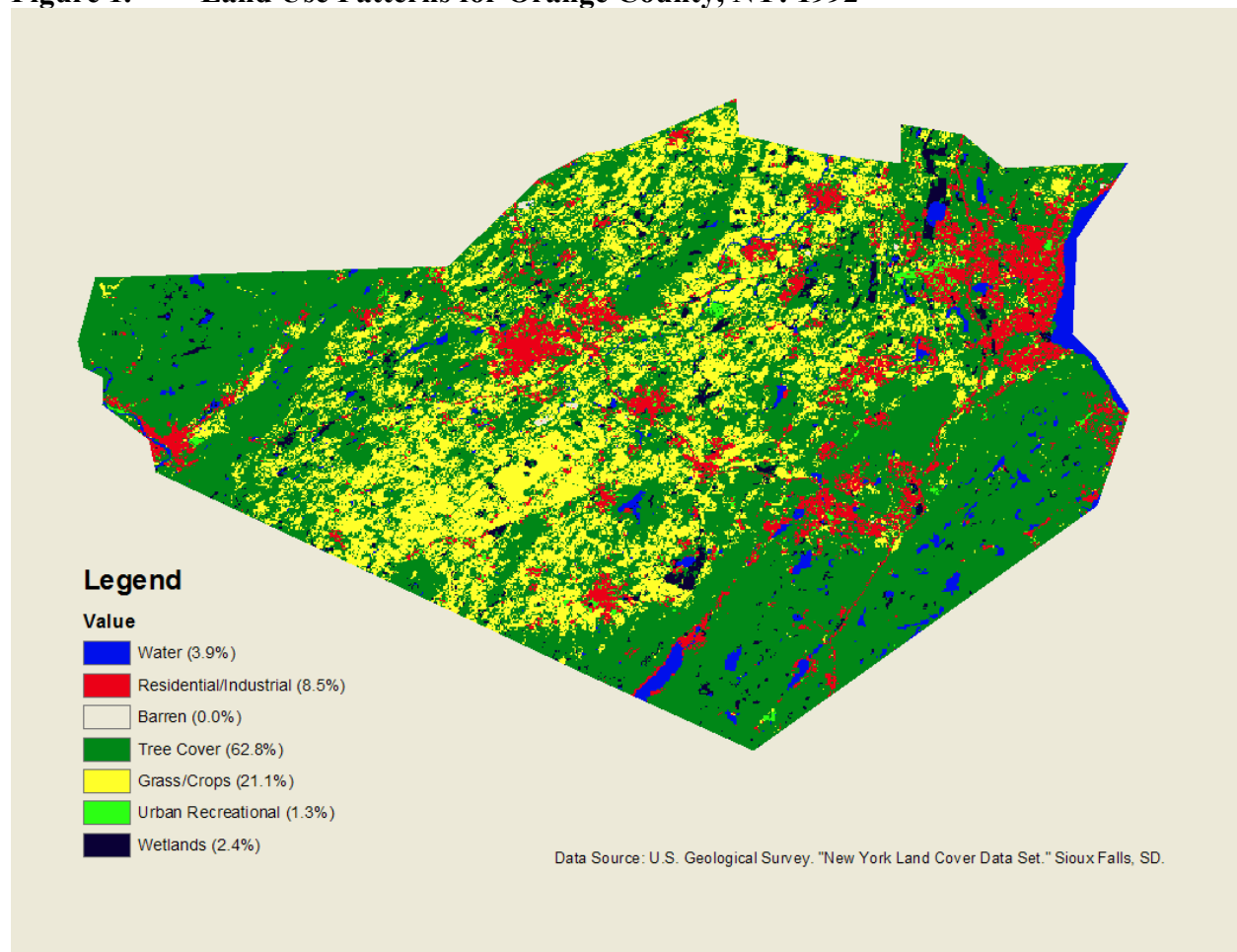
Land Use Patterns

Forestland and water comprise more than two-thirds of the land area in Orange County. The remaining acres are either developed, 8.5 percent of the land, or open-space grasslands and crops, 21.1 percent.

This high density of residential and industrial development impacts the County’s agricultural sector in two ways. First, the demand for residential and industrial development drives up real estate prices, forcing land out of lower value agricultural uses, such as traditional field crops and livestock enterprises. In addition, the development of residential and industrial areas stimulates the demand for greenhouse and nursery products, as well as vegetable crops. These crops tend to have higher returns per acre, but also are costly to transport. Hence, production close to urban areas is essential.

Agriculture in Orange County reflects these trends, as growth in farm output has been mostly from vegetables, as well as greenhouse and nursery products.

Figure 1. Land Use Patterns for Orange County, NY: 1992



Farm Characteristics

The number of farms in Orange County fell by 17 percent from 1987 to 2001, with most of the decline occurring from 1987 to 1997. At the same time, land in farms fell by 20 percent. Based on data from the New York Agricultural Statistics Service for 2001, the most recent year available, there were 730 farms in Orange County that covered nearly 95,000 acres or 18 percent of the total area in Orange County.

Farm size, as measured by average acreage per farm, declined modestly from 135 acres per farm to 129 acres per farm from 1987 to 2001. Although national farming trends show farms growing larger, the shift of Orange County's agriculture from dairy to vegetables and greenhouse/nursery crops would explain why farm sizes have remained nearly constant over the last 15 years, as these crops are more labor intensive.

Table 1. Number of Farms, Land in Farms and Average Farm Size for Orange County, NY: 1987 to 2001

Item	1987	1997	2001	1987 to 2001 %
				Change
Farms	880	750	730	-17%
Land in Farms (Acres)	118,800	101,900	94,500	-20%
Average Farm Size (Acres)	135	136	129	-4%

Source: New York Agricultural Statistics

In terms of the size distribution of farms in Orange County, there remains a fairly even distribution of farms from 10 acres in size up to 500 acres in size. However, the largest grouping of farms is in the 50 to 179-acre range, which accounted for 35 percent of the farms in 1997.

Table 2. Farms By Size of Acreage for Orange County, NY: 1987 to 1997

Farm Size	1987	1992	1997	1987 to 1997 % Change
1 to 9 acres	94	77	78	-17%
10 to 49 acres	221	143	162	-27%
50 to 179 acres	255	241	221	-13%
180 to 499 acres	182	146	132	-27%
500 to 999 acres	30	26	25	-17%
More than 1,000 acres	7	8	6	-14%
TOTAL	789	641	624	-21%

Source: U.S. Census of Agriculture, 1987, 1992, and 1997

Even though Orange County farms are relatively small in terms of acreage, a significant proportion of these farms post high sales figures. For 1997, 30 percent of Orange County's farms had gross sales of more than \$100,000, up from only 25 percent in 1987. There are just as many farms with sales of less than \$10,000, but this group of farms shrunk from 33 percent of all farms in 1987 to 30 percent by 1997.

Table 3. Farms By Value of Sales for Orange County, NY: 1987 to 1997

Farm Size	1987	1992	1997	1987 to 1997 % Change
Less than \$2,500	150	97	101	-33%
\$2,500 to \$4,999	51	40	48	-6%
\$5,000 to \$9,999	56	51	39	-30%
\$10,000 to \$24,999	129	110	127	-2%
\$25,000 to \$49,999	87	80	58	-33%
\$50,000 to \$99,999	113	78	66	-42%
More than \$100,000	203	185	185	-9%
TOTAL	789	641	624	-21%

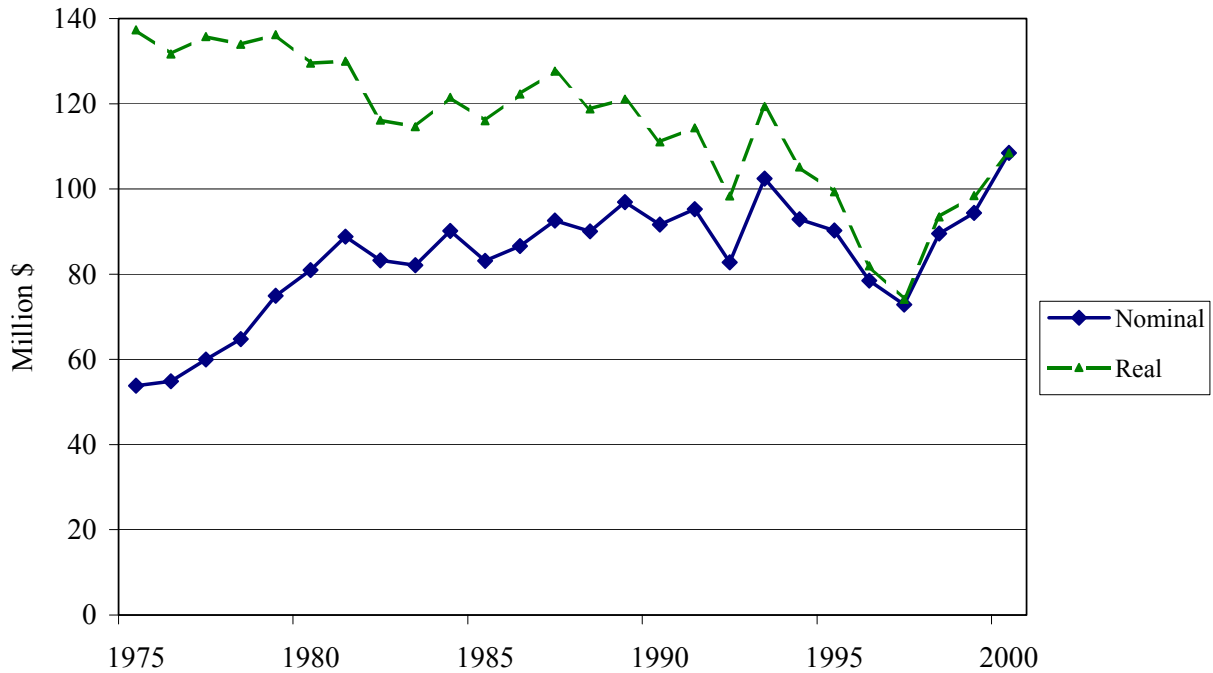
Source: U.S. Census of Agriculture, 1987, 1992, and 1997

Despite the low value of sales for nearly 30 percent of the County's farms, the bulk of Orange County's agricultural output comes from farms with sales greater than \$100,000. These large farms accounted for 30 percent of all farms in Orange County, but nearly 86 percent of the County's agricultural output in 1997.

Agricultural Commodity Output

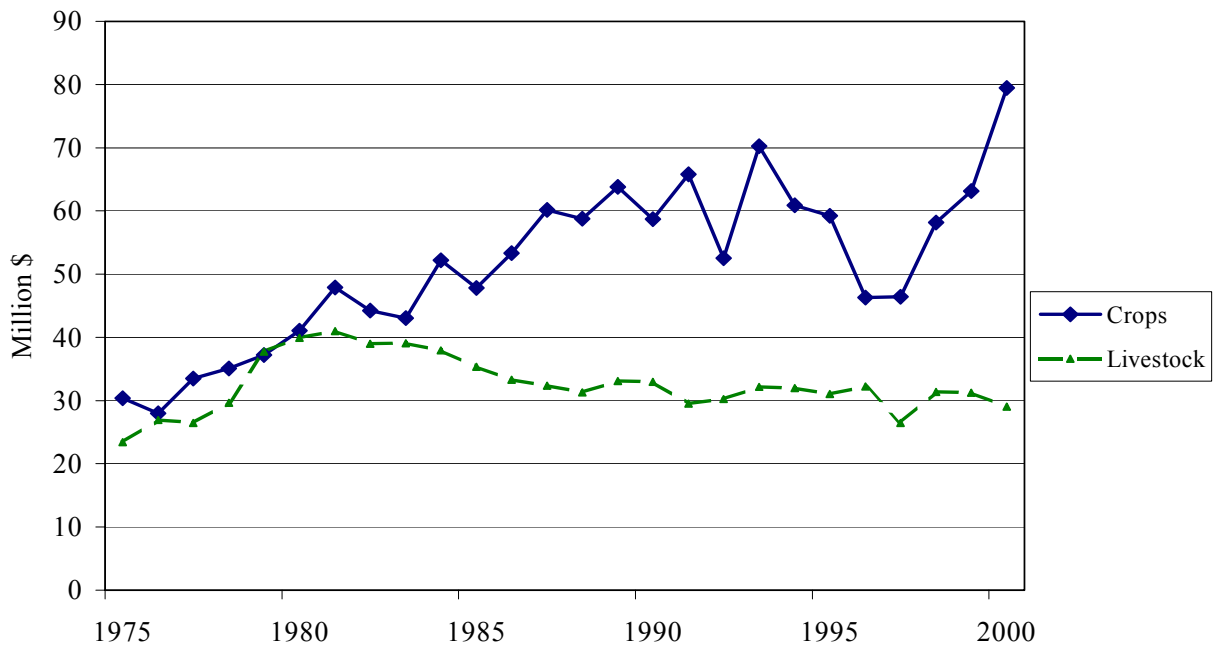
For much of the 1980s and early 1990s, Orange County's agricultural output value tended higher in nominal dollars from 80 to 100 million dollars per year, although in inflation-adjusted dollars, the County's farm output value fell slightly. Much of the growth in the nominal value of agricultural output occurred in the crop sector, where expansion in vegetables and greenhouse/nursery crops, helped more than offset declines in the County's dairy sector.

**Figure 2. Value of Farm Marketings for Orange County, NY:
Nominal and Real 2000 Dollars 1975 to 2000**



Source: U.S. Department of Commerce, Bureau of Economic Analysis, *Regional Economic Information System*.

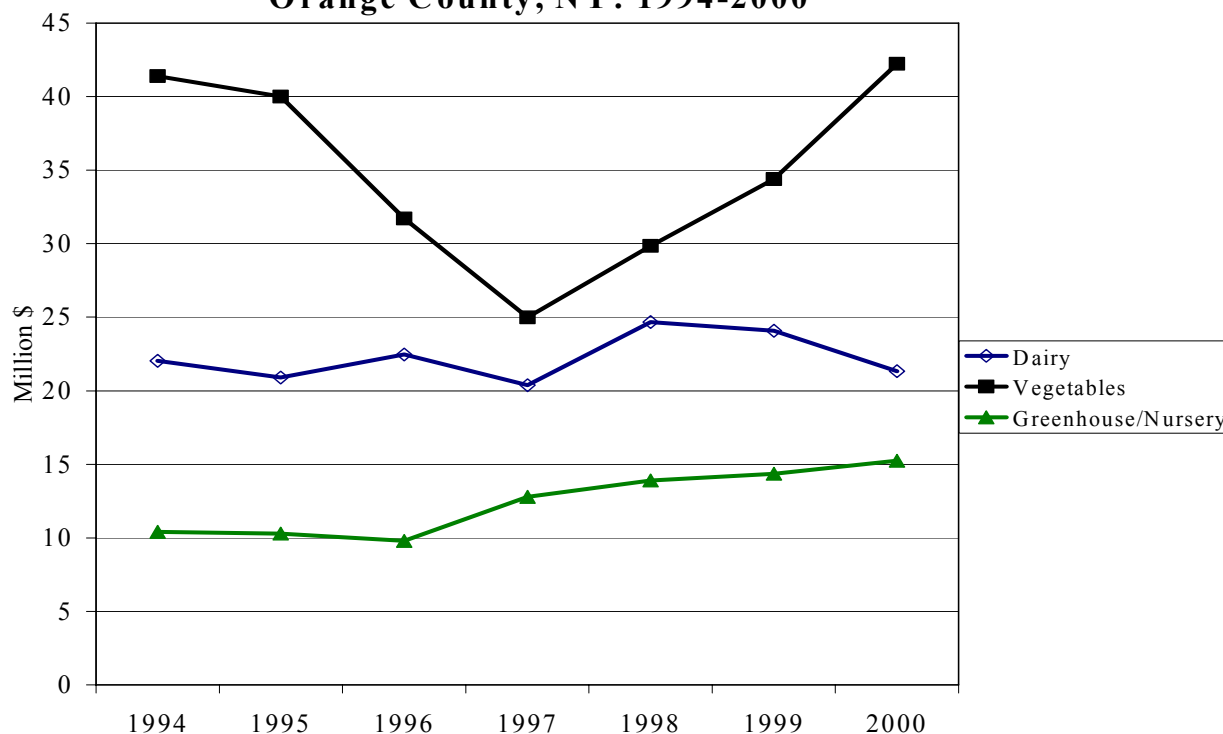
**Figure 3. Value of Crop and Livestock Farm Sales for
Orange County, NY: Nominal Dollars 1975 to 2000**



Source: U.S. Department of Commerce, Bureau of Economic Analysis, *Regional Economic Information System*.

While the 1980s were times of reasonable growth in Orange County’s output, the 1990s marked a time of significant ups and downs. From 1992 to 1997, agricultural output declined by 25 percent, but since rebounded to \$108 million by 2000. This swing in Orange County’s agricultural output in the 1990s was largely driven by changes in the crop sector, and especially vegetable output.

Figure 4. Cash Receipts for Top 3 Commodities in Orange County, NY: 1994-2000



Although there has been significant growth in Orange County’s agricultural output, this expansion has been largely confined to two commodity groups: vegetables and greenhouse/nursery products. Along with dairy and orchard crops, these four commodity groups comprised 92 percent of the county’s agricultural output in 2000. The greenhouse/nursery sector saw the largest expansion from 1987 to 2000, where output value doubled over this time period. Vegetables, while expanding less in percentage terms, boosted output value by nearly \$15 million dollars from 1987 to 2000. On a smaller scale, the output of orchard crops expanded as well, although much of the expansion came in the late 1980s and early 1990s.

Table 4. Value of Sales by Primary Commodities for Orange County, NY: 1987 to 2000.

Commodity	1987*	2000**	1987 to 2000 % Change
	Million \$		
Orchard Crops	\$5.7	\$6.9	21%
Greenhouse/Nursery	\$7.6	\$15.3	101%
Dairy	\$21.2	\$21.3	0%
Vegetables	\$27.7	\$42.2	52%

* Source: U.S. Census of Agriculture, 1987.

** Source: New York Agricultural Statistics Service, 2000.

The only major commodity with no growth since 1987 was the dairy sector, which showed no change in output value from 1987 to 2000. However, this sector declined significantly in the early 1980s, as a result of lower federal milk price supports and the Dairy Herd Termination program.

Although there has been significant increase in vegetable sales, the number of farms producing vegetables actually fell by 28 percent from 1987 to 1997. In contrast, the number of farms growing greenhouse/nursery crops nearly doubled in the same 10-year period. Similar shifts occurred in acreage under production by commodity, as greenhouse/nursery production acreage expanded, while vegetable acreage declined. The increase in greenhouse/nursery acreage was mostly as a result of more acreage under glass.

Table 5. Farms and Acreage by Primary Crops for Orange County, NY: 1987 to 1997

Item	1987 to 1997				1987 to 1997			
	1987	1992	1997	% Change	1987	1992	1997	% Change
	----- Number of Farms -----				----- Acres -----			
Vegetables	232	186	166	-28%	9,864	8,916	8,538	-13%
Greenhouse/Nursery*	54	75	104	93%	1,563	1,007	1,791	15%
Orchard Crops	47	37	32	-32%	2,880	2,159	2,170	-25%

Source: U.S. Census of Agriculture, 1987, 1992, and 1997

*Acreage for Nursery/Greenhouse crops includes acreage in the open and acreage under glass.

Dry onions represent the most significant vegetable crop, accounting for 60 percent of all vegetable acreage. However, acreage of dry onions fell 10 percent from 1987 to 1997. In addition, acreage in lettuce production, the second most significant crop, fell by 63 percent over this same time period. There was no primary vegetable crop that farmers seemed to shift into during this time period. Instead, farmers grew a broader mix of crops, expanding acreage in cabbage, cucumbers, eggplant, pumpkins, squash, sweet corn, and tomatoes.

Table 6. Vegetables for Orange County, NY: 1987 to 1997

Item	1987	1992	1997	1987	1992	1997
	-- Number of Farms ---			----- Acres -----		
Beans (Snap)	12	20	11	58	51	24
Broccoli	13	12	7	34	23	7
Cabbage	10	17	15	57	54	77
Carrots	5	5	7	**	**	54
Cucumbers	11	20	16	12	39	24
Eggplant	3	9	10	1	17	13
Herbs	**	6	3	**	42	1
Lettuce	26	13	13	1,294	484	489
Onions, Dry	154	99	89	5,816	5,274	5,248
Onions, Green	12	7	5	187	329	35
Peppers (Sweet)	16	19	12	221	34	38
Pumpkins	42	46	49	352	496	670
Squash	20	28	20	52	65	69
Sweet Corn	41	51	40	683	824	767
Tomatoes	32	34	36	107	86	122

Source: U.S. Census of Agriculture, 1987, 1992, and 1997

** Data withheld by Census of Agriculture to avoid disclosing individual farms.

Like the vegetable sector, the greenhouse and nursery industry saw higher sales. This expansion came from nearly twice as many farms growing greenhouse/nursery products from 1987 to 1997, as well as a 123 percent increase in production under glass or protection.

Table 7. Greenhouse/Nursery Production for Orange County, NY: 1987 to 1997

Item	1987	1992	1997	1987 to 1997 % Change
Number of Farms	54	75	104	93%
Production Area under Glass or Protection (sq. feet)	597,979	916,864	1,334,465	123%
Production in the Open (acres)	1,549	986	1,760	14%
Value of Sales (million)	\$7.62	\$8.85	\$15.03	97%

Source: U.S. Census of Agriculture, 1987, 1992, and 1997

The growth in sales of greenhouse/nursery crops occurred largely in bedding/garden plants and potted flowers. The combined sales of these crops grew 242 percent from 1987 to 1997, while production under glass area grew 123 percent. Thus, Orange County's producers either improved production efficiency or shifted to higher-valued crops over this time period.

The other major greenhouse/nursery crop in Orange County is sod. Sales of sod increased somewhat from 1987 to 1997, after falling substantially in 1992.

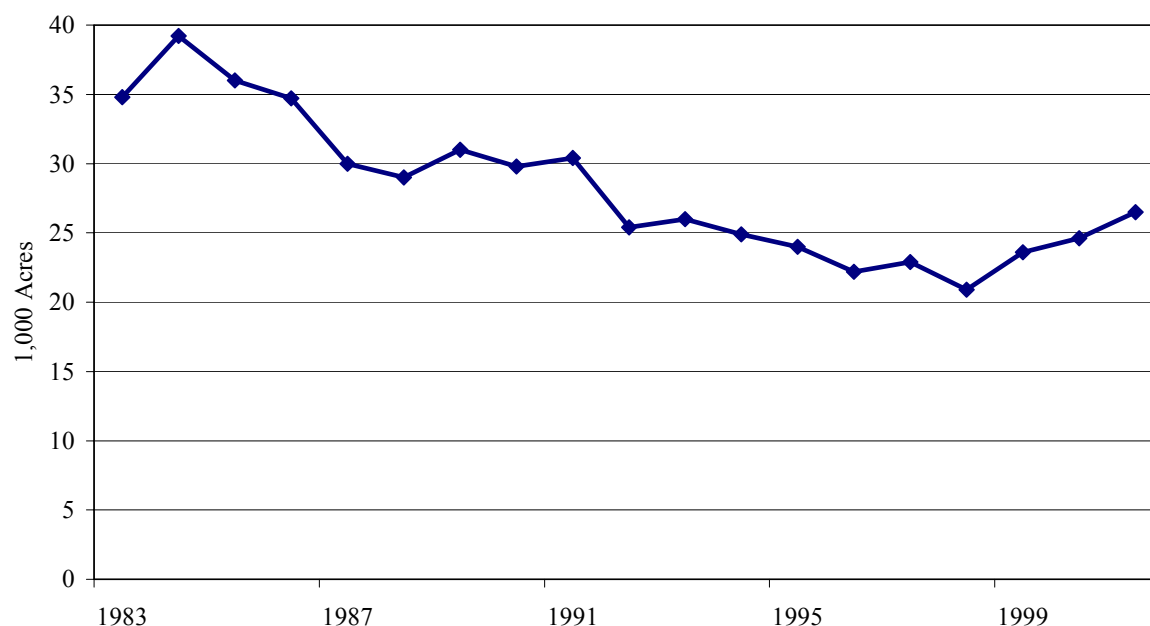
Table 8. Greenhouse/Nursery Principal Crops for Orange County, NY: 1987 to 1997

Item	1987	1992	1997	1987	1992	1997
	-- Number of Farms			----- Sales (Million \$) ---		
Bedding/Garden Plants	31	49	51	\$1.09	\$2.19	\$5.36
Potted Flowers	23	25	25	\$1.28	\$2.75	\$2.75
Nursery Crops	10	15	14	\$0.38	\$0.70	\$0.88
Sod	7	6	9	\$4.53	\$2.67	\$4.78
Other				\$0.34	\$0.54	\$1.26
TOTAL				\$7.62	\$8.85	\$15.03

Source: U.S. Census of Agriculture, 1987, 1992, and 1997

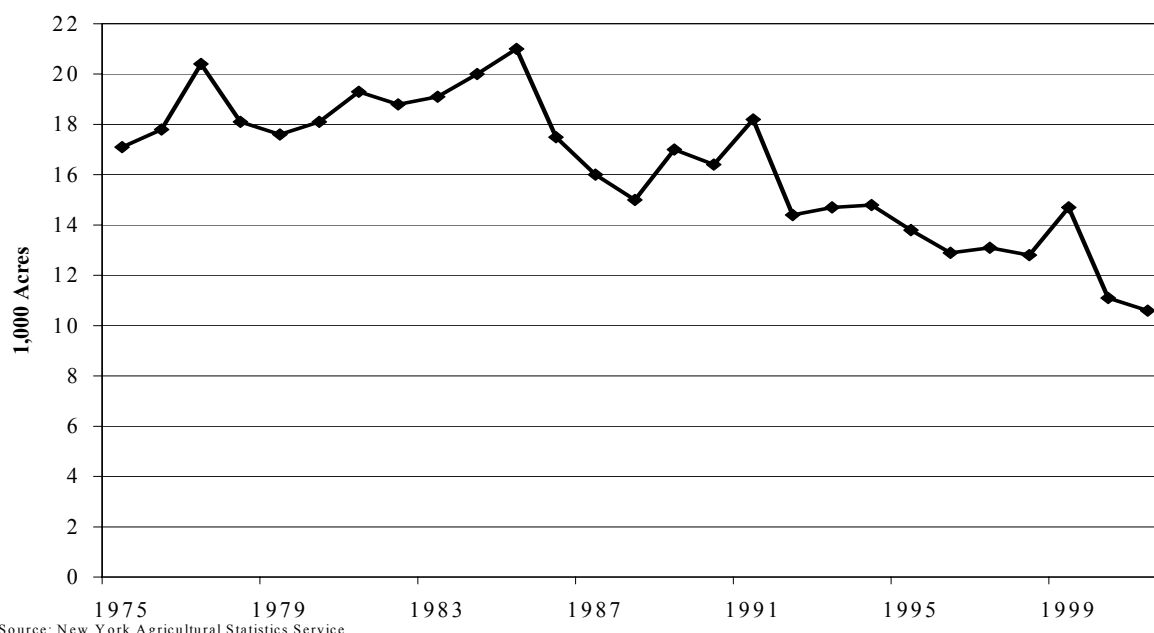
Aside from vegetables and greenhouse/nursery crops, there were few areas of growth in Orange County's crop sector. Field crops like hay and corn fell substantially in reaction to the decline in the County's dairy industry during the last 20 years.

Figure 5. Hay Acreage in Orange County, NY: 1983-2001



Source: New York Agricultural Statistics Service.

Figure 6. Corn Planted Acres for Orange County, NY: 1975-2001



In the orchard industry, the apple sector continues to be the most economically significant, although cherries, grapes and peaches remain important products in Orange County. Even though overall orchard farm sales slipped from 1992 to 1997, there were signs that an expansion may come in subsequent years. The number of apple trees in Orange County expanded by 58 percent from 1992 to 1997, with 74 percent of those trees not of fruit-bearing age. Thus, apple production will likely expand significantly in coming years. Grapes showed significantly lower vine counts from 1992 to 1997, but 60 percent of its 1997 inventory was not of fruit-bearing age. In contrast, peach tree numbers doubled from 1992 to 1997, but 83 percent of its 1997 inventory is of fruit-bearing age.

Table 9. Fruit Farms and Inventory for Orange County, NY: 1987 to 1997

Item	1992 to 1997			1992 to 1997		
	1992	1997	% Change	1992	1997	% Change
	--Number of Farms--			--Vines or Trees--		
Apples	33	29	-12%	180,881	285,728	58%
Cherries	8	4	-50%	1,634	1,512	-7%
Grapes	9	5	-44%	43,915	24,120	-45%
Peaches	10	11	10%	3,586	7,355	105%

Source: U.S. Census of Agriculture, 1987, 1992, and 1997

** Data withheld by Census of Agriculture to avoid disclosing individual farms.

While Orange County's crop sector has several growth areas, its livestock sector is mostly in decline. The number of farms producing livestock or dairy products fell by 30 percent across most major livestock sectors, although the inventory of livestock fell mostly by 20 percent from 1987 to 1997.

Table 10. Livestock Farms and Inventory for Orange County, NY: 1987 to 1997

Item	1987 to 1997				1987 to 1997			
	1987	1992	1997	% Change	1987	1992	1997	% Change
	----- Number of Farms -----				----- Number of Head -----			
Dairy	187	145	125	-33%	12,145	10,328	9,525	-22%
Cattle	113	92	96	-15%	9,731	8,641	8,262	-15%
Sheep	37	36	24	-35%	1,196	2,086	973	-19%
Horses	196	127	135	-31%	3,038	1,960	2,295	-24%

Source: U.S. Census of Agriculture, 1987, 1992, and 1997

Even though the dairy farm sector saw fewer farms and fewer dairy cows, the value of dairy output held reasonably constant from 1987 to 1997. This was due to increased productivity, as well as higher nominal prices in 1997 as compared to 1987. Since 1997 farm-level milk prices have been extremely volatile and even low as milk production expanded in the Western states. This trend is likely to continue and will lead to more losses in Orange County's dairy sector, which still represents nearly 20 percent of the County's agricultural output.

Table 11. Dairy Farms for Orange County, NY: 1987 to 1997

Item	1987	1992	1997	1987 to 1997 % Change
Number of Dairy Farms	187	145	125	-33%
Number of Milk Cows	12,145	10,328	9,525	-22%
Total Value of Milk Sold	\$21.2 Million	\$20.4 Million	\$20.2 Million	-5%

Source: U.S. Census of Agriculture, 1987, 1992, and 1997

Sharper losses occurred in the cattle and horse sectors from 1987 to 1997. Both sectors had 30 percent losses in the number of farms. However, the value of horse sales dropped by 76 percent from 1987 to 1997, while cattle sales fell only 39 percent.

Table 12. Cattle for Orange County, NY: 1987 to 1997

Item	1987	1992	1997	1987 to 1997 % Change
Sale of Cattle (Number of Farms)	241	199	154	-36%
Number of Cattle Sold	5,115	3,776	3,063	-40%
Total Value of Cattle Sold	\$2.5 Million	\$2.5 Million	\$1.5 Million	-39%

Source: U.S. Census of Agriculture, 1987, 1992, and 1997

Table 13. Horses for Orange County, NY: 1987 to 1997

Item	1987	1992	1997	1987 to 1997 % Change
Sales of Horses (Number of Farms)	196	127	135	-31%
Number of Horses Sold	450	291	308	-32%
Total Value of Horses Sold	\$3.0 Million	\$2.0 Million	\$0.7 Million	-76%

Source: U.S. Census of Agriculture, 1987, 1992, and 1997

Farm Costs and Returns

As the agricultural sector shifted toward vegetable crops as well as greenhouse and nursery products, production expenses in the County shifted as well. Most notable was the increased expenditures on seeds, bulbs, plants, and trees, which accounted for a 42 percent increase from 1987 to 1997.

Table 14. Farm Production Expenses for Orange County, NY: 1987 to 1997

Item				1987 to 1997 %
	1987	1992	1997	Change
	-----Million \$-----			
Agricultural Chemicals	3.33	2.96	3.68	11%
Energy, Electricity	1.86	1.86	1.85	-1%
Energy, Petroleum Products	2.57	2.74	2.50	-3%
Feed for Livestock	7.47	7.12	8.10	8%
Fertilizer	2.21	1.92	2.10	-5%
Labor, Contract	1.30	0.97	0.68	-48%
Labor, Hired	11.74	13.49	12.00	2%
Livestock Purchased	2.58	2.51	1.49	-42%
Repairs and Maintenance	3.91	3.96	4.18	7%
Seeds, Bulbs, Plants and Trees	1.75	2.53	2.49	42%
Taxes, Property	2.66	3.70	3.26	23%
Other	14.75	12.88	12.41	-16%
TOTAL	56.13	56.64	54.74	-2%

Source: U.S. Census of Agriculture, 1987, 1992, and 1997

Increases were prevalent in most other major categories, but in smaller magnitudes. The exception was a relatively large drop in contract labor expenditures, which fell by 48 percent. Hired labor, the largest component in farm production expenses, increased by only 2 percent from 1987 to 1997, and even declined from 1992 to 1997 by nearly 12 percent.

Although total farm expenditures fell by 2 percent from 1987 to 1997, farm sales also were down in the aggregate over this same period, leading to 17 percent lower farm net-returns. However, average net returns per farm did manage to increase by 4 percent from 1987 to 1997. Even so, profitability of Orange County farms did not seem to improve overall. For example, in 1987, 60 percent of Orange County's farms had net gains, but by 1997 only 50 percent of the farms had net gains. The farms that were profitable, however, increased profitability by 35 percent from 1987 to 1997. Since average losses for farms with net losses also increased over this time period, the few farms that were profitable fueled the growth in the County's farm net-returns.

Table 15. Farm Net>Returns for Orange County, NY: 1987 to 1997

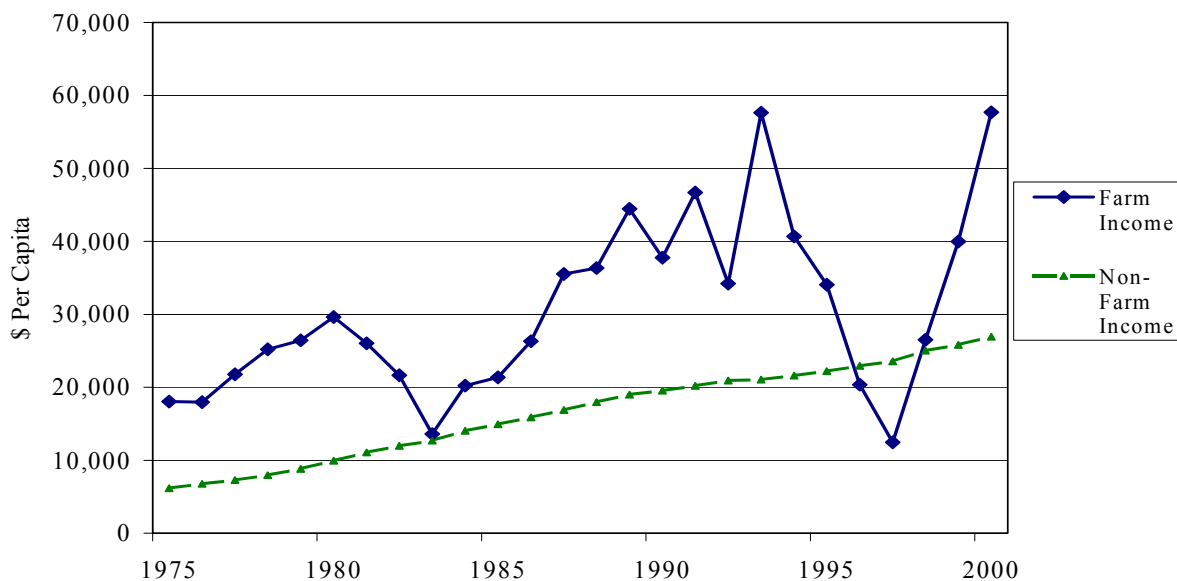
Item	1987	1992	1987 to 1997	
			1997	% Change
Total Farm Net Returns	\$15.5 Million	\$17.1 Million	\$12.8 Million	-17%
Net>Returns per Farm	\$19,583	\$26,598	\$20,346	4%
Farms with Net Gains (%)	60%	58%	50%	-18%
Net>Returns per Farm with Net Gains	\$40,866	\$53,819	\$55,337	35%
Farms with Net Losses (%)	40%	42%	50%	25%
Net-Losses per Farm with Net Losses	\$12,782	\$11,532	\$14,091	10%

Source: U.S. Census of Agriculture, 1987, 1992, and 1997

Even though farm net returns increased substantially, this doesn't necessarily mean that all farms experienced improved profitability. Indeed, when looking at the proportion of farms that were profitable from 1987 to 1997, there were fewer profitable farms in 1997 than in 1987. In 1987, 60 percent of the farms posted net gains, but only 50 percent had net gains by 1997. However, those farms that were profitable had average returns that grew substantially over this period. For those farms with net gains, average net returns per farm were \$40,866 in 1987, but grew to \$55,337 per farm by 1997.

However, since 1997 was a point of significantly lower sales in the vegetable sector, these may not be reflective of trends in farm profitability, but instead represent the outcome of a particularly poor crop year. More recent data suggested farm net returns accelerated in recent years. From 1997 to 2000, farm income grew from \$12,500 per farm to nearly \$58,000 per farm by 2000, and surpassed non-farm per-capita income in Orange County by a substantial margin.

Figure 7. Per-Capita Farm Income and Per-Capita Non-Farm Income for Orange County, NY: 1975 to 2000



Source: U.S. Department of Commerce, Bureau of Economic Analysis, *Regional Economic Information System*.

Economic Impact of Orange County's Agriculture Sector

Quantifying the economic impact of Orange County's agriculture sector is an important tool for allocating investment resources, whether from the public or private sector. There are two common methods for measuring the economic impact of any sector of the economy.

The first is a direct measure of a sector's economic importance by examining the value of output from the sector. This represents the price of the sector's output multiplied by the quantity produced by that sector of the economy. However, this only measures the direct value of a sector's importance. Since economic output does not happen in a vacuum, analysts often use output multipliers. Goods, services, and labor from within the economy are used to produce that output (sometimes referred to as upstream effects). In addition, output is usually further transformed by other sectors of the economy, stimulating more business activity. Thus, a second measure of economic impact is an output multiplier for a sector, which quantifies the sum total of these upstream and downstream effects.

Table 16. Output and Employee Payroll By Commodity Sector for Orange County, NY: 1997 Million \$

Farm Sector	Output	Employee Payroll
Orchard Crops	\$6.0	\$1.63
Dairy	\$20.2	\$1.96
Greenhouse/Nursery	\$15.0	\$4.50
Vegetables	\$20.9	\$4.50
Other	\$7.7	\$0.42
Farm Sector Total	\$69.8	\$13.01

Source: *IMPLAN*

For the four principle farm commodities in Orange County, the output value was \$62.1 million in 1997, accounting for 89 percent of the County's \$69.8 million farm output. In 1997, the vegetable and dairy sectors were of equal value, just over \$20 million dollars per industry. However, since 1997, the vegetable sector has increased substantially while the dairy sector has stayed fairly constant. In terms of employment, the vegetable and greenhouse/nursery sectors contribute significantly more to the local economy and account for 60 percent of the total employment payroll.

Table 17. Output Multipliers By Commodity Sector for Orange County, NY: 1997.

Farm Sector	Output Multiplier
Orchard Crops	1.66
Dairy	1.47
Greenhouse/Nursery	1.55
Vegetables	1.66
Other	1.48
TOTAL	1.55

Source: *IMPLAN*

Although economic output and employee payroll measure the relative size of a sector's output, the output multiplier provides a way to assess how much activity a specific sector will generate in other parts of the economy. Based on the output multipliers for Orange County's farm commodities, every \$1 increase in total farm output led to an additional 55 cents in economic activity in other sectors of the local economy. Thus, the direct output of Orange County's agricultural sector was \$69.8 million, but an additional \$38.4 million was generated in other sectors of the local economy, based on 1997 data. Using the latest data from 2000 for the aggregate farm sector, output value was \$108.4 million, which generated another \$59.6 million in other sectors.

Of the four principle farm commodities, orchard crops and vegetables had higher than average output multipliers. These commodity sectors are relatively labor intensive, which stimulates more economic activity in other sectors. The dairy sector, in contrast, had the lowest output multiplier, which tends to use less labor relative to other inputs such as equipment and feed, which may not be locally produced.

Agricultural Service, Wholesale, and Retail Sectors

As the previous section illustrated, there are important economic linkages between the farm sector and other sectors of the local economy. As certain parts of Orange County's farm sector grew, others declined. This had important implications for input suppliers and agricultural service firms, as well as wholesale and retail trade. In this section, we explore the growth in agricultural service firms, farm input suppliers, and the wholesale and retail sectors of Orange County's economy directly related to the farm sector.

Service-related firms consist of agricultural support services (e.g., crop consultants, animal production support), veterinary services, and farm supplies. The number of firms providing agricultural support services declined by 45 percent from 1993 to 2000. However, a more precipitous drop occurred in farm supply firms, falling from 20 firms in 1993 to only 8 firms by 2000. Veterinary services increased slightly from 1993 to 2000. However, this may have been driven more from non-farm pet services and less from the agricultural sector since livestock numbers declined over this time period.

Food manufacturing activity in Orange County reflected the trends experienced at the farm level. Dairy manufacturing fell from 5 firms in 1993 to only 1 firm by 2000. On the other hand, the number of fruit and vegetable manufacturers increased by 60 percent over this same time period.

In addition, the wholesale trade sector increased for fresh fruit and vegetables, with the number of firms increasing from 6 in 1993 to 10 by 2000. In addition, firms specializing in the wholesaling of flower and nursery stock increased from 3 firms to 8 firms.

However, on the retail/consumer side, the number of nursery and garden centers declined slightly, although employment in this segment of the industry increased by 28 percent. Landscape service firms managed an increase in the number of firms, but employment numbers

remained nearly constant for this segment of the industry. At the retail sector, the number of fruit and vegetable markets increased from 5 firms in 1993 to 8 firms by 2000.

Table 18. Agricultural Industry Sector Firms, Employment and Payroll for Orange County, NY: 1993 and 2000.

Sector	1993			2,000			--% Change 1993 to 2000 --		
	Firms	Employees	Payroll (\$1,000)	Firms	Employees	Payroll (\$1,000)	Firms	Employees	Payroll (\$1,000)
<u>SERVICES</u>									
Agricultural Support	20	82	1,262	11	**	**	-45%	**	**
Veterinary	28	154	3,375	29	271	6,522	4%	76%	93%
Farm Supplies	20	214	4,367	8	85	1,622	-60%	-60%	-63%
<u>MANUFACTURING</u>									
Dairy Products	5	**	**	1	**	**	-80%	**	**
Fruit and Vegetable	5	35	171	8	19	278	60%	-46%	63%
<u>WHOLESALE</u>									
Dairy Products	9	100	3,932	7	84	4,587	-22%	-16%	17%
Flower and Nursery Stock	3	**	**	8	92	3,160	167%	**	**
Fresh Fruit and Vegetable	6	**	**	10	107	3,210	67%	**	**
Farm Product Raw Material	2	**	**	3	**	**	50%	**	**
<u>RETAIL</u>									
Nursery and Garden Centers	16	79	1,764	12	101	1,694	-25%	28%	-4%
Landscaping	80	273	3,155	106	265	5,854	33%	-3%	86%
Fruit and Vegetable Markets	5	35	171	8	19	278	60%	-46%	63%

Source: U.S. Census Bureau. County Business Patterns, 1993 and 2000

** Data withheld by Census Bureau to avoid disclosing individual firms.

Data and Models Used in This Report

This report assembles data from many different sources to provide a complete picture of Orange County's agriculture industry. The data are published by several different government agencies at varying time intervals. We sought to provide the most recent data available from each source, but the years on some statistics differ due to the various publication schedules.

We relied on the Census of Agriculture from 1987, 1992, and 1997 to provide details on farm numbers, farm acreage, vegetable production, and greenhouse and nursery production. These censuses are conducted in five-year intervals. In addition, data from the New York Agricultural Statistics Service was used for annual field crop estimates and dairy cow information from 1992 to 2001.

Data on farm sales, employment, and income from 1975 to 2000 also were collected from the Regional Economic Information System (REIS) from the U.S. Department of Commerce's Bureau of Economic Analysis.

Agricultural industry sector data on number of firms, employment, and payroll were taken from the Bureau of Census County Business Pattern datasets from 1993 to 2000.

The IMPLAN model was used to estimate economic impacts of the various crop sectors. IMPLAN uses data from the population census, County Business Patterns, Regional Economic Information System (REIS) data, and especially the annual BLS ES-202 wage and employment data. All data sources for the IMPLAN model are based on 1997 information. IMPLAN is an inter-industry input-output model used to capture the inner-workings of local economies. The USDA Forest Service, in cooperation with other federal agencies, originally developed IMPLAN. To address the prohibitive cost of extensive primary data collection on local inter-industry purchases, IMPLAN and other "non-survey" modeling systems combine available data about the national economy with state and county level data to estimate the flow of goods and services through a local economy.

One of IMPLAN's strengths is the fact that it integrates many sources of data at different levels of aggregation into a comprehensive, internally consistent system that can be applied to any county or region in the United States. Although this integration requires numerous assumptions and estimations of data for specific industries in specific counties, great effort is made to make all estimates compatible with the most accurate available measured data.