



Case Study Report

Orange County, New York

One of 15 Case Studies for the Research Project

Farm Viability in Urbanizing Areas

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March 1, 2008

**Funded by a National Research Initiative Grant from the
Cooperative State Research, Education, and Extension Service,
U.S. Department of Agriculture**



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Section I: Summary

Market Value of Agricultural Products and Numbers of Farms: Between the 1987 and 2002 Census of Agriculture, the total market value of agricultural production in the county had declined by 10.2% to \$66.2 million. The recorded number of farms also decreased by 10.5%, but the average size remained about the same, at 153 acres. Also essentially unchanged was the average market value of sales per farm—\$93,802. The total number of acres in farms dropped by almost 7,000 acres. Both dairy farming and fruit production saw losses in overall sales and numbers of separate operations. Total sales of vegetables also dropped. Encouraging developments were the increased acres in hay, certain vegetables, and landscaping crops. Another sign of Orange County farmers taking advantage of nearby population growth was a recorded increase in direct marketing of food for human consumption.

Farmer Satisfaction with Markets: In the winter of 2006, we surveyed by mail 133 owners of agricultural land in Orange County.¹ Relatively few of the respondents were satisfied with the marketing outlets for the products raised on their land. There were exceptions. Operators selling entirely via direct sales to consumers tended to be pleased with their accessibility to markets. Farmers with vegetable production on their land were more likely to be satisfied with their markets' competitiveness, and respondents with their own farm stands or "u-pick" operations were also happier with competitiveness.

Production Inputs: In 2005 and 2006 we interviewed by phone or in person a total of 32 persons who were knowledgeable about Orange County's agriculture or particular aspects of it: farmer leaders, agri-service businessmen, program administrators in local and state governmental agencies, and staff members of private organizations focusing at least in part on agriculture.

Land: Both the surveyed agland owners and the interviewed experts tended to be pessimistic about the affordability of farmland *to purchase*. Even most of the comparatively larger farmers in our sample (with sales of at least \$100,000) considered land for sale in 2005 to be too expensive for them. More affordable, at least in some cases, were the farmland parcels (about 5,400 acres total in 2007) under non-development easements. Also more reasonably priced tended to be land in the so-called Black Dirt Region of 14,000 acres consisting of former glacial lakes. Its soils were unsuitable for housing developments.

¹The surveyed landowners were randomly selected from a public list of owners of parcels in Orange County that under New York State law qualified for property-tax assessment based on their agricultural use rather than on their full market value. In urbanizing counties like Orange, the value of open-space land on the real estate market is likely to incorporate the parcel's potential for residential or other developed uses. We removed from the list all the owners who lived outside of Orange County because we were seeking to survey persons likely to know about agricultural operations on their land in the county. Also removed were owners (nine) who, in responding to the mailed survey, indicated that their land was not farmed in 2005. The remaining owners totaled 289. Of that number 133 participated in the survey, and five refused to take part. We received no communication or undeliverable mail back from 151 cases, and we assumed that proportionally as many of them did not have any land farmed in 2005 as among those from whom we did hear (6.1%). Accordingly, we deducted 9 cases from the 151 and added the resulting number (142) to the 133 participants plus the five refusals, leaving us with 280 cases where the land was farmed or likely to have been in agricultural use during 2005. The response rate is therefore 133 completions divided by the 280 likely eligible cases, or 47.5%.

Perceptions of the affordability of *leased* land were much more positive. Over half the respondents viewed rental land as either “on the whole very affordable” or at least “affordable.” Supply and demand factors favored the lessees. So many nonoperator-owners needed farmers to keep their land in production in order to receive agricultural use-value assessment (for property tax purposes) that rents tended to be low per acre or zero.

The interviewees were split about the sufficiency of land to farm in the future. Some believed there would be an adequate land base with the combination of the Black Dirt Region and parcels protected by the non-development easement programs. Other observers were skeptical, fearing that land values had already grown too high for the available funds to protect more than a relatively small amount of additional acres through easements.

Neither the surveyed farmland owners nor the interviewed local experts reported significant problems with the supply of *credit, farm chemicals, seeds, implements, or other manufactured inputs*. A few conventional dealers remained to supply these inputs. The three we interviewed expected to stay in Orange County for many years to come. Farmers ordered inputs also via mail, phone, and the Internet for delivery directly to their farms by UPS or other trucking services. In many or most cases where farmers themselves could not carry out repairs, they obtained the necessary on-farm or near-farm repair services from local self-employed mechanics.

Water: The Black Dirt Region is blessed with ample groundwater, and much or most of the farms still operating in the upland apparently also have adequate water.

Farm Labor: Both the survey and interviews showed the supply of seasonal labor to be problematic. Local citizens tended to reject the working conditions (e.g., stoop labor, high summer temperatures) or the pay that local farmers were offering. Therefore, migrant workers were employed on many farms. To be hired they needed to submit documents (Social Security cards, US passports, state-issued ID cards) that at least looked valid. However, as of the summer of 2006 the federal government was not holding farmers responsible for going beyond looks, and immigration enforcement agents were not making on-farm inspections. Among the agricultural enterprises that were advantaged by the proximity of urban and suburban customers—producers of vegetables, fruits, and landscaping products—there appeared to be high reliance on migrant labor.

Another input of concern to interviewed experts was the *supply of future farmers*. The high costs of most farmland made entry into Orange County farming difficult except for those who inherited land or married such heirs. However, very few of the surveyed owners (21.8%) had developed succession plans for the transfer of ownership and management to a relative or other person. The land available for heirs was likely to decrease since almost a third of the respondents (40.6%) expected some or all of their currently owned agland in the county to be developed within 10 years.

Nonfarmer Neighbors Constraining Farm Operators: About four in 10 of our sample of agland owners (42.2%) reported some “change for the worse” in farming their land “because nonfarmers lived nearby.” The subgroup of farmers with at least \$100,000 in gross sales registered a

significantly higher incidence—56.9%—of such negative changes, compared to 39.2% among the smaller operations.

Impermanence Syndrome: Several survey questions aimed to learn if an “impermanence syndrome” had set in, that is, whether farm operators were so pessimistic about the future that they ceased to invest in their land’s agricultural capabilities. We found, however, that 71.9% of the relevant respondents were planning some improvement over the following five years on their owned land in Orange County (e.g., erecting or enlarging farm buildings, building or extending fences, installing or repairing conservation or irrigation facilities).

Predictions of Agriculture’s Viability 20 Years into the Future: The 133 surveyed farmland owners tended to be pessimistic. Only 31.6% believed that agriculture in Orange County had a “bright” or at least “modest” future. Other things being equal, respondents were more likely² to be relatively optimistic if

- in the past year they had found the markets for their farm products to be competitive,
- they raised horses on their owned land in Orange County,
- they had been successful the previous growing season in meeting their needs for seasonal labor,
- they believed that New York’s agricultural-use value assessment policies helped to keep property taxes on farmland at acceptable levels, and
- their operations grossed less than \$100,000.

Interviewed farmer leaders and agri-service businessmen were optimistic about the futures of certain types of farm enterprises, as follows:

- horse farms (because of the growing number of customers for equine recreation),
- operations producing landscaping goods (because ongoing development of new homes, schools, etc., increased demand for them),
- vegetable sector (because it was centered in the undevelopable Black Dirt Region, and it enjoyed a growing market for fresh produce both in Orange and nearby counties), and
- smaller growers of various products.

As presented above, the surveyed smaller farmers by gross sales (less than \$100,000) were more optimistic than their larger counterparts. And some of the interviewed experts were betting on the smaller operations because many of the latter had been successful in direct marketing and “they are the ones likely to stay.” The latter reason may derive from their likely lower needs per farm for problematic inputs such as land and seasonal labor.

Policy Recommendations: The final section of this report on Orange County discusses seven policy recommendations derived from the survey and interview findings. Among the advocated policies were:

- to support the town government programs to protect farmland through purchase of development rights,

²Logistic regression analysis was used to yield such findings about surveyed owners being more or less likely to give a certain response, given their answers to other questions.

- to review the administration of property taxes and farmers’ understanding of them so as to reduce the real or perceived financial burdens on local agriculture,
- to strengthen programs that encourage small farmers,
- to help farming operations to be passed on to successor farmers, and
- to consider expanding the lending authority of the Farm Credit System so that member banks can better assist farmers to diversify.

The report’s last section ends by summarizing the various assistance programs already available to Orange County farmers, including a county Cooperative Extension Office with a resource educator for each major segment of the county’s agricultural sector and a variety of technical assistance and grant programs.

Section II: Orange County’s Geographic, Historical, Agricultural, and Policy-Making Contexts

Section’s Purpose

This section’s main purpose is to provide sufficient information about the county’s geographic, historical, agricultural, and policy contexts for readers to judge if the Orange County case study is relevant to their needs. If they find enough similarities between Orange County and their own counties (or other communities of interest to them), they may decide to read further in the hope of learning from Orange County’s experiences. Many of the described contextual conditions contribute to how Orange County’s agricultural sector has responded to urbanization.

Location, Size, and Urban Influence

Encompassing 522,456 acres (816 square miles), Orange County is located in southeastern New York State. To the south it borders New Jersey and Pennsylvania. According to Orange County’s 2003 *Comprehensive Plan*, “More than 30% of Orange County’s workforce commutes to jobs outside the county, primarily in New York City, Westchester and Rockland Counties and northern New Jersey.”³ The distance by public highways from the county government offices in Goshen to the Manhattan side of the George Washington Bridge measures just 58 miles. A commuter rail service takes passengers from Orange County to the Secaucus transfer station or to Hoboken (NJ) and a transit connection from there to Manhattan. A second line runs down the east bank of the Hudson River, picking up Orange County passengers who cross the river by car, bus, or ferry at Beacon, NY.

A study by the USDA Economic Research Service (ERS) on urban influence, which we used to select our 15 counties, classified Orange County in 1990 as having 81.8% of its land surface subject to “high urban influence.” The remaining 18.2% was under either “medium-low” or “medium” urban influence (Table 1).⁴

³*Orange County Comprehensive Plan: Strategies for Quality Communities* (Goshen, NY: Orange County Department of Planning, 2003), p. 26.

⁴Using Natural Resources Inventory data, the ERS study developed an index of “urban influence” that measured, for each 1990 census block, its accessibility to the populations in other blocks within a 50-mile radius. The more people in those blocks and the closer the blocks with numerous residents, the higher the measure of urban influence for the block being classified. A census block is a “subdivision of a [census tract](#) (or, prior to 2000, a block numbering area);

The federal Office of Management and Budget has designated Orange County as part of the Poughkeepsie-Newburgh-Middletown, NY, Metro Area.⁵ Among metro areas in the country, this one is classified as “Small—in a metro area with fewer than 1 million residents” (Table 1).

Rate and Location of Population Growth

Another selection criterion for our case studies was population growth. While some northeastern counties lost residents between 1990 and 2000,⁶ Orange County’s population grew by 11% in that time period and then by another 10.3% from April 2000 to July 2006, to an estimated 376,392 people (Table 1). About 43.4% of the growth from 1990 to 2000 occurred in eight towns that contain the county’s best agricultural land but also have (with one exception) an interstate highway or the limited-access State Route 17 running through or near them.⁷

US Census data*	2006*	2000*	1990*
Population	376,392	341,367	307,647
Percentage increase, 2000 to 2006	10.3		
Percentage increase, 1990 to 2000		11.0	
Median household income	\$64,947**		
Median value of owner-occupied home	\$319,300**		
Percentage of homes owner-occupied	64.1**		
County seat	Goshen		
Metro area	Poughkeepsie-Newburgh-Middletown, NY		
Extent of urban influence in county: 1990 measure	81.8% of county was subject to “high urban influence” while all the remainder was under “medium-low” or “medium” urban influence***		
Extent of urban influence in county: 2003 measure	Small—in a metro area with fewer than 1 million residents****		
Land-grant university	Not in county		

*Source: US Census Bureau, *State and County Quick Facts*.: <http://quickfacts.census.gov/qfd/index.html>

**Source: US Census Bureau, *American FactFinder*.
http://factfinder.census.gov/home/saff/main.html?_lang=en

***Source: Orange County Comprehensive Plan, 2002.

****Source: USDA Economic Research Service, *Data Sets: Urban Influence Codes*:
<http://www.ers.usda.gov/Data/UrbanInfluenceCodes/>.

a block is the smallest geographic unit for which the Census Bureau tabulates 100-percent data. Many blocks correspond to individual city blocks bounded by streets, but blocks—especially in rural areas—may include many square miles and may have some boundaries that are not streets. The Census Bureau established blocks covering the entire nation for the first time in 1990. Previous censuses back to 1940 had blocks established only for part of the nation. Over 8 million blocks are identified for Census 2000” (“Glossary,” US Census Bureau, *American FactFinder*: http://factfinder.census.gov/home/saff/main.html?_lang=en [accessed January 25, 2008]).

⁵OMB Bulletin 06-01, 2005, *Update of Statistical Area Definitions and Guidance on Their Uses*:
<http://www.whitehouse.gov/omb/bulletins/fy2006/b06-01.pdf> (accessed July 27, 2006).

⁶Two such examples of metropolitan areas that lost populations and still have nontrivial agricultural sectors (according to the 2002 *Census of Agriculture*) are Broome County, NY (where Binghamton is located), and Allegheny, PA (Pittsburgh).

⁷Chester, Crawford, Goshen, Hamptonburgh, Minisink, Montgomery, Warwick, and Wawayanda. For population changes by town, see ACDS, LLC, 2004, “Technical Report: Orange County Agricultural Economic Development Strategy” (Goshen, NY: Orange County Department of Planning), p. 46.

Median Household Income and Value of Owner-Occupied Housing

Orange County is comparatively prosperous. Its median household income was estimated to be \$64,947 in 2006,⁸ and the median value of owner-occupied housing units that year was \$319,300 (Table 1). About two-thirds (64.1%) of total housing units in 2006 were owner-occupied.

Growing Season, Soils, Rainfall, and Water Availability for Agriculture

Growing seasons vary with the crop, but the frost-free period in Orange County is estimated to range from 143 to 183 days.⁹ Soil mapping found that 6% of the entire county had “prime farmland soils.”¹⁰ In addition, several areas of glacial lake deposits add up to about 14,000 acres of exceptionally rich muck soil (the Black Dirt Region).

The rainfall measured over 36 years (1951–95) in Orange County’s City of Middletown averaged 42.1 inches per year.¹¹ Between the 1987 and 2002 federal censuses of agriculture, the number of acres of irrigated land fluctuated, ending somewhat higher in 2002 at 4,264 acres (Table 2).

Changes in Orange County’s Agricultural Sector

The 1940 Census of Agriculture reported 3,513 separate farm operations, averaging 85.3 acres and farming in aggregate 56.5% of the county’s land area.¹² According to census data for 1939, 62% of Orange’s farms (2,173 operations) produced milk—from 38,574 milk cows and heifers—that together yielded 29 million gallons of milk. Other major farm products in 1940, as indicated by the number of operations producing them, were hay (grown on 67% of all farms), corn (45.3%), and potatoes (42.1%).

⁸By contrast, the median household income nationwide in 2004 was estimated to be \$44,334.

⁹Cornell University, College of Agriculture and Life Sciences, Department of Horticulture, *Gardening Resources*: <http://www.gardening.cornell.edu/weather/images/freezefreeleg.jpg> (accessed January 7, 2007).

¹⁰USDA defines “prime farmland soil” as “land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and that is available for these uses. It has the combination of soil properties, growing season, and moisture supply needed to produce sustained high yields of crops in an economic manner if it is treated and managed according to acceptable farming methods.” US Department of Agriculture, Natural Resources Conservation Service, *NSSH Part 622 (00-Exhibit 1)*, Sec. 622.04: <http://soils.usda.gov/technical/handbook/contents/part622.html> (accessed December 15, 2006). The percentage measure for prime soils was provided by an officer of the Orange County Soil and Water Conservation District.

¹¹*World Climate*: <http://www.worldclimate.com/cgi-bin/data.pl?ref=N41W074+2200+305310C> (accessed April 16, 2007).

¹²*1940 Census of Agriculture: Middle Atlantic Division*, pp. 207–333: <http://www2.census.gov/prod/decennial/documents/00179375v1p1ch04.pdf> (accessed April 17, 2007).

Table 2. Agricultural Land-Use Traits in Orange County as Measured by the Federal Censuses of Agriculture				
Traits of the county	2002	1997	1992	1987
Acres in farms	107,977	102,725	102,733	114,928
County's approximate total land area (in acres)	522,456	522,456	522,456	522,456
Percentage of total county's land in farms	20.7	20.0	20.0	22.0
Number of farms	706	771	641	789
Average size of farms (acres)	153	133	160	146
Number of farms:				
1–9 acres	73	103 (78)*	77	94
10–49 acres	211	229 (162)*	143	221
50–179 acres	242	268 (221)*	241	255
180–499 acres	131	139 (132)*	146	182
500–999 acres	39	26 (25)*	26	30
1,000 acres or more	10	6 (6)*	8	7
Percentage of total farms:				
1–9 acres	10.3	13.4	12.0	11.9
10–49 acres	29.9	29.7	22.3	28.0
50–179 acres	34.3	34.8	37.6	32.3
180–499 acres	18.6	18.0	22.8	23.1
500–999 acres	5.5	3.4	4.1	3.8
1,000 acres or more	1.4	0.8	1.2	0.9
Harvested cropland in acres	54,654	54,282	51,383	56,706
Acres in pasture or grazing	23,619	23,627	25,150	27,799
Irrigated acres	4,264	5,080	1,937	3,427
Acres leased into operations	51,713	45,204	44,958	46,020
Percentage of total land in farms leased into farm operations	47.9	44.0	43.8	40.0
Per acre average market value of land and buildings (\$)	4,339	3,829	3,959	2,805

*The numbers in parentheses for 1997 farms by size ranges are from "Table 1. County Summary Highlights: 1997": http://www.nass.usda.gov/census/census97/volume1/nj-30/nj2_01.pdf. The companion acre numbers for 1997 are taken from the 2002 Census of Agriculture, which made adjustments for undercoverage in the original 1997 data. Sources: For the 2002 and 1997 entries (with the exception noted just above), we used the 2002 Census of Agriculture. For the 1992 and 1987 entries, the sources also were the federal Census of Agriculture, as available online at <http://agcensus.mannlib.cornell.edu/> (as of April 17, 2007).

By the 1987 census the number of farm operations had declined to 789. Farm operations averaged 146 acres and covered 22% of the county's land surface (Table 2). The dairy industry in Orange County had shrunk to 187 farms with a total of 12,145 "milk cows." However, cows tended to be much more productive. Orange County's total milk production for 1992 was estimated to be 168 millions pounds, or about 19.5 million gallons, from 10,500 cows.¹³

¹³http://www.nass.usda.gov/Statistics_by_State/New_York/Publications/County_Estimates/1999/99-milk.pdf, and *Online Conversion*: http://www.onlineconversion.com/forum/forum_1115182754.htm.

Basic Traits of Agriculture in Orange County, 1987 to 2002

Major Products: Across the federal censuses of agriculture of 1987, 1992, 1997, and 2002, Orange County's four most important categories of agricultural products by the market value of their sales were (using census categories):

- Vegetables, melons, potatoes, and sweet potatoes,
- Milk and other dairy products from cows,
- Nursery, greenhouse, floriculture, and sod, and
- Fruits, tree nuts, and berries (Table 3).

Size: In the 2002 census the land in farms added up to 107,977 acres or 20.7% of the county's total land mass. Much of the surveyed farm operations—40.2%—fell in the smallest two size ranges of 1 to 9 acres and 10 to 49 acres (Table 2). By comparison, at the national level in 2002, a total of 32.3% of all farms were 1 to 49 acres in size.¹⁴ In Orange County about a third of all farms in the 2002 census (34.3%) were in the 50- to-179-acre range, and 25.5% were spread over the top three ranges.

Markets for Orange County's Farmers: Orange County's farmers (as well as those in three of our other study counties—Carroll County in Maryland, Berks County in Pennsylvania, and Burlington County in New Jersey) are located in the highly populated Mid-Atlantic Coastal Region. One of the farmers we interviewed said, "Orange County has an incredibly huge market that is crying for fresh local stuff." Another knowledgeable local observer told us, "What we have in Orange County is that direct relationship to the market. Because it is so huge and growing, you can try out different products and marketing techniques."

Percentage of Total Farmland Leased into Operations: In 2002 almost half (47.9%) of Orange County's total land in farms was "leased into the farm operations" (Table 2). At the national level the corresponding percentage for 2002 was 37.7%.¹⁵

Market Value of Farmland and Buildings: The reported market value of Orange County's farmland and buildings averaged \$4,399 per acre in 2002, up 56.8% from the 1987 average of \$2,805 (Table 2), reflecting—at least in part—the land's increased value for development purposes.¹⁶

¹⁴USDA 2002 Census of Agriculture: http://www.nass.usda.gov/census/census02/volume1/us/st99_1_009_010.pdf (accessed December 15, 2006).

¹⁵USDA, 2002 Census of Agriculture: http://www.nass.usda.gov/census/census02/volume1/us/st99_1_061_061.pdf (accessed December 15, 2006).

¹⁶The "long form" of the 2002 Census of Agriculture requested this information: "Market Value of Land and Buildings—Report your best ESTIMATE of the CURRENT MARKET VALUE OF LAND AND BUILDINGS for acres reported in section 1, items 1, 2, and 3, on p. 2" (p. 19). Those items were "All land owned," "All land rented or leased FROM OTHERS . . . ," and "All land rented or leased TO OTHERS. . . ."

Public Policy Context

Locus of Land-Use Regulatory Powers: In Orange County, zoning and other land-use regulatory decisions are made at the municipal level rather than by county government. In March 2007 Orange County contained three cities, 20 towns, and 19 villages. The three cities (Middletown, Newburg, and Port Jervis) comprised just 18.3% of the county’s total population in 2000.¹⁷

Role of State Government: The New York State Department of Agriculture and Markets has fielded a number of programs to promote viable agriculture in Orange County—including cash contributions to the purchase of development rights to farmland, preferential property-tax assessment, right-to-farm protections, and various marketing efforts such as the “Pride of New York” program to encourage residents to purchase local farm produce and a farm-to-school program called “New York Harvest for New York Kids.”¹⁸

Farmers Market Coupons are available for recipients of two nutrition programs, WIC (women, infants and children) and seniors. These coupons are handed out for recipients to use at farmers markets for the purchase of produce.

Section III: Viability of the County’s Agricultural Sector at the Time of the Study (2005 and 2006)

A general definition of “viability” is “capable of working, functioning, or developing adequately.” A more specific definition for business enterprises is the state of being “financially sustainable.”¹⁹ Combining these two definitions, we classify a county’s agricultural sector as “viable” when there is a significant number of farm and/or ranch operations that are financially healthy and give promise of continuing for some years into the future. The Census of Agriculture provides us with several indicators that are directly or indirectly related to this definition:

- number and size of agricultural operations in acres and gross revenues,
- diversity of agricultural goods and services being produced,
- relative importance of high-value agricultural products, and
- percentage of operations reporting net financial gains and losses.

The Census of Agriculture does not publish at the county level measures of profitability by type of operation (e.g., vegetable producer, sod farmer, etc.). However, the censuses did find that certain agricultural products in Orange County increased in acres harvested. We hypothesized such growth reflected farmers’ experience of, or expectations for, profitability. For confirmation we rely on our interviews with agricultural leaders and individual operators in each county, as well as on responses to our landowner surveys in the studied counties.

¹⁷US Census Bureau, *American FactFinder*: <http://factfinder.census.gov/home/saff/main.html?lang=en> (accessed April 20, 2007). In New York State, residents who do not live in a city reside in a town, either in unincorporated parts or in “villages.” Like cities, villages are also incorporated but normally cannot exceed five square miles in area: http://en.wikipedia.org/wiki/Template:Orange_County,_New_York (accessed April 20, 2007).

¹⁸New York State DA&M: <http://www.agmkt.state.ny.us/Programs.html> (accessed April 20, 2007).

¹⁹Merriam-Webster ONLINE: <http://www.m-w.com/dictionary/viability> (accessed September 23, 2006).

Section IIIA: Viability of Farming Operations as Indicated by the Numbers, Sizes, Gross Revenues, and Products of Orange County Farms

The censuses' estimated number of separate farm operations for Orange County decreased somewhat (10.5%) between 1987 and 2002—from 789 to 706 (Table 2). The average size recorded for those two census years was almost identical: 153 acres in 2002 compared to 146 acres for 1987 (Table 2).

The drop in the total recorded number of farms from 1987 to 2002 might have been greater if not for changes in enumeration practices. Between the 1997 and 2002 censuses, responsibility for the survey was switched from the US Department of Commerce's Census Bureau to USDA's National Agricultural Statistics Service (NASS). The 2002 *Census of Agriculture* includes adjustments for some of the 1997 figures. Comparisons between the original and revised entries for 1997 suggest that improvements in coverage were concentrated among the smaller and medium-size operations, especially in the ranges of 1 to 9 acres, 10 to 49 acres, and 50 to 179 acres.²⁰

Since the public does not have access to farm-level census data, we could not determine how many of the small-in-size operations it enumerated were also small in revenues. Our own farmland-owner survey in Orange County included 21 cases of owner-operators reporting that they farmed fewer than 50 acres. Nineteen percent of this group stated that in 2005 they grossed less than \$10,000, while 14.3% reported revenues in the range of \$10,000 to \$49,999 and 33.4% with \$50,000 and over (Table 3). Although these cases are of course too few to generalize, they do suggest that small size in acres is not an insurmountable barrier to significant earnings.

Gross sales categories	Frequency	Percentage
Less than \$10,000	4	19.0
\$10,000 to \$49,999	3	14.3
\$50,000 to \$99,999	1	4.8
\$100,000 to \$449,999	4	19.1
\$500,000 and above	2	9.5
Missing data on sales	7	33.3
Total	21	100.0

Gross Farm Sales Countywide: At the county level, the censuses indicate that the market value of Orange County's agricultural production decreased by 10.2% between the 1987 and 2002 censuses—from \$73.7 million to \$66.2 million (Table 4). The much higher sales over that period in nursery and related products were not sufficient to offset the losses in three other significant categories—vegetables, fruits, and dairy (Table 4).

²⁰The column for 1997 in Table 2 has in parentheses the numbers of farms by acreage ranges published in the original 1997 census, while the values without parentheses represent NASS adjustments made in that year's numbers.

Table 4. Orange County: Market Value of Agricultural Products Sold				
Measures of sales	2002	1997*	1992	1987
Total market value of products—all farms (\$)	66.2 million	76.2 million	74.6 million	73.7 million
Average market value per farm (\$)	93,802	98,890	116,450	93,438
Number of farms	706	771	641	789
Percentage of farms grossing:				
Less than \$2,500	31.6	22.7	15.1	19.0
\$2,500 to \$4,999	7.5	7.4	6.2	6.5
\$5,000 to \$9,999	8.2	5.8	7.9	7.1
\$10,000 to \$24,999	14.6	19.5	17.2	16.3
\$25,000 to \$49,999	8.9	8.0	12.5	11.0
(Total percentage grossing less than \$50,000)	(70.8)	(63.4)	(58.9)	(59.9)
\$50,000 to \$99,999	10.1	9.7	12.2	14.3
\$100,000 to \$249,999	10.2	17.8	16.2	18.4
\$250,000 to \$499,999	5.4	5.5	7.2	4.3
\$500,000 or more	3.5	3.6	5.5	3.0
<i>Market value of total crops including nursery and greenhouse (in thousands)</i>	<i>\$40,833</i>	<i>\$50,338</i>	<i>\$47,424</i>	<i>\$43,649</i>
Selected major products:	\$396	\$624	\$575	\$708
Grains (in thousands)	(0.6%)**	(0.8%)**	(0.8%)**	(1.0%)**
Vegetables, melons, potatoes, and sweet potatoes (in thousands)	\$17,107 (25.8%)	\$20,961 (27.5%)	\$29,789 (39.9%)	\$27,727 (37.6%)
Fruits, tree nuts, and berries (in thousands)	\$1,528 (2.3%)	\$6,316 (8.3%)	\$6,292 (8.4%)	\$5,764 (7.8%)
Nursery, greenhouse, floriculture, and sod (in thousands)	\$19,662 (29.7%)	\$15,027 (19.7%)	\$8,847 (11.9%)	\$7,621 (10.3%)
Hay, silage, and field seeds (in thousands)	NA	1,452 (1.9%)	1,666 (2.2%)	1,611 (2.2%)
<i>Market value of total livestock, poultry, and their products (in thousands)</i>	<i>\$25,392</i>	<i>\$25,906</i>	<i>\$27,220</i>	<i>\$30,074</i>
Poultry and eggs (in thousands)	D	D	D	\$1,678
Cattle and calves (in thousands)	\$2,937 (4.4%)	\$2,731 (3.6%)	\$3,186 (4.3%)	\$3,163 (4.3%)
Milk and other dairy products from cows (in thousands)	\$19,084 (28.8%)	\$20,281 (26.6%)	\$20,424 (27.4%)	\$21,229 (28.8%)
Hogs and pigs (in thousands)	\$33	\$37	\$141	\$110
Sheep, goats, and their products (in thousands)	\$139	D	D	52
Horses, ponies, mules, burros, and donkeys (in thousands)	D	\$720 (0.9%)	\$2,023 (2.7%)	\$3,049 (4.1%)
<i>Total value of agricultural products sold directly to individuals for human consumption (in thousands)</i>	<i>\$2,720</i>	<i>\$2,378</i>	<i>NA</i>	<i>NA</i>
Market value of recreational services (in thousands)	\$3	NA	NA	NA

*The National Agricultural Statistics Service adjusted these 1997 census figures to be compatible with the 2002 census data. The adjustments were in the form of "reweighting for undercoverage."

**That category of agricultural products' share of total market value of ag products sold that census year. D = "Withheld to avoid disclosing data for individual farms" (introduction to *2002 Census of Agriculture: United States: Summary and State Data*, p. ix).

NA = "Not available or not published" (source same as above).

Distribution and Diversification of Agricultural Sales: Dairy’s relative position in Orange County’s gross farm sales remained unchanged between 1987 and 2002—at 28.8% of the total (Table 4). Also changing little was the small share of cattle and calves (at about 4% both years). The category of fruits declined somewhat from its modest share in 1987—7.8% to 2.3%. Grain production remained insignificant. However, the vegetables, melons, and potatoes category lost ground—dropping from 37.6% to 25.8%. Taking its place as the most important category was “Nursery, greenhouse, floriculture, and sod”—accounting for 29.7% of the 2002 total. Therefore, although rankings changed, the county’s agricultural sector became a little less diversified. The top three categories—landscaping, dairy, and vegetables—accounted for 84.3% of total sales in 2002, compared to the top three categories’ combined share of 76.7% in 1987.

In all four top categories, the number of separate farming operations decreased: landscaping products went from 54 in the 1987 census to 30 farms in 2002; dairy, from 182 to 90 farms; vegetables, from 232 to 127; and fruit growers, from 46 to 36.

The data on acres harvested (Table 5) suggest one reason for declines in gross sales.²¹ Overall harvested acres for *vegetables* decreased by 28% (from 9,864 to 7,098 acres). By individual crop the declines were dry onions, lower by 39.9%; sweet corn, 26.8%, tomatoes, 35.3%; and bell or sweet peppers, 62.5%. Sizable *increases* were recorded for pumpkins, with their acreage higher by 76.5%, and for squash, by 234%.

All measures in Table 5 for harvested acres in fruits show losses between 1987 and 2002: in apples (by 62%), peaches (66.9%), pears (72.1%), and for the entire category (61.3%).

Three groups of crops that reported increases in harvested acres were nursery, sod, and related products (20.8%), hay (23%), and the forage crops of haylage, grass silage, and green chop (66%). Shrubs, trees, sod, and other landscaping crops tend to sell well in the nearby developing sections of urbanizing counties like Orange County. Hay can also benefit from the accessibility to customers enjoyed by farms on the urban edge. Construction sites use straw mulch to prevent erosion, and owners of stables or individual horses buy hay. Those owners may also be in the market for forage crops.

Although overall harvested acres for fruits and vegetables decreased from 1987 to 2002, we looked for indications that direct marketing of those products may have increased.

Ready-to-eat produce, as well as landscaping products, are considered “high-value” agricultural goods.²² The Census of Agriculture has a relatively new category of market sales entitled “Value of agricultural products sold directly to individuals for human consumption.” Orange County’s entries for 2002 show some increase over 1997—by 14.4% to \$2.7 million (Table 4). This report

²¹With one exception (bedding plants), the crops included in this table were harvested from at least 100 acres in either 1987 or 2002.

²²“High-value (value-added) ‘consumer-oriented’ agricultural products [e.g., fruits, vegetables, and greenhouse and nursery products] require little or no additional processing and are generally ready for final consumption at either the food retail or food service level.” *FAS ONLINE*, “BCIO Background and Contacts”: <http://www.fas.usda.gov/reports/bico/about.htm> (accessed September 23, 2006).

presents interview information below on the viability of Orange County farms specializing in direct marketing. Also covered are operations raising dairy cows, hay, horses, landscaping products, fruits, and vegetables. First, though, we look at the ag census data on profits.

Table 5. Significant* Crops by Number of Harvested Acres, 2002 and 1987, as Recorded by the 2002 and 1987 Censuses of Agriculture		
Groups of crops and individual crops	Harvested acres 2002 (Number of farms growing each crop)	Harvested acres 1987 (Number of farms per crop)
Vegetables, melons, potatoes		
Dry onions	3,547 (58)	5,901 (160)
Sweet corn	679 (40)	928 (48)
Pumpkins	653 (61)	370 (45)
Tomatoes	429 (69)	663 (83)
Bell or sweet peppers	90 (41)	240 (20)
Squash	204 (53)	61 (24)
Total harvested acres for vegetables	7,098 (124)	9,864 (232)
Fruits, tree nuts, and berries		
Apples	935 (22)	2,463 (39)
Peaches	50 (11)	151 (10)
Pears	41 (10)	147 (13)
Total harvested acres for fruits, tree nuts, and berries	1,116 (30)	2,880 (47)
Nursery, greenhouse, floriculture, and sod		
Sod	1,999 (5)	1,483 (7)
Bedding/garden plants**	96 (51)	7.9 (31)
Total harvested acres for nursery, greenhouse, floriculture, and sod**	2,697 (85)	2,233 (129)
All harvested hay	29,688 (307)	24,129 (NA)
All haylage, grass silage, and green chop	8,370 (75)	5,041 (71)

*With one exception, the crops included in this table were harvested from at least 100 acres in either 1987 or 2002.

**Includes both "acres in the open" and greenhouse acres, that is, "square feet under glass or other protection" converted to acres.

Percentage of Total Operations with Profits

According to Census of Agriculture findings, most Orange County operations were profitable in 1987 and 1992, but not in 1997 and 2002 (Table 6). In that latter year, only 38.1% reported net gains. Since the censuses do not provide, at the county level, profitability data by product type or type of marketing strategy, we must turn to our own research findings.

Profitability by Type of Product and Marketing Strategy

Our interview data do support what is suggested by the censuses' time series on market sales and/or harvested acres.

Dairy: As discussed earlier, the 1940 Census reported 2,173 farms producing milk. By the 2002 census that number was down to 90 operations with "Milk and other dairy products from cows." Our interview data identified three major reasons for the decline in dairy farming in Orange.

First, the prices received for milk were considered unsatisfactory:

- “The [federal] government sets the price to the farmer. . . . The [processing] plants need more money because of increases in energy costs. Trucking, advertising, and other costs come out of our milk check,” said a local dairy farmer.
- “The government sets the price; they have hearings. Another thing that has really killed us is the free-trade deal. We have so many dairy products coming in,” said another local dairy farmer.
- “The dairy industry is not viable because dairy prices are the same, 12 dollars a hundred [weight] now [June 2006] and in 1975. Do the math; even if you assume a 4% rate of increase [to take into account general inflation], milk should be 36 dollars a hundred,” said a manager of a livestock marketing business.

Indicator	2002	1997	1992	1987
Total farm operations	706	771	641	789
Percentage of total operations with net gains	38.1	40.3	58.3	60.3
Percentage with losses	61.5	41.0	41.7	39.7
Average net gain per farm with profits (\$)	73,000	20,346	26,598	19,583
Average net loss per farm with losses (\$)	33,282	14,091	11,532	12,782

Besides unsatisfactory market prices, a *second* major problem for Orange County’s dairy sector is that its farms tend to be located on developable upland, that is, away from the Black Dirt Region. The latter consists of about 14,000 acres that are vulnerable to flooding and have soils unsuitable to septic systems. As we discuss later in this report, zoning regulations do not normally prevent housing developments on the uplands, and builders can find buyers for many new home sites there. Also, as we cover later, purchase-of-development-right programs have a limited capacity to preserve Orange County dairy farms. Therefore:

- “When [a dairy] farmer is struggling or nearing retirement age, he gets a knock on the door: ‘Here’s two or three million for your property.’ He goes out of business in Orange and goes to upstate or Pennsylvania. Twenty-five dairy farmers left our county and are still farming,” said an agricultural educator.
- “The practice is to sell your land at \$10,000 an acre, let’s say, move some place else where land is cheap, wait there until it urbanizes, and then sell again. That’s what’s happening throughout the Northeast if not in the whole country,” said a specialist in farmland sales.
- “We have been losing six to eight [dairy] farms a year. Most of it is being sold for development. It takes four to five years to build the homes. In the meantime some other farmer cuts the hay to keep the ag. assessment. Some of the cows go to other farmers in the county,” said a local dairy farmer.

A related, *third* reason for the shrinking of Orange County’s dairy sector is that operations earning enough to support a household require sizable herds, which in turn need considerable acres in the high-land-cost uplands part of the county. While specialty livestock operations such as raising alpaca, ostriches, or fallow deer for venison may be viable on small upland parcels that are bypassed by development, dairy farming may not.

- “Our typical dairy farm might own 150 acres and rent others,” said an agricultural educator).
- “A dairy farm needs to rent 100 to 200 acres beyond what they own. Only 70 farms are left [February 2005]. . . . Maybe a quarter or a third of them is pinched because of available land,” said a manager of local programs serving farmers.

High-value dairy products like organic milk or ice cream might prosper on smaller acreage. However, the experts whom we interviewed about Orange County agriculture could give just one success story, possibly two, as models:

- “There is a very small farm that has an ice cream shop and farm tours. They sold most of their dairy herd at the high point in the market. . . . [Remaining] are a few cows to produce their ice cream,” said an agricultural educator.
- “Only one dairy farmer . . . bottles and markets his own milk. There are some state regulations that make it very difficult to market your own milk,” said a program manager serving farmers.

Hay: In comparison to entries for most of the crops listed in Table 6, the harvested acres for hay increased by 23% between 1987 and 2002. One reported reason is the closing of dairy operations: “Most of that increase in hay production shown in the census represents dairy people who have gotten rid of their cows and have switched to hay,” said an agribusiness manager serving Orange County. If the land is not farmed at all, the owners lost their agricultural assessment (i.e., lower valuation) for property-tax purposes.

Whatever the reason for the greater planting and harvesting, good-quality hay produced in Orange County could earn attractive prices in 2005–2006:

- “Retired dairy farmers use their property to earn a lot of money producing hay for horses. . . . The profit has been very good for some of our farmers,” said an agricultural educator.
- “Dairy farmers grow higher-quality hay for horses and then sell to horse farms and backyard horse people,” said another agricultural educator.
- “There’s quite a market in the horse community for small, square bales of dry hay,” said a farmer producing hay.
- “He gets \$4.00 a bale wholesale, five to six dollars retail from rich horse owners. He can’t handle all the demand,” said an agribusiness manager serving Orange County.

Horses: In Orange County as of mid-2006 there were 150 or more farms that together raised, trained, or otherwise cared for at least 1,350 horses.²³ Although some were small operations with 10 to 40 animals, at least 15 farms had 50 to 75 horses. While some equine farms bred and/or trained, others provided only boarding *and* lessons or at least recreational space for animals and humans (e.g., pasture, riding rings, and trails). Are these operations that do not breed truly agricultural?

²³The results of a survey conducted by Cornell Cooperative Extension and the Orange County Soil and Water Conservation District and reported to us in an interview.

A banker in Orange suggested a “value-added” criterion:

“I may own a 20-acre farm and lease it to a trainer who has credentials. People say that I want my horses trained by him because the person’s horses have done so well. These operations are making money; this is not a hobby. They get money to board and train. They are adding value to the community. I think they are bona fide farms.”

Perhaps it can be proved that the existence of good boarding and recreational facilities on a farm also add significant value to the horses served there. As will be discussed shortly, New York State’s agricultural-use assessment laws permit certain boarding operations to qualify for that lower-than-market-value type of assessment.

Two interviewed observers of Orange County’s equine sector argued for the agricultural validity of horse *farming* because of its positive effects on other agricultural sectors and on the preservation of the land for farming:

- “Horses provide markets for the hay grown here and for our pasture land.”
- “We don’t care if someone substitutes a horse farm for a dairy farm. From our perspective, the land is protected.”

Horse farms may also be *sustainable in the face of rising land prices*. The ability to compete with nonagricultural uses of the land is a trait of great importance to our research study of farm viability on the urban edge. As we discussed earlier, the economics of dairy farming may not allow it to maintain a substantial presence in Orange County. However, according to an equine expert in Orange County, a large horse farm with diversified services can be competitive: “Yes, if he has good land with multiple uses, the fellow with 225 to 250 horses can do it.” We visited one such operation and learned from the owner:

“We need to produce revenues from as many as sources as we can in order to sustain this operation. We could board up to 250 horses. We rent boarding space to a separate enterprise. . . . We have our own boarders. Some are retired horses who live in our fields. Some have owners who board the horses here, take care of them, ride them, and may take lessons from us. The rest are our own horses for riders. We breed horses to sell. We do horse shows, summer camps, and lessons.”

However diversified this operation was, the owners did not believe they could afford to buy the land at prices then prevailing in the area (mid-2006): “We wouldn’t be here if we had to buy the farm now. The land is valued at three times what it was when it was a dairy farm.”

Another indication of the difficulty of starting up a horse farm in Orange County was the following observation from a business person with a specialty in rural land sales: “Back in the ’80s, a lot of these dairy farms were converted to big horse farms breeding and raising horses. . . . Some are still around, but now the industry seems to have fallen on hard times, about 10 years or so ago. I’ve not seen new horse farms in this county.”

A financially feasible model for equine agriculture might be the household that (a) inherits land and or (b) buys it at market value with the intention of enjoying a rural lifestyle and also with the determination to farm it enough to qualify for agricultural-use value assessment (UVA). One of

our interviewees owned a small farm and received UVA thanks to breeding and selling horses, as well as marketing hay and corn for feed.

Agricultural Assessment for Property Taxes

In 2006 farmland owners were eligible for UVA rather than market value assessment if:

- “The land consists of at least seven acres which have been used to produce crops, livestock, or livestock products for sale in the past two years. The crops, livestock or livestock products produced on such land, including land rented by the applicant from another and used in conjunction with agricultural land owned by the applicant, must have an average gross sales value of at least \$10,000 for the two years preceding the application” (New York State Board of Real Property Services, *Agricultural Assessment Program Update*, p. 1).
- The land consists of fewer than seven acres but yielded an average of at least \$50,000 in gross agricultural sales during the previous two years.
- “The land consists of at least seven acres and has been used during the preceding two years to support a commercial horse boarding operation [with at least 10 horses and] with annual gross receipts of \$10,000 or more” (from either the horses or some combination of boarding fees and sales of crops, livestock or livestock products).
- The parcel consists of at least seven acres and is rented out to a single farm operation under a written lease of five or more years’ duration, and the “land must be used in conjunction with other land which qualifies for an agricultural assessment.”²⁴

Under these rules small horse farms would qualify either by selling livestock or by boarding 10 or more horses and averaging at least \$10,000 in fees over the year. That level of gross income may not be too difficult to achieve. One boarding facility in Orange County advertised these *monthly* fees in April 2007:

12 x 12 stall: \$650.00	Field board (retirement facility): \$310.00
8 x 12 stall (ponies only): \$500.00	Field board, with the use of our riding facilities: \$385.00

USDA’s Economic Research Service (ERS) characterizes as “small family farms” any with sales less than \$250,000.²⁵ Where the operator reports that he/she is retired, it is a “retirement farm” by ERS nomenclature. When the operator is not retired but lists his/her “major occupation” as something other than farming, ERS terms it a “residential/lifestyle farm.” Farming operations of both these latter types may have the advantage in an urbanizing county of being able to compete with residential or commercial uses for the land. That is, many or most current owners do not want to sell for development purposes, and if personal health or financial conditions force them to put the land on the market, other retirement or lifestyle farmers may be able to outcompete developers. Adding to the attractiveness of purchasing equine farms (as opposed to dairy, vegetable, and other operations) may be the existing stable and riding space for the owner’s own animals.

²⁴Certain other conditions also permit agricultural-use value assessment.

²⁵Robert A. Hoppe and David E. Banker, 2005, *Structure and Finances of US Farms: 2005 Family Farm Report* (Washington, DC: USDA Economic Research Service, Economic Information Bulletin No. 12), p. 2.

A problem for some equine operations may be that the Farm Credit System does not permit loans to that type of enterprise.²⁶ Another difficulty may be a future scarcity of equine veterinarians. Section IIID of this report discusses the supply of large-animal veterinarians.

Nursery, Greenhouse, Floriculture, and Sod: Between the 1987 and 2002 censuses of agriculture, the number of harvested acres (including greenhouse space) devoted to nursery and related products increased by 20.8% (Table 5). Also higher (by 158%) were the total sales for this category of farm products (Table 4). These two measures suggest a healthy sector. Our interviews provided confirmation for sod farming, although other kinds of landscaping crops may also have been doing well:

- “Doing the best financially are sod growers. . . . Their success is directly related to the building boom. Towns have required lawns seeded or established,” said a farm finance expert.
- “There are some sod farmers, and they are doing extremely well. Grass growing is awesome. . . . They can harvest from February through December,” said another farm finance expert.
- “Our markets are strong. There are 8 or 9 growers. We wholesale, sell to nurseries, and ship to construction sites like a school,” said an Orange County sod farmer.

Fruits: The Census of Agriculture data on fruit production show a sector in decline. Total gross sales decreased by 73.5%, 1997 to 2002 (Table 4). Data from Table 5 indicate one clear cause: many fewer acres were being planted to fruit crops. As discussed earlier, harvested acres producing apples dropped by 62% between 1987 and 2002. Land in peaches was 66.9% lower, and acres of pears declined by 72.1%. For the “fruits, nuts, and berries” category of crops as a whole, the decrease was 61.3% (Table 5).

Much or most of the decline may be due to the fruit farms being predominantly on the uplands where development pressures have been high. Another reason may be the difficulty of finding good wholesale markets. One fruit grower told us: “We had to get into retail in the 1960s with the consolidation of supermarkets. In the ’50s my husband used to sell to mom-and-pop stores. Huge chains want carloads, but we have 25 acres of orchards. . . . They want year-round suppliers and are not interested in any producers in the Northeast.” This farm switched mostly to retail.

Vegetables and Direct Marketing: As covered earlier, between 1987 and 2002 vegetable production lost its position as Orange County’s most important agricultural sector in total revenue. In that time period its total gross sales decreased by 38.3% (Table 4). The Census of Agriculture recorded substantially lower harvested acres for dry onions, sweet corn, tomatoes, and bell peppers (Table 5).

The bright spot in vegetables was direct marketing. Faced with the same kinds of problems in the wholesale markets as discussed above for fruit farmers, many vegetable growers switched to retailing. In 2006 the Cooperative Extension in Orange County was working with 85 growers. An estimated 50% of their total sales derived from direct marketing, although those sales came

²⁶Interview with a representative of a member bank of the Farm Credit System in May 2006.

from only about 30% of the group’s total acres.²⁷ These two percentages suggest better gross returns per acre if farmers have the necessary resources, such as a sufficient pool of potential customers, enough labor both to produce and sell, and skill in customer relations.

The *marketing resources* for Orange farmers include:

- a fairly sizable population in the county itself and much larger numbers of residents in six adjacent or nearby counties to the south and east, with those counties plus Orange totaling an estimated 6.0 million residents as of 2006 (Table 7);
- during the 2007 season, 11 farmers’ markets in Orange, another 15 in adjacent Westchester County, 18 in the Bronx, and 42 in Manhattan (as well as 36 in other parts of New York City);²⁸ and
- close to 50 farm stands that in mid-2007 were selling vegetables and/or fruit directly to consumers.²⁹

County and state	Estimated 2006 population
Rockland (NY)	294,965
Westchester (NY)	949,355
Passaic (NJ)	497,093
Bergen (NJ)	904,037
Bronx (NY)	1,361,473
New York County (NY)	1,611,581
Orange (NY)	376,392
Total	5,994,896

Orange County’s 11 farmers’ markets were all advertised as being open one day a week, Tuesdays to Sundays, with posted times ranging from four to seven hours and averaging 5.6 hours.³⁰ In Manhattan (where Orange County farmers sold also), three markets operated two days a week; two were open three days; and one (Union Square) for four. Twenty-six of Manhattan’s 2007 farmers’ markets operated under the auspices of the “Greenmarket Program” of the Council on the Environment of New York City. In all five boroughs of the city, there was expected to be a total of 44 Greenmarkets, serving “over 250,000 customers . . . every week in peak season.”³¹

To promote regional farming, farmers’ markets may prohibit vendors who do not sell their own agricultural products. The Greenmarkets are advertised as excluding “middlemen or brokers” and limiting participation to “almost 200 local farmers and fishers sell[ing] what they grow, raise, catch and bake themselves.”³² According to the manager of one of the Orange County markets,

²⁷Interview with an expert on vegetable production in Orange County, June 2006.

²⁸New York State DA&M, *Farmers’ Markets*:

<http://www.agmkt.state.ny.us/AP/CommunityFarmersMarkets.asp#Orange%20County> (accessed April 24, 2007).

²⁹Communication from an expert on Orange County’s agricultural sector in June 2007.

³⁰New York State DA&M, *Farmers’ Markets*.

³¹Council on the Environment of New York City: <http://www.cenyc.org/site/> (accessed April 27, 2007).

³²Council on the Environment of New York City: <http://www.cenyc.org/site/> (accessed April 24, 2007).

the Greenmarket program in New York City “requires a letter from the Cooperative Extension agent in the prospective vendor’s home county to the effect that the applicant is a bona fide farmer.” The same rule applied to that manager’s own market in Orange County. She went to the farm address to check up if there was not other evidence of the vendor producing at least \$10,000 in gross farm sales.³³

We interviewed two Orange County vegetable growers who participated in New York City farmers’ markets, as well as others markets. These growers also delivered regularly to restaurants, and the larger producer had a CSA (community-supported agriculture) service to supply subscribers in a suburb. Both offered a wide variety of vegetables (over 100 in one case and exceeding 200 in the second) and argued that the diversification pleased their customers and reduced the risks of bad weather or price fluctuations. For example, one said, “The early rain that was so damaging to our potatoes was just right for our garlic, which was planted on a well-drained slope.”³⁴

These growers and other knowledgeable interviewees discussed the types of *human resources* required for financially successful direct marketing. One such type was a personable operator sensitive to the preferences of his/her customers. One informant believed that the operators needed to interact effectively with the clients in order both to learn what they want to buy and to make the purchasing experience as fulfilling as possible:

- “Spending a whole day interacting with your customers is the key to your sales,” said a manager of a farmers’ market.
- “If you are a grumpy person that happens to have very nice produce, customers get only half of what they want. . . . Customers love to ask about what herb to use for this—like Asian greens. For the first time they buy something, people will ask what should I do with this? . . . The market is a place of exchange, and often another customer will chirp in. You want to create that environment where people are actually relaxed and enjoying the experience,” said a direct-marketing grower.

A second type of human resource identified as essential was a spouse, sibling, business partner, or very trusted hired staff person(s) who manages the production side of direct marketing when the operator is at markets or who does the marketing while the farmer supervises production.

- “Tomorrow two [interns at his organic farm] will go to market for me and run the whole market after having gone with me a few times. One of them was here last year and has that experience. I pretty much trust them to take all the cash and bring it back to me and to conduct themselves professionally,” said a vegetable grower.
- “I need someone who is knowledgeable and honest in returning the money. At the end of day they claim they sell at a reduced price. You don’t know what to expect from your agent there because the revenue is variable depending on the quantity sold and the discounting at the end of the day. There was graft to be had without the ability to prove it,” said a fruit grower.

³³ Interview with that manager, June 2006/

³⁴ This quotation comes from a book that the interviewed grower published in 2006: Keith Stewart, *It’s a Long Road to a Tomato: Tales of an Organic Farmer Who Quit the Big City for the (Not So) Simple Life* (New York: Marlowe and Company), p. 49.

- “The ones that have really been successful produce a good product to sell and also have someone to watch the cash register at the market. It might be some sort of family operation, with the dad staying at home to mind the fields, which is what he’s been doing all along. The younger people are able to hawk their wares,” said a farm finance expert in the county.

A third type of indispensable human resource for vegetable farming may be nonfamily field labor. Unless there are sufficient willing and capable family members or unless the operation is very small, the operator will need to hire workers to plant, weed, debug, harvest, box or crate the produce, and market it, among other tasks. The challenges in recruiting good workers are discussed later in this report.

Locational Pros and Cons: In contrast to fruit production, most of Orange County’s commercial vegetable farming is located in the Black Dirt Region where competition for land is usually from other farmers rather than developers. Although vegetable production land is therefore relatively cheaper to purchase, it is more prone to flooding and the consequent losses of crops, as occurred in the fall of 2005 and the spring of 2006. On the other hand, during dry or normal weather periods, farmers needing to irrigate crops have plentiful groundwater to tap in these former swamps.

Section IIIB: Marketing Outlets for Orange County’s Agricultural Products

A necessary condition for the survival of a significant agricultural sector in any county is that producers continue to find satisfactory marketing outlets for what they raise. Among the 133 farmland owners who completed questionnaires in Orange County, all reported that they had land in the county that was farmed during 2005. Ninety-three respondents were operators of at least some of that land, and another 21 reported not being operators, themselves, but having “detailed information about how my farmland there is operated.”³⁵ These two groups totaling 114 owners were asked a number of questions about the 2005 agricultural operations on their land, including how crops or livestock were marketed and how satisfied they were with the “accessibility, competitiveness, and profitability of marketing outlets for your farm goods.”

³⁵Early in the survey—question #13—all respondents were asked to classify themselves as: (1) “I am an operator of at least some of the farmland I own in Orange County”; (2) “I am not the operator of any of my land there, but I have detailed information about how my farmland there is operated”; or (3) “I am not an operator, and I do not have detailed knowledge of how my farmland there is operated.” Those respondents choosing the third option were directed to skip to the last section of the survey, thus missing the groups of questions about which crops or livestock were raised on their land in 2005, how the land’s products were marketed, how adequate were the supplies of inputs for farming, and other issues presumably beyond their knowledge base.

Among the 114 owner-operators and “informed” nonoperator-owner respondents, here are their answers to the three-part question about satisfaction with the marketing outlets:

Response options	Accessibility (%)	Competitiveness (%)	Profitability (%)
Very satisfied	11.4	7.9	2.6
Moderately satisfied	24.6	27.2	20.2
(Either “very” or “moderately” satisfied)	(36.0)	(35.1)	(22.8)
Somewhat satisfied	17.5	12.3	22.8
Not at all satisfied	10.5	15.8	17.5
Not sure	8.8	8.8	7.9
Did not answer	27.2	28.1	28.9
Number of respondents	114	114	114

*Owner-operators and nonoperator-owners with knowledge of farm operations on their land were asked, “Overall, in 2005 how satisfied were you with the accessibility, competitiveness, and profitability of marketing outlets for your farm goods?”

These responses suggest only modest satisfaction with marketing opportunities. Regarding “accessibility,” 36 % were either “very satisfied” or “moderately satisfied.” The corresponding combined percentage for “competitiveness” is 35.1%, and for profitability, 22.8%. If we limit this analysis to just the 93 owner-operators, the three percentages climb somewhat—to 39.8% for accessibility, 37.7% for competitiveness, and 25.8% for profitability.

Accessibility: We used logistic regression analysis to look for determinants of these measures of satisfaction with marketing outlets.³⁶ Our hypotheses included that respondents’ evaluations of their markets’ *accessibility* varied with the percentage of their total 2005 sales achieved through direct marketing, with the percentage of total sales transported to points of sale “within a one-hour trip from your farm,” and with the respondents’ ages. We wondered if older farmers found market accessibility more difficult, other things being equal. The statistically significant regression findings were that

- Respondents whose products were sold entirely through direct marketing were much more likely to be “very satisfied” or at least “moderately satisfied” with the accessibility to markets.³⁷ Of course, if sufficient customers can be attracted to one’s own farm stand or to nearby farmers’ markets, access for the farmer should be better than if points of sale are distant.
- Surveyed owners with any livestock raised on their land were *less* likely to be “very satisfied” or “moderately satisfied.” At the time of the survey there was no livestock slaughter facility in Orange County. Larry Hulle, an extension resource educator in dairy and forages, told us in May 2007, “Just last week I heard that a long-running facility two hours north will be shutting its doors soon, and farmers are again calling me to see where they can take these animals. This is a major stumbling block for producers that want to

³⁶Logistic regression: see Scott Menard, 2002, *Applied Logistic Regression Analysis*, 2nd ed. (International Oaks, CA: Sage Publications), 111 pp.

³⁷To qualify as a significant determinant of the likelihood of the respondent being at least “moderately satisfied,” an independent variable had to be statistically significant in a Wald test at the 0.1 level or better. The significance level was calculated after taking into account any effects from other explanatory variables in the equation.

venture into alternative livestock enterprises [e.g., goat meat for ethnic markets, fallow deer for venison meat].”

Other measures of the role of direct marketing and wholesaling³⁸ did *not* affect the likelihood of satisfaction.

Qualifying Comments: There are likely to be significant causes of satisfaction that our comparatively short questionnaire (nine pages) did not measure. Another limitation is the small number of cases included in the analysis—114 or fewer, depending on which groups of owners are included in the analysis. With a larger sample, more hypothesized causal variables might have been statistically significant. In this regression analysis and the several others presented later in the chapter, the relationships we report are unlikely to be due to random factors alone.³⁹

Competitiveness: In our analysis of the likelihood of being at least “moderately satisfied” with the markets’ *competitiveness*, we used the same three hypotheses already mentioned and added ones about the total acres being farmed, overall gross farm sales, and the types both of marketing outlets used in 2005 and of the farm products raised on owned land that year.⁴⁰ Regarding farm products, we had nontrivial numbers of respondents (at least a dozen for each type of product) reporting their land being used for raising vegetables, nursery crops, grains, hay, beef cows, dairy, poultry, and horses. The only statistically significant relationships we found were that, other things being equal,

- Respondents with vegetable production on their land were more likely to be satisfied.
- Having an on-farm marketing stand or u-pick operation also increased the likelihood of being at least moderately satisfied with competitiveness.

Our interviewees tended to be positive about both vegetables and direct-marketing:

- “We have the consumers and a way for an extended season—through greenhouses” (a vegetable farmer).
- “Orange County has an incredibly huge market that is crying for fresh local stuff” (another grower of vegetables).
- “[Consumers] have a better perception of the advantages of eating things that are grown locally. That could be pushed everyday of the week, especially with the cost of fuel to transport goods from the West Coast” (a third grower of vegetables).
- “With the increase in urbanization, the opportunity for smaller vegetable farms and greenhouses are growing” (a banker knowledgeable about the county’s agriculture).

³⁸These variables were: the total percentage of sales marketed wholesale, the percentage marketed directly, whether all sales were wholesale, the percentage marketed from the farm (i.e., a stand, via pick-your-own), or whether the respondent had any direct-marketing sales at all, any wholesale sales at all, whether he/she had more than 50% of total sales marketed directly, more than 50% wholesale, and the percentage of total sales marketed at points of sale “within a one-hour trip from your farm,” and the percentage sold more than an hour away.

³⁹The probability of the relationship being due entirely to chance factors is estimated to be no greater than 10%, as indicated by a Wald test of statistical significance.

⁴⁰In an already long questionnaire, we chose not to include separate questions about the types of crops and livestock raised on rented land or any land farmed outside the studied county. However, the questions about total acres farmed, gross sales, percentage of household income derived from farming, and marketing outlets focused on the total operation in 2005.

Profitability: For explaining the likelihood of being “very satisfied” or “moderately satisfied” with the *profitability* of market outlets, we tested for the effects of the same hypothesized causal variables. In this round of regression analysis, again only two respondent traits were predictors of satisfaction:

- having vegetables grown on his/her land, and
- believing that right-to-farm laws were either “very or at least moderately helpful [in] protecting farmers against unfair nuisance complaints.”

Section III E below discusses the processes for handling nuisance complaints from neighbors. It seems likely that farmers who find those processes helpful have more freedom to manage their operations profitably.

Table 9 compares (1) the satisfaction levels of the groups of respondents that the above analysis indicated to be more satisfied to (2) the percentages for all surveyed owners asked to evaluate the marketing outlets for their farm goods.

Table 9. Satisfaction with the Accessibility, Competitiveness, and Profitability of Marketing Outlets for Surveyed Owners’ Farm Goods: Percentage by Response Option and Group of Respondents			
Dimensions evaluated and groups of respondents	Very satisfied (%)	Moderately satisfied (%)	Either “very satisfied” or “moderately satisfied” (%)
Regarding accessibility			
All respondents (<i>n</i> = 114)	11.4	24.6	36.0
Their agricultural products sold entirely via direct marketing (<i>n</i> = 23)	8.7	52.2	60.9
They had livestock on their land (<i>n</i> = 62)	8.1	16.1	24.2
Regarding competitiveness			
All respondents (<i>n</i> = 114)	7.9	27.2	35.1
Vegetable production on their land (<i>n</i> = 37)	8.1	43.2	51.3
Had on-farm stands or u-pick (<i>n</i> = 23)	8.7	56.5	65.2
Regarding profitability			
All respondents (<i>n</i> = 114)	2.6	20.2	22.8
Vegetable production on their land (<i>n</i> = 37)	5.4	35.1	40.5
Believed right-to-farm law provided effective protection against unfair nuisance complaints (<i>n</i> = 51)	3.9	37.3	41.2

Programs Operating in Orange County to Promote Marketing Opportunities

Our interviews with agricultural leaders in the county and staff members of New York state agencies identified the following programs as being in existence in 2005–2006 and designed (at least in part) to promote marketing opportunities for farmers:

- The New York State Department of Agriculture and Markets (DA&M) had a program that promoted the purchase of agricultural products grown or processed in the state. Qualifying producers could advertise and sell under the “Pride of New York” logo. That label was placed on packaging and jars, as well as on roadside signs, banners, pins, and other media for reaching potential customers. As of April 2007, 51 Orange County

producers were listed on the program's website.⁴¹ Included were 22 offering some kind(s) of vegetables, 15 selling onions or other herbs, 18 featuring some type(s) of fruit or fruit product (e.g., cider or wine), and 11 offering plants, shrubs, trees, or trees.

- As discussed earlier in this report, a DA&M website advertised farmers' markets by county. Eleven were listed for Orange County.
- The department promoted consumption of locally grown food also through its farm-to-school program called "New York Harvest for New York Kids."⁴²
- It assisted with wholesale marketing such as through its participation in foreign trade shows and its marketing order programs for apples, sour cherries, onions, and cabbage.⁴³
- The state also provided grants to farmers for processing their products (such as making wine from apples and cheese from milk) and for packaging lettuce and other produce. Food processors locating in state-designated Empire Zones may have been eligible for a variety of tax benefits (sales tax refunds and several tax credits including on wages and investment in depreciable property and/or equipment).⁴⁴
- Yet another state-level program promoted "Small Farms and [the] Beginning Farmer."⁴⁵
- Orange County extension staff members worked with farmers to process products and to develop agritourism (e.g., schools encouraged to offer field trips to farms where the children have hay rides and receive a pint of cider to drink).⁴⁶
- The county extension office had a program also of "business management and production education to commercial vegetables growers" that can help them to diversify their products.⁴⁷

At the end of 2006 the extension staff serving Orange County farmers was substantial in breadth of expertise. It included "resource educators" in the categories of dairy and forages, vegetable crops, commercial and community horticulture, and equine and livestock; an issue leader for policy and land use; a food security coordinator who worked with farmers' markets and other vehicles for promoting good nutrition; and a regional specialist in integrated pest management. This office also distributed seven newsletters oriented toward various agricultural producers in the county and region.⁴⁸

Our winter 2006 survey of agricultural landowners included questions to determine (1) if respondents were aware of assistance programs operating in the county with the objective of improving farm operations' marketing or their mix of enterprises (e.g., adding products or

⁴¹Pride of New York: http://www.prideofny.com/member_results.asp (accessed April 27, 2007).

⁴²"Cafeterias feature NY farm products; classrooms do food-tastings; students visit farms and farmers' markets, or harvest their school gardens." New York State DA&M: <http://www.agmkt.state.ny.us/Programs.html> (accessed April 20, 2007).

⁴³New York State DA&M: <http://www.agmkt.state.ny.us/ap/agservices/admin.html> (accessed May 2, 2007).

⁴⁴Empire State Development: http://www.empire.state.ny.us/Tax_and_Financial_Incentives/Empire_Zones/descriptions_benefits.asp (accessed April 27, 2007).

⁴⁵Small Farms Program: <http://www.smallfarms.cornell.edu/pages/contact/localcontacts.cfm#Orange> (accessed April 28, 2007).

⁴⁶Interview with an Cooperative Extension staff member, May 2005.

⁴⁷Interview with an Cooperative Extension staff member, May 2005.

⁴⁸*Hudson Valley Agricultural Newsletter* (for dairy and field crops), *Fruit Crops Newsletter*, *Muck and Mineral* (commercial vegetable crop management and marketing), *Greenhouse Crop Management News*, *Hudson Valley Horticulture*, *Hudson Valley Livestock Digest*, and *Hudson Valley Equine Line*.

processing existing ones) and (2) what opinions (if any) the surveyed owners had about those programs. For each of the seven types of possible assistance programs listed in Table 10, many to most of the respondents—35.1% to 51.8% of them—either chose the option “not sure” or offered no response at all. On the other hand, only 5.3% to 8.8% selected the option “not operating in the county to your knowledge” (Table 10).

In fact, as the list of programs above indicates, there were programs in place for each of the seven purposes of assistance. But apparently many were not well enough known to stimulate opinions about their effectiveness. The highest combined percentage of the answers “very useful” and “moderately useful” was for programs for marketing directly to consumers (35%).

Table 10. Agricultural Landowners’ Perceptions of Assistance Programs Possibly Operating in the County: Percentage by Response Option (n = 114)						
Possible assistance program operating in the county	No such program in county (%)	Very useful (%)	Moderately useful (%)	Somewhat useful %	Not at all useful (%)	Not sure or did not respond (%)
Marketing directly to consumers	8.8	25.4	9.6 (35.0)*	5.3	15.8	35.1
Marketing directly to retail markets (stores, restaurants)	6.1	7.0	14.0 (21.0)*	5.3	15.8	51.8
Marketing to wholesale markets	6.1	11.4	11.4 (22.8)*	7.0	16.7	47.4
Developing other ag enterprises (e.g., ag tourism)	5.3	10.5	10.5 (21.0)*	16.7	16.7	40.3
Diversifying or adding new products	5.3	15.8	8.8 (24.6)*	7.9	18.4	43.9
Developing value-added products (e.g., bagging, packaging, bundling, precutting)	7.0	14.9	7.0 (21.9)*	6.1	15.8	49.1
Processing crop or livestock products the farmer raises	8.8	8.8	7.0 (15.8)*	12.3	16.7	46.5

*The sum of percentages of respondents who found the programs “very useful” plus those who rated them as “moderately useful.”

In contrast, when our survey questions switched from asking about current programs to inquiring whether such assistance to farmers “should be” available in the county, majorities or near majorities answered “yes” (Table 11). By this measure the top three kinds of programs were assistance with direct marketing to consumers (62.3%), with marketing directly to retail outlets (59.6%), and with diversifying or adding new products (54.4%).

For each category of program, the percentage responding “yes” increased when we limited the analysis to the 93 owner-operators (see the “yes” values in parentheses in Table 11). But the

changes were small—no more than 5.1 percentage points. We should add that, among all 114 owners asked these questions, there were relatively few “no” answers (1.8% to 8.8%).

Table 11. Agricultural Landowners’ Preferences for Whether Assistance Programs Should Be Operating in Orange County:* Percentage by Response Option (n = 114)				
Possible assistance program operating in the county	Yes (%)	Maybe (%)	No (%)	Not sure or no response (%)
Marketing directly to consumers	62.3 (64.5)**	16.7	2.6	18.4
Marketing directly to retail markets (stores, restaurants)	59.6 (60.2)**	17.5	1.8	21.1
Marketing to wholesale markets	50.0 (53.8)**	21.9	4.4	23.8
Developing other ag enterprises (e.g., agritourism)	49.1 (53.8)**	20.2	6.1	24.6
Diversifying or adding new products	54.4 (59.1)**	20.2	1.8	23.7
Developing value-added products (e.g., bagging, packaging, bundling, precutting)	46.5 (51.6)**	17.5	6.1	29.9
Processing crop or livestock products the farmer raises	49.1 (51.6)**	15.8	8.8	26.4

*Text of question: “Whether or not these programs are operating in the county or functioning effectively, do you believe that in Orange County there *should* be programs to assist farmers with [name of specific assistance program].?”

**Percentages based on the responses of the 93 owner-operators.

Section IIIC: Inputs of Production: Farmland—Quantity, Affordability, and Agricultural Land Preservation Programs

Besides satisfactory marketing outlets, another likely necessary condition for a viable agricultural sector is the perception by “enough” farmers that they have access to adequate supplies of inputs for production—especially, land, labor, and water and such other inputs as fertilizers, pesticides, equipment and implements (sales, parts, and repairs).

Land for Farming and Contributions of Farmland Preservation Programs: We investigated three general aspects of the supply of land for farming in Orange County:

- its quantity,
- affordability to purchase or to rent, and
- the contributions to the supply of land for farming made by county-level and other farmland preservation programs.

Quantity

As discussed earlier in this report, the total acres in farms reported in the censuses of agriculture declined somewhat over the 15-year period 1987 to 2002—by 6% to 107,977 acres or about 169 square miles (Table 2). Over those 15 years the relative importance of small-in-acres farm operations did not change much. Compared to other counties in our study, the percentage of very small farms—fewer than 10 acres—remained low at 10.3% (Table 2). Operations of 10 to 49 acres made up almost 30%. The middle-size range of 50 to 179 acres continued to account for about a third of the total farms, while the top two ranges—500 to 999 acres and 1,000 plus—grew slightly to comprise 6.9% of the total.

Affordability: Land to Purchase

The landowner survey asked, “In 2005, on the whole how affordable to you (or the operator of your land) was the farmland that came on the market in Orange County for purchase [and] for rent?” Table 12 presents the findings by three groups of respondents. Whether we look at

- all owner-operators plus those additional owners who believed they had “detailed information” about how their land was farmed ($n = 114$),
- operators only ($n = 93$), or
- those operators with at least \$100,000 in gross sales ($n = 51$),

the distributions of opinion varied little. Just 10.6% to 17.6% found the farmland for sale that year “on the whole very affordable” or at least “affordable” (see the percentages in parentheses in Table 12). Forty-nine percent to 54.4% considered it “not at all affordable.”

Groups of respondents	On the whole very affordable (%)	Affordable* (%)	Not very affordable (%)	Not at all affordable (%)	Not sure/No response (%)
All owner-operators and also nonoperator-owners who reported having detailed information about how their land was farmed ($n = 114$)	1.8	8.8 (10.6)	14.0	54.4	21.0
Operators only ($n = 93$)	2.2	9.7 (11.9)	15.1	51.6	21.6
Operators reporting at least \$100,000 in gross sales for 2005 ($n = 51$)	3.9	13.7 (17.6)	17.6	49.0	15.7

*Percentages in parentheses represent the sum of the two response options, “On the whole very affordable” and “Affordable.”

Our interview sources tended to agree:

- “Only the muck land [the approximately 12,000 acres of farmland in the Black Dirt Region] sells for ag value. Recently, we did have an upland farm that sold as a farm; it was a dairy farm. That does not happen very often. . . . It was real surprising that a farmer bought that land,” said a specialist in agricultural land use.

- In response to the question, “Who has bought upland?” another land-use expert told us, “Some very long-term producers have made purchases of upland. They are larger farmers who purchase in part to farm and in part to invest. They can afford it because they have sold off other parcels. They get a large parcel and sell off a building lot or two. . . . They know that agricultural repayment ability is not the only issue.”
- During a tour of Orange County farms, a specialist in rural land sales told us: “Here’s a million dollar nursery operation from Westchester [County, NY]. He bought this old dairy farm with great road frontage . . . to raise his nursery stock. Some day he will dig those plants out, and it will become housing. But now he uses it productively, a use we would not have thought of 20 years ago, at least not up here.”
- In response to the question “What land might a beginning farmer afford?” an upland farmer said, “Only land with a conservation easement on it already.”

Affordability of Deed-Restricted Land through Purchase of Development Rights

As suggested by this last quotation, exceptions to the trend toward unaffordable farmland prices for upland could be the parcels shorn of their development rights and thus not available for housing subdivisions or some industrial or commercial use. As of late 2006 the development rights have been purchased for over 20 farms in Orange County.⁴⁹ By October 2007 the protected areas totaled about 5,400.⁵⁰ Money for these easement purchases came from town governments, county government, the New York State DA&M, the federal Farm and Ranch Lands Protection Program, and private land trusts like the Orange County Land Trust, Open Space Institute, and Scenic Hudson. Press releases from the DA&M and interviews with four members of selection committees identified the following criteria as important when local governments decided on farms for funding (although we could not establish if all these factors were used by all committees):

- *Quality of soils* as indicated by soil survey maps.
- *Quality of scenic beauty that the public can enjoy.* One of the protected farms has about 2,100 feet of frontage on a river. Another has a large stretch of farmed land along an interstate highway.
- *Closeness to other protected farmland.* The Town of Warwick advertised that—as of June 2002—it had over 800 contiguous acres under agricultural conservation easements.⁵¹ When in the same year the Town of Montgomery protected a 115-acre dairy farm, one of the selling points to the public was that it was within a mile of two other preserved farms.⁵²
- *Type of farm enterprise.* In at least one case, a horse farm was rejected in part on the grounds that it did not represent genuine agriculture.

⁴⁹ ACDS, LLC (Columbus, MD), 2004, *Technical Report: Orange County Agricultural Development Strategy* (Goshen, NY: Orange County Department of Planning), Appendix 4, p. 15; Orange County Planning Department, “Orange County Open Space Fund Awarded Projects, as of March 1, 2007”:

<http://www.orangecountygov.com/documentView.asp?docID=3827>; and press releases from the New York State DA&M: <http://www.agmkt.state.ny.us/ad/release.asp?ReleaseID=1217> and <http://www.agmkt.state.ny.us/ad/release.asp?ReleaseID=1165> (all accessed May 3, 2007).

⁵⁰ Communication from the Orange County Planning Department, November 2007.

⁵¹ NY State Department of Agriculture & Markets, June 29, 2002 news release, “Governor Announces \$16 Million to Protect Farmland.”

⁵² Same source as in the preceding footnote.

- *The land's ability to support agriculture on other parcels.* In at least two cases the local governments justified their selections in part because the farms to be protected were components of operations involving other, rented land (800 and 900 acres) that, by implication, might not remain in agriculture if the applying owner-operators' land were not preserved.
- *Restraint on rebuilding or replacing the farmhouse.* In one case we learned that the negotiators for the town succeeded in winning owner approval for a condition in the easement that limited any rebuilt or substitute "farmhouse" to 3,500 square feet of living space. One of the funders suspected that the current owner would otherwise try to market the land to estate buyers who, in turn, would create a mansion out of, or in place of, the existing farmhouse.⁵³

We were told that farmland owners' interest in selling development rights increased after the county's first few sales agreements were completed and the amounts of money received by owners were publicized. Also helping was the realization that the land's market value may increase even after the development rights are retired:

- "Lots of farmers are now interested in easements, whereas at the start just a few were interested. Now the other farmers see what the easement money can do—improve the farm. If children don't want to operate the easement farmland, there should be plenty of other farmers wanting to rent it. Also, it looks as though the after-easement sale values of the land continue to increase. Recently, a 100-acre farm with the right to build only one home was about to sell for more than 1 million," said an attorney representing farmers.
- "We were hesitant about selling the development rights. The children were concerned that the land would not gain a lot in value. So they said don't sell the development rights now. But then we found that it would appreciate in value. People [are] buying it for horses. Even with the restrictions it will grow in value," said a farmer who sold an easement.

When current owners of restricted land wish or need to sell it, who will likely buy it? As the last two quotations indicate, opinions vary about who will buy easement land when the current owners or their heirs sell. It could be other farmers or nonfarmers who seek estate-type uses of the land. However, if New York's laws for agricultural-use value assessment remain as they are, the land needs to be farmed at least to the extent of grossing \$10,000. Therefore, much or most of the land may be available for leasing. At the least, the easements will keep the land undeveloped and hopefully still suitable for farming again sometime in the future.

Farmland Affordable to Purchase as a Result of Government Land-Use Regulations: Zoning and Floodplain Rules?

Zoning to Protect Farmland: Besides purchase of development rights, other tools for protecting farmland from development include land-use regulations. The *zoning approach* does not seem to be a strong barrier to land conversion in Orange County. In their 2004 study *Agricultural Development Strategy*, ACDS of Columbus, Maryland, found that:

⁵³Interview with someone who helped to negotiate the agreement, June 2006.

- “five [of the county’s 20] towns were addressing agriculture through the existing [comprehensive] plan. Beyond the comprehensive plan, a handful of towns, mostly within the central agricultural corridor . . . have proactive agricultural policies ranging from town-level agricultural and farmland protection programs, cluster development, right-to-farm provisions, notification of new residents that they are moving into an agricultural production area, and business recruitment and attraction strategies.”
- However, there were no growth boundaries, large-lot zoning districts, or other regulations that appeared to be significantly limiting housing development. “Current discussions underway in the several towns to reduce zoning density from current levels to one per four acres (1:4) or similar, are likely to be counterproductive at this time, as these densities tend to increase the rate of farmland conversion without significantly impacting the retention of farmland.”⁵⁴

In the 2004 *Town of Montgomery Comprehensive Plan*, the lowest recommended “effective density” for rural areas appears to be “3 to 4+ acres per unit.”⁵⁵ A zoning amendment proposed for the Town of Wallkill in March 2007 called for a five-acre minimum in the extensive “Low-Density Agriculture” zone, except when lots are clustered to achieve open space, when a three-acre minimum would be permissible.⁵⁶ The Town of Warwick’s 2002 *Design Guidelines* provide that “In general, all new subdivisions in the Town that are not near the villages or in the hamlet areas, should be designed as cluster developments . . . [whereby] 50 percent or more of the unconstrained land is permanently set aside.”⁵⁷

When we asked three local land-use specialists whether the town governments imposed effective restrictions on residential development in agricultural areas, they replied,

- “There is no strict zoning. By and large our local planning boards are populated by development people or are development oriented.”
- “[The towns of] Goshen and Warwick have tried to do cluster subdivisions, but without [the tools of] municipal water and sewer [rather than the typical private wells and septic systems], it’s very hard to do.”
- “While we would love to have all development hug those villages [rather than be scattered into the farming areas], that’s not how the land patterns are. We can’t tell the fellow who owns a 200-acre farm out here that you must wait until the development reaches you.”

State Regulations for the Black Dirt Region: More promising for the future of agriculture in Orange County are the state-mandated regulations about protecting the former glacial lakes that comprise the Black Dirt Region in southern and central parts of the county. They have prevented development on about 14,000 acres (or 21.9 square miles) of mostly arable land.

⁵⁴ACDS, *Technical Report*, p. 48.

⁵⁵Town of Montgomery, Orange County, New York:

http://www.townofmontgomery.com/index.php?module=documents&JAS_DocumentManager_op=downloadFile&JAS_File_id=13 (accessed May 4, 2007).

⁵⁶Town of Wallkill, Orange County, New York:

http://www.behanplanning.com/bpafiles/Wallkill/Full_EIS_032107_96dpi.pdf (accessed May 4, 2007).

⁵⁷Town of Warrick, Orange County, New York: <http://www.greenplan.org/HTMLobj-345/GUIDES.PDF> (accessed May 4, 2007).

- “Orange County is unique in that it has a real large pocket of organic soil—14,000 contiguous acres of muck—from the glacier. It used to be a lake, and all the organic matter kept decomposing under water. Because of that, a lot of what’s grown down there is onions, also other vegetables. Recently, in the last five to six years, growing corn has picked up, both sweet and field. Dairy farmers are increasingly using this muck for growing their field corn. Also, the Department of Environmental Conservation regards the muck as protected wetland and will not allow it to be drained [to be suitable for septic systems],” said a local specialist in agricultural land use.
- “This land doesn’t have the properties to support a home foundation unless they drove piles down to the mineral soils,” said another local land-use specialist.
- “Black Dirt can’t be built on because the soil is too unstable. My dad tried [many years ago],” said a third specialist.

In 2005 about 12,000 of the 14,000 contiguous acres in this region were farmed. And at least some of the farmers there could afford to purchase additional Black Dirt farmland:

- “Land does come up in the Black Dirt area for purchase. If it’s next to land you already use, \$2,000 and \$3,000 per acre [would be] justified,” said an agricultural land-use specialist.
- “You can buy muck soil land because it’s difficult to build on it for the next 20 to 30 years,” said an agricultural educator.

However, three interviewed sources complained that USDA’s Conservation Reserve Enhancement Program (CREP) competed with farmers who sought to buy such land.⁵⁸

- “In the Black Dirt, people put land into the CREP, taking land away from farmers. Some are renting at \$200 an acre for production while others are getting CREP rentals over \$300,” said a specialist in agricultural land use.
- “The CREP will accept Black Dirt land . . . and the yearly payments will cover the mortgage,” said an agricultural educator.
- “I was trying to acquire a piece of property from a neighbor for what used to be a reasonable rate (about \$2,000 to \$2,500 per acre). He claims, and he’s right, that he would be foolish to sell it so cheaply when the government is offering him \$500 per acre per year as rent on a 10- to-15-year contract. The land I’m talking about is good land that is nearly a mile from the river in our valley, and although it might flood once in awhile, it does not erode easily,” said a Black Dirt farmer.

Quantity and Affordability of *Leased* Farmland

The amount of Orange County’s total farmland that was leased into operations increased by 12.4% between the 1987 and 2002 censuses of agriculture (Table 2). Its share of all land in farms grew modestly from 40% to 47.9% (Table 2). Therefore, a significant amount of land was still left in rental status—51,713 acres or about 81 square miles.

⁵⁸“The Conservation Reserve Enhancement Program (CREP) is a voluntary land retirement program that helps agricultural producers protect environmentally sensitive land, decrease erosion, restore wildlife habitat, and safeguard ground and surface water.” USDA, Farm Service Agency, *Conservation Programs*: <http://www.fsa.usda.gov/FSA/webapp?area=home&subject=copr&topic=cep> (accessed May 2, 2007).

The surveyed landowners' opinions about the affordability of farmland in Orange to *rent* differ greatly from what they gave about the affordability to *purchase* (compare Tables 12 and 13). While just 10.6% believed that land to buy was either "On the whole very affordable" or "affordable," 53.5% had those positive attitudes for leasing. Among the 50 respondents who were actual tenants in 2005, this measure rises to 72%.

Table 13. Surveyed Landowners' Assessment of the Affordability of Farmland Put on Market in 2005 for Rental: Percentage by Response Option and Group of Respondents					
Groups of respondents	On the whole very affordable (%)	Affordable* (%)	Not very affordable (%)	Not at all affordable (%)	Not sure/no response (%)
All owner-operators and also nonoperator-owners who reported having detailed information about how their land was farmed (<i>n</i> = 114)	19.3	34.2 (53.5)	9.6	4.4	32.5
Operators only (<i>n</i> = 93)	16.1	35.5 (51.6)	9.7	4.3	34.5
Leased and operated some land in Orange County (<i>n</i> = 50)	30.0	42.0 (72.0)	12.0	2.0	14.0

*Percentages in parentheses represent the sum of the two response options, "On the whole very affordable" and "Affordable."

Our interviews helped to explain these more positive survey findings. Apparently, the supply of upland available for leasing and the number of farmers interested in leasing favor the lessee. New York State's agricultural-use assessment laws are strictly enough written (see the discussion above) and sufficiently well administered that many nonoperator-owners of land suitable for farming are very eager to rent out, but the farmers willing to lease are few enough that they can hold out for low, if not zero, rental charges.

- "Everyone who owns farmland wants to receive the agricultural assessment. It's huge—about a 70% reduction in property taxes on your cropland. . . . Few of our dairy or crop farmers are paying rent. The land taxes are so high the farmers rent it for free, unless the soils are really excellent," said an agricultural educator.
- "The owners will charge a nominal fee or charge no fee at all in order to get the tax break. Farmers will use a lot of leased land." said a specialist in agricultural land use.
- "Here the landowners are so eager to qualify for use-value assessment . . . that farmers pay no rent or even get the owner to buy some of their other inputs like fuel," said a farmer of upland.
- "We pay little or no rent for farms in this area. As farms become available, owned by speculators from New York City or others hoping that the land will be developed someday, we save them a tremendous amount of taxes. The problem with that is we are like gypsies; we don't know from year to year if we will have it. I think it would be better if we paid rent and had more control of the land," said another upland farmer.
- When asked "What happens when the operator invests in keeping up their leased land's productivity?" a renting farm operator said, "If we invest in lime or seeding (couple

hundred dollars per acre for seeding alfalfa), it's stipulated that if we get three years' use, they don't owe us anything. If we get two years, they owe us something. Fencing is included in that. If we invest in \$1,000 in fencing and the next year they decide to bulldoze it out, we have to be compensated. So it's been a workable situation."

Although farmland for renting may be plentiful and the rents low or nonexistent, a negative feature may be the landlords' specifications as to what can and cannot be raised on their ground. We had heard stories from another county about vegetables being unwelcome because of the likely presence of migrants doing field labor. Therefore, we compared the owner-operators who gave information about crops and/or livestock being raised on their land (88) to the nonoperator-owners (25) who also provided such information. There were only two significant differences.⁵⁹ Proportionally more nonoperator-owners had hay on their land—88.0% of them--compared to 56.8% among the owner-operators. Secondly, more owner-operators had horses (26.1%) than did the nonoperator-owners (8.0%). For the other types of products with at least a dozen producers—vegetables, nursery, grains, dairy, and beef cattle and calves—the differences varied by 0.5 to 5.0 percentage points.

Section IIID: Adequacy of Non-land Inputs for Agriculture—Credit, Labor, Manufactured Inputs and Related Services, Veterinarians for Livestock, and Water for Livestock and Irrigation

Credit

Regarding credit for farming, exactly half of the 114 respondents whom we classify as "operation-knowledgeable"⁶⁰ reported using that input (Table 14). Among those 57 users, a total of 80.7% said that credit was available to them "always" or "most of the time" when they needed it. If the analysis is limited to the 93 owner-operators, the combined "always" and "most of the time" percentage is virtually the same as for all respondents—80.4%. Restricting the analysis to operators with at least \$100,000 in 2005 gross sales yielded almost the same measure of client satisfaction with the availability of credit—82.3%. However, among the small group of operators using credit who reported less than \$100,000 in sales, the satisfaction rate dropped to 66.6%. With this latter exception, the supply of credit for farmers wanting it seems to have been adequate.

Table 14 does show a significant difference in the rate of usage of "credit from banks and other sources" by size of operation. While 66.7% of the subsample with at least \$100,000 in gross sales reported being users, only 43.3% did so among the respondents with sales of less than \$100,000.

Our interviews support the survey results. In the first place, many farmers have not been taking out loans:

⁵⁹In a chi-square test at the .06 level.

⁶⁰The owner-operators in the sample plus the non-farmer owners who believed they had "detailed knowledge about how my farmland there [in Orange County] is operated."

- “We are self-financing. I pay for things that I add. A lot of people are doing what I am doing and come to organic farming as a second career [and apply financial resources obtained from the first career to support the farm],” said a farmer in Orange County.
- “We are self-financed. That’s the only reason we can stay here in this kind of economy. No debt,” said a dairy farmer.
- “Many of my vegetable farmers, especially the successful ones who have been in business for more than 20 years, don’t take out loans. They bankroll themselves from year to year,” said an agricultural educator.

Table 14. Surveyed Landowners’ Assessment of the Availability in 2005 of Credit: Percentage by Response Option and Group of Respondents						
Groups of respondents	Users of this type of input	Perceived availability of credit among users of credit				
		Always	Most of the time*	Some of the time	Rarely or never	N
All owner-operators and also nonoperator-owners who reported having detailed information about how their land was farmed (<i>n</i> = 114)	50.0	45.6	35.1 (80.7)	12.3	7.0	57
Operators only (<i>n</i> = 93)	54.8	49.0	31.4 (80.4)	11.8	7.8	51
Operators reporting at least \$100,000 in gross sales 2005 (<i>n</i> = 51)	66.7	58.8	23.5 (82.3)	14.7	2.9	34
Operators reporting less than \$100,000 in gross sales 2005 (<i>n</i> = 30)	43.3	33.3	33.3 (66.6)	16.7	16.7	12

*Numbers in parentheses are the sums of percentages of respondents who answered either “always” or “most of the time.”

For the operators needing loans, there seem to be adequate sources, including First Pioneer Farm Credit, which serves six northeastern states, has an office in Orange County, and is “part of the national Farm Credit System founded in 1916 to promote the growth and prosperity of agriculture throughout the United States.”⁶¹

Another important source is USDA’s Farm Service Agency (FSA), also with an office in Orange County: “FSA makes direct and guaranteed farm ownership (FO) and operating loans (OL) to family-size farmers and ranchers who cannot obtain commercial credit from a bank, Farm Credit System institution, or other lender. FSA loans can be used to purchase land, livestock, equipment, feed, seed, and supplies. Our loans can also be used to construct buildings or make farm improvements.”⁶²

⁶¹ First Pioneer Farm Credit, *Who We Are*: <http://www.firstpioneer.com/about/who.htm> (accessed October 28, 2006).

⁶²USDA, Farm Service Agency, *Farm Loan Programs*: <http://www.fsa.usda.gov/FSA/webapp?area=home&subject=fmlp&topic=landing> (accessed May 4, 2007).

A widely respected expert on farm finance in Orange County described how the credit business was distributed in the county: “Roughly 20% of financing is done through private banking; 60% is done through First Pioneer Farm Credit. . . . The balance is funded through FSA, lender of last resort. . . . Another major financier for annual operating money are vendors, such as Crop Production Services, that will establish an account to order supplies. There are enough vendors of this nature in the county or next door.”

Another specialist in agricultural finance provided similar information: “FSA is a very active direct lender in the vegetable and onion industries as well as a source of providing loan guarantees where warranted. Through their farm loan guarantee program, they have been a good partner to the producer and Farm Credit, as it has helped [Farm Credit] go farther with customers during tough times. The guarantees are a tool that . . . reduces some of the risk when dealing with customers who have credit weaknesses.”

Labor

During 2005–2006, the availability of labor for farming looked much more problematic than did the credit input. Comparatively more respondents reported using it, and the users on the whole were less satisfied with its availability.

Among our 114 “operation-knowledgeable respondents” (i.e., those who either were operators or were nonoperator-owners reporting they had “detailed knowledge” about how their farmland was operated), 81.6% indicated that they or their operators used *family labor* during 2005. Almost as many (78.1%) had *nonfamily labor*, more than half (54.4%) reported *seasonal labor*, and almost half (49.1%), *year-round workers* (Table 15).

Of course, there is overlap among these categories. However, a total of 90.4% reported at least one type (Table 15). Seventy percent used both family and nonfamily workers, while just 31.6% reported having both seasonal and year-round workers. However, *more than half* of the 114 (54.4%) were dissatisfied with at least one type that they used in 2005. That is, they could obtain what they needed that year just “some of the time” or “rarely or never.”

Type of labor	Did use this type (%)	Did not use (%)	No answer (%)
Family labor	81.6	12.3	6.1
Nonfamily labor	78.1	14.9	7.0
Seasonal labor	54.4	37.7	7.9
Year-round labor	49.1	40.4	10.5
<i>Used at least one of these types</i>	90.4		
<i>Used both family and nonfamily labor</i>	70.2		
<i>Used both seasonal and year-round labor</i>	31.6		
<i>Dissatisfied with the supply of at least one type of labor they used = 54.4</i>			
Number of respondents: Those who were operators or who had “detailed information” about how their farmland in Orange was operated = 114			

Tables 16–19 allow us to compare *rates of usage* and *degrees of satisfaction* across different types of labor, broken down by five kinds of respondents:

- All the 114 operation-knowledgeable respondents,
- 51 operators of relatively substantial operations—with at least \$100,000 in gross sales for 2005,
- 30 operators who grossed less than \$100,000,
- 45 respondents with some direct marketing of products raised on their land, and
- 37 without any direct marketing.

Family Labor: Perceived Adequacy of Supply

Regarding satisfaction with the supply of family labor, close to half (47.3%) of all users reported that their needs were met “always” (Table 16). Another 24.7% chose the satisfaction level “most of the time.” To facilitate comparisons (such as to responses about nonfamily labor), we combined the percentages of “always” and “most of the time” answers and placed them in parentheses in Tables 16–19. This measure for all users was 72.0%. The larger growers (i.e., those with at least \$100,000 in sales) were not significantly more satisfied with their supply of family labor than were their counterparts (i.e., growers with less than \$100,000 in sales).⁶³ Nor was there a significant difference in satisfaction levels between the respondents with and without direct marketing.

Groups of respondents	Used this type of labor (%)	Perceived availability of family labor among users of family labor				N
		Always (%)	Most of the time* (%)	Some of the time (%)	Rarely or never (%)	
All owner-operators and also nonoperator-owners who reported having detailed information about how their land was farmed (<i>n</i> = 114)	81.6	47.3	24.7 (72.0)	21.5	6.5	93
Operators reporting at least \$100,000 in gross sales 2005 (<i>n</i> = 51)	86.3	54.5	18.2 (72.7)	22.7	4.5	44
Operators reporting less than \$100,000 in sales (<i>n</i> = 30)	86.7	46.2	30.8 (77.0)	19.2	3.8	26
Respondents reporting at least some direct marketing (<i>n</i> = 45)	84.4	52.6	21.1 (73.7)	21.1	5.3	38
Respondents reporting no direct marketing (<i>n</i> = 37)	91.9	38.2	29.4 (67.6)	23.5	8.8	34

*Percentages in parentheses represent the sum of the values for “always” and “most of the time.”

⁶³ When using the phrase “significantly more” or “significantly less,” we mean that the differences were (or were not) greater than chance factors alone could explain, as indicated—in this case—in a one-tailed *t*-test of difference of two proportions (at the .05 level) from two independent samples.

Nonfamily Labor

When we compare the usage rates presented in Table 17 for nonfamily labor to the corresponding rates displayed in Table 16 for family labor, there are no significant differences.⁶⁴ Comparing the combined satisfaction percentages *within* Table 17, we find that the direct marketers were not significantly more likely to meet their needs for nonfamily workers than did the respondents without that kind of marketing. However, the surveyed operators with at least \$100,000 in sales were *much more* satisfied compared to those who grossed less than \$100,000. The difference was 68.9% versus 37.5%. Maybe the former's greater financial resources made the difference in how well they could fill those labor needs.

Groups of respondents	Used this type of labor (%)	Perceived availability of nonfamily labor among users of nonfamily labor				N
		Always (%)	Most of the time* (%)	Some of the time (%)	Rarely or never (%)	
All owner-operators and also nonoperator-owners who reported having detailed information about how their land was farmed (<i>n</i> = 114)	78.1	24.7	24.7 (49.4)	32.6	18.0	89
Operators reporting at least \$100,000 in gross sales 2005 (<i>n</i> = 51)	88.2	35.6	33.3 (68.9)	15.6	15.6	45
Operators reporting less than \$100,000 in sales (<i>n</i> = 30)	80.0	12.5	25.0 (37.5)	45.8	16.7	24
Respondents reporting at least some direct marketing (<i>n</i> = 45)	88.9	22.5	27.5 (50.0)	25.0	25.0	40
Respondents reporting no direct marketing (<i>n</i> = 37)	83.8	25.8	32.3 (58.1)	35.5	6.5	31

*Percentages in parentheses represent the sum of the values for "always" and "most of the time."

Seasonal Labor: Usage

Among all 114 "operation-knowledgeable" respondents, 54.4% reported using seasonal labor in 2005 (Table 18). Respondents with at least \$100,000 in gross sales were *much more* likely to report having this type of labor than were their counterparts with lower sales. This significant difference is 68.6% compared to 46.7%. We used logistic analysis to see if sales levels made the difference or whether other factors associated with sales were causal factors. The analysis indicated that both level of sales and whether vegetables were grown on the respondent's land were independent causes, with vegetables production being the stronger of the two. In fact, 77.8% of the surveyed vegetable growers reported using seasonal labor compared to 48.6% of

⁶⁴The lack of statistically significant differences between Tables 16 and 17 in the percentages of the same group using the two types of labor (e.g., operators with at least \$100,000 in gross sales using family and nonfamily labor) was indicated in a one-tailed *t*-test of difference of two proportions (at the .05 level) in responses from members of the same sample.

the grain farmers, 41.1% of those producing hay, and 40.5% of the dairymen (for three comparisons). We are very interested in producers using seasonal labor because that input is especially vulnerable to public policies now being discussed and/or implemented (in the fall of 2007) that limit the flow of migrant labor to Orange County.

Surveyed owners with direct marketing were significantly more likely to have seasonal labor than were respondents without direct marketing. The difference was 75.6% versus 51.4% (Table 18). During the marketing season such producers may need help to staff on-farm retail sites, farmers' markets, and/or CSAs. In contrast, the wholesaling-only farmers may concentrate almost entirely on production and on readying harvested goods that wholesalers' trucks pick up or that their own semis ship to markets.

Table 18. Surveyed Landowners' Assessment of the Availability in 2005 of Seasonal Labor: Percentage by Response Option and Group of Respondents

Groups of respondents	Used this type of labor (%)	Perceived availability of seasonal labor among users of seasonal labor				N
		Always (%)	Most of the time* (%)	Some of the time (%)	Rarely or never (%)	
All owner-operators and also nonoperator-owners who reported having detailed information about how their land was farmed (n = 114)	54.4	30.6	25.8 (56.5)	33.9	9.7	62
Operators reporting at least \$100,000 in gross sales 2005 (n = 51)	68.6	42.9	31.4 (74.3)	22.8	2.9	35
Operators reporting less than \$100,000 in sales (n = 30)	46.7	21.4	21.4 (42.8)	42.9	14.3	14
Respondents reporting at least some direct marketing (n = 45)	75.6	32.4	17.6 (50.0)	32.4	17.6	34
Respondents reporting no direct marketing (n = 37)	51.4	31.6	42.1 (73.7)	26.3	0.0	19

*Percentages in parentheses represent the sum of the values for "always" and "most of the time."

Seasonal Labor: Satisfaction Levels

Fewer respondents with direct marketing were satisfied with their *supply of seasonal labor* than were users of seasonal workers without that type of marketing. The difference was 50% versus 73.7% (Table 18). We tried regression analysis to determine if type of marketing made a difference or if some other variable associated with it was the cause. Our particular data set did not provide an answer to that question. However, it did suggest that overall gross sales and having vegetable production made independent differences. Both of those variables were associated with higher levels of satisfaction with seasonal labor. For example, among operators with at least \$100,000 in sales, 74.3% reported satisfying their needs "always" or "most of the time," compared to 42.8% among the respondents with less than \$100,000 (Table 18). Perhaps members of the former group tended to offer better pay. Another possibility is that the larger

farms are preferred by seasonal labor because they are more likely to offer employment year after year with predictably satisfactory working conditions (including housing).

Year-round Labor: Usage

Among all 114 of the “operation-knowledgeable” respondents, 49.1% reported using year-round labor, not significantly below the level for seasonal workers (54.4%—see Tables 18 and 19). The usage rate reported by owners with direct marketing is also very close to the level for respondents without that type of marketing. On the other hand, proportionally more operators with at least \$100,000 in sales used them—60.8% compared to 53.3% for operators with lower gross sales. But that difference was not significant. Another interesting comparison is between the 60.8% rate for employing year-round labor by those larger operators and their 75.6% level for seasonal workers. That difference was due largely to vegetable farmers with \$100,000 or more in sales. While 95% of them hired seasonal labor, only 55% had year-round staff.

Year-round Labor: Satisfaction Level

All the *satisfaction* levels for year-round labor (Table 19) are higher than those for seasonal (Table 18), but none of the differences is statistically significant. However, when we focus just on year-round workers, again the operators with at least \$100,000 in sales were significantly more satisfied compared to the farmers with less than that amount of sales. The difference is 87.1% versus 56.3%.

Table 19. Surveyed Landowners’ Assessment of the Availability in 2005 of Year-round Labor: Percentage by Response Option and Group of Respondents						
Groups of respondents	Used this type of labor (%)	Perceived availability of year-round labor among users of year-round labor				N
		Always (%)	Most of the time* (%)	Some of the time (%)	Rarely or never (%)	
All owner-operators and also nonoperator-owners who reported having detailed information about how their land was farmed (<i>n</i> = 114)	49.1	46.4	26.8 (73.2)	16.1	10.7	56
Operators reporting at least \$100,000 in gross sales 2005 (<i>n</i> = 51)	60.8	51.6	35.5 (87.1)	3.2	9.7	31
Operators reporting less than \$100,000 in sales (<i>n</i> = 30)	53.3	43.8	12.5 (56.3)	25.0	18.8	16
Respondents reporting at least some direct marketing (<i>n</i> = 45)	51.1	39.1	30.4 (69.5)	17.4	13.0	23
Respondents reporting no direct marketing (<i>n</i> = 37)	54.1	45.0	30.0 (75.0)	15.0	10.0	20

*Percentages in parentheses represent the sum of the values for “always” and “most of the time.”

Interview Sources' Information on Labor Inputs

Substantial Dependence on Migrant Labor

Interview sources reported that Orange County's agriculture, especially the vegetable and fruit sectors, needed considerable hand labor:

- "Migrant labor is needed for weeding, harvesting by hand. Mixed vegetables and fruit rely on hand-harvesting. They work in packinghouses, and they generally don't do a lot of equipment work. A few non-migrant Spanish workers do the chemical spraying and planting," said an agricultural educator.
- Said a fruit farmer, "Adequate labor is a big problem for anyone in our business. We need it for pruning normally in late December. You have to start spraying in late March or early April. You need the workers also for planting trees."

The largest contingent of field workers consisted of migrants from Latin America. One expert estimated that in 2006 the county's farms were using 300 to 400 Mexicans, mostly in vegetable production.

- An Orange County farmer believed that "almost all of us [farmers] in New York State have Spanish help."
- "Most of our dairy farmers have some migrant workers, usually the bigger farmers who get them to be milkers," said an agricultural educator.
- "We are increasing the use of Hispanic labor, coming from Mexico," said another agricultural educator.

According to the interviews, there were three main reasons to hire migrant labor:

(1) The local residents tend not to be interested in the physically demanding, routine, and often dirty farm jobs.

- "Labor is always a problem with our farmers, especially if young kids want to work at McDonald's or a mall versus work in the hot sun, even though kids can get 10 bucks an hour [working on farms] if they're worth it," said an agricultural educator.
- "What the migrants have been recruited to do is primarily the routine, less pleasant jobs on the farm. It's hard to find local people to fill these jobs," said an agricultural financial expert.
- "They manage the hay and feed, maintain the fences, manage the barns, groom the riding rings. It's hard to find local people to fill these jobs," said a manager of a horse farm.

(2) Migrant labor tends to cost farmers less because they are willing to work for minimum wage or somewhat higher pay, and also, to accept that agricultural workers in the United States are normally not entitled to overtime pay for hours worked beyond eight per day. One Orange County farmer told us, "With all the extra hours they put in, it would kill me paying overtime rates."

(3) At least until through the summer of 2006, it was not difficult to recruit migrant workers. Farmers had two main paths to filling their migrant labor needs: hiring through a federally authorized guest worker program, called "H-2A Agricultural Guest Worker Program," and obtaining workers through informal routes.

The latter route was frequently successful, such as when workers from previous years either returned to the same farms or sent their relatives or friends:

- “Our labor pool comes from Middletown. They have been with us for over seven years. It’s the same family. We have a steady, reliable seasonal labor force,” said a vegetable grower.
- “The labor here is very happy. If one Mexican leaves there are two looking for a job. We don’t have to put an ad in the paper,” said a dairy farmer.

As of mid-2006 employers were required to demand identification documents from each worker, to pay the minimum wage, to provide housing (unless the applicant was already living elsewhere, such as in Middletown), and to meet other government regulations. However, the farmer was not required to authenticate the workers’ documents:

- “They have to show their papers. Do I question them? No. I fill out the I-9 forms and withhold their taxes.⁶⁵ . . . Every other agency has outsourced. The only way is by hiring cheaper labor. Americans don’t want to do our jobs. They will not show up. We can’t pay \$15 per hour. We hire people who want to work and will give us a full day’s work,” said a local farmer.

Since many Mexicans sought better paying jobs in landscaping, construction, or restaurants, either agriculture needed to be more competitive in compensation, or a continuous flow of new migrants was necessary. Grants from the New York State’s Division of Housing and Community Renewal helped by enabling farmers to provide decent on-farm housing where workers lived rent free.⁶⁶ One agricultural educator estimated that this subsidized housing was “worth at least two or three dollars an hour.” A member of the committee recommending farmers for these grants reported, “For the past 15 years vegetable farmers have received most of this money. . . . They get up to 75% of the cost of the project paid for because they are the guys with seasonal labor.”⁶⁷

Helping also to attract and sustain adequate numbers of migrant workers for Orange County’s agriculture should be the Alamo Migrant Health Center in Goshen, located near the center of the

⁶⁵“All U.S. employers are responsible for completion and retention of Form I-9 for each individual they hire for employment in the United States. This includes citizens and noncitizens. On the form, the employer must verify the employment eligibility and identity documents presented by the employee and record the document information on the Form I-9. Acceptable documents are listed on the back of the form, and detailed below under ‘Special Instructions.’” US Citizenship and Immigration Services: <http://www.uscis.gov/graphics/formsfee/forms/i-9.htm> (accessed October 29, 2006).

⁶⁶“The New York State Division of Housing and Community Renewal (DHCR) has entered into Master Servicing Agreements with participating lending institutions (herein referred to as “local loan administrators”) to originate and service loans of up to \$100,000 per year to agricultural and dairy producers who apply to them and demonstrate that these program funds are needed to improve or construct seasonal farmworker housing or year around dairy farmworker housing. While DHCR’s priority is to provide loan funds for projects which will bring existing seasonal farmworker or year-round dairy farmworker housing into compliance with applicable building codes (i.e., New York State Sanitary Code or New York State Uniform Fire Prevention and Building Code), loan funds may also be used for the new construction of seasonal farmworker or year-round dairy farmworker housing or the enlargement of existing facilities.” DHCR: <http://www.dhcr.state.ny.us/ocd/progs/fwh/ocdprgfw.htm> (accessed October 29, 2006).

⁶⁷Interview, June 2006.

county's faming economy, funded by state and county money, and designated as providing care for "migrant and seasonal farm workers."⁶⁸

According to an expert on migrant labor whom we interviewed in May 2005, "There should be no problem in supply of migrant labor in the foreseeable future in Orange County, unless somebody puts up a large fence at the Mexican border." However, by October 2006, President Bush had "signed into law a bill providing for a 700-mile fence along the country's southwestern border."⁶⁹

Federal H-2A Program for Recruiting Migrant Workers

The federal H-2A program provides "temporary agricultural worker" visas designed to get migrants legally across the border and on to employers (who apply for them) in time for the start of the growing season.⁷⁰ And, if the farmer abides by the program's regulations, the workers should not be sent home until their specified term of employment ends. However, H-2A has not been popular among Orange County farmers, apparently because of its financial costs.

- A knowledgeable state official told us, "None of the growers there [in Orange County] can afford it. Under H-2A they would have to pay the adverse-effect wage rate, which is about \$9.05 per hour. . . . [Instead] growers pay \$6.50 to \$7.00 an hour."⁷¹
- A fruit farmer reported to us, "Under H-2A you must advertise for this job, with wages of \$9.16 an hour with free housing and no deductions. They just have to pay for their own cable bill and phone. We belong to a cooperative . . . headquartered in Milton, NY. They take care of requirements with government."
- Another grower quoted \$9.12 per hour, plus the cost of on-farm housing.

Besides the higher costs of H-2A labor, another complaint about the program has been delays and related uncertainty as to when the workers will arrive.

- One farmer told us: "I was on the phone consistently two or three weeks with my labor contractor who has connections in Mexico to get some guest workers come here through the H-2A program. It resulted in my calling my congresswoman and her staff, my state senator and his staff. They had to call Immigration [and Naturalization Service] in the Boston region, and try to pull my application and move it up and to make sure that things went well at the consulate in Mexico."
- An Orange County fruit grower wrote a letter to the Poughkeepsie paper in which she "complained that her H-2A application was approved; then ignored. In a follow-up

⁶⁸ New York State Department of Health: http://www.health.state.ny.us/nysdoh/gme/regents_list_2006.doc. (accessed October 29, 2006).

⁶⁹David Stout, "Bush Signs Bill Ordering Fence on Mexican Border," *New York Times*, October 26, 2006.

⁷⁰Mark Fass, "Farmworkers' Class Action Alleges Sex Bias in Job Visas," *New York Law Journal*, November 3, 2004: <http://www.law.com/jsp/printerfriendly.jsp?c=LawArticle&t=PrinterFriendlyArticle&cid=1099217135102> (accessed May 8, 2007).

⁷¹The "adverse effect wage" is set by the US Department of Labor to be high enough so that wages sought by citizen farm workers are not deflated due to lower wages that migrants are willing to accept and are paid. For example, in 2005 the "adverse effect wage" required of farmers hiring migrant workers under H-2A was \$9.05. For 2006 it was pegged at \$9.16. William G. Whittaker, 2006, *Farm Labor: The Adverse Effect Wage (AEWR)* (Washington, DC: Congressional Reference Service, Library of Congress), 7 pp.

interview, she explained that her temporary workers arrived late and one didn't arrive at all."⁷²

- A state administrator working in the H-2A program reported that his clients in New York included sod farmers, apple growers, “big vegetable farms,” and nursery growers. Another group consisted of farmers doing value-added products like wine from apples. The typically higher gross sales of these farmers may explain why they felt able to participate in the program.

Manufactured Inputs and Related Services

Farm Chemicals, Seeds, Implements and Equipment

More than three-quarters (76.3%) of the 114 “operation-knowledgeable” respondents reported that *farm chemicals* (fertilizers and pesticides) were used on their land in Orange County during 2005 (Table 20). That usage level did not significantly change when we narrowed the analysis to operators with at least \$100,000 in sales, nor when the subsample was operators with less than \$100,000 (Table 20).

Groups of respondents	Used these types of inputs (%)	Perceived availability of farm chemicals among users of farm chemicals				N
		Always (%)	Most of the time* (%)	Some of the time (%)	Rarely or never (%)	
All owner-operators and also nonoperator-owners who reported having detailed information about how their land was farmed (n = 114)	76.3	55.2	24.1 (79.3)	12.6	8.0	87
Operators reporting at least \$100,000 in gross sales 2005 (n = 51)	80.4	78.0	12.2 (90.2)	7.3	2.4	41
Operators grossing less than \$100,000 (n = 30)	70.0	38.1	33.3 (71.4)	14.3	14.3	21

*Percentages in parentheses represent the sum of the values for “always” and “most of the time.”

Among the 114 respondents, the reported *satisfaction level* was high; more than half (55.2%) indicated that farm chemicals were “always” available when needed, and more than three-quarters (79.3%) chose either the “always” or “most of the time” response options. The operators reporting at least \$100,000 in gross sales were more satisfied than their counterparts with lower sales. The significant difference was 90.2% compared to 71.4%. It looks as though, again as with nonfamily and seasonal labor, greater financial resources are associated with better access to the inputs of production.

⁷²Sarah Bradshaw, “Migrant Workers Fill Indispensable Farming Roles,” *Poughkeepsie Journal*, September 24, 2006.

Regarding *seed supplies*, the reported usage level was relatively high—81.6%—among all 114 owners who were asked these questions (Table 21). Also high was the users’ level of satisfaction with the supplies of seeds. A total of 91.4% reported that their needs were met either “always” or “most of the time.” This measure was higher than its counterparts for chemicals and farm implements (significantly higher in the latter case).

Table 21. Surveyed Landowners’ Assessment of the Availability in 2005 of Goods and Services from Seed Suppliers: Percentage by Response Option and Group of Respondents						
Groups of respondents	Used these types of input (%)	Perceived availability of seed suppliers’ goods and services among users				N
		Always (%)	Most of the time* (%)	Some of the time (%)	Rarely or never (%)	
All owner-operators and also nonoperator-owners who reported having detailed information about how their land was farmed (<i>n</i> = 114)	81.6	60.2	31.2 (91.4)	7.5	1.1	93
Operators reporting at least \$100,000 in gross sales 2005 (<i>n</i> = 51)	90.2	73.9	21.7 (95.6)	2.2	2.2	46
Operators grossing less than \$100,000 (<i>n</i> = 30)	76.7	52.2	34.8 (87.0)	13.0	0.0	23

* Percentages in parentheses represent the sum of the values for “always” and “most of the time.”

Table 22. Surveyed Landowners’ Assessment of the Availability in 2005 of Goods and Services from Implement Dealers: Percentage by Response Option and Group of Respondents						
Groups of respondents	Used these types of inputs (%)	Perceived availability of goods and services from implement dealers among users				N
		Always (%)	Most of the time* (%)	Some of the time (%)	Rarely or never (%)	
All owner-operators and also nonoperator-owners who reported having detailed information about how their land was farmed (<i>n</i> = 114)	89.5	44.1	28.4 (72.5)	23.5	3.9	102
Operators reporting at least \$100,000 in gross sales 2005 (<i>n</i> = 51)	98.0	56.0	22.0 (78.0)	18.0	4.0	50
Operators grossing less than \$100,000 (<i>n</i> = 30)	80.0	37.5	29.2 (66.7)	29.2	4.2	24

*Percentages in parentheses represent the sum of the values for “always” and “most of the time.”

While proportionally more of the 51 operators with at least \$100,000 in gross sales used seed dealers than did the 30 with less than that level of sales, the difference was not statistically significant. Nor was the corresponding disparity in those two groups’ levels of satisfaction with

their supplies greater than chance factors can explain (95.6% versus 87.0%, Table 21). In other words, more gross revenue did *not* translate into better-perceived service.

Among the members of our main subsample (114), 89.5% reported using goods and services from *implement dealers* during 2005 (Table 22). For the subsample of farmers with at least \$100,000 in gross sales, the level was even higher—at 98%. Their counterparts, operators with less than \$100,000 in sales, were significantly less likely to patronize dealers that year—80% of them did. Their satisfaction level was also lower—78.0% compared to 66.7%, but not greater than chance factors alone can explain.

Interview Findings about Manufactured Inputs and Related Services for Orange County Farms: As just discussed, from nearly three-quarters to over 90% of the 114 “operation-knowledgeable” respondents reported that the supplies of chemicals, seeds, implements, and related services were available to them when needed “always” or “most of the time” (Tables 20–22). Our interviews with farm leaders and other persons well informed about Orange County agriculture confirmed these largely positive survey findings:

- “Producers can get what they need. There are still dealers here with chemicals, sprays, seeds, fertilizer, lime, and implements,” said a specialist in farm finance.
- “I use the Internet. I get pretty much anything—seeds, seedlings. I do almost all my seed buying over the Internet,” said a large vegetable grower. The orders are delivered through United Parcel Service (UPS) or similar companies.
- “I get [ordered] implements from common carriers. A transplanter comes by common carrier. Also by truck there was close to a 3,000 pound rotor tiller. . . . John Deere has opened a new place about a half hour away. I got stuff there the other day, some real serious equipment stuff,” said another grower.
- “Spare parts are not a problem with UPS. Only a problem is that parts managers at dealerships [from which parts are ordered] are less competent. They regularly send you the wrong things,” said a third grower.
- “We do a lot of business over the cell phone right here in the shop. You get it in 24 hours if you call in by 10 AM. If you want a guarantee by 10 AM the next morning you pay them an extra 12 dollars. You can order up to 4 PM the previous day. If the dealer on the East Coast is already closed, you can call California, where the time is three hours earlier, and still get the guaranteed delivery the next day,” said a fourth farmer.

Opinions expressed by managers of three local dealerships for manufactured inputs were also largely positive. They were adapting to the reduced numbers of agricultural clients by serving nonfarmers and/or types of farmers that were new to them:

- “If we served primarily the farming community, we would not be here long because farms are closing. We lose 10 to 15 farms every year and start only one or two every year. And the ones that start up last an average of two to three years.”
- “We are still quite viable. We are not in a position where we are struggling to survive. There is no doubt that we have lost acres. . . . We are doing things that years ago we wouldn’t do, like pasture and horse-farm work—fertilizer and weed control in the pasture. We’re doing smaller jobs that we would not have done in the past.”
- “My products include feed, seeds for lawns, bags of corn for deer feed. . . . To equine operations and cow and calf breeding, I sell feed, straw, and sawdust.”

We encountered a potentially important kind of supplement to the traditional retail dealers with stores or shops located along major public roads. It was a farmer who, working from his farmstead, adds to his income by serving as a dealer for various farm inputs—implements, parts, and seeds:

“I added shelves to my basement to stock . . . parts. I started to interact with farmers, and with word of mouth, customers came. And I could help them with my knowledge of farming. . . . I lost dealerships because my volume is not what it is for mainline equipment dealers. But the same companies come back to me and say that there is not going to be any mainline equipment dealer here, and you were amicable on the phone and paid your bills.”

As of June 2006 there were still two implement dealers with shops to do major as well as minor repairs on farm vehicles and equipment. However, who will take their places if local markets cannot sustain such services? The answer seems to be independent, itinerant repairmen and the farmers, themselves, or their staff. However, not every farmer we interviewed was happy with the supply of this kind of input.

- “We do a lot of repairs ourselves and hire people on an ad hoc basis rather than professionals in a given area. My husband . . . does 90% of the equipment repair. We have all kinds of equipment, given the operation we have. We have two neighbors who help us out. It’s out of the question to send it to a dealership because of their high rates and lack of competence,” said a grower.
- “We got a good man, a guy younger than I am, who has a service truck on the road and comes right to the farm. Last winter he put in a new clutch into a tractor right here,” said another farmer.
- “If machinery breaks down, my brother can do a lot. He welds, and he keeps a lot of our sick dairy machinery band-aided together. . . . We have a shop and tools,” said a third farmer.
- “We had a full-time mechanic for years. He had John Deere ‘green blood,’ and he loved to run equipment. It was ideal. But due to a death in the family he had to move back to Massachusetts. A great loss. Now we use part-timers. . . . We’re just scratching to get good people to fix things here,” said a fourth farmer.

Veterinarians for Livestock

As Table 4 reports, the Orange County livestock sector still generated substantial revenue in 2002—\$25.4 million, mostly from dairy. Therefore, we asked the surveyed farmers about the availability of the “services of a large-animal veterinarian. . . . when needed.” Of the approximately six in 10 “operation-knowledgeable” respondents who reported that a vet’s service was used on their land, 58.5% said it was available to them “always” when needed, and another 21.5% chose the “most of the time option,” for a combined 80% level of satisfaction (Table 23). In the group of 62 surveyed owners who indicated at least some hogs, pigs, dairy cattle, beef cattle, horses, and/or sheep being raised on the land, the corresponding usage measure was 91.9% and the satisfaction level—80.7%.

Dividing the surveyed livestock operators into those who grossed at least \$100,000 and the group with less than that amount suggests that the larger operators had an advantage. Their satisfaction

level was almost 20 points higher than their counterparts with lower gross sales: 92% versus 72.2% (Table 23).

Although these survey data indicate that most respondents with large animals were relatively satisfied with the supply of veterinary services, several interviewees indicated problems. Needed are either more vets or farmers trained in doing a lot of their own animal doctoring:

- “Currently we’re at a critical balance. A couple of vets are overworked, going crazy, trying to cover everybody. If they decide to pack up and leave, they will leave a lot of farmers high and dry. We do have vets in neighboring counties and across the state line. They do routine things and can schedule visits every two weeks or so. But not emergency calls,” said an agricultural educator.
- “We do need more vets and vet technicians and farriers. Vet schools are not turning out enough vets. The better majority of that class went to small-animal practices. Retaining them in the area is difficult because of the high cost of living, the outrageous price of homes, and the property tax. We just lost two vets,” said another agricultural educator.
- “In 1979 we had 300 dairies. As we have fewer dairies, we lose services. Large-animal vets won’t get excited about coming to a county with 60 dairies,” said a specialist in livestock sales.
- “Most progressive dairy farmers do their own work: deliver calves. We had a cow a week ago; she had milk fever. We called the vet in Port Jervis, but he had an office full of people. . . . We saved the calf. We handled it. We have to. We picked it up through watching vets and doing. We can’t afford the cost of doing it all. The husband and wife team [of veterinarians] teaches the farmers how to do some things,” said a dairy farmer.

Table 23. Surveyed Landowners’ Assessment of the Availability in 2005 of Services of a Large-Animal Veterinarian: Percentage by Response Option and Group of Respondents

Groups of respondents	Used this type of input (%)	Perceived availability of services of large-animal veterinarian among users				N
		Always (%)	Most of the time* (%)	Some of the time (%)	Rarely or never (%)	
All owner-operators and also nonoperator-owners who reported having detailed information about how their land was farmed (<i>n</i> = 114)	57.0	58.5	21.5 (80.0)	16.9	3.1	65
Respondents reporting that hogs, dairy cattle, beef cattle, horses, and/or sheep were raised on their land (<i>n</i> = 62)	91.9	57.9	22.8 (80.7)	15.8	3.5	57
Respondents reporting that (1) hogs, dairy cattle, beef cattle, horses, and/or sheep were raised on their land and (2) they grossed at least \$100,000 in sales in 2005 (<i>n</i> = 26)	96.2	72.0	20.0 (92.0)	8.0	0.0	25
Respondents reporting that (1) hogs, dairy cattle, beef cattle, horses, and/or sheep were raised on their land and (2) they grossed less than \$100,000 in sales in 2005 (<i>n</i> = 21)	85.7	50.0	22.2 (72.2)	22.2	5.6	18

* Percentages in parentheses represent the sum of the values for “always” and “most of the time.”

Water for Livestock and Irrigation

More than seven in 10 (71.9%) of our subsample of 114 “operation-knowledgeable” respondents indicated that water was used for either livestock or irrigation on their land (Table 24). Over 90% (91.4%) of those users reported that this input was available when needed either “always” or “most of the time.” The satisfaction level was even higher—100%—among the subgroup that both had livestock being raised on their land and grossed at least \$100,000 in 2005—100%.

We looked for significant differences in satisfaction rates between large operators (i.e., grossing at least \$100,000) and smaller ones (with less than \$100,000), broken down by whether they had crops or livestock on their owned land. Regardless if they raised crops or livestock or were in the higher or lower total sales category, the percentage reporting their water needs being met “always” or “most of the time” was impressive and varied little—from 91.3% to 100% (see Table 24 for partial results). Greater revenues do not seem to have made a difference.

Table 24. Surveyed Landowners’ Assessment of the Availability in 2005 of Water for Livestock or Crop Irrigation: Percentage by Response Option and Group of Respondents						
Groups of respondents	Used this type of input (%)	Perceived availability of water among users of water for these purposes				
		Always (%)	Most of the time* (%)	Some of the time (%)	Rarely or never (%)	N
All owner-operators and also nonoperator-owners who reported having detailed information about how their land was farmed (<i>n</i> = 114)	71.9	76.8	14.6 (91.4)	6.1	2.4	82
Respondents reporting that (1) livestock of some type was raised on their land and (2) they grossed at least \$100,000 in 2005 (<i>n</i> = 26)	65.4	88.2	11.8 (100.0)	0.0	0.0	17
Respondents reporting that (1) livestock of some type was raised on their land and (2) they grossed less than \$100,000 in 2005 (<i>n</i> = 21)	81.0	70.6	23.5 (94.1)	5.9	0.0	17
Respondents reporting that (1) some crop was grown on their land and (2) they grossed at least \$100,000 in 2005 (<i>n</i> = 51)	74.5	84.2	7.9 (92.1)	5.3	2.6	38
Respondents reporting that (1) some crop was grown on their land and (2) they grossed less than \$100,000 in 2005 (<i>n</i> = 30)	76.7	69.6	21.7 (91.3)	8.7	0.0	23

* Percentages in parentheses represent the sum of the values for “always” and “most of the time.”

The limited interview data we obtained on water supplies also indicate that supplies were adequate. As mentioned earlier, the Black Dirt Region tends to have large quantities of accessible groundwater. Most of the upland farms may also be well supplied because they are

either current dairy farms that were purposely located in areas of good groundwater or they produce other crops on land that used to be for dairying and whose water resources are still good.

“We have a good pond that we dug 15 years ago, and a good well. It’s an old dairy farm that needed good water supplies for the cows. They drink about 50 gallons a day per cow,”⁷³ said a vegetable grower.

Section III E: Conflicts with Nonfarmer Neighbors

Virtually every urban-edge agricultural area has experienced conflicts between farmers or ranchers on the one hand and their often increasing numbers of nonfarm neighbors on the other. Some or many of the latter complain about agriculturally caused odors, dust, chemical drift, machinery noises (especially early morning or late at night), and other perceived nuisances.⁷⁴ Their complaints may translate into lawsuits or hostile-to-farmers actions by local government that are influenced by the growing constituency of nonfarmer voters.

Our survey of agricultural landowners contained three questions about such conflicts:

- Q4. In the past five years (i.e., since 2001), has any nonfarm resident near your agricultural land in Orange County *complained* about agricultural operations on land you own? Yes, no, not sure.
- Q5. In controversies between farmers and nonfarmers, do local government authorities in Orange County tend to: side with the nonfarmers, side with the farmers, be even-handed (side with farmers sometimes and nonfarmers other times), not sure?
- Q6. On any of the land you own in Orange County, has the farming operation been significantly changed because nonfarmers lived nearby? No change, one or more changes for the worse, one or more changes for the better, both kinds of changes have occurred, not sure.

Frequency of Complaints about Farming Operations

Among all 133 respondents, 30.8% reported at least one complaint in the past five years (Table 25). Among the 93 operators, the level was nearly six points higher at 36.6%. However, when the analysis is limited to operators with at least \$100,000 in gross sales, the percentage rises to 49%.

We used regression analysis to determine if the underlying causal condition might be the number of acres owned in Orange County rather than gross sales, since the size in area of the holdings could be an indicator of exposure to complaints. The more acres, perhaps the more potential to

⁷³Fifty gallons per day seems to be at the high end of the range. Two Internet sources we consulted gave ranges of 30 to 50 and 25 to 50, respectively: <http://www.cals.wisc.edu/media/learning/pdf/Moo> and <http://www.agintheclassroom.org/060605/Teachers/Printable/agmags/DairyAgMag.pdf> (accessed May 10, 2007).

⁷⁴Ray Coppock and Marcia Kreith, eds., 1997, *California’s Future: Maintaining Viable Agriculture at the Urban Edge* (Davis: University of California Agricultural Issues Center), 80 pp.; “Old MacDonald Had a Farm, But the Homeowner’s Association Told Him that Cows, Pigs, and Fruit Trees Were Prohibited,” *Hawaii Island Journal*: <http://www.hawaiiislandjournal.com/stories/7b03a.html> (accessed August 5, 2005); and J. Dixon Esseks and Robert B. McCallister, 1986, “Assessing the Need for Local Government Intervention in Farm-Subdivision Conflicts,” in *Rural Public Administration: Problems and Prospects*, ed. James H. Seroka (Westport, CT: Greenwood Press), pp. 137–54.

be farming near a complainer. Another factor possibly related both to gross sales and the incidence of complaints might be the type or intensity of crops produced or livestock raised. In the regression analysis, the number of acres did not make a difference, while having at least \$100,000 in sales greatly increased⁷⁵ the chances of a complaint, other causal variables held constant. Also substantially increasing the likelihood of neighbors complaining was the presence of vegetable production on the land. Perhaps the problem trait was use of chemicals. Another candidate is the presence of migrant field laborers.⁷⁶ Whatever the causes, among the surveyed owners who grossed \$100,000 or more in 2005 sales *and* who had vegetables growing on their land that year, 65% reported at least one neighbor complaint, compared to 30.8% for all respondents (Table 25).

A commercial applicator of agricultural chemicals reported some complaints against his company from nonfarmers who live on the uplands around the fields of the Black Dirt Region. He estimated them to be “twice a year . . . [on] the average. I have had years when there were more; none this year [as of June 13]. There is more in the upland.”

Group	Percentage of group reporting a complaint	Number in the group
All surveyed agricultural landowners	30.8	133
All operators	36.6	93
Operators with at least \$100,000 in gross sales in 2005	49.0	51
Operators with at least \$100,000 in gross sales in 2005 <i>and</i> with vegetables growing on their land	65.0	20

Sometimes the problems for farmers are self-inflicted. An agri-service businessman told us about “a customer of mine [who] sold one building lot on his gorgeous farm. On July 3rd, a hot summer day, he spread manure.” The residents of the new home were not happy, especially on the eve of a holiday.

Buffers and Management Practices to Minimize Complaints

Four interviewed farmers described how they benefited from both physical buffers and management practices designed to avoid complaints:

- “We are well buffered here—way back off the road—and there’s a ridge separating us from the four McMansions on the other side. Otherwise the residential units are away from the fields that I am working. Also we are organic and have no smelly manure or noises relevant to neighbors.”
- “We maintain a buffer on this farm by owning land on the edges. In the other farm, I time the applications when neighbors are not outside—after they go to work or early Sunday morning.”

⁷⁵By a factor of more than 4.0 as measured by the Exp(B) value for that variable.

⁷⁶Reporting seasonal labor and having vegetable production on owned land were highly correlated. Among the respondents with vegetables growing on their land, 77.8% also had seasonal labor in 2005. When we substituted the variable measuring the presence of such labor for the variable measuring the occurrence of vegetable production, the former became a statistically significant predictor of complaints. However, when it is in the regression equation along with the vegetable production variable, seasonal labor ceases to be significant.

- “We are very fortunate in our farm. The buildings are in the middle; we keep the manure to ourselves. Our work at night doesn’t bother the neighbors.”
- “We set out 50 blue spruces this year; they buffer us. Back of us are wetlands bought by a jerk from . . . who’s ticked off that he can’t do anything with it. It will be for the turkeys and deer forever. . . . We paved our barnyard and put in gutters. . . . [Polluted] water that hits the barnyard area goes into a filter strip with fescue grass and canary grass that absorbs a lot of nitrogen. We got 75% cost share on that” [i.e., a grant from a public agency].

Local Government’s Role in Farmer-Neighbor Conflicts

In response to the question about whether *local government authorities sided with farmers or nonfarmers*, just 15.8% of all surveyed owners believed that the authorities sided with nonfarmers (Table 26). The corresponding percentage for operators was similar (16.1%), as was the measure for the 51 respondents with at least \$100,000 in sales (17.6%). In all three groups, majorities answered that either their municipal governments sided with the farmers or they were “even-handed.”

Group	Side with nonfarmers (%)	Side with farmers (%)	Be even-handed (%)	Not sure/ no response (%)
All surveyed agricultural landowners (<i>n</i> = 133)	15.8	15.0	33.1	36.1
All operators (<i>n</i> = 93)	16.1	15.1	35.5	33.4
Operators with at least \$100,000 in gross sales in 2005 (<i>n</i> = 51)	17.6	15.7	43.1	23.5

These percentages suggest that farmers tend not to face hostile local zoning and other regulations. However, two of our interviewees gave examples of local government not supporting farmers’ interests:

- An agricultural educator told us, “[One town government required farmers] to put up a house rather than use new trailers,” the latter usually being a less expensive way to add housing space for migrant workers.
- A Black Dirt farmer said, “If the nearby upland dairy farmer does sell out, I’ll have 35 new neighbors who think this [his bottom land] should be public land for their kids to ride their ATVs [all-terrain vehicles] on. Local law enforcement people—our police force—has an ATV, but they don’t pursue people on private land. If that ATV cuts across town land or road or a county highway, they’ll impound it. But they don’t do much on private land.”

Regarding the question about *whether nonfarmers living nearby had caused significant changes in the farming operation*, 29.3% of the full sample of 133 reported “one or more changes for the worse,” and another 12.9% indicated both negative and positive modification, for a total of 42.2% with at least one negative change in the farm (Table 27). The corresponding combined percentage for operators was a little higher (46.3%). But the subgroup of farmers with at least

\$100,000 in gross sales registered a significantly greater level—56.6% compared to 39.2% of the operators with less than that level of sales.

We used regression analysis to explain a negative change at some point before the time of the survey in early 2006 and found that:

- Change was more likely if the owner had received one or more complaints from nonfarmer neighbors in the past five years.
- Its likelihood increased also if the owner reported use of seasonal labor on his/her land.
- Also raising the probability of change was if dairying occurred on the land.

Presumably manure odors and other perceived nuisances of dairying forced some management changes for the worse, as did complaints about seasonal labor and other traits of the farm enterprises.

Group	No change (%)	One or more change for the worse (%)	For the better (%)	Both kinds occurred (%)	Not sure or no reply (%)	At least one negative change** (%)
All surveyed agricultural landowners (<i>n</i> = 133)	54.1	29.3	1.5	12.9	2.3	42.2
All operators (<i>n</i> = 93)	50.5	31.2	2.2	15.1	1.1	46.3
Operators with at least \$100,000 in gross sales in 2005 (<i>n</i> = 51)	39.2	35.3	2.0	21.6	2.0	56.9
Operators with less than \$100,000 in sales (<i>n</i> = 28)	57.1	32.1	3.6	7.1	0.0	39.2

*Text of question: "On any of the land you own in Orange County . . . [have] the farming operations been significantly changed because nonfarmers lived nearby."

**Sum of the entries for the second and fourth columns of data from the left.

Public Policies to Curb Complaints or Resolve Disputes

Given that over four in 10 of our sample reported negative changes due to nonfarmers living nearby, we inquired about what government—state and local—had been doing to minimize their effect on agriculture in Orange County?

- New York State offers "right-to-farm" protections. When complaints are made about chemical applications, on-farm retail sales, and other practices perceived to be nuisances, the state's Commissioner of Agriculture is authorized to judge the validity of the complaints, that is, whether the farm management practices in question were "sound." The opinions of his/her office are final unless appealed to the state court system, except if the practices took place on farms subject to agricultural assessment or located in "Agricultural Districts." Then court actions appear to be limited to matters of "personal injury or wrongful death."⁷⁷

⁷⁷Farmland Information Center, New York Statutes: Agriculture and Markets, Agricultural Districts, Article 25-AA, Section 308: <http://public.leginfo.state.ny.us/menugetf.cgi?COMMONQUERY=LAWS> (accessed May 12, 2007).

- In 1971 New York’s state legislature provided for the creation of “Agricultural Districts” by landowner initiative, local government approval, and state certification:
 “The Program is based on a combination of landowner incentives and protections, all of which are designed to forestall the conversion of farmland to nonagricultural uses. Included in these benefits are preferential real property tax treatment (agricultural assessment and special benefit assessment), and protections against overly restrictive local laws, government funded acquisition or construction projects, and private nuisance suits involving agricultural practices.”⁷⁸

“The Agricultural Districts Law protects farmers against local laws which unreasonably restrict farm operations located within an agricultural district. Division staff [the Department’s Division of Agricultural Protection and Development] together with Department legal staff, review both existing and proposed laws to determine if they are compatible with farm operations. In cases where a local law is determined to be unreasonable, staff work with the involved local government to develop mutually accepted modifications. If a local government is unwilling to modify a restrictive law, the Department is authorized to take action to compel compliance with the Agricultural Districts Law. In a landmark decision, the State Court of Appeals ruled that the opinion of the Commissioner of Agriculture and Markets should be given deference in the interpretation and administration of this important right to farm protection.”⁷⁹

To assist both farmers and local governments to comply with this law, the DA&M has developed and disseminated a number of guidelines that lay out what local government should and should not do when regulating agricultural operations. For example, the document, *Guidelines for Review of Local Laws Affecting Temporary Greenhouses*, seeks to prevent local authorities from making greenhouses unfeasible, such as by imposing expensive building code standards or a large minimum parcel size.

- “[T]emporary greenhouses that are specifically designed, constructed and used for the culture and propagation of horticultural commodities are exempt from requirements for building permits.”
- “[A] nursery/greenhouse operation conducted on less than 5 or 10 acres may be protected as a ‘farm operation’ under §305-a, if the operation is a ‘commercial enterprise’ and more than a backyard garden or hobby farm.”

Other published guidelines with similar intentions include *Control of Farm Animals, Nutrient Management, Farm Worker Housing, Farm Marketing Activities, and Commercial Horse Boarding Operations*.

As of April 2002 the DA&M had recorded 341 agricultural districts “statewide, containing approximately 21,500 farms and 8.6 million acres.”⁸⁰ As of March 2007 Orange County had two

⁷⁸New York State DA&M, *Agricultural Districts*: <http://www.agmkt.state.ny.us/AP/agsservices/agdistricts.html> (accessed May 11, 2007).

⁷⁹New York State DA&M, *Agricultural Districts*.

⁸⁰New York State DA&M, *Agricultural Districts*.

large agricultural districts, with one being north of State Route 17 and the second to the south of that major east-west artery. They included land in 14 of the county's 20 towns.

The interview sources that we consulted about the agricultural districts were all aware of them but had varying evaluations:

- “We belong to an agricultural district and have since they were first put in place. But no one has accused us of bad management. I do think that the notices required [for sales of property] within a certain distance of a farm are useful. Buyers must indicate that they've seen it. It's in the contract,” said an upland farmer.
- “Yes. I am in an ag district. It can help me with right-to-farm issues to a certain extent. I'd like to see the town and county enact right-to-farm laws to strengthen the state law. They should be against nuisance lawsuits and have notification to buyers that they are moving into an active agricultural area. They are supposed to be notified at the time of closing, but [there are] no teeth [in the law] if you don't notify,” said another farmer.
- “I never had to use it [the agricultural districts law] to deal with nonfarmer complaints,” said a dairy farmer with many years of experience in the county.
- “When I was involved in town government, there were very few complaints that crossed my desk,” said a former officer of an agriculturally important town.

As will be discussed in Section V of this report, our survey of farmland owners included a question about the effectiveness of the agricultural districts law. Very few of the 133 respondents had “never heard of it” (4.5%). Only one person said he/she found it “not helpful,” while 57.9% found it either “very” or “moderately helpful” and 22.6%, “somewhat helpful” (Table 37).

Section IV: Future Viability of Agriculture in Orange County

Much of both our interviews with local experts and the survey questionnaire for agricultural landowners focused on the likely future of agriculture in Orange County. We addressed five main questions or pairs of questions:

1. To what extent did the agricultural landowners expect to develop their land for some nonfarm uses in the next 10 years?
2. Did the existing farm operators plan to remain farming in the county for the next five or 10 years?
3. Did those farmers have succession plans, and whom did they expect to succeed them as operators of the land?
4. Did they intend to invest in their Orange County land and to expand or contract their operations there?
5. Did they see a “bright,” “modest” “dim,” or “no future” for agriculture in the county 20 years into the future?

Plans for Development

In response to the survey question about plans to develop the farmland they own in Orange County, fewer than half—41.4% of the full sample—reported *no* plans to develop in the next 10 years (Table 28). Only 8.3% believed that all their land would go into some nonagricultural use,

and almost a third (32.3%) expected something between 1% and 99% to be converted. About one in five (18.1%) were unsure or chose not to answer.

Among the 93 operators surveyed, 47.3% anticipated that all their owned land would remain undeveloped for at least 10 years, and among the farmers with at least \$100,000 in sales, the corresponding percentage was a little higher—52.9% (Table 28). But still, even among these farmers with larger operations, almost half either intended to develop some of their land (29.3%) or were uncertain (17.6%).

Group	None	1% to 24%	25% to 49%	50% to 75%	75% to 99%	100%	Not sure or no reply
All surveyed agricultural landowners (<i>n</i> = 133)	41.4	13.5	6.0	9.8	3.0	8.3	18.1
All operators (<i>n</i> = 93)	47.3	14.0	4.3	9.7	2.2	5.4	17.2
Operators reporting at least \$100,000 in gross sales 2005 (<i>n</i> = 51)	52.9	9.8	3.9	7.8	3.9	3.9	17.6
Operators grossing less than \$100,000 (<i>n</i> = 28)	46.4	25.0	0.0	10.7	0.0	7.1	10.7

*Text of question: "Given all the agricultural land you own in Orange County, about how much of it (if any) do you expect to be in some *developed use* (residential, commercial, industrial) *ten years* from now?"

When we used regression analysis to see if sales and other plausible causal factors made a difference, three variables emerged as significant predictors of whether respondents expected at least some of their owned land to be developed. Other things being equal:

- Owners who considered themselves "full-time" farmers were *less* likely to believe any of their farmland would be developed in the next 10 years.
- Also less likely were respondents who supported local government "zoning policies that limit residential development on productive farmland."
- However, the likelihood of some development was higher if the owner reported some change "for the worse" in the farming operation on his/her land in the county "because nonfarmers lived nearby."
- And it was higher also among owners with hay produced on their land in 2005.

As discussed earlier, hay may be the crop of choice for the transition from dairying or other complex operations to development of the land. Hay production should not require a lot of labor, it keeps the land eligible for agricultural-use assessment, and there may be good local markets for it among construction companies and horse owners. The relationship between expecting development and having experienced a change "for the worse" because of nonfarm neighbors may reflect intolerable limitations on freedom to farm. Alternatively or in addition, such changes indicate the respondent's land being close enough to existing housing (that caused the change "for the worse") that it is likely to be developed fairly soon. Presumably, owners who both intend no development and support restrictive agricultural zoning want to stay with their current agland and use zoning to further that goal.

Operators' Five- and Ten-Year Expectations for Farming in Orange County

All operators in our survey were asked if they expected “to be in farming in the county five [and 10] years from now.” Three-quarters (75.3%) replied “yes” to the first time frame, but only about half (53.8%) to the 10-year horizon (Table 28). The “yes” percentages were higher among operators less than 55 years old and lower among those 55 and above.

Group	Five years			Ten years		
	Yes (%)	No (%)	Unsure or no reply (%)	Yes (%)	No (%)	Unsure or no reply (%)
All operators (<i>n</i> = 93)	75.3	8.6	16.1	53.8	24.7	21.6
Operators who were less than 55 years old (<i>n</i> = 49)	83.7	6.1	10.2	69.4	18.4	12.2
Operators 55 or older (<i>n</i> = 41)	68.3	12.2	19.5	36.6	31.7	31.7

According to our survey data, what conditions would help to convince them to remain farming in Orange County? To answer this question, we used regression analysis. Not surprisingly, age made a difference, and the second and third lines of data in Table 29 illustrate that point. While 83.7% of the responding operators who were less than 55 said they would stay on for at least five years, 68.3% did among the farmers 55 over.

Although no one can be talked into becoming younger, the regression analysis found two other predictors that public policy might change in directions that encourage operators to remain in Orange County. One was to increase the profitability of grain farming or to help operators to switch to other, more profitable crops. The currently much higher corn prices (March 2008) might make a substantial difference. But, as of the time of our survey of agland owners in Orange County during the winter of 2006, the more acres of grain the operators farmed, the *less* likely they were to expect to remain in farming there five years into the future, *even after taking into account their ages*. The second policy initiative suggested by the regression analysis is to help operators to secure sufficient nonfamily labor. Respondents who reported that their needs for that kind of input were met “always” or “most of the time” were *more likely* to expect to stay in farming in Orange, other things being equal.

A significantly smaller percentage of surveyed operators reported that they would continue to farm for at least another *10 years*—53.8% rather than the 75.3% who would stay five years (Table 29). Regression analysis found that age at the time of the survey was again a very important predictor. As Table 29 indicates, while more than two-thirds (69.4%) of the responding operators less than 55 expected to be farming in the county 10 years in the future, among the surveyed farmers 55 and over, the percentage dropped more than 30 points to 36.6%. Other things being equal, the likelihood of planning to stay 10 years *greatly increased* if the respondents were satisfied with the competitiveness of the markets for their land’s ag products. According to the statistical analysis, another factor encouraging staying on to farm was when the operator reported that a son, daughter, or grandchild would succeed him or her as operator. A

third positive trait was when the operators believed that the agricultural districts (see above) were effective in protecting farmers “against unfair nuisance complaints.” A fourth was if the respondent used year-round labor in his/her farm operation.

Operators’ Plans and Expectations as to Who Will Succeed Them

Given the not surprising importance of both the age and heir factors in shaping decisions to remain in farming in Orange, what “succession” plans and related expectations did the surveyed farmers report? Advocates of succession planning argue that it may be essential to the continuing viability of the farm operation.⁸¹ For example, such plans may obviate the need to sell farmland in order to meet tax obligations or to pay off the heirs who are unwilling to farm or be non-operating partners or stockholders.

Among all 133 respondents from Orange County, only 21.8% reported succession plans already developed, while 15.0% chose the response option “One is under consideration” (Table 30). The percentage of “yes” responses was a little higher among the farm operator subsample—23.7%. The 2001 Agricultural Resource Management Survey conducted by USDA’S Economic Research Service and the National Agricultural Statistics Service asked about succession plans, and 27% of its sample of operators reported having them.⁸²

Group	Yes	One is under consideration	No	Not sure/no response
All surveyed landowners (<i>n</i> = 133)	21.8	15.0	62.4	0.8
All operators (<i>n</i> = 93)	23.7	18.3	57.0	1.1
Operator is less than 55 years old (<i>n</i> = 49)	14.3	22.4	66.3	0.0
Operator is at least 55 (<i>n</i> = 41)	31.7	14.6	51.2	2.4

*Text of question: “For any of your agricultural land in Orange County, have you developed a *farm succession plan* that arranges for the transfer of ownership and management of the land to a relative or other person?”

According to regression analysis of our Orange County sample, the likelihood of a plan tended to *increase* with the age of the owner-operator (see Table 30). The chances *rose* also when the respondent expected to expand their operations in some respect over the next five years (e.g., number of acres farmed, separate crops grown, or different types of livestock raised). Perhaps such dynamism in the operation was associated with managerial sophistication that included appreciation of the merits of succession plans. A third positive factor was when the operators raised grains on their owned land. Among the surveyed farmers producing grains, 39.3% reported succession plans. Perhaps they belong to organizations like the Farm Bureau that promote succession planning among members.

⁸¹New Jersey State Agriculture Development Committee, Farm Link Program, *Transferring the Family Farm: What Worked, What Didn’t for Ten New Jersey Families* (Trenton, NJ), 38 pp.; Caroline Berry, 2006, *Commentary: Plan Now to Ensure the Family Farm Survives for Generations* (Sacramento, CA: California Farm Bureau Federation): www.cfbf.com/agalert/AgAlertStory.cfm?ID=619&ck=CDC0D6E63AA8E41C89689F54970BB35F.

⁸²Ashok K. Mishra, James D. Johnson, and Mitchell J. Morehart, 2003, *Retirement and Succession Planning of Farm Households: Results from a National Survey* (paper delivered at the National Public Policy Education Committee Salt Lake City, UT, September 21–23, 2003), 22 pp.

As Table 31 shows, a little less than one third (31.2%) of the surveyed operators reported a close relative (son, daughter, or grandchild) as their likely successor. When other kinds of relative are added, this percentage rises only to 33.4%.

Response options	Percentage	Number of cases
A son daughter, grandson, or granddaughter	31.2	29
Some other relative	2.2	2
<i>(Either a son, daughter, grandchild or other relative)</i>	<i>(33.4)</i>	<i>(31)</i>
Someone outside the family	7.5	7
Not sure	28.0	26
Other or no reply	31.2	29
Total	100.0	95

*Text of question: "If you are now a farmer, who will likely farm the land you own in Orange County when you retire from farming?"

Expected Agricultural Investments in Farmland Owned in the County—"Over the Next Five Years"

For a number of years observers of the effects of urbanization on nearby agriculture have written about a phenomenon called "the impermanence syndrome."⁸³ William Lockeretz has defined it as a set of attitudes that amount to not investing in the land's agricultural capabilities because the "farmers see land being developed around them and consider it inevitable that their land will be developed, too. . . . Given this expectation, it does not make sense to put in long term improvements, or even to maintain existing capital facilities such as fences, buildings, irrigation equipment or drainage systems."⁸⁴

To test for the presence of this syndrome, we asked the following question of owners who were either operators or reported having detailed knowledge about how their land was farmed:

"Over the next *five* years, will you or the farmer of your land likely make any agricultural investments of the following types on your land in Orange County?

- Erecting, replacing, or enlarging farm buildings.
- Building or extending farm fences.
- Installing or improving conservation or irrigation facilities.
- Other investments (*Please specify*)."

Over four in 10 (44.7%) of these respondents reported that they would likely erect, replace, or enlarge farm buildings during the five years (Table 32). Nearly the same percentage (46.5%) said that farm fences would be built or extended. Half (50.9%) expected that conservation or irrigation facilities would be installed or improved. And 7.9% listed other types of investments such as planting an orchard, digging a pond, or putting in greenhouses. A total of 71.9% reported

⁸³Howard E. Conklin and William G. Leshner, 1977, "Farm-value assessment as a means of reducing premature and excessive agricultural disinvestment in urban fringes," *American Journal of Agricultural Economics* 59:755-59; Rigoberto A. Lopez, Adesoji O. Adelaja, and Margaret S. Andrews, 1988, "The Effects of Suburbanization on Agriculture," *American Journal of Agricultural Economics* 70:346-58.

⁸⁴William Lockeretz, 1989, "Secondary Effects on Midwest Agriculture on Metropolitan Development and Decreases in Farmland," *Land Economics* 65:215-16.

at least one kind of investment. With almost three-quarters planning some improvement on their owned land, we probably should not conclude that a significant “impermanence syndrome” had set in as of the time of the survey (winter of 2006).

Type of investment	Yes (%)	No (%)	Unsure (%)	No reply** (%)
Erecting, replacing, or enlarging farm buildings	44.7	28.1	11.4	15.8
Building or extending farm fences	46.5	26.3	10.5	16.7
Installing or improving conservation or irrigation facilities	50.9	20.2	9.6	19.3
Other types of investments	7.9	10.5	13.2	68.4
At least one of the above types of investments	71.9			

*Operators and nonfarmer owners who monitor operations on their land ($n = 114$).

**Includes respondents who did not answer these questions because they did not they expect to be farming the land five years in the future.

Expected Changes in the Farming Operations “Over the Next Five Years”

Another dimension of the health of Orange County’s agricultural sector in the winter of 2006 was whether the surveyed owners intended to expand, contract, or not change the farming operations on their land. The absence of expansion in acres farmed, livestock raised, or numbers of separate types of crops or animals raised might suggest stagnation or worse, contraction.

Therefore, we asked this question:

“Over the next *five* years, will you or the farmer of your land in Orange County likely increase, decrease, or maintain the following aspects of the farm operation?

- Farmed acres owned in the county.
- Farmed acres rented there.
- Numbers of livestock raised in the county.
- Number of separate crops grown there.
- Number of separate kinds of livestock raised there.”

Entries in Table 33 do not show much contraction, nor any broad expansion. On none of the five components does the “decrease” percentage exceed 12.3%, and for the at-least-one-decrease measure, the percentage is 23.7%. By comparison, a little more than a third (36.8%) anticipated one or more types of increase. The highest “increase” percentages were for adding numbers of livestock raised on their land in the county, 14.9%, and for increasing the number of separate crops grown—18.4%.

Combining the responses about increasing owned and/or rented land, we get just 14.0% planning to add some land to the operation (Table 33), perhaps indicating the perceived scarcity of affordable or physically suitable land for farming. Another possibility is that owners were unsure about agriculture’s future in the county. The next topic covered is the pattern of respondents’ expectations for 20 years ahead.

**Table 33. Testing for Stagnation in the County’s Agricultural Sector:
Owners’ Expectations of Change in Farming Operations***

Components of farming operations	Increase (%)	Decrease (%)	Stay about same (%)	No reply** (%)
Farmed acres owned in Orange County	10.5	11.4	64.0	14.0
Farmed acres rented there	7.9	12.3	51.8	28.1
Numbers of livestock raised in the county	14.9	7.9	36.8	40.4
Number of separate crops grown there	18.4	7.0	51.8	22.8
Number of separate kinds of livestock raised there	11.4	7.0	39.5	42.1
At least one of the five above components is expected to increase	36.8			
At least one of the five components is expected to decrease		23.7		
Expect to increase the number of farmed acres that are either owned or rented	14.0			

*Owners expecting increases, decreases, or no change in five components of farming operations on their Orange County land ($n = 114$).

**Includes respondents who did not answer these questions because they did not they expect to be farming the land five years into the future.

The Expected Viability of Agriculture in Orange County 20 Years into the Future

The main goal of this study has been to find evidence for policy recommendations that would likely help to sustain agriculture in the selected counties into the next generation. We asked both the surveyed landowners and the interviewed agricultural leaders to look into the future and to predict agriculture’s status, and then we looked for reasons for those perceptions.

Landowners’ Predictions: Very few agland owners—6.8% of our total sample—anticipated a “bright” future 20 years down the road (Table 34). The response option, a “modest” future, was selected by almost a quarter of the respondents—24.8%. More than half (55.6%) chose “dim,” although only 8.3% answered “none at all.” Among the 93 owner-operators, the distribution of responses was very similar (Table 34).

When using regression analysis to search for reasons for this pattern of predictions, we combined the “bright” and “modest” respondents to form a relatively positive group and then hypothesized various causes for their positions. We found that, other things being equal, the likelihood of being in this group:

- *increased* greatly if, to the earlier question about the competitiveness of marketing outlets for their land’s products in 2005, they had answered “very” or “moderately satisfied,”
- *increased* also where the respondents used seasonal labor and reported that their needs for it had been met “always” or “most of the time,”
- *rose* the more horses that were raised on their land,
- were *higher* also if the owner believed that the agricultural-use value assessment laws were “moderately” or “very helpful” in keeping property taxes on farmland in Orange County at acceptable levels, and
- increased if the surveyed operators reported *less* than \$100,000 in gross sales for 2005.

Table 34. Owners' Expectations about the Future of Agriculture in Orange County:*						
Percentage by Response Option and Group of Respondents						
Groups of respondents	Bright (%)	Modest (%)	Bright or modest (%)	Dim (%)	None at all (%)	Not sure/no reply (%)
All respondents (<i>n</i> = 133)	6.8	24.8	(31.6)	55.6	8.3	4.6
Operators only (<i>n</i> = 93)	7.5	26.9	(34.4)	53.8	7.5	4.3
Respondents who were "very" or "moderately satisfied" with the competitiveness of markets for their farm goods (<i>n</i> = 40)	10.0	32.5	(42.5)	45.0	5.0	7.5
Respondents who were "somewhat satisfied," "not at all satisfied," or "not sure" (<i>n</i> = 43)	7.0	16.3	(23.3)	65.1	9.3	2.3
Operators with at least \$50,000 in gross sales in 2005 (<i>n</i> = 51)	7.8	23.5	(31.3)	56.9	5.9	3.9
Operators with less than \$100,000 (<i>n</i> = 28)	10.7	42.9	(53.6)	39.3	7.1	0.0

*Text of question: "Thinking ahead 20 years, what kind of future do you see for agriculture in Orange County?"

Given our discussion earlier about the high market value of upland in Orange County, the importance of agricultural-use assessment in shaping attitudes about agriculture's future was not surprising. It makes sense also that farmers able to meet their needs for seasonal labor were more optimistic. Horse farming's future looked rather good. And it was very plausible that respondents would be positive if they perceived the markets for their land's products to be competitive.

What did surprise us, though, was the negative relationship with gross sales. As shown in Table 34, the smaller operators (less than \$100,000) in gross sales were more optimistic: 53.6% predicted at least a "modest" future compared to 31.3% among the farmers grossing \$100,000 or more.

To check that gross sales was not a surrogate for another variable (or variables) in our survey that was the root cause of the difference in respondents' attitudes, we added the "control variables" of numbers of acres farmed and types of farm products raised on owned land (vegetables, fruit, nursery, trees, hay, and dairy). None of them substantially changed the statistical or practical significance of the gross sales variable. It may be that farmer owners of relatively small operations were more optimistic about the future because they believed they could cope better with the negative effects of further urbanization. More specifically, they would need less of problematic inputs like land and labor.

Predictions of Agricultural Leaders about the Next 20 Years

The Supply of Inputs of Production: The interviewed agribusiness managers, educators, and farmer leaders were asked about the future of agriculture in Orange County. Below are their responses grouped by type of production input. Then we present their predictions about the types of farm enterprises likely to be successful into the next generation.

Land: The interviewees were split about the future availability of sufficient land in Orange County to farm. Some were encouraged by the large number of farmed acres (12,000 or more) in the Black Dirt Region, plus the growing amount of land protected through easements.

- “The Town of Warwick has enough acres [under easements] that it will make a difference. . . . A combination of those parcels and the muck land can support agricultural infrastructure,” said an agricultural land-use specialist.
- “They’ll use muck land and land from purchase of development rights in [the towns of] Montgomery and Warwick. They’re purchasing development rights right and left,” said a specialist in farm finance. Recently Warwick had established a “community preservation transfer tax” of .075% to be “deposited in a dedicated fund earmarked for the acquisition of land, development rights, and other interests in property for conservation purposes.”⁸⁵
- However, a second specialist on land-use issues in Orange County believed that the movement to protect farmland through easements had started too late: “As an overall countywide solution, it’s probably 30 years too late, because we’ve already had such a huge influx of people that’s taken place in the interim. We need to get everyone on the bandwagon tomorrow. What it will do: keep some long-term established farms by giving them the option that the son who wants to farm . . . can farm here.”
- Another knowledgeable observer told us: “They can’t preserve enough land to make it viable. They’re purchasing rights to a little pocket here and another pocket there—100 acres and 20 miles away another 200 acres, and 30 miles from there another 300 acres. You got to have large enough areas so that farmers don’t have to run their equipment up and down the road for miles.”

Future Affordability of Land: On the critical issue of the affordability of land, farmers seeking more land will likely be limited to parcels that are under non-development easements, in the Black Dirt Region, or available for leasing. For the fortunate ones there is the third option of inheriting family land.

Credit and Other Inputs Provided by Agri-service Businesses: Our interview sources were fairly optimistic about the availability of capital through self-financing, via loans from the First Pioneer Farm Credit Bank, and assistance from USDA’s Farm Service Agency. If need be, operators can order spare parts directly for UPS-type delivery or perhaps from local farmer entrepreneurs (discussed earlier) who deal—from their farmsteads—in various parts, equipment, seeds, and other inputs on a small though apparently useful basis.

Even repair services look viable for some time to come. One well-positioned observer told us: “We are seeing small-scale private equipment repair businesses. Twenty years ago equipment was serviced and maintained by farmers and dealers. Recently one-man repair operations are doing well.”

The three conventional dealers whom we interviewed all expected to stay in Orange County for 10 or more years because they can adapt to changes in their clientele:

⁸⁵The tax is assessed on the value of improved property that exceeds \$100,000. The untaxed part for sales of vacant land was set at \$50,000. Town of Warwick, Community Preservation Fund (CPF) Transfer Tax: http://www.townofwarwick.org/Residents/Town_Hall/CPF_Tax_Form_Rev4.pdf (accessed May 13, 2007).

- “I see us still being here another 20 or 30 years. We are geared towards the farmer, but we would not stay in business if that were all we did. . . . We are geared towards a mixture of landscapers, small horse farms, guys who move up here with 20 to 30 acres and got a couple of horses. They may have a cow or two, the hobby farms. Ninety percent of your business will be made up of hobby farmers.”
- “The future for our business is bright because of increased number of horse people and reduced competition. We’ve grown bigger than from where we started. A good sign—people pay with credit cards at time of purchase rather than running up accounts and paying when and if they can.”
- “I think that it will be a little different from what we do now. I still think that agriculture will be the core of our business. I would say that we will be a little more involved in professional turf service people, handling a little more for the lawn maintenance people, including golf courses.”

Labor: A truly problematic input of production is field labor. Ironically, the products with apparently good market potential for some years into the future—vegetables, fruits, and nursery—tend to require considerable hand labor. Needed is a guest worker program that provides adequate numbers of workers “on time” and at reasonable costs.

Persons Willing and Able to Farm Successfully: Opinions were mixed about the future supply of persons willing and able to farm in Orange County. The sources for new farmers discussed in the interviews included members of existing farm families who inherit the land, young persons starting out without much if any family support, ethnic specialty growers, and second-career or lifestyle farmers.

Inheritance, Gradual Buyouts, and “Sweat” Equity:

- In the opinion of one dairy farmer, inheritance was the only way to be successful: “The future of dairying in Orange County is zero unless dad owns the farm and gives it to you, and you have no debt.”
- A variant on gifting farmland to sons or daughters is the gradual buyout: “I know of two sons in their 20s who are gradually buying into the cows and machinery. I’ve not seen many bargain sales among family members,” said a land-use specialist in Orange County. A potentially critical advantage of the phased buyout is that the father and mother have some cash to give to the other children who do not wish to farm.
- A serious disadvantage is that the new farmers may not earn enough to make the payments to their dads and/or moms. An expert on farm finance in Orange County warned: “If you want to be an upland farmer, a young person may find it cost-prohibitive, unless you market directly with a high value crop.”
- Yet another variant is the young relative who contributes “sweat” equity. An agricultural educator in Orange County told us the story of a nephew who worked his uncle’s land and received a reduced salary: “The difference between what he gets and what he really provides to the uncle pays for 10% of the farm a year.”

Leased Land: Some operations may be viable based entirely on leased land.

- “You won’t have farms being purchased by newer or beginning farmers. You have farmers who want to retire but still want to own their farms, so there are opportunities for

producers to rent. Cash leases—generally they are five years,” said an expert on farm finance.

- Another knowledgeable observer also believed that an outsider could begin with leased land, saying, “If he’s a creative type of individual, I would recommend it. He could start on leased land—there is some available. It would be a tough road; you must be very open-minded and creative in this area. Can’t run the operation the way mom and dad did.”
- But will he or she stay in Orange County? “Guys start off renting, buy some cows, and after three to four years, they start to buy equipment. We’ve had a bunch of young kids . . . rent here and start up, but they can’t buy the land. They go elsewhere,” said another agricultural educator.

Among the relatively few farmers with financial resources to purchase upland at market prices have been growers interested in producing ethnic specialty crops: ““From outside the industry, we get a reasonable number of Asians buying property, mostly Koreans, some Chinese,” said an agricultural educator.

Another apparently small group consists of farmers (at least three) who sold land in parts of Orange County with very high development potential and then used some or all of the proceeds to buy better farms elsewhere in the county where land prices were at least somewhat lower. They shielded themselves from high capital gains taxes to the extent that their sale proceeds were covered by the costs of the new land.⁸⁶ Why did they stay in Orange County? An acquaintance of two of these farmers said that, in one case, “They liked the schools.” In another, the explanation was “Family roots here, very strong ties. Grandkids now growing up. . . . Moving 300 miles away to Rochester was not appealing.”

Second-career or Lifestyle Farmers: Also able to purchase land in Orange County have been people who either continue to work in well-paying nonfarm jobs or retire from them and then use invested savings from that career for the purchase and startup of small farm operations. They may expand or remain just big enough to meet New York State’s ag-use assessment requirement of \$10,000 in annual gross sales (see the discussion above of the assessment laws).

- “There are successful people interested in part-time farming. Their well-being has been established, though they’re not getting into it for a tax write-off. They want to be profitable. The initial purchase of farm was not from agricultural money,” said a specialist in farm finance.
- “I know people who have gone through one entire career of 20 to 25 years before they are attracted to farming here, such as starting to do organic because they realize it’s nice working outdoors where it’s tranquil, peaceful, and you see the results of your work right away,” said a farmer who sells also agricultural supplies.

⁸⁶“Generally, if you exchange business or investment property solely for business or investment property of a like-kind, no gain or loss is recognized under Internal Revenue Code Section 1031. . . . Real properties generally are of like-kind, regardless of whether the properties are improved or unimproved.” Internal Revenue Service, Like-Kind Exchanges—Real Estate Tax Tips: <http://www.irs.gov/businesses/small/industries/article/0,,id=98491,00.html> (accessed May 16, 2007).

- Another variant is what USDA’s Economic Research Service calls “residential/lifestyle farms.”⁸⁷ Earning sizable (or any) profits may not be their operators’ main motive. An agricultural educator in Orange County told us, “I’ve seen an increase in this type. They like the livestock that do allow outside jobs. These part-time farmers raise sheep or goats” and can leave them in pastures or barns during the day while they work off-farm.
- One experienced observer was skeptical that the older part-timers will stay long in Orange County: “There always will be somebody who always wanted a farm and has 20 cows to play around with. But the problem is they get sick of it too. I’ve seen people come in from New York City and do it for five years and then realize, ‘I didn’t realize this was so much work.’ And then they are gone,” said a specialist in agricultural land use.
- We interviewed one transplant from New York City who had been doing organic agriculture for 20 years on a small farm, was still making money, but worried about who would succeed him. Lacking children or other heirs willing and able to manage the operation, he was looking for a co-manager who, while working for one or more seasons on the farm, would become interested in sharing managerial responsibility and profits and “stay with the farm for the long haul.”⁸⁸

Agricultural Leaders’ Predictions about the Kinds of Farm Enterprises Likely to Succeed over the Next 20 Years

Dairy Farms: During 2005 and 2006 when our interviews took place, opinions were mixed about the future of dairy farming in Orange County.

- One financial expert predicted a significant dairy sector of relatively modest-sized operations: “I still see a surprisingly strong dairy industry because of long-line families that have been highly successful in the past, and because of their low or nonexistent debt structure they can help a younger generation into business. I do not see many operations becoming medium to large farms. The area is not conducive to that. The large ones currently will stay that way.”
- An agricultural educator believed that dairy’s future in Orange County depended on higher prices or new products: “People may be willing to keep working agricultural land for an extra 25 cents per gallon, up to three dollars more. Getting 16 dollars per 100 weight on average [would help]. A lot of our farmers can break even at 12 to 13 per 100 weight, even with great increases in equipment [costs] and fuel.”⁸⁹ He was also promoting agritourism on dairy farms and the establishment of processors locally (for yogurt, cheese, and ice cream) that would offer premium prices for milk because of the transportation savings.
- Another knowledgeable observer was skeptical that, being on the mostly developable uplands, dairies would survive the high purchase offers from developers: “Since the metropolitan push will never stop, at some point even the most profitable farmer will decide to accept a big check for his land,” said a land-use attorney.

⁸⁷Interview with a representative of a member bank of the Farm Credit System, June 2006.

⁸⁸Stewart, *It’s a Long Road to a Tomato*, p. 264.

⁸⁹The AgWeb.com. quote for milk in the Orange County region on November 29, 2007, was \$19.55 per 100 weight: <http://agweb.com/ME2/Audiences/dirmod.asp?sid=&nm=Markets+Commodity&type=MarketsCommodity&tier=1&AudID=C8768C9B834040C99083F19F7E3163B1&UTC=-6&market=3&futures=DA> (accessed November 30, 2007).

- A livestock specialist believed that the long hours of work and the limited financial returns from dairying will cause severe succession problems, particularly as urbanization causes the cost of living in Orange County to increase and generates well-paying nonfarm occupations: “My client’s son informed him the other day that he doesn’t want to dairy any more, the reason being [my client] can’t pay his son enough money. He’s been paying him \$800 per week. His son is watching his cousins who are framing houses or are masons, who can go away on weekends, driving fancy cars, building new houses, while he works seven days a week, can’t get off the farm, and has no money left. Also the cost of living in suburbanizing areas is grabbing them.”

Horse Farms: Predictions for horse farms were mostly positive. Urbanization tends to produce more customers, inputs are available either locally or in nearby counties, and property-tax laws allow equine operations to qualify for ag-use value assessment:

- “I see a good future because of population changes. They [horse farms] are here because the income is coming from downstate. They’ll stay here. If they can’t get inputs here, like hay, they go out of the county,” said an equine specialist.
- “Yes, as the area suburbanizes, there will be ways to make money that were not thought of before. . . . They [equine operations] can stay viable because they don’t need much land to run the business. They are cutting their own hay or doing other crops, or they are buying it,” said a livestock specialist.
- Horse farming is attractive to the part-time farmers “because these folks don’t want to work that hard. Not milk twice a day.” Also, the hay they need can be produced on the weekends. Two of our participants in the landowner survey identified themselves as retired teachers who operate a horse farm.
- “We qualify for use value assessment on all . . . acres. To do so we must earn \$10,000 in each of the two parcels,” said an owner of a boarding-training-riding operation, with some breeding.

Vegetables: Our interview sources tended to be optimistic about vegetable farming because it is centered in the heretofore undevelopable Black Dirt Region and because of the growing markets for direct sales both locally and in nearby suburban and urban counties. However, as discussed earlier, vegetable farming in Orange County depends on seasonal labor more than most other sectors of the county’s agriculture, and the following optimistic predictions were made in 2005 or the first half of 2006, before the upsurge in enforcement actions against migrant workers in meatpacking plants and on some farms, including ones in New York State.⁹⁰

- “Vegetable farming has the best outlook. One of the key factors is that they can’t develop on [the Black Dirt]. We have a little ways before they come up with engineering technology to develop it. . . . Even 20 years from now the vegetable segment will still have operations in existence, taking a short trip to a very demanding but very profitable market outlet. . . . There will still be some market wholesaling, but the percentage of their total sales will be less in wholesale,” said a specialist in farm finance.
- “We have a lot of Koreans here. Black Dirt will remain a very strong area producing for [their] ethnic markets,” said a farmer who partnered with Asians.

⁹⁰Nina Bernstein, “Immigrants Go from Farms to Jails, and a Climate of Fear Settles In,” *New York Times*, December 24, 2006.

- “It will not be the dairy farmer [who survives]. It will be the other farmers—vegetables, sod, and apple orchards—[except that] those who are getting too close to towns are being offered astronomical prices for their land,” said a manager of an agri-service business in Orange County.

Smaller Producers: Several interviewees well informed about food production in the county were especially optimistic about smaller growers:

- “I see a good future for smaller operations: diversified operations such as with vegetables, berries and grapes, goats, sheep, beef, poultry. . . . People care where their food comes from. Buy a quarter side that you can trust, and they probably have the money,” said an agricultural educator.
- “In the past three to five years, there’s been more emphasis on the small farms because they are the ones likely to stay. They will be the backbone of the industry,” said a specialist in agricultural land use.
- “Some growers are reducing their acreage in less profitable crops and looking at alternative crops or concentrating on packaging/marketing in order to become more profitable. An example would be an onion producer that’s reduced growing acreage from 400 to 100 acres and invested capital into converting storage buildings into state-of-the-art packinghouses, and [is] grading and brokering their own crop as well as other producers’,” said a specialist on farm finance in Orange County.
- This same expert was enthusiastic about part-time farmers: “Small, part-time operations are the future. . . . Direct-marketing opportunities increase with the increase in population. We need to find these part-time farmers and new startups that are not in the traditional wholesale agricultural industries.”
- An educator who works with urban-transplants-turned-small-farmers was enthusiastic about their direct-marketing abilities: “They tend to be more capable of green marketing—vegetables and herbs. They tend to be more capable of listening to the consumer. More open to satisfying that consumer and less likely to be stubborn about growing for just one customer. Traditional growers don’t want to deal with new vegetables like heirloom tomatoes. Urbanite growers will package them individually in clam shells to take them to market.”

Will agri-service businesses serve these small-scale operators?

- One manager told us: “We bag fertilizer here. In the future, we could do smaller quantities for the smaller farmer. We have small Asian farmers, buying 10 acres here. It’s a real challenge. They come in speaking little or no English, though they have lots of questions and are growing native-type vegetables.”
- Another manager welcomed the patronage of part-time farmers but was skeptical of their lasting power: “These farmers during the evening and on weekends help us stay in business a little bit. But they are not going to be the guys who are going to be around for a long time. Generally, this is their getaway, and their idea of farming is they buy a whole bunch of land and they’re going to make hay. While they’re at work in the city, they may have 30 beef cows running around on 200 acres. They don’t even try to make money at it. They use it to preserve the land.”

Nursery, Sod, and Floriculture: Farm enterprises growing landscaping products should also survive. They benefit from the growing local and nearby markets, although eventually, as Orange County nears full “build-out,” their farmland will become too valuable for development, and their farm operations will transfer out of the county. Sod farmers have the advantage of needing relatively less labor, since sod can be harvested mechanically.

Diversified Agricultural Enterprises: In agriculture, as in other sectors of the economy, there are advantages to diversification, including economies of scale and protection against financial stress if markets for one line of products or services turn bad, but other lines do well enough to compensate.

- Agricultural educators in Orange County were encouraging growers to offer diverse products when they participated in farmers’ markets, according to two educators we interviewed. One educator noted a trend toward farmers “increasing their lists of things to grow.” Some also were expected to process more of their products, such as “jams, jellies, and packaging specialty herbs.”
- A banker noted that some farmers were interested in diversifying into nonagricultural businesses, like an auto parts store.

If, however, the farm business were large enough, the kind of succession problem discussed earlier might be avoided. The operator and heir (e.g., son, daughter, nephew) could earn sufficient income, as well as afford enough help so that their jobs were tolerable timewise. One of the partners might specialize in production while the other was in charge of marketing. We interviewed two growers each of whom had developed that kind of partnership with two of their grown children.

Section V: Policy Recommendations for Keeping Agriculture Viable in Orange County

This study’s policy recommendations focus on production inputs (land, credit, labor, next generation of farmers), property taxes, and marketing conditions. The sources for the recommendations are again both the surveyed agricultural landowners and the interviewed agricultural leaders.

Expand Easement Programs for Protecting the Land Base: The last survey question asked of all respondents was “Over the next 20 years, what should interested citizens do about the viability of farming in Orange County?” Six response options were offered, including two about protection of agricultural land. Table 35 reports the distribution of answers. Only 6.8% of the surveyed agland owners selected the response option “Nothing; let private market forces guide things” (Table 35). A little less than a quarter (22.6%) chose “Help to protect agricultural land from development (e.g., via purchase of development rights or through zoning).”⁹¹ Fifteen percent preferred the competing option “Help farmers to farm more profitably.” Another 31.6%

⁹¹The respondents selecting this policy option were probably somewhat more positive about purchase of development rights than about zoning. While 30% of them “strongly supported” using large-lot zoning to limit residential development on farmland, 60% were strong in their approval of using local government revenues to purchase development rights to farmland.

selected “Give equal emphasis to the objectives of farmland protection and more profitable farming.” Therefore, a total of 54.2% included land preservation in their recommendation, and 46.6%, the purpose of assisting farmers to be more profitable.

Response options	Percentage of all respondents	Number per option
Nothing; let private market forces guide things	6.8	9
Help to protect agricultural land from development (e.g., via purchase of development rights or through zoning)	22.6	30
Help farmers to farm more profitably	15.0	20
Give equal emphasis to the objectives of farmland protection and more profitable farming	31.6	42
Do something else or in addition (Please explain)	2.3	3
Not sure	5.3	7
No reply	16.6	22
Total respondents	100.0	133

We had expected a higher percentage to endorse both protection of land and profitability assistance because the agricultural educators, agri-service managers, and others whom we interviewed tended to be interested in both goals. We encountered only two interviewees who advocated only land preservation—for its open-space outcomes.

Response option	Existing PDR program¹ (%)	Proposed higher minimum lot sizes² (%)
Strongly support	39.1	18.8
Support	35.3	21.1
(Either “strongly” support or “support”)	(74.4)	(39.9)
Oppose	7.5	20.3
Oppose strongly	9.0	25.6
Not sure	9.0	12.8
No reply	0.0	1.5
Total respondents	133	133

¹Existing program allows purchase of development rights (PDR) to agricultural land.

²Proposal to increase the minimum lot size for new residential home sites in areas of productive agricultural land.

The survey of agland owners indicated considerable support for existing programs of purchasing development rights (PDR). Early in the questionnaire we asked evaluative questions about PDR programs in place and also a proposal to limit residential development in areas of productive farmland by requiring high minimum lot sizes:

- “The Towns of Warwick and Montgomery in Orange County have programs that purchase the development rights to productive farmland in exchange for the owners agreeing not to develop it for nonagricultural uses. Do you support or oppose the use of local government revenues for such purchases?”

- “Some local governments across the nation have zoning policies that limit residential development on productive farmland, such as to no more than one house per 20 acres. Do you support or oppose such limits for agricultural areas of Orange County?”

About four in 10 of all respondents (39.1%) “strongly” supported the existing PDR programs, and about another third (35.3%) chose the second most positive option of “support,” for a combined percentage of 74.4% in favor of the programs. By contrast, only 18.8% “strongly” supported the higher minimum-lot-size proposal, and the combined positive percentages added up to 39.9%.

Review the Administration of Property Taxes and Farmland Owners’ Understanding of Them so as to Reduce the Real or Perceived Financial Burden: A majority (52.6%) of our surveyed farmland owners in Orange County believed that New York’s agricultural-use assessment law was “very helpful” in “keeping property taxes on farmland in Orange County at acceptable levels” (Table 37). Another 19.5% chose the response option of “moderately helpful.” However, more than a quarter indicated it was only “somewhat helpful” or “not very helpful.” From some of these owners we received the following strong complaints:⁹²

- “Rising taxes are forcing farmers out of business.”
- “We are not breaking even [with our farms]. Our property taxes are now over \$65,000 per year [even] with the ag exemption. If some solution is not achieved, I know our farms will become developed. As have our neighbors, five years ago our taxes were only \$12,000. But due to tax rate increases [they are now intolerable].”
- “Taxes are high. The town government doesn’t care if you’re trying to make a living off the land. You build another barn to stay competitive and keep the land out of development. They keep raising your taxes.”
- “Taxes are high, and this is the reason so many farms are sold. I was forced to sell half of my farm because of high taxes. . . . I am retired and a widow on a tiny income.”
- “Preservation of farmland [is] hurt by the New York law requiring \$10,000 in annual gross sales to maintain an ag exemption. New Jersey only requires \$500.”
- “People like ourselves should be able to qualify as farm use with 10 acres, a few farm animals, and maybe a small garden or orchard. It is impossible to ask someone to produce \$10,000 in profit and then assess them \$15,000 in taxes.”
- “There is at least one farm here (and soon to be another) that carries agricultural easements prohibiting future development. The tax assessor is trying to raise taxes on the one farm that is eased, which is putting that farm in jeopardy. . . . I believe Cornwall and other towns like it need help in resolving the conflicting issues of increased property values and pressures to increase revenues from property taxes.”
- “Assessments on agland keep rising in spite of ag zones [i.e., districts], due in large part to increases in infrastructure, new schools, etc. Land assessment can only keep increasing and will eventually drive ag out of most of [Orange County].”

The above complaints may derive in part from owners’ lack of understanding of the tax breaks available to farmers. Besides the agricultural-use assessment law for farmland, there are “exemptions” from property taxes on (1) “new or reconstructed agricultural buildings” such as

⁹²The quotations that follow came from responses to an appeal at the end of the survey for additional comments.

barns and on (2) additional assessments resulting from improving existing buildings.⁹³ Also exempt are silos, livestock manure facilities, and other structures used for production (but not for processing or retail sales). New York offers farmers also a state income tax credit for the school-district taxes they pay. And open to all citizens is a \$30,000 exemption from taxes on their personal residence; it is \$50,000 for seniors. Some or many farmland owners may not be aware of all such benefits. Greater public education efforts may be merited. For example, one of the quotations above shows that the owner mistakenly believed he was required to show \$10,000 in “profit” rather than in gross sales.

Table 37. Landowners’ Evaluations of Assessment Policies for Property Taxes and Agricultural Districts’ Protections against Farm Nuisance Complaints: Percentage by Response Option		
Response option	Agricultural-use assessment for property taxes¹ (%)	Agricultural Districts’ right-to-farm protections² (%)
Never heard of it	1.5	4.5
It’s not very helpful.	3.8	0.8
Somewhat helpful	22.6	22.6
Moderately helpful	19.5	21.8
Very helpful	52.6	36.1
Either “moderately” or “very helpful”	(72.1)	(57.9)
Not sure	0.0	14.3
No reply	0.0	0.0
Total respondents	(133)	(133)

¹Text of question: “In New York State, agricultural land may be assessed for property-tax purposes on the basis of its value in *farm use* rather than its often much higher value in *the real estate market*. How helpful has this law been in keeping property taxes on farmland in Orange County at acceptable levels?”

²Text of question: “Orange County has ‘Agricultural Districts,’ which among other purposes are supposed to protect farmers with land inside a District against unfair nuisance complaints such as over farm odors, dust, and noise. How helpful have these Districts been in providing such protection?”

As suggested in the quotations above, another source of the problem is likely to be local governments’ strong need to increase property-tax revenues to cover rising infrastructure and service costs. The relatively low density pattern of development found in Orange County (e.g., one house per two or more acres) tends to cost more to serve per household for road construction and maintenance, as well as for public water and sewer costs. Also, the dispersion of populations inflates school-busing expenditures and travel costs for police, fire, and emergency medical services.⁹⁴ School taxes are very high compared to town and county taxes. Perhaps a review of assessment practices may reveal opportunities to administer state property-tax laws affecting

⁹³American Farmland Trust, *New York Agricultural Landowner Guide to Tax, Conservation and Management Programs*: <http://www.farmland.org/resources/publications/documents/NewYorkLandownerGuide.pdf> (accessed May 17, 2007).

⁹⁴J. Dixon Esseks, Harvey E. Schmidt, and Kimberly L. Sullivan, 1999, *Living on the Edge—Fiscal Costs and Public Safety Risks of Low-Density Residential Development on Farmland: Findings from Three Diverse Locations on the Urban Fringe of the Chicago Metro Area* (De Kalb, IL: Center for Agriculture in the Environment, the American Farmland Trust): <http://www.aftresearch.org/research/publications/detail.php?id=0a655ce04a8ed97a2a87589ee1cfcc68> (accessed May 17, 2007).

agriculture in more farmer-friendly ways. One of our interviewed experts recommended that all undeveloped land be subject to ag-use assessment, not just the land that is currently being farmed:

“If you have a retired farmer or just a property owner, and you exempt only 60 acres of a 100-acre farm, you’ll encourage that landowner to sell—very likely will sell for nonagricultural purposes. . . . We must convince the assessors if that’s a farm, and only 60 acres on it are farmed, they should exempt the whole piece.”

Strengthen Programs that Support Small Farmers: Our survey found that, compared to larger farmers, smaller operators were more likely to be optimistic about farming in Orange County in the future. Data from the Census of Agriculture shows that operations earning less than \$50,000 increased from 59.9% of Orange County’s total number of farms in 1987 to 70.8% in the 2002 Census (Table 4 above). This numerically large group continued to account for a very modest percentage of total gross sales countywide: 6.6% compared to 8.0% in 1987. However, small farms are expected to remain in the county for some years, and at least some experts want to continue or strengthen programs to assist them:

- A small operator evaluated Cooperative Extension as having “been very good cultivating small farmers. . . . They are good in helping to produce, but I’ve not seen too much on marketing.”
- As cited in Section IV, a manager of one potential source of assistance believed that “small, part-time operations are the future. . . . Direct-marketing opportunities increase with the increase in population. We need to find these part-time farmers and new startups that are not in the traditional wholesale agricultural industries.”
- A leader of another agency capable of providing help complained, “We get someone who wants to buy five or 10 acres, and we don’t know what to do with him.”

Strengthen Programs that Help Farmers Find Effective Successors to Manage Their Operations: Only about one in five (21.8%) of the surveyed Orange County agricultural landowners had “a farm succession plan that arranges for the transfer of ownership and management of the land to a relative or other person” (Table 30). Another 15% indicated that one was “under consideration.”

In recent years Cooperative Extension held at least one estate planning and transfer meeting (in the fall of 2005), but it was “poorly attended. We feel that there is a need for that, especially when there are multiple siblings, because that can really mess up the transfer.”⁹⁵

The problem discussed in Section IV of the farmer lacking an heir to carry on the operation may be solved by a service active in New York. NY FarmLink advertises on the Internet at least four types of opportunities for persons interested in farming:

Ownership:

- “I have property suitable for a greenhouse. I can generate electricity from the creek on the property and electricity is free so there is no cost for lighting and heating. Will lease, sell or go into the partnership.”

⁹⁵Interview with an Orange County Cooperative Extension staff person, June 2006.

- “50 year old farmer looking to retire in 10 years. Looking for couple to work toward partnership/ownership of 70+ cow dairy.”

Partnerships:

- “Senior partner has retired. Functional facility in a dairy county looking for someone who wants to own cows. Willing to consider lease of facilities and do crop work. Also willing to work with someone toward gradual ownership of cows. Open to expansion with right individual. Not looking to sell farm but am willing to make long term commitment for dairy operations as long as it is profitable.”
- “100-acre former dairy farm in . . . County for lease or partnership with owner. Farm has rested for six years. Desire organic operation.”

Rentals:

- “Incredibly scenic hillside orchard with 1/2 acre pond & stream. Low lying pasture. 60 acres total. 30 in apple orchard, 30 in pasture. Housing available. Long-term lease.”

Management:

- “We are not seeking someone to transfer the farm to. I have a son and four daughters. We are seeking a young man or women or a husband and wife team for general farm work with the opportunity to manage certain aspects of our diversified operation. My youngest son and partner in the business passed away this past June.”

However, there may be a dearth of persons interested enough in farming to read the messages on FarmLink. A member of the Orange County Extension Agriculture Advisory Committee said, “We need to do a better job of persuading bright, energetic people to feed us.”

Consider Expanding the Lending Authority of the Farm Credit System so that Member Banks Can Better Assist Farmers to Diversify: The Farm Credit System (FCS) limits their member banks’ capacity to help farmers who wish to diversify. According to one of its officers whom we interviewed:

“Today farms as they grow will diversify. We as a Farm Credit may or may not be able to go with them, because our system is agriculturally driven. An example is a farmer with a thousand-acre sod farm, but as he gets bigger they may choose to diversify into another business that is not agriculturally related, such as a NAPA auto parts store where I get parts for my vehicles. We have an eligibility conflict. Another example is a grower with apple orchards that told me that he needs to diversify and go to the City of Newburg to buy older homes and spend the winter to fix them up for rentals.”

Giving the FCS the flexibility to finance both the farm and nonfarm businesses of individual operators may help them to withstand the pressures of farming in urbanizing areas. They might have sufficient income from the other businesses to support the farms in difficult times and vice versa.⁹⁶

⁹⁶The Farm Credit System’s “Horizons” study concluded that, among other points: “1. Producers and rural entrepreneurs of all types require access to a dedicated, specialized lender to meet their complete credit needs. 2. A broad range of processing, marketing and other agriculturally related businesses on which farmers depend require ongoing access to reliable, flexible financial products and services to compete in a rapidly changing business environment.” Farm Credit Council, Inc., *21st Century Rural American: New Horizons for US Agriculture* (Washington, DC), p. 24: <http://www.fchorizons.com/uploads/horizonsfinal.pdf> (accessed May 17, 2007). For an opposing view of the advisability of expanding FCS lending authority, see Bert Ely, *The Farm Credit System*:

Reform Immigration Laws to Permit Migrant Labor to Serve Orange County’s Agricultural Sector: In this report’s Section IIID we discussed how our interviews picked up considerable concern that changes in federal policies affecting migrant labor could threaten the viability of agriculture in Orange County. However, we received no specific recommendations. Implied was a preference to retain the rather permissive environment prevailing as of mid-2006. We inferred also the strong need, among growers using the H-2A program for legal migrant workers, that it be more reliable in meeting scheduled dates for the workers’ arrival.

Balance the Society’s Need for Protecting Environmentally Sensitive Lands with Farmers’ Need to Purchase or Rent Affordable Land for Production: As discussed in Section IIIC, attractive rents offered by USDA under its Conservation Reserve Enhancement Program (CREP) have placed some Black Dirt land out of the farm production stream for 10 years or more. A specific proposal is that there be an acreage cap on these agreements. It looks as though CREP and the related Conservation Reserve Program share a combined cap per county of no more than 25% of the farmed acres.⁹⁷ Given the Black Dirt Region’s special role in Orange County, every acre taken out of farming there has disproportionately greater impact than most acres elsewhere in the county. Therefore, a modest cap specific to that region may be necessary.

Existing Resources for Assisting Farmers: We should not end this report without reviewing the impressive scope of resources available to assist Orange County farmers at the end of 2006—whether they focus on new or small farmers, management succession, direct marketing, or some other purpose that can help sustain agriculture on the urban edge. The county Cooperative Extension Office had resource educators for each of four major segments of the agricultural economy, as well seven newsletters also serving a broad spectrum of local farmers. The New York State Department of Agriculture & Markets offered, among other kinds of assistance, grants for preserving farmland, building worker housing, and processing and packaging farm products, as well as promoting sales of fresh produce (“Pride of New York”), advertising farmers’ markets, assisting in foreign sales, and running a program to encourage “Small and Beginning Farmers.”

Lending Anywhere But on the Farm (Alexandria, VA: Ely and Company): www.aba.com/NR/rdonlyres/E1577452-246C-11D5-AB7C-00508B95258D/45256/Horizons2006ELYFINAL.pdf (accessed May 17, 2007).

⁹⁷USDA, Farm Bill Forum Comment Summary and Background, Conservation Reserve Program and Conservation Reserve Enhancement Program: http://www.usda.gov/documents/CONSERVATION_RESERVE_PROGRAM_AND_CONSERVATION_RESERVE.pdf (accessed May 17, 2007).