

Tompkins County Agriculture and Farmland Protection Plan September 2015



Tompkins County Agriculture and Farmland Protection Plan

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Tompkins County Agriculture and Farmland Protection Plan

Acknowledgements

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Finger Lakes Land Trust
Staff, CCETC

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Part I. Introduction

A. Background

In 1998, Tompkins County adopted one of the first New York State County Agricultural and Farmland Protection Plans. Over the next 15 years, the Plan provided direction for the Tompkins County Agriculture and Farmland Protection Board (AFPB), and in conjunction with Cornell Cooperative Extension Tompkins County (CCETC), many of the plans goals were met and exceeded.

New agricultural trends and issues have arisen since the original plan was written. In general, some farms have gotten larger, competition for farmland has resulted in an increase in land prices and agricultural land assessment, and smaller farms report having a harder time accessing land to start or expand. While there are fewer dairy farms than there were 15 years ago, some are getting larger and continue to expand. Increasing interest in locally produced and organic foods has fostered many smaller scale operations that grow produce, produce specialty products, and raise livestock for local customers. These trends point to the fact that agriculture remains active in Tompkins County; farmers are investing in business expansion, and new farmers are finding local marketing opportunities. Opportunities to protect farmland and explore agriculture economic development opportunities will help secure a future for agriculture.

However, with increasing residential development in agricultural areas, there is an impact on farming activities as farmers deal with more traffic and neighbor complaints. Fewer elected officials have an agricultural background, leading to a need to engage professionals from Cooperative Extension, the Soil and Water District, USDA programs, and even NYS Agriculture and Markets to help resolve farmer-municipality conflicts.

In response to these changes, this new plan was developed at the grassroots level, with farmer input gathered, compiled, organized, and prioritized into goals, strategies, and action steps.

The New York State requirements for updated County Agricultural and Farmland Protection Plans include, but are not limited to:

- a) The location of any land or areas proposed to be protected;
- b) An analysis factors concerning areas and lands proposed to be protected:
 - i) Value to the agricultural economy of the county;
 - ii) Open space value;
 - iii) Consequences of possible conversion;
 - iv) Level of conversion pressure on the lands or areas proposed to be protected;
- c) A description of the activities, programs and strategies intended to be used by the county to promote continued agricultural use.

B. Past Plans and Studies

The Tompkins County Agriculture and Farmland Protection Board (AFPB) has actively led the implementation of the County's Agriculture and Farmland Protection Plan, adopted by the Tompkins County Legislature in February 1998. The process of gathering input to write the County's first Agriculture and Farmland Protection Plan began in 1994 with a survey of the farm community, followed in 1995 by a Cost of Community Services Study. In 1996, the County received funding from the NYS Department of Agriculture and Markets to support the development of an Agriculture and Farmland Protection Plan. The AFPB coordinated a process whereby focus groups provided input in three goal areas: Agricultural Economic Development, Education, and Government Policies.

The implementation of the County Agriculture and Farmland Protection Plan has involved the development of an annual work plan based on the goals, strategies, and action steps identified in the County Agriculture Plan. To remain relevant to the interests of farmers, the AFPB has gathered input during the Agricultural District Review period, and conducted a survey of all county farmers in 2002 to further help focus the annual work plan on goals supported by the farm community. Additionally, in 2006, the AFPB began reviewing the 1998 plan, analyzing data, trends, and pressures on the farming community.

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Cornell Cooperative Extension of Tompkins County Agriculture staff serves as lead support to the County Agriculture and Farmland Protection Board in the implementation of many actions in the Agriculture Plan. To support this work, the Tompkins County Legislature provides funding that supports a half-time educator at Cooperative Extension, whose duty is to staff the AFPB and additionally support implementation of the County Agriculture and Farmland Protection Plan.

A study to assess the feasibility of a County Purchase of Development Rights (PDR) program was undertaken in the 2002 *Tompkins County Agricultural Lands and Natural Areas Preservation Feasibility Study* in which priority farming areas based on soils and farming activity were identified for protection. In developing the 2004 Tompkins County Comprehensive Plan, these same areas were identified as the County's Agriculture Resource Focus Areas, the key areas countywide for farmland protection.

There has also been interest among Tompkins County towns to protect and promote agriculture. The Town of Ithaca established a Town PDR program in 1999 and, in 2011, completed the Town's Agriculture and Farmland Protection Plan. The Town of Ulysses has also completed a Town Agriculture and Farmland Protection Plan, and the Town of Lansing Agriculture Plan is in the final stages of development and adoption (2015). Dryden also recently received state funding (2015) to develop their municipal agriculture plan in the next 2 years and work has begun to that end.

The AFPB has also been actively promoting and supporting farmer applications for State Farmland Protection funding. Since 2003 a total of 2,597 acres of farmland have been protected on five different farms in the Towns of Lansing, Dryden, and Ithaca.

C. The Need for a New Plan

The AFPB recognized the need to update the 1998 plan for the following reasons:

- The plan was developed 15 years ago and there is a need to re-examine the state of agriculture and issues impacting agriculture's future
- Many strategies and action steps were implemented
- There is a need for a plan that responds to emerging trends, current issues and opportunities
- Development pressure and land use around the county have continued to change, impacting farming operations
- Farmers are more cognizant of and interested in farmland protection
- Agriculture continues to diversify to include a strong dairy and field crop base along with many new enterprises exploring local/regional marketing options
- Economic development strategies are needed to support the expansion and diversification of farming

The purpose for updating the County Agriculture and Farmland Protection Plan is to prioritize and guide the actions of county and town governments, agricultural agencies, businesses, farmers, and the community at large in responding appropriately to the needs, conditions and opportunities that will maintain a viable agricultural economy in Tompkins County.

D. The Process for Updating the Plan

With funding support from the New York State Department of Agriculture and Markets, the County undertook the plan update in 2013 and contracted with Cooperative Extension. In kicking off that update, Cooperative Extension, with direction from the AFPB, conducted Agriculture Focus Group meetings to gather sector-specific information. Focus Groups included in-depth interviews with farmers involved in: Dairy, Field Crops, Equine, Large Livestock, Small Livestock, Market Growers, Forestry, and Horticulture. Comments were compiled and organized, then reviewed by the AFPB. The working draft based on focus group input was reviewed by farmers at two public meetings – one on November 20, 2013 (attendance 35) and then again at the annual Ag Summit in February 26, 2014 (attendance 45).

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Based on farmer input and APPB review, the resulting themes emerged:

- Agricultural Economic Development
- Local Foods
- Land Use Policy
- Agricultural Awareness
- Environmental Quality
- Future Farmers/Workforce

Farmer comments were organized by theme, and then developed into Strategies and Action Steps.

Data collection occurred concurrently. The most recent United States Department of Agriculture (USDA) Census of Agriculture data for Tompkins County (2012) was reviewed and used to create tables and charts to provide a better understanding of agricultural trends. Cooperative Extension assembled a county-wide farmer database which contains where and how much owned and rented land farmers work in the county, including farms whose base of operation is beyond County borders. Information from County Assessment, Agriculture District review data, and Cooperative Extension Agriculture Staff knowledge of county farming operations further contributed to the database. NOTE: this database contains farm specific confidential information that is not released to the public.

The compiled data and theme goals and strategies were shared at a County Planning Advisory Board (PAB) meeting on June 25, 2014. A smaller group of PAB members agreed to work as a subcommittee and provided feedback plan content.

Further editing and compilation of the plan continued throughout 2014 with ongoing input from the County Agriculture and Farmland Protection Board. Two farmer and landowner meetings were held on March 4, 2015 at the Ulysses Town Hall and March 10, 2015 at the Lansing Town Hall to gain further input on strategies in the plan and to identify any gaps. A compiled draft plan was submitted to the PAB on March 25, 2015. On May 20, 2015, the plan was shared with the County Planning, Economy, and Environmental Quality Committee (PEEQ), a subcommittee of the County Legislature. A presentation sharing the plan findings and recommendations was made at the Tompkins County Legislature Meeting on June 2, 2015. The plan was also presented at a public meeting at the Tompkins County Library, held on June 10, 2015 and to the Tompkins County Council of Governments (TCCOG) on July 23, 2015. Additionally, the legislature held the required public hearing on July 7, 2015 during which several people spoke in support.

Cooperative Extension Agriculture Educators, Monika Roth and Debbie Teeter, along with Scott Doyle from the Tompkins County Planning Department served as the lead authors of the plan. Input received at the above meetings and from NYS Agriculture and Markets has been incorporated into this document.

The plan can be found on the Tompkins County website at:

<http://tompkinscountyny.gov/files/planning/Rural%20Resources/documents/TC%20Ag%20%26%20Farmland%20Protection%20Plan%20Complete%207-20-15.pdf>

The final plan was shared with the PEEQ committee on August 19, 2015, with the County AFPB on August 26, 2015 and with the County Legislature on September 15, 2015. The County Legislature acted to adopt the plan at this meeting and recommended approval to the NYS Department of Agriculture and Markets.

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Part II Status of Agriculture in Tompkins County

A. Significance

Agriculture in Tompkins County contributes to both the landscape and the economy in complex and significant ways.

LAND USE - According to the 2012 USDA Census of Agriculture, 558 farms own or rent a total of 90,774 acres of land in the county resulting in an actively farmed landscape that occupies about 30% of Tompkins County total land area. Based on agricultural assessment data, Agricultural District surveys, and first-hand knowledge of the CCE-

Tompkins Agriculture team, the number of active farms is closer to 280. The difference in numbers is because individuals self-select to complete the Census and some respondents might more accurately be described as “backyard enthusiasts”, and also because the USDA has an elaborate system of estimating for non-respondents. The information in this section is based on both the USDA Census of Agriculture and locally-collected data in an effort to present a complete and accurate picture.

The amount of farmland has declined historically from our agrarian past when in 1950 over 200,000 acres of the county, almost two-thirds, was farmed. Over the past 20 years, there has been some stability within a range of 30-35% of the land being farmed. This stability is in part reflective of farming being primarily associated of prime or important soil types. Recently there is increasing demand for land among farmers and there is evidence that inactive, abandoned, and fallow land is being returned to farming (Tompkins County Planning Department Land Use Land Cover data, 2012).

Land used (owned and rented) by individual farmers’ ranges from under 10 to over 2000 acres. Fifteen years ago, there were five farms in the county working over 1000 acres, and none working more than 2000. Today, there are four farms working over 2000 acres, 17 working from 1000 to 2000 acres, and 29 working 500 to 999 acres – over one third of Tompkins County farms are working over 500 acres. There are at least a dozen dairy and field crop farms with a large base of operation outside of Tompkins County, who work land in the county that may not be counted in the Tompkins County Agriculture census data. However, this acreage is captured during the Agriculture District review process and receives agricultural assessment.

Agriculture is most concentrated in the northeastern corner of the county in the Towns of Dryden, Groton, and Lansing. On the northwestern edge, the Towns of Enfield and Ulysses have large,

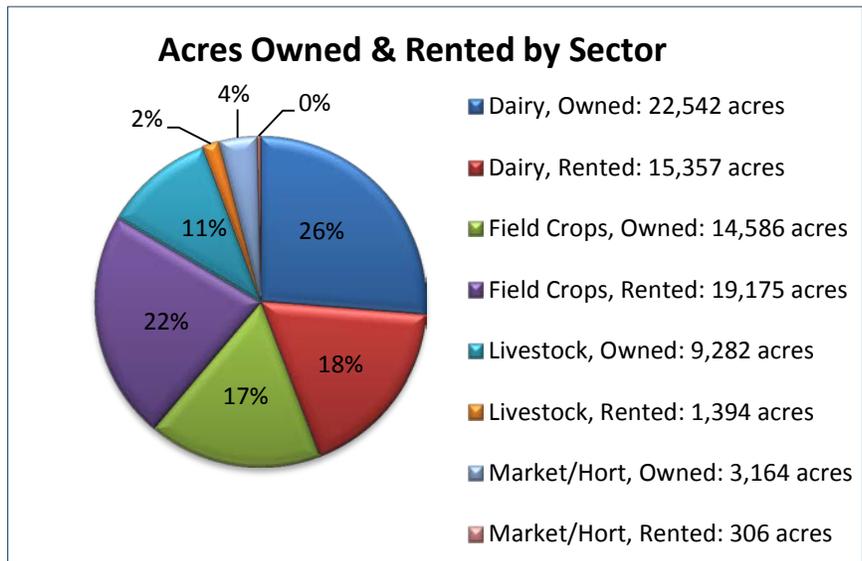


Chart 1

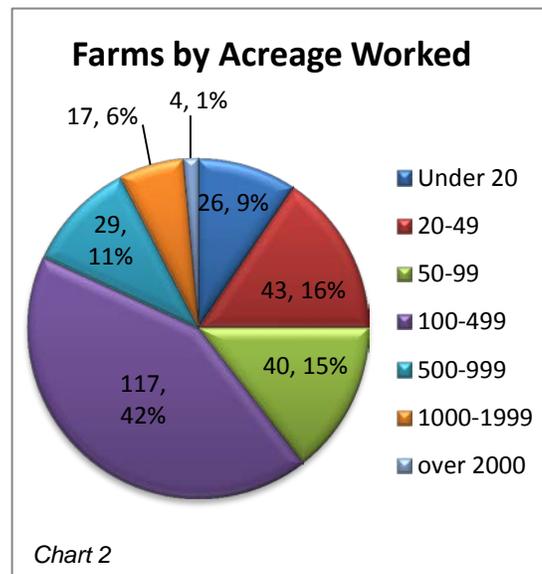
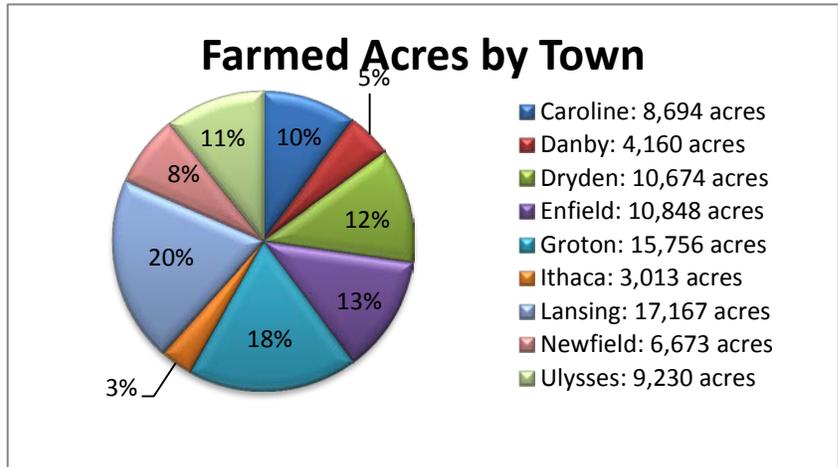


Chart 2

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rolling tracts of farmland flowing into adjoining Schuyler and Seneca counties. In the southern portion of the county, in the Towns of Newfield, Danby, and Caroline, agriculture remains on the better soils both in valleys and hillsides. Agriculture in the Town of Ithaca is located near town's borders to the east, south, and west, bounded by residential development on the Ithaca side and other farmland in adjacent towns.



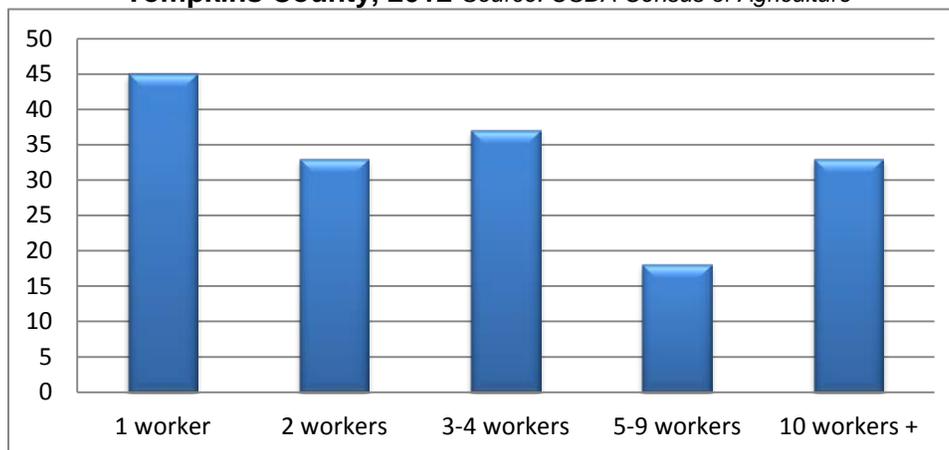
ECONOMY - While the Census of Agriculture reports 558 county farms, there are only 125 with sales above \$40,000. In the Ag Census, 49% or 273 of the 558 respondents indicated farming as their primary occupation. Farms that generate between \$10,000 and \$40,000 in sales are considered to be very part-time enterprises or limited resource farms. *The Ag Census defines small farms as having under \$250,000 in sales, which includes 85% (502) of the county's farms.* Of these small family farms, 241 are considered lower income farms. The balance being lifestyle farms, many with sales below \$10,000. A total of 213 farm operators receive New York State Agricultural Assessment, meaning they generate at least \$10,000.

Chart 3

County farmers generate \$67.4 million in product sales, the majority of which is exported in the form of milk, livestock and commodity crop sales (approximately \$50 million). The balance of sales includes horticultural crops and small livestock, primarily sold directly to consumers. These operations are not accurately captured in the Ag Census as many are new to farming and may not be receiving Ag Census surveys. Cooperative Extension estimates that direct market sales via farmers markets, CSA's, at farm sales, sales to restaurants and retailers is at least \$20 million, which is higher than the Census reports. However, some of the sales can be attributed to farmers located outside the county, which may account for some of the difference.

In 2012, 166 farms in Tompkins County hired farm laborers. Of the 975 workers hired, 444 workers were employed for 150 days or more within a year while the remaining 531 workers were employed for less than 150 days each year representing more seasonal work. In addition to paid employees, 262 farms also reported using unpaid workers. Unpaid workers include non-operator partners and family members.

Chart 4—Number of Farms that Hire Farm Labor by Number of Workers
Tompkins County, 2012 *Source: USDA Census of Agriculture*



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B. Agriculture Trends

In analyzing agriculture trends in Tompkins County, it is important to look both at current data as well as past records. The USDA Census of Agriculture has been conducted at five-year intervals since the early 1900's and thus provides the only reliable source of long term data that illustrates trends. For this report, we focused on the past 20-30 years to assess more recent trends. Earlier historic data can be found in the Report: *Study of Tompkins Agriculture: Phase I – Tompkins County Agriculture & Farmland Protection Plan, October 1996.*

1. Historic Trends

Table 1—Historic Farm Base Summary, Tompkins County, 1978-2012

Source: USDA Census of Agriculture

	1978	1982	1987	1992	1997	2002	2007	2012
Number of Farms	598	567	532	441	557	563	588	558
Total Farm Acreage	123,210	121,068	110,609	91,822	102,610	100,931	108,739	90,774
<i>Average Acreage per Farm</i>		214	208	208	184	179	185	163
<i>Harvested Cropland</i>	79,982	77,047	75,634	62,421	67,731	66,960	67,292	54,424
<i>Woodland</i>	~	~	20,329	16,921	19,245	18,959	21,838	19,183
<i>Other Land*</i>	~	~	14,646	12,480	13,898	15,012	19,609	17,167
% of County in Farmland	39%	39%	35%	29%	33%	32%	35%	30%
Total Market value of Agricultural Sales (\$1,000)	30,904	39,624	42,056	50,720	48,139	41,908	60,185	67,391

*Other land: land that is not harvested crop or woodland, includes permanent pasture, farm roads, hedgerows, etc.

2. Number of Farms

Table 1 includes US Census of Agriculture Data, collected at five-year increments from 1978 to 2012. While the total number of farms in the county has rebounded 33% from a 1992 low to 2007 high, this trend was reversed slightly in recent census data that reflected a 5% loss in total number of farms from 2007-2012. The current 558 operations represent an overall 6.8% loss from 1978 levels. Overall, these variations are relatively insignificant and could be attributed to Ag Census estimation errors or changes in methodology or changing economic conditions.

3. Land in Farms

Similar to the total number of farms, total farm acreage was lowest in 1992, rebounded 18% from 1992 to 2007 and then fell 17% from 2007 to 2012. The current 90,774 acres in farmland in Tompkins County remains 26% below the 1978 peak. Again, the variation could be due to changes in Ag Census methodology. Over the past 35 years, the percentage of the county's total land area (308,500 acres) in farmland has consistently fluctuated between 29%-39%. Farmland currently occupies nearly one third of the county's total land area and therefore remains a significant land use.

4. Average Acreage per Farm (as shown in Table 1 above)

The average acres-per-farm has been driven down by the increase in small farm numbers. While there is growth in the number of small farms, there is also a continued accumulation of land among larger farm operations which contributes to overall stability of land in agriculture; many dairy and crop farms are raising crops on more acres of land.

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5. Cropland Acreage

As seen in Table 1, the acres of harvested cropland have been decreasing over time from 79,982 acres in 1978 to 54,424 acres in 2012; a 25,558 reduction in land that is harvested. While cropland experienced nearly a 22% decrease from 1978-1992, it has slowly rebounded over the last decade. About 87% of farmland is currently harvested, representing a slight increase in intensity of use over 1997 levels.

The chart to the right illustrates that while acres of harvested cropland has decreased, farmers are harvesting crops from a greater percentage of the land. This means that farmers are using more of their land for active farming and leaving less idle. In part this is reflective of agricultural activities becoming concentrated on higher quality soils. Harvested cropland includes: annual crops and hay.

6. Farms by Type and Market Value

Between 1992-2012 the composition of farms by type has shifted slightly away from cattle, hogs/pigs and wheat and towards vegetable, soybean and poultry production. However, despite this shift, dairy remains the sector with the largest total market value sales. In 2012, milk sales represented a market value of \$37.8 million (out of \$67.8 million total ag sales). The market value of the dairy sector is 4.6 times greater than the next most profitable sector, which is grain. For the most part grain and hay are grown as feed for dairy cattle.

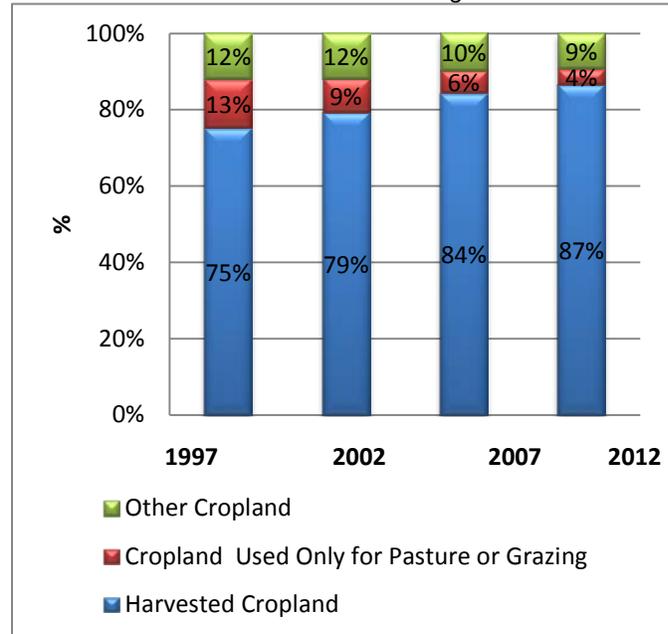
**Table 2 - Farms by Type
Tompkins County, 1992 & 2012**

Source USDA Census of Agriculture

Enterprise Type	1992	2012	% change
Corn	80	84	5%
Wheat	45	17	-62%
Soybeans	13	29	123%
Vegetables	27	66	144%
Fruits, Tree Nuts, Berries	19	29	53%
Cattle, includes dairy & beef	221	123	-44%
Poultry	12	71	492%
Hogs, Pigs	25	18	-28%
Sheep, Lambs	32	40	25%

**Chart 5 - Farm Cropland by Use Tompkins County
1997-2012**

Source USDA Census of Agriculture



**Table 3 - Farms by Type & Market Value
Tompkins County, 2012**

Source USDA Census of Agriculture

Enterprise Type	Market Value (\$1,000)	Number of Farms
Grains, oilseeds, dry beans, and dry peas	\$8,310	110
Vegetables, melons, potatoes	\$5,396	66
Fruits, tree nuts, and berries	\$555	39
Nursery, greenhouse, floriculture, and sod	\$4,242	54
Cut Christmas trees and short rotation woody crops	\$237	15
Other crops and hay	\$3,950	172
Poultry and eggs	\$60	71
Cattle and calves	\$5,334	123
Milk from cows	\$37,831	55
Hogs and pigs	\$211	18
Sheep, goats, wool, mohair, and milk	\$430	56
Horses, ponies, mules, burros, and donkeys	\$713	16
Other animals and animal products	\$122	35

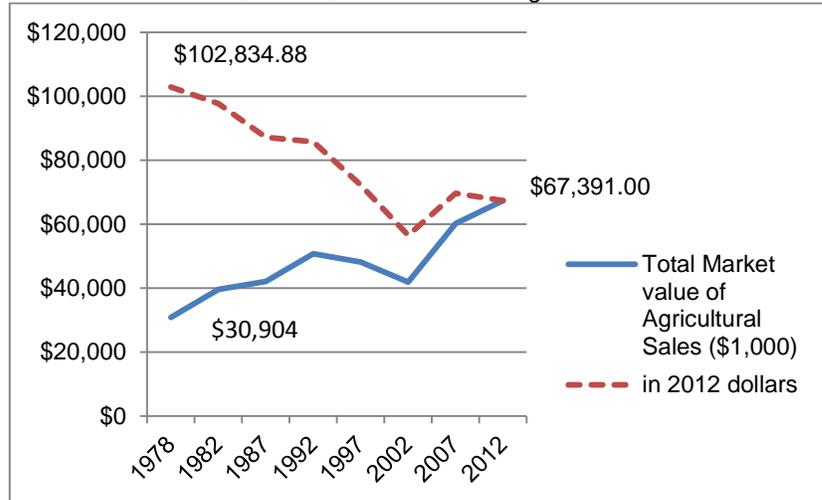
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7. Agricultural Sales

As shown in Chart 6, the market value of agriculture products appears to have been increasing at a steady rate, having more than doubled since 1978 (\$30,904,000) compared to 2012 (\$67,391,000). However, adjusting all sales to 2012 dollars, the real value of agricultural sales in Tompkins County has actually gradually decreased 34.5% since 1978 to its current real value of around \$67.4 million.

Chart 6—Total Agricultural Sales, Nominal & Adjusted Tompkins County, 1978-2012

Source: USDA Census of Agriculture



8. Regional Comparison

A comparison of Tompkins County agriculture data with the surrounding south central New York counties provides an indication of the vitality of local agriculture. In the Ag Census official “Southern NY Statistical Region” (Broome, Chemung, Schuyler, Tioga, Tompkins), Tompkins County shows no significant increase in farm numbers. Growth in farm numbers in Schuyler County may be due to grape farms, and the large increase in farms in Seneca County is most likely due to the influx of Amish and Mennonite farmers. During the period of 1997 to 2012, all other surrounding counties lost farms some at a rate higher than NYS.

Table 4—Number of Farms Southern New York Region, 1997-2012

Source: USDA Census of Agriculture

County/Area	1997	2012	# Change	% Change
Broome	627	563	-64	-10.21%
Cayuga	1,022	891	-131	-12.82%
Chemung	393	372	-21	-5.34%
Cortland	538	518	-20	-3.72%
Schuyler	388	393	5	1.29%
Seneca	487	584	97	19.92%
Tioga	571	536	-35	-6.13%
Tompkins	557	558	1	0.18%
Regional	4,583	4,415	-168	-3.67%
NYS Total	38,264	35,537	-2,727	-7.13%

Table 5—Acres in Farms Southern Region, 1997-2012

Source: USDA Census of Agriculture

County/Area	1997	2012	Change	% Change
Broome	93,922	79,676	-14,246	-15.17%
Cayuga	274,369	238,444	-35,925	-13.09%
Chemung	67,855	58,114	-9,741	-14.36%
Cortland	128,620	115,024	-13,596	-10.57%
Schuyler	74,440	69,222	-5,218	-7.01%
Seneca	126,052	130,206	4,154	3.30%
Tioga	114,289	107,873	-6,416	-5.61%
Tompkins	102,610	90,774	-11,836	-11.53%
Regional	982,157	889,333	-92,824	-9.45%
NYS Total	7,788,241	7,183,576	-604,665	-7.76%

Tompkins County acres of farmland dropped at a rate greater than New York State for the period of 1997-2012. From 1997-2012, Seneca County was the only county in the region to experience growth in land in farms, which corresponds to the gain in farm numbers most likely due to the increasing Amish/Mennonite farming community. From 1997-2012, Tompkins County experienced a negative growth rate of 11.53%.

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9. Farm Composition by Acres

Small farms (1-99 acres) now make up the greatest percentage of Tompkins County farming enterprises, totaling 350 operations, a 22% increase from 1997. These farms represent 63% of all operations located within the county. Within this group, farms ranging in size from 10-49 acres constitute 34% of the county's farming operations. The increased presence of small farms helps to explain the falling average acreage per farm.

Extra-large farms (1000+ acres) increased from 9 farms in 1997 to 27 farms in 2007 representing a 200% increase. From 2007 to 2012, the number of extra-large farms fell back to 19 farms, representing a 30% loss from the 2007 peak. It is important to note that even at the 2007 peak of 27, extra-large farms still only represented 5% of all farming operations in Tompkins County. The difference between 2007 and 2012 data may be attributable to a data collection adjustment and the economic downturn in 2008.

In contrast, the number of medium farms (100-259 acres) and large farms (260-1000 acres) has decreased consistently over the past 15 years. From 1997 to 2012, large farms dropped by 40%, from 121 to 73 farms. Large farms now constitute about 13% of the total operations in Tompkins County. Medium farms dropped 17% from 139 to 116 farms and now constitute 21% of total operations in Tompkins County. This trend is consistent with national agriculture trends. The loss of farms in the middle does not necessarily equate to loss of land in farming. However, it does represent the loss of social and community capital in the farm sector.

There does not appear to be a large shift of small farms to the medium category, however, the small farm category is steadily growing. There also does not appear to be a shift of medium sized farms into the large farm category. However, there is some shift of large farms into the extra-large category as evidenced in the table and as noted by Extension Educators working with these farms.

Table 6 – Percentage Change in Farms by Farm Size Tompkins County, 1997-2012

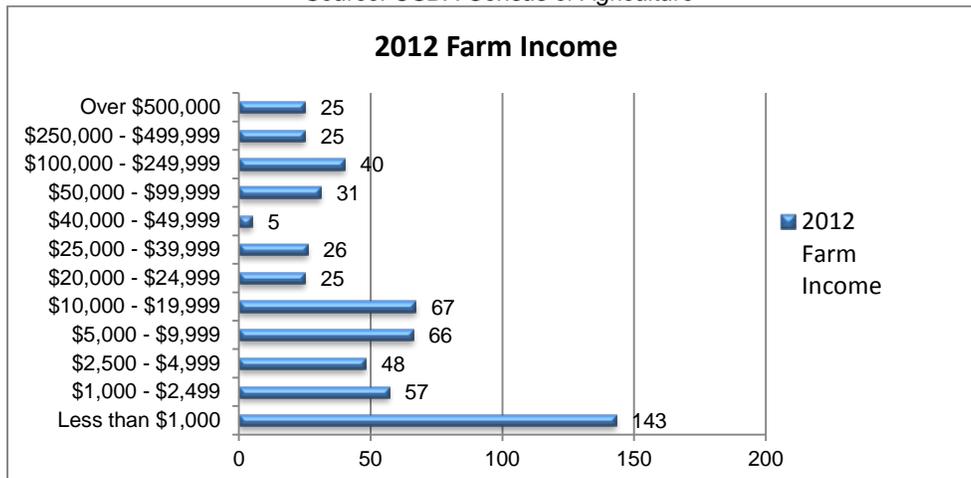
Source: USDA Census of Agriculture

Year	Small (1-99)	Medium (100-259)	Large (260-999)	Extra Large (1000-2000+)
1997	288	139	121	9
2002	323	126	99	15
2007	348	129	84	27
2012	350	116	73	19
% Change	22%	-17%	-40%	111%

10. Farm Composition by Sales

Chart 7—Number of Farms by Sales Class, Tompkins County, 2012

Source: USDA Census of Agriculture



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Chart 8—Percentage of Farms by Sales Class, Tompkins County, 1997-2012

Source: USDA Census of Agriculture

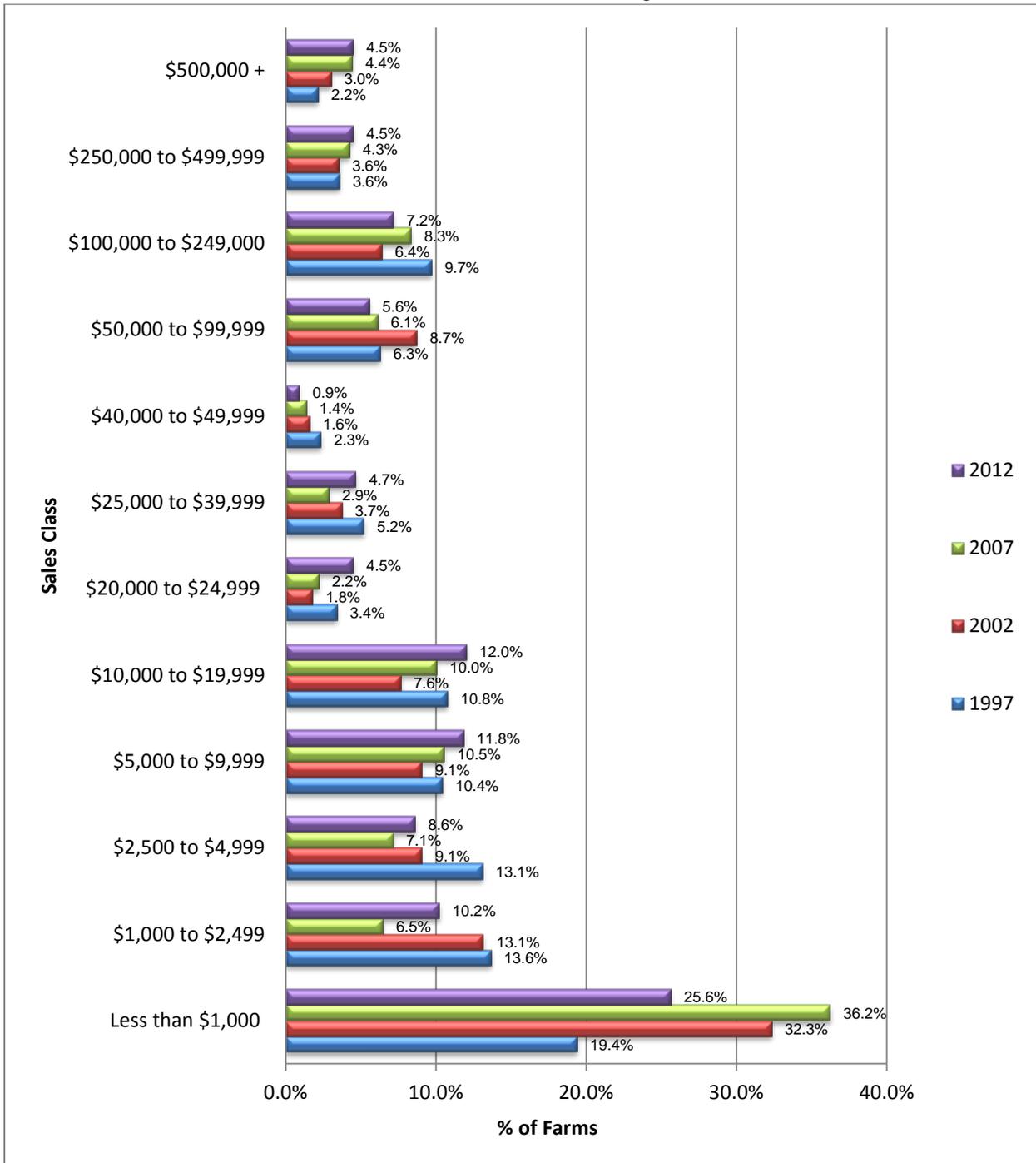


Chart 8 illustrates a general increase in sales for farm operations since 1997, and a consistent increase since 2007. In 2012, there was a decrease in farms reporting income of \$1000, and an increase in ranges above it until \$40,000 – \$49,999 (a range which defines the difference between small and large farms). Sales continued to increase in the middle of the range from \$40,000 to \$250,000, with sales increasing in every range above. This is reflective of a larger trend of shrinking farm profitability and the need to increase sales to remain viable especially in commodity agriculture.

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The Agriculture Census includes data representing farms making less than \$1,000. Of the total farms (558), 25.6%, or 143 farms fall into this sales class. The USDA identifies any operation grossing \$1000 or more (or having the potential to generate that income) as a farm. They identify these respondents through the collection and review of many data sources that may include landowners renting to farmers eligible for federal conservation programs via Natural Resource Conservation Service (NRCS). This could include someone raising a few beef cattle and selling 1-2 per year, or a recreational equine owner who buys and sells horses from time to time. These farms grew in numbers, 16.8%, from 1997-2007, and then began falling from 2007 through 2012. Since the sales in categories above \$1,000 increased during that same period; it is possible that some of these operations increased their sales above \$1000 rather than went out of business.

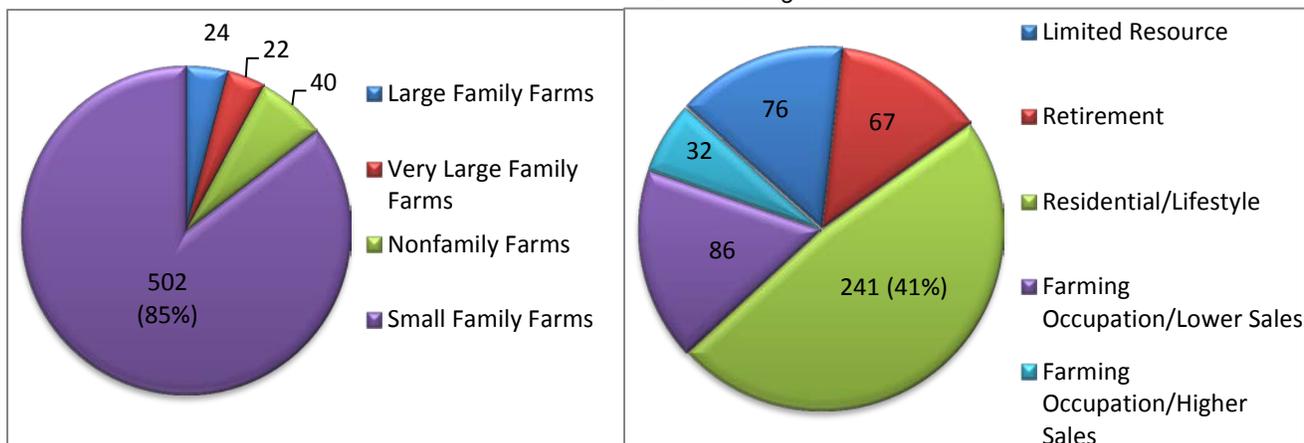
In general, farms with sales between \$20,000 and \$50,000 span the gap between part-time and full-time operations. This can pose financial challenges unless the individual or family income situation is flexible to accommodate lower sales. Off farm income plays an important role in farm and household viability. This group of very small to medium-sized farms includes produce and livestock farmers, as well as other specialty producers such as honey and maple. Farms with sales of \$50,000 and up include those raising livestock and produce for local markets as well as field crops and dairy operations.

It is important to note that many farms counted in the Census of Agriculture are run by operators whose primary occupation is something other than farming. In the 2012 Ag Census 282 farms reported their primary income from farming and 276 as from other than farming sources. Many retiring farmers may report farming as their primary income though they are phasing down. When land has been in farming for many generations, those who have operated the land tend to consider themselves as farmers even though the operation is no longer actively farmed.

Tompkins County increasingly consists of small, secondary operations and farms that have expanded steadily over time to remain economically viable.

Chart 9—Number of Farms by Farm Type, Tompkins County, 2007

Source: USDA Census of Agriculture



For the 2007 USDA Census of Agriculture, the department developed a typology of farms from small to large and lifestyle farms that further characterizes farming operations. Small family farms with sales of less than \$250,000 annually constituted 85% of Tompkins County farms. Of this group, residential/lifestyle farms made up the largest portion of these small family farms. The USDA considers a “small family farm” to fall into the residential/lifestyle category if the operation makes less than \$250,000 in sales and if the principal operator reports his/her primary occupation as other than farming. Small family farms constituted 41% of the number of farms in Tompkins County in 2007. When combined with retirement farms, this figure jumps to 52% of the county’s farms, indicating that 48% of the county’s farms in 2007 were run by operators whose sole occupation was farming.

NOTE: This data breakdown was not summarized in the 2012 Ag Census.

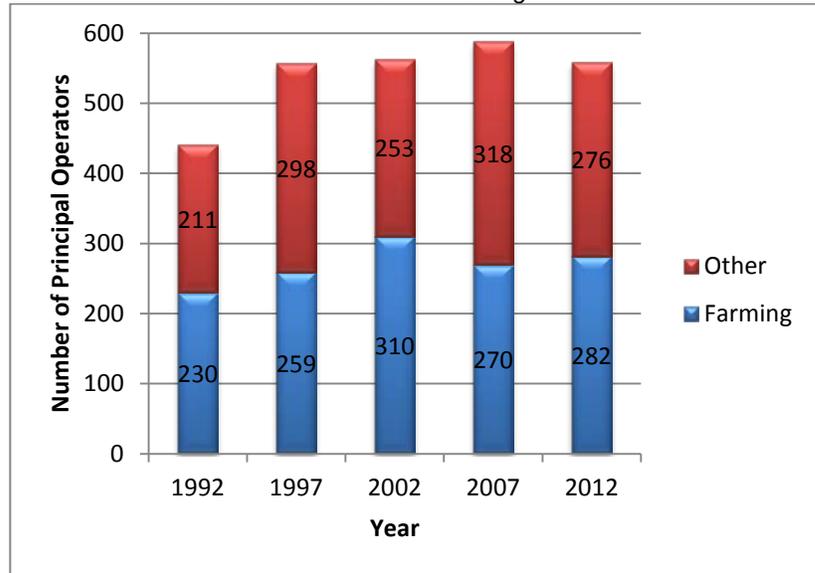
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11. Farming as Primary Occupation

The percentage of operators reporting farming as their primary occupation has fluctuated above and below 50% of total farms over the past two decades. In 2012, 49.5% of principal operators in Tompkins County reported their primary occupation as something other than farming. In 2007, 52% of principal operators in Tompkins County reported their primary occupation as something other than farming. This roughly accounts for all the residential/lifestyle farmers (41%) as well as retired farmers (11%) described in the 2007 farm typology survey.

Chart 10—Primary Occupation of Farmer Tompkins County, 1997-2012

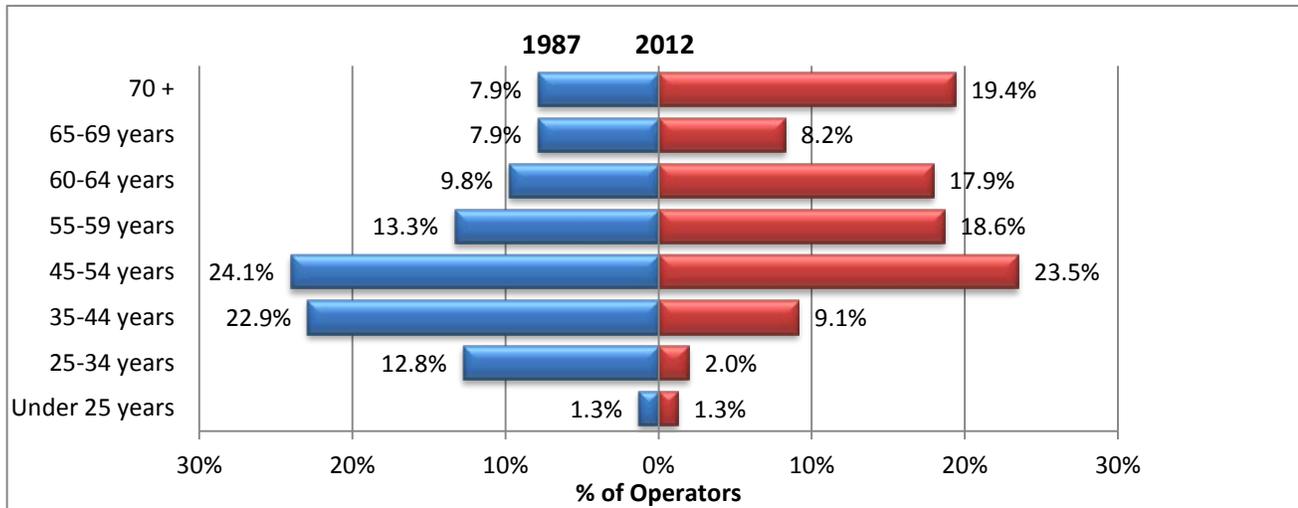
Source: USDA Census of Agriculture



12. Age of Farm Operators

Chart 11—Percentage of Principal Operators by Age Group Tompkins County, 1987-2012

Source: USDA Census of Agriculture



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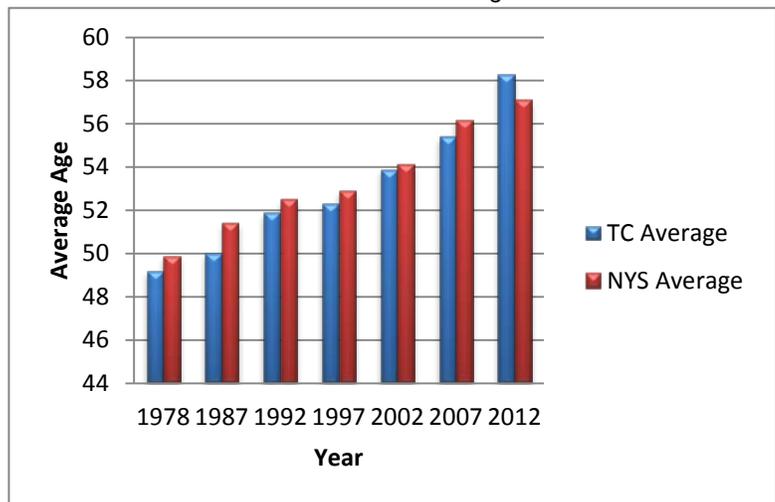
Tompkins County farmers are aging. From 1978 to 2012 there has been a steady increase in the average age of the county's farm population. Since 1978, the average age of principal operators in Tompkins County has increased from 49.2 years to 58.3 years. 2012 was the first year since 1978 in which Tompkins County farmers were older than the New York State average of 56.2 years Chart 8. The average age of principal operators in Tompkins County roughly equals the average age of principal operators in the United States at 58.3 years.

In 2012, principal operators 55 years or older constitute 64% of the county's farm operators. Meanwhile the base of young farmers under 35 years has decreased from 14% to just over 3% during the past twenty-five years.

This is a surprising statistic and is questioned given the significant increase in beginning farmers in Tompkins County. In the past 3 years, 36 new young farmers have started to farm in the area (data from Groundswell Center for Local Food and Farming). In addition, CCETC works with at least 12-15 new market farmers each year. *[Also Note: according to the USDA General Explanation and Census of Agriculture Report Form, data is collected for up to three operators per farm; however older operators may be "retired" and still report farming as their primary occupation.]*

**Chart 12—Percentage of Principal Operators by Age Group
Tompkins County, 1987-2012**

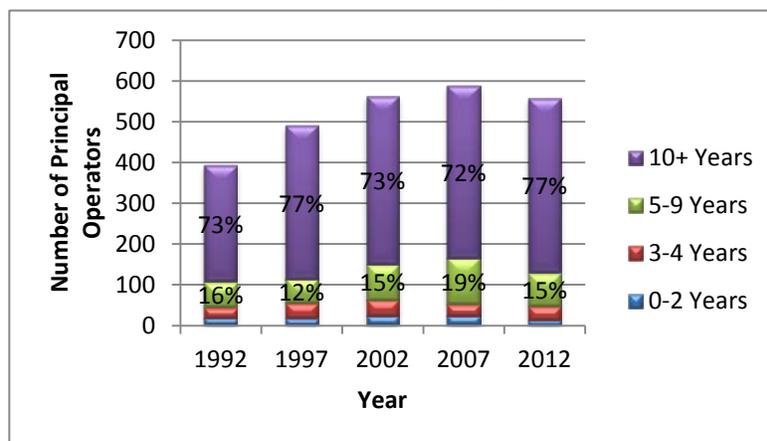
Source: USDA Census of Agriculture



13. Farm Tenure

Chart 13—Tenure of Principal Operator Tompkins County, 1992-2012

Source: USDA Census of Agriculture



The tenure of principal operators has not changed significantly over time. Most farmers (77%) report farming for 10 years or more. From 1992-2007, there was a slight growth in less experienced farmers. However, from 2007-2012, the number of newer farmers was slightly lower. This could be due to the graduation of those operators with 5-9 years of experience into the 10+years of tenure category with a lack of a new base to replace them.

This scenario becomes worrisome when combined with the age of operator data. Ag Census data suggests that Tompkins County farmers are becoming older and more experienced but lack a

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base of younger, less-experienced farmers to pass this knowledge onto. If Tompkins County does not create this base of younger farmers, there may be a decrease in the total number of farmers and farm operations as an aging farm population retires without anyone to take up their legacy. These predicted trends are validated with 2012 data, showing a 5% decrease in the number of total farms in Tompkins County as well as a 5% increase in the age of principal operator from 2007-2012. This marks the largest percentage growth in the age of principal operator since 1978 as well as the first time that the number of farms has declined in Tompkins County since 1992. However, this may in part be a problem with data collection and the fact that younger farmers are not responding to the Census survey. Further study to document the actual age of farmers would be warranted as it has implications for the future of farming.

14. Gender of Operators

Table 11—Female Operators, Tompkins County, 2002-2012

Source: USDA Census of Agriculture

	2002	2007	2012
All Farms w/ a Woman Operator	250	345	311
# of women operators	261	371	331
Land in farms (acres)	37,810	47,817	33,163
Farms w/ a Woman Principal Operator	117	175	144
Land in farms (acres)	11,102	11,719	8,530

In 2012, 144 or nearly 26% of the principal operators in Tompkins County were women. The number of principal operators who are women increased 50% from 2002-2007 before declining 18% from 2007-2012. Despite controlling over a quarter of the total number of farms, these farms only represent 8,530 acres, or 9.4% of the total land farmed in Tompkins County.

15. Farm Workers

Historically, Tompkins County has had little, if any, migrant labor, as we don't have larger fruit orchards or vegetable farms. One nearby Cayuga County grower uses migrant workers to harvest sweet corn and owns and rents some land in Tompkins County.

For more than a dozen years, many Tompkins County dairy farms have employed predominantly Mexican and Guatemalan farmworkers to work in their milking parlors. Prior to the availability of these farmworkers, farmers experienced a chronic problem of attracting and retaining workers for the parlor. Dairy farmworkers receive a starting salary at or above minimum wage, and in many cases are provided housing as well. Many farms also provide weekly or biweekly transportation for shopping and other errands. These workers are generally single men; most are in the United States as short-term workers with the intent to return home. Until recently this has been a self-replacing work force.

According to Mary Jo Dudley, Director of the Cornell Farmworkers Program (CFP), farmworkers interviewed by the CFP identified issues that need addressing in order to help stabilize the immigrant dairy workforce. Requests include: having more opportunities to improve their English; increasing the frequency and quality of communication with farmers; improving housing quality; decreasing social isolation; and most importantly to have proper work authorization and documentation.

Comprehensive immigration reform has the most potential to provide long term solutions for immigrant workers; however, the political climate needed to bring about this needed reform has remained elusive. A more achievable interim goal could be the enactment of the Agricultural Job Opportunities, Benefits and Security Act (AgJOBS), AgJobs is a proposed immigration law that would provide agricultural employers with a stable, legal labor force while protecting farmworkers from

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exploitative working conditions. The AgJOBS compromise was reached after years of Congressional and labor-management conflict resulting in tough negotiations between the United Farm Workers (UFW), major agricultural employers, and key federal legislators.

If enacted, AgJOBS would (1) create an “earned adjustment” program, allowing many undocumented farmworkers and agricultural guestworkers to obtain temporary immigration status based on past work experience with the possibility of becoming permanent residents through continued agricultural work, and (2) revise the existing agricultural guestworker program, known as the “H-2A temporary foreign agricultural worker program.” (from <http://www.immigrationpolicy.org>)

Trends Summary

Longer term historic trends show decreasing farm numbers and farm acreage, however in the past 30 years there has been relative stability in Tompkins County agriculture. The numbers of farms and land in farms has varied slightly but is not significant overall. The 558 Agriculture Census-identified farms in the county own and operate approximately 30% of the county’s land (90,774 acres), and generate \$67.4 million in sales. While sales appear to have doubled in the past 30 years, from \$30 million to \$67 million, when adjusted for inflation, there has been a 34% decline in value.

There is an increasing diversity of farm operations in the county; however, dairy continues to be the sector with the highest market value (\$37 million from milk sales). Local food production and organic agriculture are areas that have expanded significantly in the past 30 years. Local food sales (from farms within a 30 mile radius of Ithaca) amount to over \$20 million dollars annually (CCETC data sources). Many of the local food producers farm using organic methods. A total of 16,000 acres of the county’s harvested cropland is organically managed. There are five organic dairy farms, two organic crop farms (raising feed for organic dairies) and the balance are small produce farms. In addition, while many area livestock producers may not be certified-organic, animals are “naturally raised” on pasture (grazing) with no added hormones or antibiotics.

Small farms, according to the USDA definition of having sales under \$250,000, constitute 85% (502) of the Tompkins County farm community. Of the 558 total farms in the Ag Census, 50.5% of reported their primary occupation as farming. However, only 23% of total farms in Tompkins County have sales over \$40,000. In order to sustain their families, many depend on other sources of income.

Regardless of primary occupation, Tompkins County farmers are aging. When analyzed alongside patterns of tenure, both trends suggest that Tompkins County farmers are becoming older and more experienced but lack a base of younger, less-experienced farmers to pass this knowledge onto. This brings about serious questions as to how Tompkins County will pass its strong farmland base onto the next generation. However, programs are emerging to ensure this transition of farming and farmland will take place. Groundswell Center for Local Food and Farming and Cornell Cooperative Extension of Tompkins County are actively engaged in working with over 30 to 50 beginning and new farmers. Additionally, the Finger Lakes LandLink website, launched in March 2014, is serving as an online resource to help new farmers find land. As a result of this Agriculture Plan, a priority is being placed on fostering farm transitions and future farmers. CCETC has received a USDA Risk Management grant (March 2015) to assist established farmers with business transition planning.

Finally, women play a role as principal operators of 26% of the county farm operations yet only own about 10% of the farmland demonstrating some degree of gender inequality in farm ownership. In addition, while there are few minority farmers (race, ethnicity) in the county among the older generation, there is more diversity among new farmers (at present there are: four Asian, two African American, one Hispanic, and three new immigrant farmers in the county). The Hispanic workforce plays a significant role on area dairy farms. It is estimated that there are 60 dairies actively farming in Tompkins County, providing full time employment for over 100 owners (family members and partners) and around 275 employees. Eight of these dairies have their base of operation beyond Tompkins County borders, and account for about 20 owners and 115 full time employees. There are many other part-time and seasonal employees associated with local produce and crop farms who play a critical role during harvest.

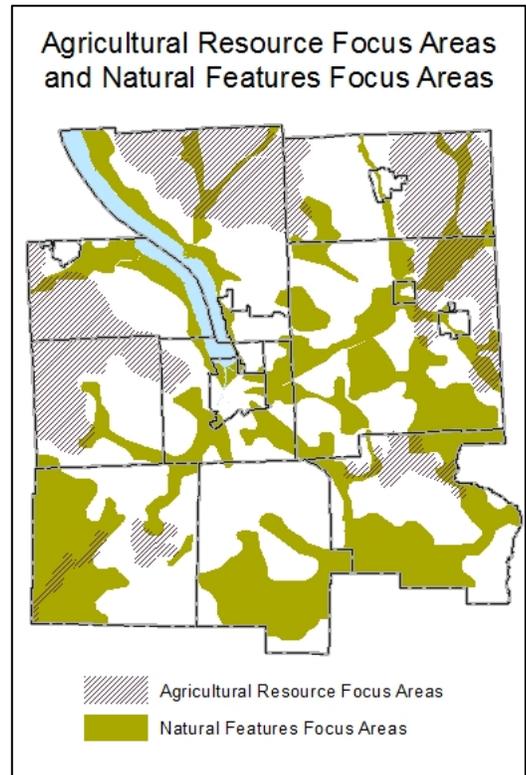
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C. Tompkins County Agriculture and the Environment

As a working landscape, agriculture in Tompkins County plays a key role in defining the region’s agrarian culture and wide sweeping scenic vistas. These agricultural resources also contribute to the health of our natural resources including forest land, soil and water resources including streams and wetlands. The relationship between working landscapes, natural and water resources may also be strained by a changing climate.

1. Natural Resources

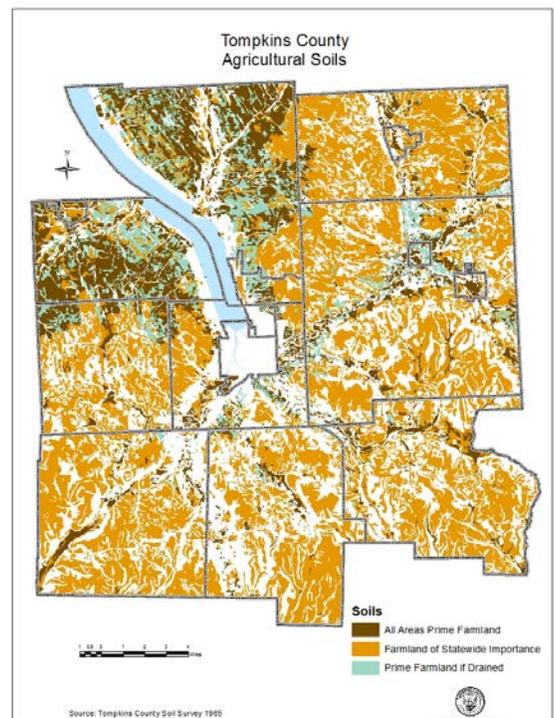
Tompkins County is known for high quality soils and historic farmland, and also its woods, viewsheds and clean water. The Tompkins County Comprehensive Plan identified important swaths of land within the Cayuga Lake, Owasco Lake and Susquehanna River watersheds including Unique Natural Areas (as identified by the Tompkins County Environmental Management Council), wetlands, stream corridors, public drinking water resources, Important Bird Areas, and hiking and multi-use trails and trail corridors. The Comprehensive Plan identified 14 distinct *Natural Features Focus Areas (NFFAs)*, which cover approximately 20,000 acres of land. Over 13,000 of that acreage intersects the *Agricultural Resource Focus Areas (ARFAs)*, those areas identified in the Comprehensive Plan as the highest quality farmland. Management of farmland in a way that supports the key functions of the NFFAs will provide multiple benefits to these important areas. As an example, a local farmer in the North Lansing – West Groton ARFA recently developed a Forest Stewardship Plan for an important riparian forest on this farm by a Department of Environmental Conservation (DEC) Forester. The plan, created at no cost, helped the farmer, and a Cooperating Forester, identify which stands to thin and with what frequency to maintain forest health and function. The result was a healthy harvest that also netted the farmer higher revenue.



2. Soil Resources

Agricultural operations also play a vital role in maintaining soil health throughout the landscape. Soil health is being recognized globally as the optimization of physical, biological and chemical properties in the soil. Tompkins County has rich soils in the northeast and northwestern portions of the county. Through proper management techniques such as no-till cropping, cover crops, and other BMP’s, farmers help to maintain soil health. Organic farming and permanent pastures also help to rebuild the biological and chemical properties of the soil. Prime soils and soils of statewide significance are a finite resource. With development pressure threatening the loss of more and more prime soils and their associated soil health, the county loses the ability to retain more water in the soil, sequester carbon, retain and cycle nutrients, and detoxify harmful chemicals.

The soils of Tompkins County vary considerably in physical properties and in their suitability for crops and



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other uses. The complexity of soils arises from the glaciated landscape. The glacial topography has resulted in narrow deep valleys, intervening plateaus and hills (highest elevation 2100 feet). Farming is concentrated in valleys and on plateaus.

Tompkins County soil associations and soil types were mapped by the USDA Soil Conservation Service in 1965. Soil associations are mapped on a scale of 1 inch per 2 miles (1:126,720) and broadly represent the parent source of soil origin. A soil map is more detailed classifying soils by type at a scale of 1:20,000 and provides much more specific information about soil capabilities and limitations generally within a two acre area.

Ten soil associations are found throughout the county with the most productive soils in the northern plateau areas. Soil associations dominated by high lime occur in the northwest and northeastern parts of the county, it is these areas where crop farming dominates. Medium lime soils occupy transitional areas between high and low lime soils. The central, north central and southern parts of the county include areas of low lime soils with a strong fragipan (impervious layer). These areas are least suited to crop farming.

In Tompkins County prime soils occupy 41,453 acres of land, soils of statewide significance are found on 127,762 acres and there is an additional 19,428 acres suitable for farming if drained (see Soils Map). Farming has become increasingly concentrated on the best soils where there is higher yield potential.

In a 2001 study to assess the feasibility of a countywide PDR program, priority areas for farmland protection were identified based on soil type and contiguous farming. These areas were later included in the County's 2004 Comprehensive Plan and referred to as Agriculture Resource Focus Areas (ARFA). Of the 77,295 acres of land in the ARFA, 28% are prime soils and 38% soils of statewide importance are included.

3. Water Resources

Virtually every farm in the county has an onsite water source in the form of a perennial or intermittent stream, wetland or pond. In most cases these resources are protected by the provision of stream or wetland buffers, though in some cases if mismanaged can have adverse impacts on surrounding properties, water quality, and plant and animal communities that rely on those resources. Farms can utilize local, state and federal funds to improve the on-farm multi-beneficial relationships between working lands and water resources. A holistic tool for planning for water quality improvement on farmland is the Agricultural Environmental Management (AEM) process. This program is administered through the Tompkins County Soil and Water Conservation District.

The AEM Strategic Plan for 2015-2020 targets watersheds in the Cayuga and Owasco Lake drainage areas for Best Management Practice (BMP) planning and implementation. This corresponds to the high density of agricultural lands in the Groton, Dryden, Lansing and northwestern portions of the county. Practices such as cover cropping, barnyard improvements, proper manure storage and handling, and reduced tillage are examples of BMP's that can be utilized on working agricultural lands

through the AEM Program to protect water quality. The Federal government cooperates with this program through the Natural Resource Conservation Service (NRCS) to provide BMP standards and specifications to farmers along with funding assistance through various programs in the Federal Farm Bill. With nearly 30% of the county's total land base being owned or operated by farmers, and avenues to protect water resources through the AEM program and NRCS, proper farming practices can have a positive impact on protecting water quality and natural resources in Tompkins County.

As is noted in the 2015 *Tompkins County Comprehensive Plan*, the impacts of land use on water resources ultimately affect Cayuga Lake. The shallow southern end of Cayuga Lake is more vulnerable to pollution than the deeper portions of the lake. The creeks which feed the southern basin of the lake, Fall Creek, Cayuga Inlet, and Six Mile Creek, play a significant role in lake water quality. It is estimated that they contribute approximately 40 percent of all the surface water entering the southern end of the lake.

The Federal Clean Water Act requires states to periodically assess and report on the quality of their waters, and to identify impaired waters where designated uses, such as public drinking water, are

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not fully supported. For waters that are determined to be impaired, states must consider the development of a Total Maximum Daily Load (TMDL) or other strategies to reduce the input of the specific pollutants. Impaired water bodies and their related pollutants, are published by the New York State Department of Environmental Conservation (NYSDEC) on the *New York State Section 303(d) List of Impaired/TMDL Waters*. The most recent list published in 2012 identified the southern end of Cayuga Lake as impaired by three pollutants: phosphorus, silt/sediment, and pathogens.

Sediment binds to phosphorous carried by Fall Creek, Cayuga Inlet, and Six Mile Creek. This sediment is largely the result of stormwater runoff and erosion of streambanks. In addition to sediment-bound phosphorus, phosphorus also enters the southern end of the lake from point sources, including the City's wastewater treatment plant and the Cornell Lake Source Cooling heat exchange facility. Farming may contribute to phosphorous levels when this nutrient is applied in excess in the form of fertilizer or manure. Large livestock farms (300 head) monitor manure applications through the Federal CAFO (Confined Animal Feeding Operations). Others utilize soil testing as a way to monitor phosphorous levels and apply only what is needed.

As a condition of continuing the SPDES permit for the Lake Source Cooling facility, NYSDEC and Cornell University have agreed to conduct a detailed study of the sources and ultimate use of phosphorus in Cayuga Lake. The study, estimated for completion in June 2016, will build a water quality model based on a detailed analysis of the shallow southern end of the lake and contributing watersheds in order to provide a better understanding of where phosphorus comes from and how it affects the lake ecosystem. Once completed, the model will help NYSDEC determine whether a TMDL or other strategy is necessary to address the amount and concentration of phosphorus in the southern end of Cayuga Lake.

4. Sustainable Farming Practices

Soil is the foundation for high yielding crops and productive farming. It is vital to farmers that soil and water resources on their farms are protected eliminating erosion, recycling nutrients, and protecting water supplies. The intimate relationship between farmers and the land is part of what defines a farmer as a steward of the land.

Since the 1970's, there has been increasing environmental consciousness along with government programs to encourage conservation and sustainable farming practices. Some of the notable changes in Tompkins County that have had a positive impact on farming and land use include:

- **Fewer acres in row crop production:** there has been a decline in acres of crops in general as farm numbers have declined and yields per acre have increased
- **Switch to grazing herds** - in the 1990's many dairy farmers switched from feeding year round in the barn to grazing, reducing the need for harvested feed crops with the added benefit of reduced manure handling (cows do it)
- **Nutrient management practices** – increasing awareness of excess phosphorous in soils and water bodies has led to best management practices for manure application. In addition, dairy herds with over 300 head are subject to US EPA confined animal feeding regulations (CAFO) which require farmers to follow a plan that specifies manure and nutrient management handling practices to avoid application of excess nutrients and protect water quality.

Protecting and Enhancing the Environment

Practices and infrastructure on farms that reduce or mitigate source and non-point source pollution since the late 1990's.
(Compiled from Tompkins County Soil and Water Conservation District records)

<u>Practice/Infrastructure</u>	<u># Farms</u>
Nutrient management	2
Manure storage systems	7
Milk house waste systems	18
Silage leachate treatment systems	9
Barnyard water runoff control systems	31
Fuel spill prevention systems	9
Alternative watering systems	24
Buffer systems for nearby water courses	6
Conservation Reserve Enhancement Program (CREP)	19
Conservation Reserve Program (CRP)	42
Wetlands Reserve Program (WRP)	1
Prescribed grazing (fencing, water, laneways)	76
Waste transfer lines	2
Heavy use area protection	18
Access road	5
Stream crossing	2
Bedding recovery	1
Compost facility	1
Water and sediment collection	1
Best Management Practices (BMP)	8

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Larger herd sizes and CAFO regulations have resulted in bringing more farm land in agriculture production as the larger dairies require land for crop production and proper manure handling

- **Precision technology** – applies to planting, fertilizing and pesticide application. Farm equipment has enabled farmers to be much more precise in their planting operations reducing the potential for excess fertilizer or pesticide use
- **Changes in pesticide formulations and improved application technology** – as an example, where once 4 lbs. of atrazine might have been applied per acre, now only 1 lb. is needed; and low volume spray equipment enables farmers to use less water reducing runoff potential
- **Cost of inputs** – farmers constantly find themselves in a cost-price squeeze, meaning that input supplies are increasing at a rate higher than prices and returns for products. Some will choose not to use chemicals if they are too expensive relative to the risk of crop loss
- **Organic farming** – Over 16,000 acres of land are managed using organic or non-chemical practices. This includes harvested crop land and grazing land. Most of the county's organic acres are associated with 7 certified organic dairies.
- **Hay farming and pasture** – hay and pasture are dominant feed crops for livestock; these crops require very little inputs in the way of fertilizer or pesticides. Lime and fertilizer may be applied in spring to grass hay; most hay is planted with alfalfa there for does not require fertilization. Herbicides may be used at planting or if a field becomes weedy, but generally weeds are managed through proper cutting to avoid the need for pesticides. While hay and grass may have some pest problems, farmers generally do not use fungicides or insecticides on these crops.
- **Rotational grazing practices** – keeping grass healthy through rotational grazing allows it recover faster without additional fertilizer beyond what livestock leave behind
- **Crop rotation** – a common practice is to follow several years of row crops with a legume hay crop to build the soil nutrients and improve soil tilth
- **Strip cropping** – a common practice on sloping fields that minimizes erosion alternating row crops with hay crops across the slope of a hill
- **Grassland buffers near waterways** to protect from soil erosion and nutrient/chemical runoff
- **Practices that minimize runoff and water pollution include:** manure storage systems, milk house waste treatment, silage leachate treatment systems, barnyard water runoff control, fuel spill prevention systems – these practices require sophisticated engineering to ensure their proper functioning and may be paid for in part by USDA NRCS EQIP funds awarded to farms.

The above practices are evidence that farmers in our county have and are adopting technologies that protect the environment and making substantial investments in their farming operations to do so. While a thorough review of the changes in farming practices has not been made, it is safe to say, on the whole, farms are better managed and prepared to reduce pollution and protect soil and water. Given interest in how farming is practiced, it is important to raise public awareness of sustainable farming practices through tours, workshops and media articles. A more thorough review of the impact of farming on the environment would also document improvements made and opportunities for further emphasis.

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5. Climate Impacts on Tompkins County Farmland

Absent of climate change, variations in the topography of Tompkins County have a significant impact on climate, particularly temperature differences throughout the county. The influence of Cayuga Lake on climate is greatest in areas close to the lake shore and in downtown Ithaca where temperatures may be as much as 10 degrees warmer than in the surrounding hillsides. In most years, the freeze free season ranges from May 5-20 to September 25-October 15. Annual precipitation totals from 30 to 40 inches.

2014 ClimAID Projections - # Days Over 90°F ¹	
Decade	Estimated # of Days
2020s	17 to 21
2050s	26 to 41
2080s	33 to 67

The 2014 National Climate Assessment (NCA), a report produced by a 60-member Federal Advisory Committee with guidance from more than 300 experts, noted that in the Northeastern United States between 1895 and 2011 temperatures rose by almost two degrees Fahrenheit. The report also noted that in the same time period precipitation increased by approximately five inches, or 10%. “The Northeast has experienced a greater recent increase in extreme precipitation than any other region in the United States; between 1958 and 2010, the Northeast saw more than a 70% increase in the amount of precipitation falling in very heavy events (defined as the heaviest 1% of all daily events).” A regional resource, NYSERDA’s ClimAID Report, notes “climate change is extremely likely to bring higher temperatures to New York State, heat waves are very likely to become more frequent, more intense, and longer in duration. Total annual precipitation will most likely not increase, but occur as more frequent intense rainstorms. Summer droughts could increase in frequency, intensity, and duration, especially as the century progresses. Meanwhile, there will likely be a reduction in snowpack and an increase in the length of the growing season.”

In Tompkins County, agriculture is likely to be impacted particularly from the increase in extreme precipitation events for which farms and their surrounding communities need to plan. The most serious of these impacts could be the loss of good, productive, topsoil subject to eroding into nearby waterbodies during periods of heavy rainfall. As notes in the NCA report, “climate disruptions to agricultural production have increased over the past 40 years and are projected to increase over the next 25 years. By mid-century and beyond, these impacts will be increasingly negative on most crops and livestock.” The report further notes that, “current loss and degradation of critical agricultural soil and water assets due to extremes in precipitation will continue to challenge both rain-fed and irrigated agriculture unless innovative conservation methods are implemented.” Best Management Practices (BMPs) which assist in stabilizing soil and protecting water quality will need to be more widely implemented and financial support for these measures needs to be increased. Agricultural communities in stream valleys, such as those in Tompkins County, may face increased risk of flooding from extreme rainfall events. Updated flood zones and flood plain mapping for purposes of future development is necessary for climate change adaptation. Communities in flood areas in the City of Ithaca and adjacent to major creeks and tributaries may be less able to cope with extreme rainfall events. Also, many of the rural areas of Tompkins County that utilize well water may struggle with water supply issues during future droughts. This also has an impact on livestock farms.

Aquatic health, habitat, and ecosystems and their host natural areas are likely to be disrupted as a result of even slight temperature increases. In the ClimAID Report an increase in days over 90°F is most likely to impact local agriculture. Opportunities may result with an increase in warmth, though extremes would likely strain some agriculture sectors more than others. As an example, heat stress on

¹ Based on middle range climate/emissions scenario for Region 3 (Elmira) – 2014 ClimAID Update

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dairy cows and other farm animals is likely, impacting local agriculture. At the same time, the rural economy may be adversely impacted by reduction in maple syrup production and reduced winter recreation opportunities.

The farm community is on the “front lines” of the changing climate; they will need to adopt practices to limit risks and take advantage of new opportunities. Appropriate practices should be clearly communicated between farms and agencies to help the region’s agriculture survive, and potentially thrive in this new reality.

6. Invasive and Pest Species

Local deer populations continue to threaten forest regeneration and inflict damage to agronomic and horticultural crops. Deer are a particularly distinct problem in all agricultural areas of the county, as well as in the urban and suburban areas. Vegetable, fruit and ornamental crops are most vulnerable to damage. Fencing has become a major cost for these crop producers.

The economic impact of pests and invasive species on agriculture continues to be significant. Fortunately, there is active monitoring and ongoing research when a new invasive pest is found that is a threat to agriculture or other parts of our environment. As with all invading species, there can be significant disruption of ecosystems and crop losses before a solution is found that minimizes or manages the problem. Farmers must however remain vigilant in protecting crops and livestock and will most likely have to bear additional costs of crop scouting and pest management.

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D. Agriculture Sector Profiles – Introduction

Agriculture in Tompkins County can be categorized into distinct sectors, although many farms operate multiple enterprises. For example, a livestock farm might also grow and sell hay; a crop farm might also raise livestock; or a dairy farm might sell beef. There is typically one enterprise that dominates, and that is the enterprise used to assign a farm to a given sector. While there are common themes which apply to all sectors, individual sectors have unique strengths, production and marketing strategies, and associated farming challenges.

Some common themes include:

- constantly changing regulations that increase the cost of doing business, especially for small farmers
- rising input costs while the prices farmers receive for products do not rise at the same rate making it challenging to keep up with costs
- demand for land: finding suitable land to buy or rent
- increasing land prices and taxes
- local zoning regulations that are making farm operation and expansion more complicated and costly
- labor: finding quality labor; seasonal demands; unresolved immigration laws
- local markets: increasing competition; new markets to absorb growing supply
- consumer awareness of farms, farming practices, local purchasing opportunities

The Sector Profiles that follow describe unique needs of the most common farming enterprises in the county. Broadly speaking, the following enterprises represent the makeup of Tompkins County agriculture. The summaries include sector data and input from focus group meetings held with farmers involved with the various sector. Because some focus group meetings involved only a few participants, we can assume that the needs identified may be opinion of those individuals and not totally representative of the entire sector, however, further conversations with farmers and review by the AFPB farmer members helped to validate concerns expressed.

Farm Profile: Scheffler's Dairy Farm *Ed and Eileen Scheffler*

The Schefflers are third generation dairy farmers in Groton, and Ed and Eileen have milked 45 cows since 1981.

Over the years Ed and Eileen have improved their operation and practices. They transitioned from corn silage to hay silage and then to Ag Bags, to improve cow forage quality and production rather than expand the herd.

Scheffler farm has always grazed their herd; cows to eat the grass and leave their manure behind as fertilizer. They have modified this practice over the years: they now grow grass and white clover, and the cows are moved every 12 hours rather than every couple of days. The cows are on pasture May 1st though the end of October.

Schefflers work 370 acres with one part time person and some spring tractor help. They use 80 acres for pasture; and on the rest they grow crops, including sunflowers. They press the sunflower seeds for oil, feeding the meal to the herd and using the oil in their diesel equipment.

Ed and Eileen began transitioning to organic production in 2000 and shipped their first certified organic milk in 2003.

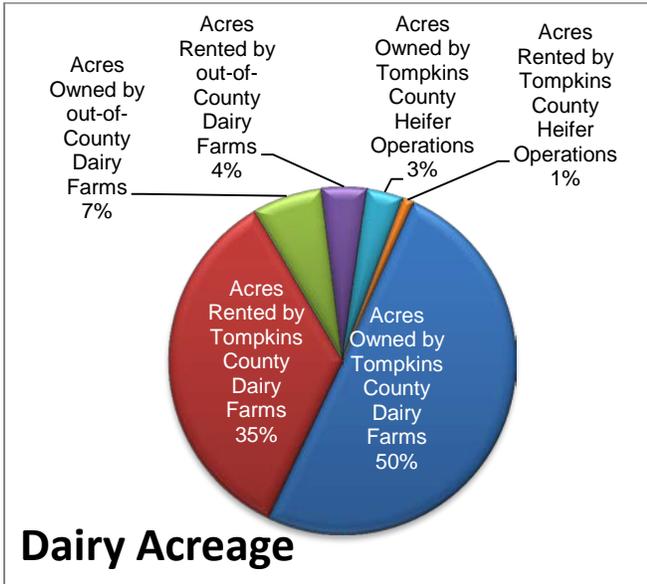
The Schefflers have a permit to sell raw milk from the farm, which they do on a limited basis. They also raise organic beef, and sell all cuts of meat, as well as various sausages, direct from the farm.



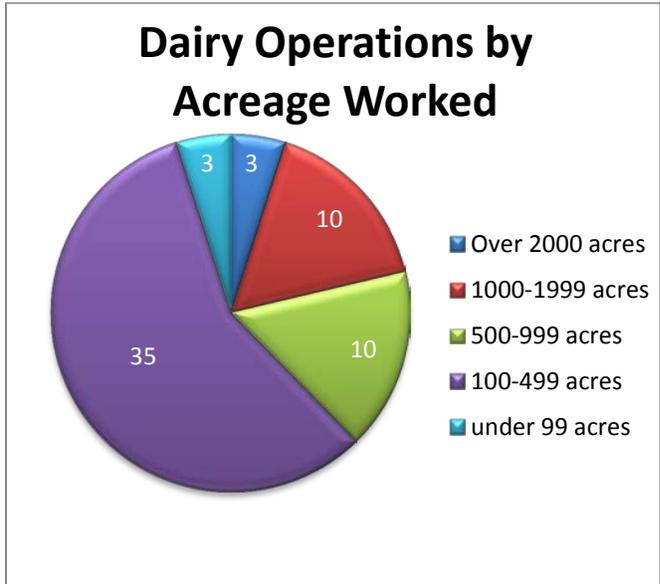
Tompkins County Agriculture and Farmland Protection Plan

Agriculture Sector Profiles: Trends and Challenges

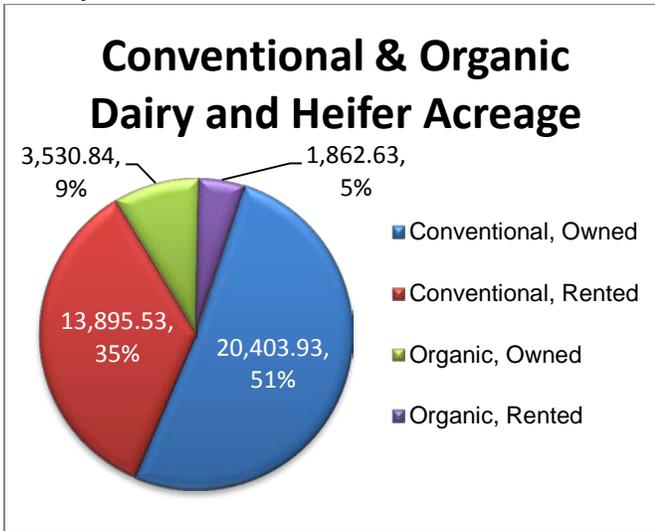
1. Dairy



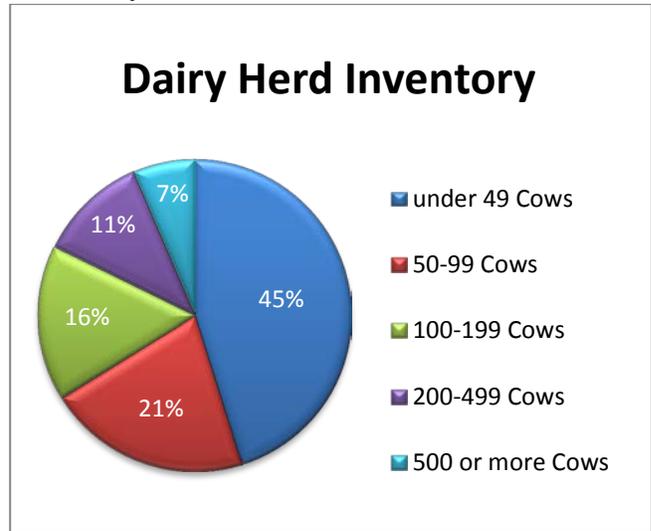
Dairy Chart 1



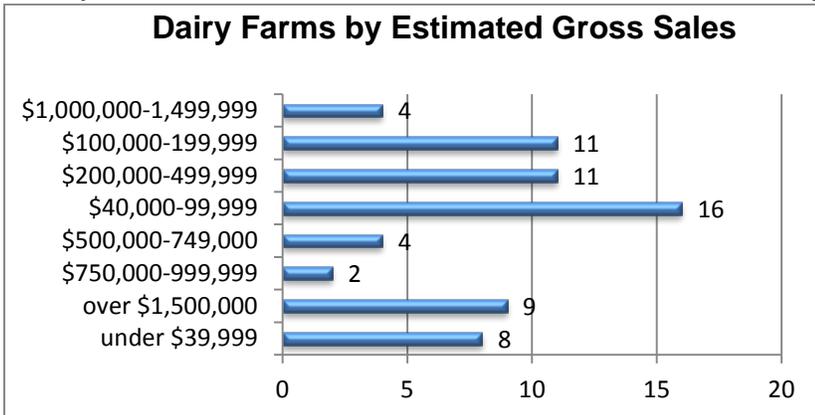
Dairy Chart 2



Dairy Chart 3



Dairy Chart 4



Dairy Chart 5

Dairy Charts 1-3 Source: 2014 Tompkins County Agricultural Data Base compiled by CCE Tompkins

Dairy Chart 4 Source: USDA Census of Agriculture 2012

Dairy Chart 5 Source: Tompkins County Agricultural District Surveys and CCE staff estimates based on type & size of operation

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Dairy Sector Overview

Dairy farming is the foundation of agriculture in Tompkins County. Dairy farmers oversee the most land, produce the highest value product, provide employment opportunities for several hundred workers, as well as buffer and support smaller niche operations. A mix of operations is beneficial, and seems to “knit” the agricultural landscape together.

Tompkins County dairy farmers produce high quality milk and consistently have the highest per-cow milk production in the region; 197.5 million pounds annually, with a per-cow average of 19,800 (NY NASS 2010).

There is a mix of types of dairies including large and small, conventional and organic. There are new operations as well as expanding ones, and examples of cooperation and support. It’s possible to have a small herd on a rented farm and buy feed from a larger farm; this model offers a great opportunity for young farmers. Additionally, several former dairy farms are now housing young stock for larger farms.

Dairy farming is a full-time occupation, often involving family-member teams in all aspects of the farm operation. There are also smaller farms where one or more family members work off-farm. Farms of all sizes have hired help, either part-time, seasonally, or full-time year around. The generally accepted ratio of workers per number of cows is one worker for every 45 cows, so it is estimated that over 200 full-time positions are created by Tompkins County dairy farms.

Dairy farms are predominantly concentrated in Lansing, Groton, and Dryden. However, there are a few remaining dairy farms in Newfield, Enfield, Ulysses, and Caroline. Organic dairies tend to be smaller, and larger farms usually employ conventional practices, although there are exceptions. One of the largest organic dairies in the northeast is located on the border of Tompkins and Cortland Counties near Dryden.

The proximity of resources like DairyOne, Quality Milk, Cornell Cooperative Extension, the Ag College, Cornell Veterinary Clinics, etc. helps to provide assistance quickly.

Outlook, Trends, and Future Opportunities

Dairy farm numbers have stabilized in recent years, due in part to consistent and growing demand for milk proteins (powdered and solids), both nationally and internationally, and also from the State’s Greek Yogurt industry. Milk prices have remained higher and more stable. This has allowed dairy farmers to pay down debt, budget and plan more accurately. With greater financial stability, dairy farms are able to purchase or rent more land to grow more of their own feed and meet their nutrient management plan’s manure-spreading requirements. This has led to a tightening up of land available for farming, and smaller farms, dairy and otherwise, are competing for land.

Another way dairy farmers are expanding is by boarding heifer (female) calves out to other farms. Many of these farms are former dairies, so they have the needed infrastructure (barns and pasture) to raise the heifers. There are currently seven farms raising heifers for dairy farmers, two of which raise heifers for dairies in adjacent counties.

Organic operations, including dairies, have returned idle land back into production. Most idle farm land can be certified for organic production immediately, and, at least initially, there is no competition for it.

Many county dairy farms are getting larger, which is a national trend. Fifteen years ago, there were five dairy farms working over 1000 acres, and land worked by farmers from other counties was barely noticeable. In 2014, there are three farms based in this county working over 2000 acres and ten working over 1000 acres. Ten dairy farms based in adjacent counties work over 5100 acres in seven Tompkins County towns. Of these ten farms, three work over a total of 2000 acres in support of their operation, and the others work over 1000 acres.

Still, there are plenty of operations that have found their right size, and figure out ways to make it work, such as diversifying with additional crops, providing custom work for other farms, or transitioning to organic production. There are currently seven organic dairies in Tompkins County.

Marketing Strategies

Milk is transported by several haulers, including Alnye trucking, Preble Milk, and Cortland Bulk. Some haulers deliver milk directly to the processor, others take it to processing and distribution centers, like Dairy Marketing Services and Dairy Farmers of America. Processors receiving Tompkins County milk include Upstate Niagara, Byrne Dairy, Polly-O, and Organic Valley.

All seven organic dairy farms in the county say transitioning to organic production was the best decision they ever made. Organic dairy farmers consistently earn more per hundredweight of milk over conventional production. There are, however, noted drawbacks, including: in times of low prices, some processors move to a quota system and might not purchase all of a farmer’s milk at organic prices, so some ends up in the conventional stream.

The milk pricing formula is complicated, and dairy farmers have little influence over the price they get for fluid milk. As a result, there is on-going interest in facilities for value-added dairy products. Recently a farmers’

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cooperative, including several Tompkins County farmers, opened a powdered milk processing plant in Auburn to have more control over the price they receive for their milk.

Direct-to-consumer opportunities are limited due to the licensing requirement and/or needed processing facilities and equipment; there is one farm in the county licensed to sell raw milk, and two others have been selling farmstead cheese on a very limited scale.

Challenges

Labor is a chronic problem for dairies, with farms specifying availability, attraction, and retention as issues. Many dairy farms in the county employ workers from outside the country, so there are concerns about labor crack downs and potential labor shortages. Legal issues are also of concern given worker rights watchdogs.

Dairy farmers note that State and Federal Labor laws restricting what farm children can do on farms can be difficult. In NYS, children age 12-13 are allowed to hand-pick berries on their family farm, and then at 14 and 15 they can get working papers but are prohibited from most mechanized activities (there are exemptions for 4-H'ers, vocational training programs, and those with tractor safety training). There are restrictions on what children can do until they are 18. Under age 12, children are not allowed to do any work on a farm, with the exception of feeding and caring for their own animal(s). Any child 12 or over working on a family farm with a payroll of \$3000 or more annually must include the child on the payroll and pay them at least minimum wage (there is a reduced minimum wage for children under 16).

Taxes are less of a concern for larger operations, as they are a much smaller percentage of the total costs. However, smaller operations feel the pinch, even with agricultural assessment. Lansing farmers especially cited concerns about the impact on property taxes if AES Cayuga shuts down.

Increasing feed costs are also consistently a concern. At times there are serious shortages of organic feed crops, and, as a result, some farms have returned to conventional production, although this is not the case in Tompkins County. Organic producers are growing more of their own crops due to these shortages and resulting higher prices.

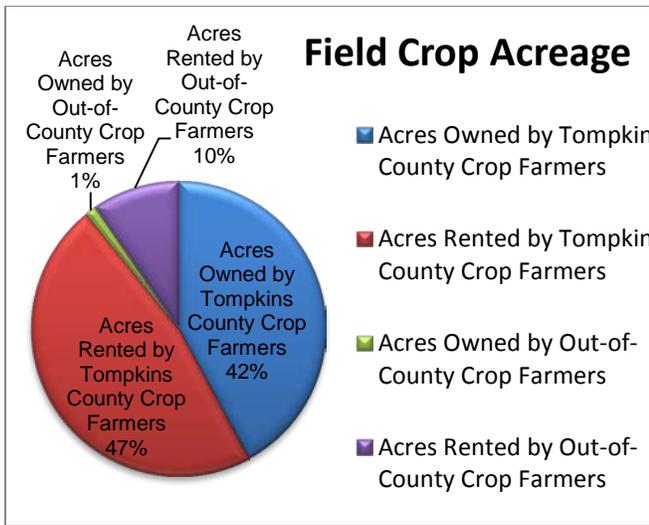
External issues of concern to dairy farmers include animal rights activists and environmentalists opposed to large farms whose views are often based on misconceptions. Dairy farms with over 300 cows are very heavily regulated, the details of which are often not well known by the public. Farmers need to find ways to be more visible and accessible to answer public questions about their operations. Conventional producers are concerned that labels like "organic" and "BST free" creates consumer perceptions that some products are "better" or "worse" than others.

Industry Needs: Services and Support

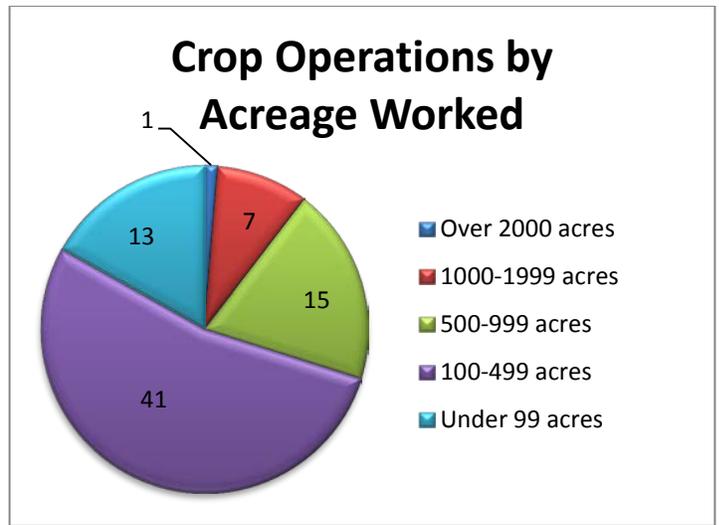
- CCE should strive to keep the regional Dairy Team positions filled; frequent and prolonged vacancies leave a big hole in services.
- There needs to be a more proactive linking between retiring farmers without an heir and young farmers, integrating them into the operation to transition into an ownership role.
- Competition for land in some areas is too stiff for even the "big guys". Also, some of farms that are being sold have been operating on the fringes for years and the facilities have been neglected beyond repair. Property price tags are bigger than the value of land and buildings but high selling prices have pushed assessed values up increasing the tax burden of land ownership.
- There are many issues with non-farm neighbors; farmer's need help telling their stories (video series, farm tours, farmer profiles in local media, etc.). Also, helping the general public understand what they need to know when they live near farms, i.e. slow-moving vehicles, dangerous driving around farm equipment (the 3rd week of April is rural road safety). Is this covered in Drivers' Ed programs? Can more information be included in the Real Estate Disclosure document to further explain safety issues related to rural roads and farm equipment?
- There is a need to work with law enforcement and municipal officials to help them understand what are normal, accepted agricultural practices and to-be-expected occurrences when complaints arise, i.e. late night field work or livestock escaping fences.
- Municipalities need more interaction with their farm community through agricultural advisory boards and regular meetings with farmers.
- For smaller producers, a system for collective purchasing and a centralized hub for feed and other supplies would be helpful.

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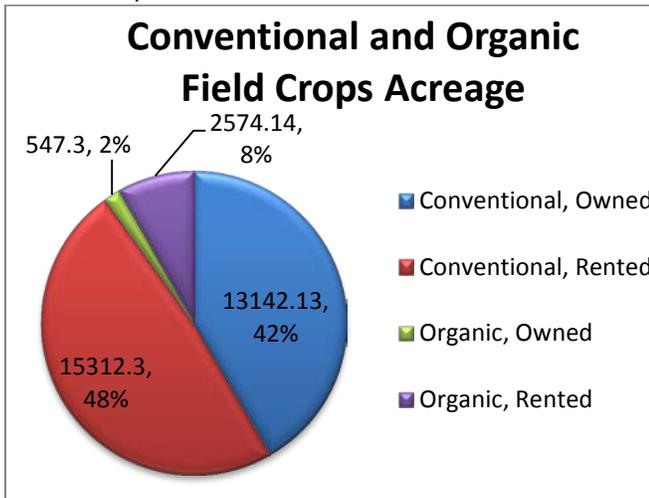
2. Field Crops



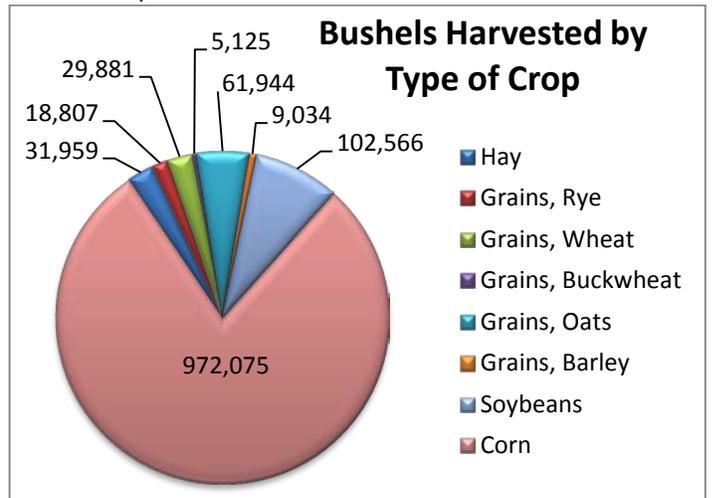
Field Crops Chart 1



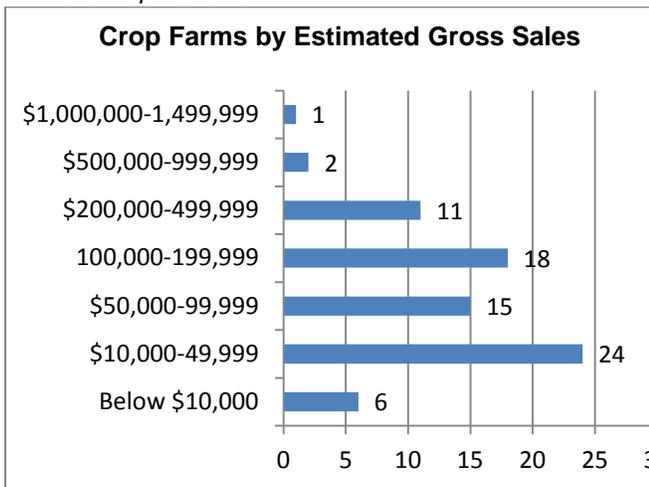
Field Crops Chart 2



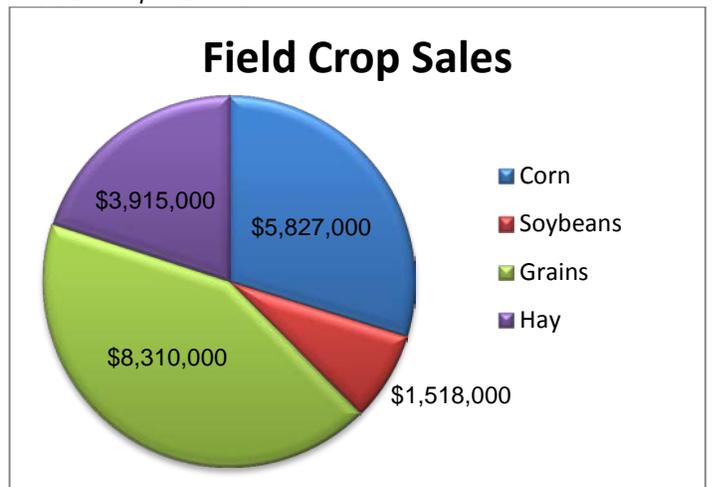
Field Crops Chart 3



Field Crops Chart 4



Field Crops Chart 5



Field Crops Chart 6

Field Crops Charts 1-3 Source: 2014 Tompkins County Agricultural Data Base compiled by CCE Tompkins

Field Crops Chart 4 & 5 Source: USDA Census of Agriculture 2012

Field Crops Chart 5 Source: Tompkins County Agricultural District Surveys and CCE staff estimates based on type & size of operation

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Field Crops Sector Overview

Field crop production is the second largest agricultural economic contributor in the county. Field crops and dairy are related sectors, in that much of the harvest from crop farms is utilized by local and regional dairy farms, and dairy farms often produce more crops than they can use and sell the surplus on the commodities market.

Crops are grown throughout the county, although farms that grow crops exclusively tend to be on the west side of the county in Ulysses, Enfield, and Newfield. Producers predominantly use conventional methods, although many use no-till, GPS/precision tillage, and other new technologies to reduce erosion and input use. They also tend to rent more land than they own, in contrast to dairy farms. There are field crop growers who own little or no farmland themselves, and work land around a home base of equipment storage facilities.

Nearly half of the crop farmers working in Tompkins County are full-time, working from 500 to over 2000 acres. Field crops raised in the area include corn, soybeans, small grains, alfalfa, and grass hay. These operations have also grown in size significantly in recent years, adding to the competition for land.

Crop farming is highly mechanized, so a small number of people can handle most of the tasks. The larger operators tend to hire a few people seasonally, and may have one employee year around. They also tend to have integrated operations, i.e. trucking, grain, equipment, etc., and work in multiple counties.

Smaller scale crop farms often produce hay, with a rotation of corn when they need to replant fields. Hay is a crop that requires fewer inputs, can be handled with older equipment on a part-time basis, and has a ready market with large and small livestock producers throughout the county. Depending on the quality of the hay, someone with 100+ tillable acres would meet the requirements for agricultural property tax assessment.

Outlook, Trends, and Future Opportunities

Throughout Tompkins County the soil types, rainfall, and growing days support successful production of a wide range of crops and crop varieties. There are strong and diverse marketing opportunities to sell the product grown locally.

Many grain farms are multigenerational, which provides a history of what works as well as an opportunity for future generations to move into leadership and ownership roles with more flexible options. Lower overhead costs allow for flexibility and part-time operations.

There is a growing trend for small-scale farms to work with larger-scale neighbors, such as borrowing equipment or having a larger neighbor harvest crops for a share of the harvest.

Climate change may present new positive opportunities for farmers, such as the potential for double cropping, i.e. follow wheat with soybeans, or the ability to plant longer-season hybrids which are more likely to have higher production. However, the possibility of more frequent heavy downpours increase the risk of erosion and crop washouts, failure to germinate, or reduced rate of growth.

With the increasing value of, and demand for agricultural land in the county – including previously fallow land – it is likely viable agricultural land will be purchased or rented by another farmer. As smaller farms are absorbed into other operations, the future may be very large farms interspersed with small niche operations and part-timers.

Marketing Strategies

Field crops grown in Tompkins County are sold locally, regionally, nationally, and internationally. Generally, the Chicago commodities exchange prices are used to determine prices. Field crops leaving Tompkins County

Farm Profile: Carpenter Farm Russ and Sarah Carpenter

Russ and Sarah Carpenter are third generation farmers, working about 500 acres in the Towns of Enfield and Ulysses. Russ grew up helping his father on the farm, attended SUNY Cobleskill and then returned to the farm in the early 1980's.

Russ grows approximately 150 acres each of soybeans, corn, and hay, and 50 acres of wheat. They have a grain dryer on the farm, which means Russ can process grains so they are a more readily useable commodity.

Most of the soybeans are sold on contract before harvest, and shipped either to Canada or the Newark, NJ port for shipment overseas. Most of the corn is brokered through ethanol plants; a lot goes to Fulton to make NASCAR Fuel. Russ explains that ethanol production has helped increase the corn base price in New York State; the price is often as good as or better than the price set by the Chicago Mercantile Exchange (CME). Also, both Dried Distiller's Grains (DDG's), a by-product of ethanol production, and the meal by-product of Bio-diesel production are high protein feeds that return to the market as livestock feed.

The Carpenter's use dried corn at home to heat their large farm home. They use a self-feeding furnace and it takes 6-10 tons of corn, which has a \$2000 value, a year. That's a 50% savings over their previous heating bills.



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are marketed through Perdue Agricultural Commodities Marketing Association (PACMA), Lakeview, Oswego Ethanol Plant, also Lansing Grain (Michigan) and are typically transported by rail car to eastern sea ports.

Crops that remain local are often bought and sold through an informal network of farms with institutional awareness of needs and availability from year to year. There are also regional grain storage facilities that buy and sell crops.

There is some added value production, such as custom feed blending, grain roasting, and/or storage operations. Some field crops are grown for human consumption, most notably sweet corn, but also a variety of beans and grains. Some local barley is finding its way to malt for beer making. Tompkins County is also home to Farmer Ground Flour, which is an operation that adds value to locally produced organic grains by grinding them into flour that is sold locally and regionally. Another niche operation is Cayuga Pure Organics, specializing in small grains and dry beans; in addition to bean cleaning equipment they have recently installed oat rolling equipment.

Challenges

Crop farming is a speculative business. Farmers make the best, educated decisions about what to grow, when to plant, etc., and given enough rain and sunshine at the right times, they will be successful. However, in an international market place, weather-caused shortages in a large region may not result in higher prices because crops are likely available elsewhere. At the same time, a world-wide abundance of a crop will depress prices unexpectedly.

Crop farming is a seasonal occupation, and full-time farmers must produce enough each season to meet year-around expenses. At certain times in the growing season additional help is needed, but it is often difficult to find reliable, experienced temporary help.

The increasing costs of production, especially fuel, are challenging for all farmers; additionally, taxes, equipment, and equipment maintenance account for larger share of producer's expense.

Access to land is a growing problem. Farmers report increasing competition, and are especially frustrated when they lose rented land after they've made improvements. Parcels are also getting sold out from under current renters for use by neighboring operations, and there is an increasing amount of land being purchased or rented by farmers from bordering counties. Adding to this problem is new non-farm land owners having unrealistic expectations of rental rates; although rents are as high as \$75+ an acre in some areas, lack of competition and/or poorer soil types do not justify high rental rates. Sometimes these new owners have no intention of continuing to rent their land, or farm it themselves, removing it from the available land base.

Industry Needs: Services and Support

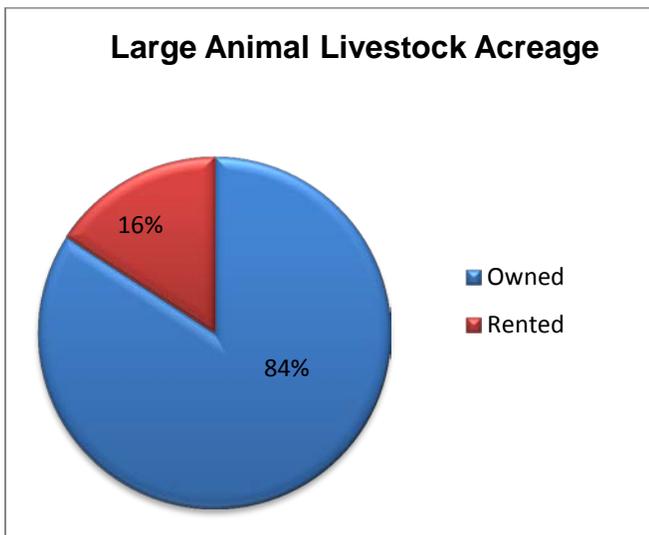
- Access to equipment dealers is a problem throughout the County. Smaller equipment dealers may not be able to get parts so farmers must wait for a part to arrive by mail or go to Cortland for parts. For small-scale farmers, this delay often means they miss a weather-related window of opportunity.
- For new farmers, it can be hard to get into the "network" – existing farmers know who might be looking for crops, or who might want to buy something, or who has what equipment they might be willing to loan, etc. These networks are based on familiarity and trust, and it can be difficult for new-comers to find acceptance.

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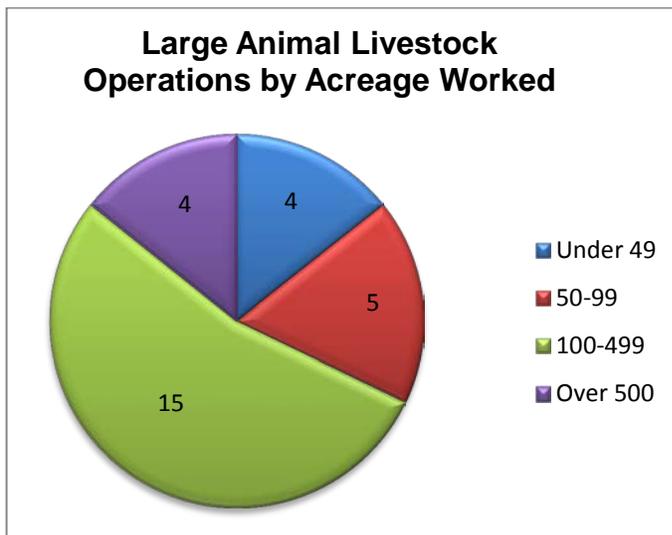
3. Livestock with Pasture and Hay

These operations include former dairy farms that continue to harvest hay and raise livestock, most often beef cattle, in the existing pastures. There is also an increase in production of pork, lamb, goat, meat rabbit and small scale poultry production including chickens, turkeys and ducks due to the growing interest in locally raised meat. Most of these are part-time operations with total sales below \$40,000. Most are not certified organic but use very few synthetic chemical inputs other than fertilizer. Most livestock are raised on pasture without growth hormones, and antibiotics are only used if needed for animal health.

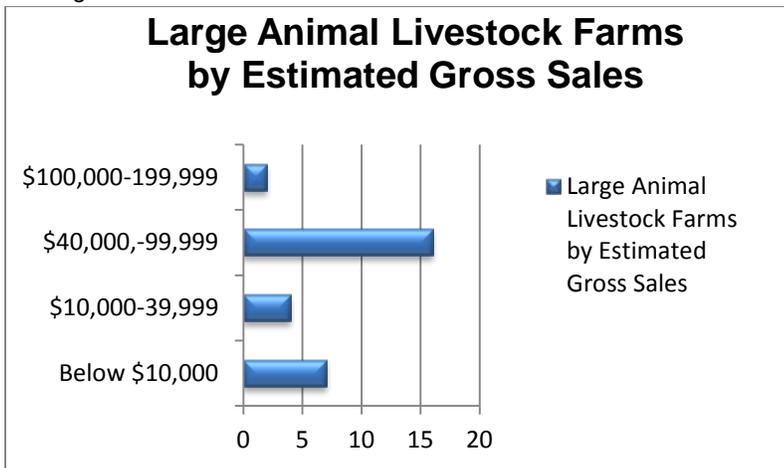
3a. Large Animal Livestock (Beef)



Large Animal Livestock Chart 1



Large Animal Livestock Chart 2



Large Animal Livestock Chart 3

Dairy Charts 1 & 2 Source: 2014 Tompkins County Agricultural Data Base compiled by CCE Tompkins

Dairy Chart 3 Source: Tompkins County Agricultural District Surveys and CCE staff estimates based on type & size of operation

Large Livestock Sector Overview

There is an expanding customer base for locally-raised, direct-to-consumer meats, and local farms with enough pasture and crop land interested in raising beef. For those with the land base and livestock husbandry knowledge, overhead for getting started is relatively low: beef calves are affordable at livestock markets, and a workable fence can be easily installed. Rotational grazing provides an excellent system for pasture management.

Most beef producers are part time, selling an average ten head per year on pasture and hay they produce to reduce feed costs and provide more revenue. These farmers produce grass-fed livestock for the most part, although many producers supplement the herd's diet with grain on some basis to improve meat marbling.

The only farms offering certified organic beef in Tompkins County are organic dairy farms who select cows from their herd to offer beef for sale as an additional income stream. In general pasture land and hay crops

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require limited chemical inputs if animals are grazing and manure is spread so the majority of local beef is naturally raised.

There are two larger specialized livestock farm operations in the county including Genex Breeders bull farm in Enfield with international sales of bull semen and Glenwood Farms Bison (70 head) that focuses on local sales.

Outlook, Trends, and Future Opportunities

There are many small, multigenerational family farms that are well-suited to move into livestock production, as at one time they were likely dairy farms and have existing barns, pasture, and fencing infrastructure. They tend to be single owner or single family operations. Raising beef livestock is a good choice for a part-time farmer as it is far less labor-intensive than dairying. With a good fence, access to water, and plenty of pasture, beef cattle will generally take care of themselves, allowing the farmers to concentrate on cropping.

With the increasing demand for local products, there is increasing demand for USDA-certified, and NYS custom slaughter facilities. Farmers report that wait lists at current facilities require them to schedule a slaughter date well in advance (sometimes a year), or they may need to travel several hours to find a facility. There is an opportunity for new, custom-butcher facilities to help meet seasonal demand.

Tompkins County soils, topography and pasture resources provide an excellent base for beef production, especially in the southern half of the county, however, increasing taxes and assessed values may put pressure on these farmers to sell. There is a slim margin of profit in raising beef with some farmers just able to cover their property taxes. Some of the land that is or could be utilized for beef production is more vulnerable to development and could be targeted for conservation easements.

Marketing Strategies

Many beef producers sell live animals, by the half or quarter animal, and then arrange for butchering at a NYS Custom licensed plant. Buyers have some decision-making ability on certain cuts, sizes, and packaging. Consumers save money by buying in bulk, and also have some ability to customize the product to best suit their needs.

Producers that sell at retail outlets must utilize USDA slaughter facilities to process their animals. Generally they have invested in freezer space to store meat once they get it from the processor and can then sell it by the cut, either directly at the farm, at farmers markets, to restaurants and stores, or through Community Supported Agriculture shares. This allows the customer to buy only the cuts they want and provides the producer with the higher retail price per cut.

Beef and dairy farms of all sizes sell live animals at local and regional livestock markets. Sometimes the price at the auction is high enough to offset the additional work involved in wholesaling or retailing their product.

Challenges

The price of livestock feeds (hay, grain) has doubled in recent years; farmers need to develop an understanding the global markets involved in growing crops and animals here.

This region is blessed with an abundance of water, but it may not be in right place to access it on livestock farm. There are State and Federal programs to assist with water development and fencing to keep livestock out of streams, but funding is competitive and smaller farms applicants do not rank highly.

Farmland has become fragmented in many areas of the county, with residential housing interspersed. This often results in complaints from or disagreements with non-farm neighbors about escaped or noisy livestock, the smell of manure, etc. There is also a problem with runoff being diverted to farmland from nearby non-farm development, resulting in new wet areas in fields.

Increasing taxes and unreasonably restrictive municipal laws take their toll on farm finances and farmer's ability to work efficiently. It can take a lot of time and money to resolve a conflict with or adhere to certain local laws. Some farmers report feeling intimidated by the potential negative interaction with municipal officials: when they are leaving you alone, you don't want to speak up about a problem or make waves, so problems are not addressed.

Agriculture is typically left out of emergency planning, but has the potential to be impacted by the consequences of unexpected catastrophes. Farms may have generators that need to be refueled after a few days, and livestock feed supplies may be exhausted.

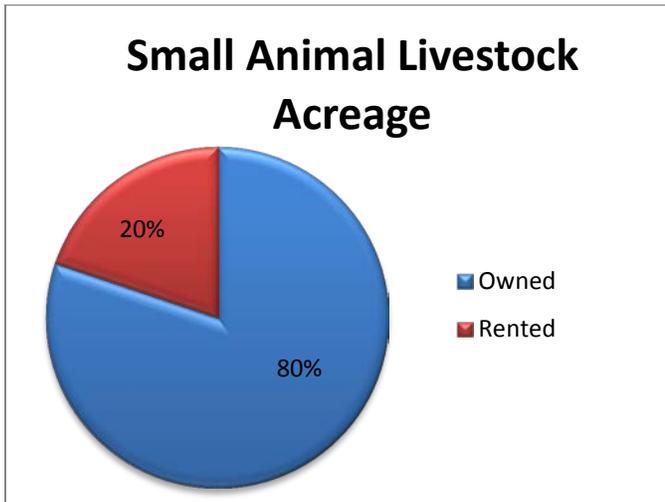
Finding farm land to buy is challenging; there may be willing sellers, but they are complacent about holding on to their land. In some parts of the county, the competition for farmland is so strong that a start-up farm can't compete. In some locations, farmers can't find land for pasture to rent or buy; if they can't expand, they may go out of business.

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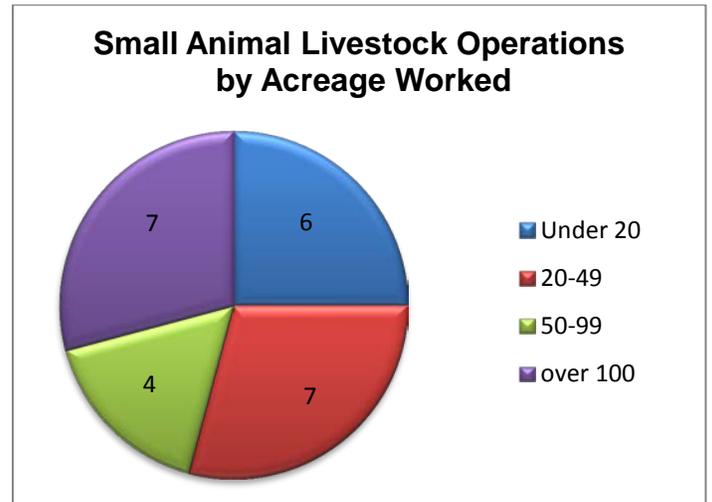
Industry Needs: Services and Support

- Some farms have land that is bisected by roads; livestock farmers that straddle busy State and County roads need large culverts to cross livestock under roads.
- Livestock farms that buy-in all or part of their feed would benefit from a Local Feed Exchange to facilitate information exchange (post prices paid, suppliers of available feed, quantities and price, et.) and to facilitate bulk purchases.

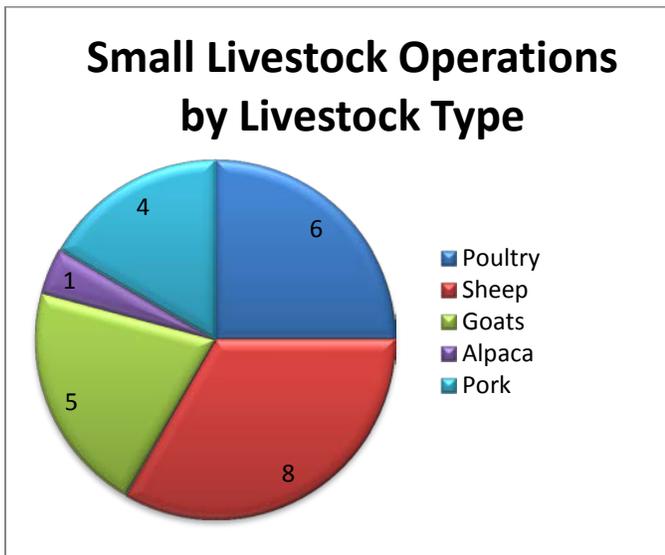
3b. Small Animal Livestock



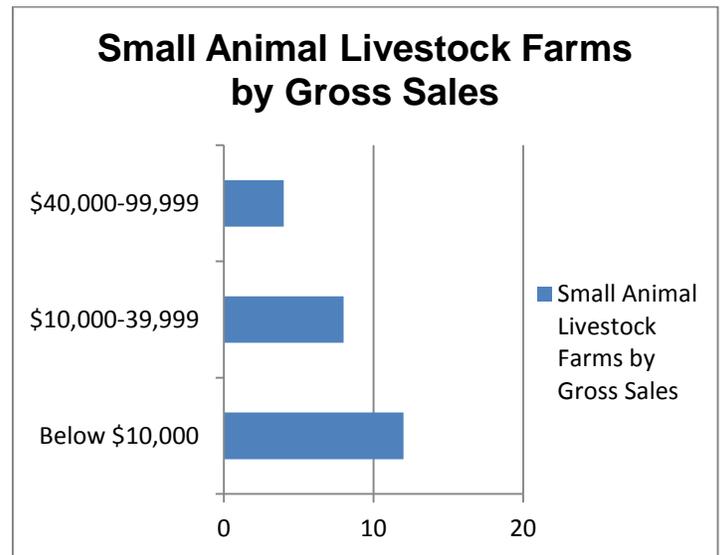
Small Animal Livestock Chart 1



Small Animal Livestock Chart 2



Small Animal Livestock Chart 3



Small Animal Livestock Chart 4

Small Animal Livestock Charts 1-3 Source: 2014 Tompkins County Agricultural Data Base compiled by CCE Tompkins

Small Animal Livestock 4 Source: Tompkins County Agricultural District Surveys and CCE staff estimates based on type & size of operation

Small Animal Livestock Sector Overview

Small livestock producers including sheep, goats, pigs, poultry, and fiber animals, often work with heritage or uncommon breeds, chosen for unique characteristics that the farmers believe are the best fit for their operations. The animal's uniqueness helps create a niche market for the products, such as heritage pork, blue and green-shelled eggs, and Angora goat fiber. Many livestock in this category are sources of meat and other products such as chicks and eggs, sheep and wool, etc. In the case of sheep, goats, and alpaca, fiber can be sold as a fleece,

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felted, or spun into yarn that are further increased in value through knitting, crocheting, or weaving though this takes additional time and talents and must be factored into overall profit.

Most small livestock producers are part-time, with proceeds from the operation covering cost and perhaps providing a small supplemental income. They tend to be family operations, and sometimes children have major responsibilities in caring for the livestock.

The smaller the livestock and size of herd or flock, the less farm land is needed. Many rely on pasture land for grazing and buy in some supplemental grains. They may not own equipment for crop production or hay making so they rely on other local producers of hay and grains and as such provide a growing market for local producers of hay, primarily, as well as some grains. The cost of purchasing feed has become a major consideration.

Outlook, Trends, and Future Opportunities

Given demand for local food and farm products, there is a growing market for locally raised poultry, pigs, lamb, sheep and goat milk cheese or yogurt, and fiber. Small animals are a less expensive and space intensive way for new farmers to get involved in animal agriculture. There is also a strong network of area producers and homesteaders that provide mentoring, informal cooperation and support. The trend toward direct marketing is likely to continue and grow, offering part-time farmers the opportunity to expand to full-time. There is also room for more producers, providing there is affordable land available.

There are producers who began as 4-H members and have grown their 4-H project into a viable business. Small animals offer opportunities for youth interested in a career in agriculture to gain experience and build a small flock or herd, which can direct college and career interests. There is another segment of small animal livestock producers who are retired or near retirement age, and have the time to explore and develop markets and find their niche. As they retire from this enterprise, their existing operations or markets can transition to another producer.

Marketing Strategies

Most small livestock producers are using a variety of direct marketing methods to sell their products including direct sales via their farms, sales via area farmers markets, partnerships with CSA's to offer their products to CSA customers, and other such schemes. Value-added production is an important component of small livestock production, including cheese, fleeces, wool, etc. Fiber products may be sold on line or at area craft shops and festivals.

There is increasing interest in locally-raised meat and poultry. Lamb and kids offer smaller and more manageable freezer cuts than beef or bison.

Many of the heritage or unusual breeds raised on local farms are marketed to other producers starting to grow their flock/herd thus providing an outlet for surplus animals.

Challenges

Meat goat producers find a more limited market for meat than lamb.

Theft, trespass, and vandalism are reported on many farms, as well as uninformed neighbor complaints causing undue stress and time and money loss. Some farmers also mentioned concerns about animal rights activist activities.

Small-scale producers lack the income to afford hay-making equipment, so they can't produce their own feed even if they have the land available.

Droughts will make it difficult keeping up with pasture rotation and climate change makes planning for forage and feed more challenging.

Farm Profile: Laughing Goat Fiber Farm

Lisa Ferguson

Lisa Ferguson and her husband, Gary, moved to Ithaca from Ohio in 2000, purchasing just under 50 acres in the Town of Ithaca. She had grown organic vegetables in Ohio, but wanted to try something with a longer shelf life here. That, and her interest in fibers and knitting, put her on the path to raising fiber goats and other fiber livestock. Early on, she sold natural yarns from her animals, then began to dye and work with it (knitting, weaving) to meet market demand. Before long she was working a manufacturer to process the dyed yarn for her, producing knit products much faster than she could manage independently. The knit goods are then sold out of the farm, at various festivals and craft shows, and online. In addition to knit goods, livestock for breeding and consumption are also sold.

Currently the farm herd runs between 75 and 100 animals, which are primarily angora and cashmere goats along with a handful of alpaca. Lisa manages the operation with the help of her husband, a few volunteers, and college interns.

In the future, Lisa plans to expand into sheep, as well as build a new barn and some guest cottages. She and Gary would like the farm to an agritourism destination for people wanting to learn about fiber craft and how to knit and weave.



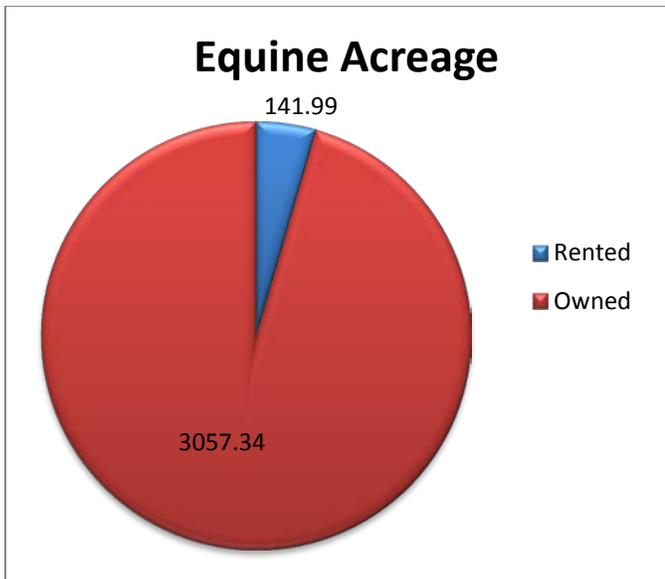
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Industry Needs: Services and Support

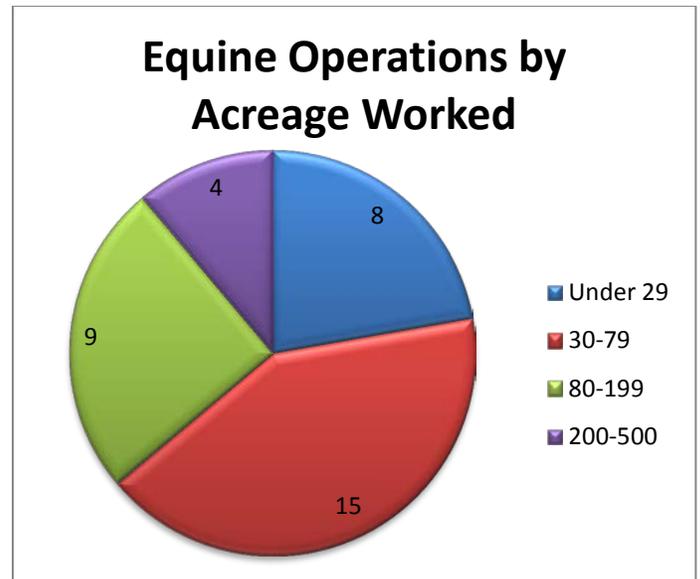
- There is a need for more veterinarians knowledgeable about small ruminants. This could be exacerbated by possible legislation limiting access to farmer-administered animal antibiotics.
- The feed supply infrastructure is challenging: farmers report being able to get only hay, corn, and soybeans nearby and have to travel for the rest. There is a need for more options for local and/or organic grain feed rations. During hay shortages, small livestock producers seem to come up short and needing to go out-of-county or region to find what they need.
- There is a shortage of slaughter facilities and limited access to those that exist. Higher fuel prices make travel to processors more expensive.
- There is a need for identification of farms, perhaps through a county farm signage program, to raise awareness of agriculture and its contributions.

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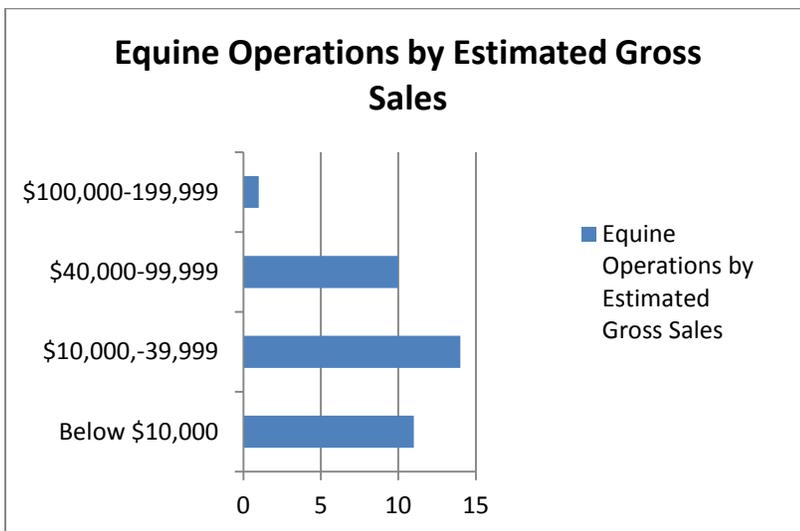
4. Equine



Equine Chart 1



Equine Chart 2



Equine Chart 3

Equine Charts 1-2 Source: 2014 Tompkins County Agricultural Data Base compiled by CCE Tompkins

Equine Chart 3 Source: Tompkins County Agricultural District Surveys and CCE staff estimates based on type & size of operation

Equine Sector Overview

Equine is growing agricultural sector with about two thirds of the operations being eligible for agricultural assessment (sales over \$10,000 per year), most with without a secondary enterprise. About a third of the equine operations are stables offering boarding, training, and riding lessons. The rest of the sector members are breeders, polo enthusiasts, and equine rescue and rehabilitation. A majority of the equine operations are owned by women.

About half of the equine operations provide a full-time income, and most, if not all, of the stables provide part-time to full-time employment for several people other than the owner.

Many poorer soil types which do not support crop production are suitable for pasture as long as it is well drained. Equine operations can find suitable land throughout the county that is less attractive to crop and dairy producers. However, they do depend on other producers in the county to supply quality horse hay resulting in an attractive market for smaller part time landowners with access to hay land and equipment.

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Outlook, Trends, and Future Opportunities

Many equine operations are small and use off farm income to acquire and grow their farm operations to avoid debt. Some have investors, to build needed facilities, (stables, riding barns, pastures, rinks, etc.). These are the larger facilities in the county which offer boarding, training, and riding lessons.

There is good pasture land available in this county and support services nearby (Cornell large animal clinic), so equine operations have a good base for starting a business.

The equine industry has several related sectors, such as custom, high-end saddle and tack and manufacturers, tack repairers, and farriers that can be found in the county. County equine operations also purchase a lot of the hay produced in the county, providing a relatively new and growing market for hay producers.

Boarding, training and riding facilities are dependent on a population with disposable income as equestrian pursuits are an expensive hobby.

Marketing Strategies

Much of the marketing in the equine sector involves the sale of services: the boarding of horse for owners without sufficient land for keeping a horse, riding boarded horses when the owner can't do so consistently, and training horses for owners. Equine operations also train horses that they subsequently sell to recreational and competitive-riding owners.

There is a strong youth component to training for competitive riding, again, mostly female. These girls and young women own or rent a horse stable at a training facility, and are often part of a stable team that competes regionally.

With the growing interest in equestrian pursuits, support businesses have come to the county. There are several high-end tack and saddle makers, as well as feed businesses that specialize in horse feed.

Challenges

Some equine operations do not raise crops or sell enough livestock or services to meet the criteria for agricultural property tax assessment, yet they often own substantial acreage. This means they have a heavy property tax burden.

Stock is expensive, and stud fees are high; this sometimes leads to indiscriminate breeding.

NY trailer fees are extremely high compared with neighboring states; many livestock haulers often register their trailers in Maine which is far cheaper.

Another concern is unreasonably restrictive local laws and/or ill-informed application thereof which can add to the overall cost of barn construction.

Industry Needs: Services and Support

- facilities for humane disposal of old horses and rendering
- supply lists for hay and other feeds
- reasonable trailer costs

Farm Profile: Ivy League Farm

Patricia and Chris Purdy

Ivy League Farm breeds thoroughbred horses.

Patricia and Chris Purdy met in college, although they were both from the Ithaca area. Patricia was already an active equestrian, and owned two jumping horses. As time passed, they acquired a brood mare that produced a filly that raced successfully the first time out. At that point they realized they needed a mare with a real pedigree, so they went to the sales, held in Saratoga New York and Kentucky, and found one. They also realized they needed some farmland, and were lucky enough to find about 60 acres in Ellis Hollow, where Chris grew up. They built barns and installed horse fencing for paddocks, and the business continued to grow.

Today, they welcome about 10-12 new foals a year to the farm. Because the horse raising industry requires Live Cover breeding, four times a year they send mares to Lexington, Kentucky to spend several weeks for breeding. Thoroughbreds have a tremendous value, and while some of the mares and foals on the farm are owned by the Purdys, others are owned as partnerships, and still others are owned by others entirely and just boarded at Ivy League Farm.

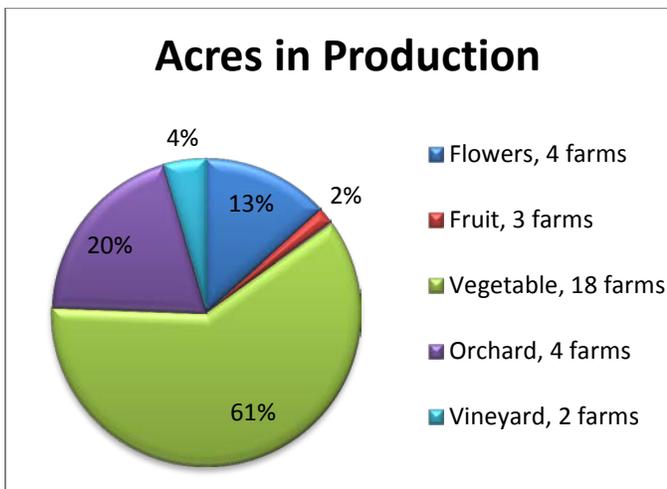
The Purdy's sell foals each year at the November sales as either weanlings, or the next year as yearlings. Their market is the racing industry, which has an international draw.

The Purdys buy in all their feed, purchasing 20 tons of alfalfa from local and regional hay farmers as well as a lot of horse feed from Agway. They do business with DairyOne to analyze the hay they feed and also work with an animal nutritionist. They also provide employment for several people.

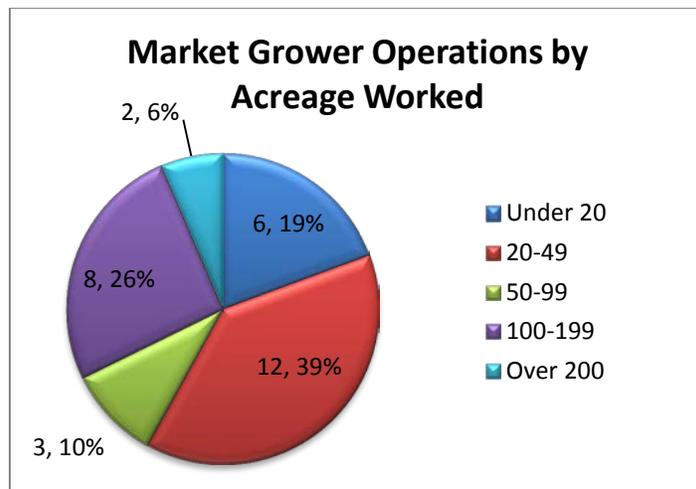


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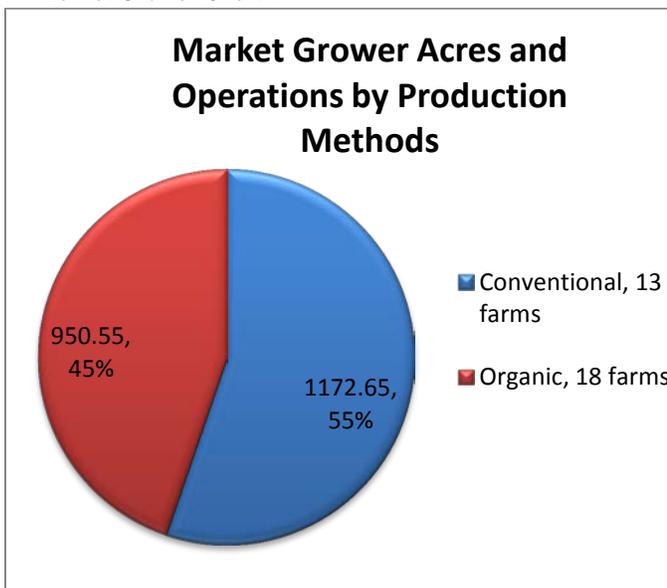
5. Market Growers



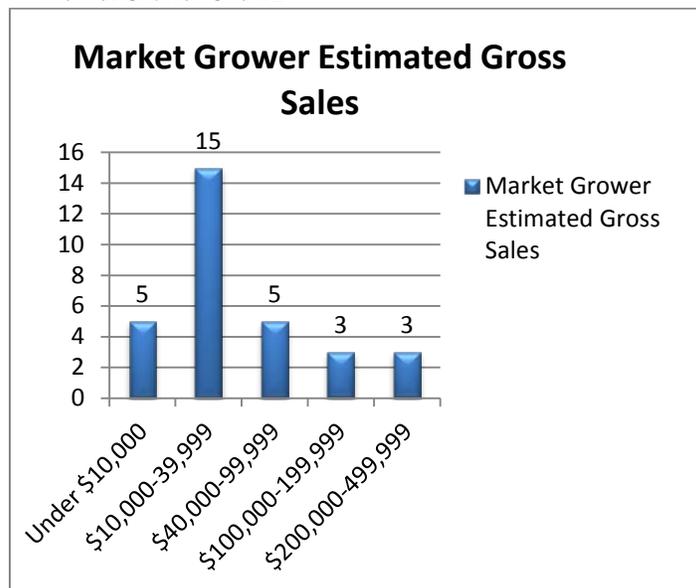
Market Grower Chart 1



Market Grower Chart 2



Market Grower Chart 3



Market Grower Chart 4

Market Grower Charts 1-3 Source: 2014 Tompkins County Agricultural Data Base compiled by CCE Tompkins. Market Grower Chart 4 Source: Tompkins County Agricultural District Surveys and CCE staff estimates based on type & size of operation

Market Grower Sector Overview

For the purpose of this profile, Market Growers are defined as those producing berries, tree fruit, and vegetables that are primarily marketed direct to consumers and local buyers. Market growers vary in size from a few acres to several hundred acres. Vegetable growers require additional land for cover crops and crop rotation to maintain soil fertility and reduce pest problems.

Berry crops grown include: strawberries, brambles, and blueberries. Grapes are a minor crop associated with wine production (4 farms). Apples are the dominant tree fruit; however pears, cherries, apricots, peaches, and plums are being grown with variable annual yields depending on spring temperatures that may impact blossom and pollination. A full variety of vegetable crops are being grown to exploit the growing season. Some growers may produce over 30 different varieties of crops on their farms starting in spring with greens, a variety of summer produce, ending with root and storage crops. High tunnels are being used for year round production of greens. Storage crops including root crops, onions, garlic, squash and apples are sold year round. Market growers are expanding into new crops and niches like ginger and uncommon fruits.

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There are 31 County farms that sell to local consumers, and at least another 50 beyond our borders but within a 30-mile radius of Ithaca (required for selling at the Ithaca Market) that depend on Tompkins County outlets and consumers for product sales.

This sector includes a mix of experienced growers and new producers. Most experienced growers are generating a full-time living from farming and use a variety of marketing channels. Newer producers need to be innovative to find niches that are not filled. The marketing environment for market growers is becoming increasingly competitive. The sector is largely successful because there is access to a receptive community of consumers that shop at farmers markets, join CSA's, visit farm stands and pick your own farms. In addition, local retailers and restaurants buy from local farmers and feature local products in stores and menus.

Based on sales data gathered by Cooperative Extension, the estimated value of local foods (produce, meats and specialty products) sold to and consumed by area residents is at \$20 million; this is 10% of all food sold at retail (\$200 million). 20% of fruits and vegetables consumed by county residents come from area farms. These numbers are considerably higher than national averages reported in the USDA Agriculture Census data where only 2% of agriculture sales are categorized as being sold for human consumption.

Outlook, Trends, and Future Opportunities

Expansion of this sector has been steady for over 40 years starting with the establishment and evolution of the Ithaca Farmers Market in 1973, the emergence of CSA's as a marketing strategy in the 1990's, and the growth of the local foods movement that has gained significant momentum since 2000. Ithaca and Tompkins County has gained a foodie town reputation, hence making it attractive to new market farm startups. Increasingly, new farmers are finding marketing to be a challenge. Some have succeeded by specializing in what they grow or how they market. Others are foundering generating minimal returns for their efforts, and when coupled with production challenges and other time demands, many will not succeed. Support for new farmers is being provided by Cooperative Extension and Groundswell Center for Local Food and Farming, by offering business planning training and marketing guidance.

Opportunities exist to grow the local food system, but it will require more consumers to buy local, more buyers to buy local, and farmers will need to be more strategic in their business and marketing efforts. Areas for expansion include: pick your own, increased year round production and storage capacity, added value processed fruits and vegetables, a wholesale farmers market, culinary and agritourism expansion, cooperative marketing and shipping to regional outlets.

Marketing Strategies

Nearly all of the market growers in the county are engaged in direct marketing. Channels being used include a network of ten farmers' markets throughout the county, over 30 CSA farms, five Pick Your Own (PYO) farms, sales to 28 area restaurants, and sales to four area retailers (Greenstar, Wegman's, P&C Fresh, Trumansburg ShurSave). Farm stands include one that features solely their own farm grown produce, and six others that grow some products and buy the balance from the produce auction in Penn Yan or the Syracuse Regional Market. Institutional sales are limited primarily because prices farmers receive in other channels are higher. However, some institutions (Cayuga Medical Center, Cornell Dining) do buy some local or regional products via distributors including Regional Access, Cortland Produce and Maines. Regional Access is a key player in the local food scene, providing shipping services for farmers to local outlets and to NYC stores used by a few area farmers.

Farm Profile: Stick and Stone Farm

Lucy Garrison and Chaw Chang

Lucy Garrison and Chaw Chang moved their organic produce operation from Newfield to Trumansburg in 2000 and began expanding; they now work about 72 acres and produce a wide variety of produce as well as eggs. The farm has five full-time, year-round employees, and they add two more full-time workers and eight part-time workers over the summer months.

Stick and Stone sells produce to restaurants, through a U-Pick, at farmers markets, and through 450 Full Plate Collective CSA (community Supported Agriculture) shares. Full Plate Collective is Stick and Stone Farm, Remembrance Farm and Three Swallow Farm.

Lucy and Chaw attribute their success to adapting to market needs and expanding slowly. For example, when green beans became popular among local restaurants, they invested in a green bean harvester to meet the demand. They have expanded into fruit trees to meet the demands of CSA members.

Although they are young, Lucy and Chaw's children are engaged in the farm operation and have shown interest in learning more and having more responsibility. Lucy and Chaw hope to pass the business on to their children one day.

Lucy and Chaw work to find new ways to expand production and create an ever-growing market. Their goal is for the farm to be sustainable and for the people farming here to be happy.



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Most farmers use a mix of marketing channels to spread their risk. All are time and resource challenged making it hard to explore new marketing options. Cooperative Extension has been hosting annual farmer-buyer networking meetings where producers can meet buyers and learn about their needs. Additionally, CCE has been conducting market channel assessments for producers that allows them to evaluate returns by channel. This has helped growers be more strategic in deciding whether to stay with a particular channel or not.

Challenges

A key challenge is to identify a mix of crops and a marketing channel that is not fully saturated. Many market growers start farming with little planning, capital, land and equipment, so the easiest approach is to start small and sell direct. Infrastructure investments essential on direct market farms include: fencing for deer, woodchucks, etc., irrigation, high tunnels, produce washing facilities, and cold storage. Changing Federal food safety regulations are another major concern for smaller producers.

Direct marketing

- Market saturation, need to grow the market and get more customers to buy local
- Customer education: varieties/crops, production methods, where/why buy local
- Prices at markets is too high for some consumers; there is a need to balance prices consumers can pay while covering production costs
- Ithaca Farmers Market (IFM) is doing well, but smaller markets are struggling and need help with advertising and promotion
- Need to identify good locations for small, community markets, in proximity to other attractions; encourage CSA pick-ups at small farmers markets
- Pick your own customer used to come to pick for food preservation, now come to pick for fun – promote agritourism
- CSA deliveries to offices or as a wellness promotion strategy could grow more local food consumers
- Farmers lack of understanding of what makes good customer service

Wholesale

- Small size of local farms relative to wholesale buyer volume needs
- Consistent supply and quality
- Pricing at wholesale to cover costs
- GAPs (Good Ag Practices) certification required by wholesalers
- Lack of facilities and equipment for proper post-harvest handling: washing, grading, packing and distribution
- Lack of labor or equipment for large scale field harvest

Industry Needs: Services and Support

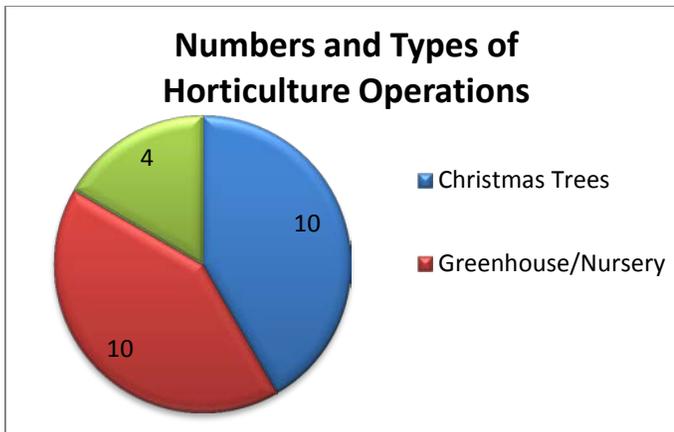
- Consumer education about where/what/how to buy local and how to cook with fresh produce
- Business analysis and strategic planning
- Farmer education: production, packing, professional business practices and marketing
- Farmer buyer connections
- Infrastructure: storage facility for fall harvest
- Infrastructure: freezer facility
- Infrastructure: canning/processing facility
- High tunnels for extended season production
- On farm cold storage options: root cellars, coolers, barns
- Produce washing/packing that meets GAPs certification and other food safety requirements
- Labor

Specialty Enterprises

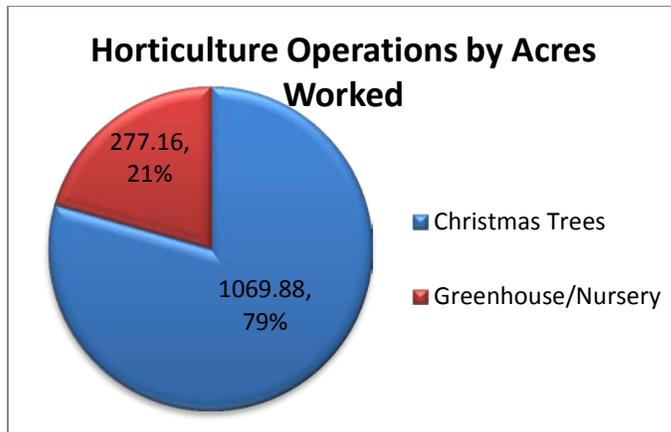
There is an ever-expanding array of agricultural products that are being offered for local sales. Traditional specialty products include maple syrup and honey. Newly available products include mushrooms, herbal edibles and medicinals, greenhouse grown tropical crops like ginger, figs, and berries, aquaponic fish, hydroponically grown greens, local grains, and local hops. These products may provide expansion opportunities for market growers but each crop has its particular requirements for production and marketing that needs to be fully explored and understood and breakeven costs need to be researched.

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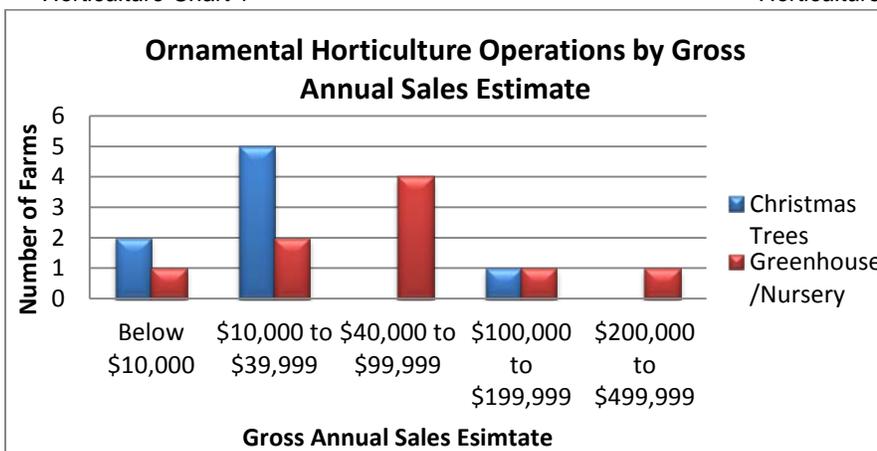
6. Ornamental Horticulture



Horticulture Chart 1



Horticulture Chart 2



Horticulture Chart 2

Horticulture Charts 1 & 2 Source: 2014 Tompkins County Agricultural Data Base compiled by CCE Tompkins

Horticulture Chart 3 Source: Tompkins County Agricultural District Surveys and CCE staff estimates based on type & size of operation

Ornamental Horticulture Sector Overview

The Ornamental Horticulture sector in Tompkins County includes retail garden centers, nursery/greenhouse producers, and small vegetable growers that include production and/or sales of ornamental plants as part of their vegetable farm operation. Nursery/greenhouse crops produced include annuals, perennials, ornamental trees and shrubs, native plants, and fruit trees. There are ten Christmas tree farms, most of who sell locally but at least three ship trees out of the area. Another unique sector of horticultural crop production is field-grown cut flowers. There is one large grower (seven acres) that sells flowers from May to November at the Ithaca Farmer’s Market and to area retail florists. Another not quite as large (two acres) specializes in weddings and parties along with sales at the Ithaca Farmers Market. Many vegetable growers also add cut flowers to the mix of what they grow as the fit nicely into market displays or as a bonus in a CSA share.

There are ten greenhouse and nursery growers (census numbers also include vegetables grown in greenhouses) who retail plants they grow and plants they buy in. Some of the nursery/ greenhouse operations also offer landscape design and installation services. There are four locally owned full service nursery, retail design, and installation services. [Note: corporate or chain retailers, such as Home Depot or Lowes, are not included in these data, as none of their products are grown locally.] Another segment of the horticulture industry is lawn and landscape services and gardeners. These include small one person firms and larger multi-staff businesses. Landscape gardeners often purchase plants from local nurseries hence adding to the customer base of the growers and retailers. Most horticultural crops are sold locally at greenhouse/nursery retail locations.

Retail garden centers and nurseries in Tompkins County employ approximately 150 year-round employees with an additional 100 seasonal employees. The number of people employed by landscapers, arborists and lawn maintenance is harder to capture as many of these services are one person operations that advertise solely by word-of-mouth. There are approximately 30 of these services that advertise in the locally and likely an equal number of smaller services that are most often found by word of mouth.

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The size of operations ranges from small growers with a greenhouse or two on their home property to large garden centers with a shop, display greenhouses, outdoor display areas, production areas and other customer amenities such as gardening tools, books and garden-related gifts. One of the long-established garden centers attracts out-of-town visitors and bus tours to visit their display gardens, and has facilities to host weddings.

This sector is largely successful thanks to the high level of consumer interest in ornamental gardening in Tompkins County, in part because some residents have disposable income to spend on ornamental in plants, and also because gardening education opportunities provided through Cornell Plantations and CCE-Tompkins have empowered home gardeners to try new plants and gardening techniques on their properties.

Outlook, Trends, and Future Opportunities

This sector has experienced growth in the last few decades, with the 3 oldest horticulture businesses established over 30 years ago and a number of new businesses starting up in the last 5-20 years. However many of these businesses reported a decrease in business over the last 5 years due to increased competition from big box stores with garden centers. The larger retailers have name recognition, large advertising budgets and additionally are located centrally in Ithaca, whereas most of the small locally-owned horticulture businesses are located in the rural parts of the county and may be hard to find. However, many local businesses reported that after the initial downturn in business following the opening of the big box garden centers, they experienced a return of some customers who preferred the higher level of expertise and customer service offered by the knowledgeable staff and owners of the local horticulture businesses.

Additionally, many county growers and gardeners have a higher-than-average knowledge of plants and gardening styles, and some of the local nurseries have carved out specialty niches, such as native plants, edible landscaping and heirloom roses. Some offer additional services and products such as landscape design and installation, floral design, tools and gardening supplies, garden-related gifts and visitor attractions. Two businesses market their plants only through mail order – one is a fruit tree nursery that supplies tens of thousands of grafted trees to orchards across the country and the other is a perennial nursery that sells mail order plants through their website.

Current trends among Do It Yourself (DIY) gardeners include more use of perennials, trees and shrubs rather than bedding annuals, and an increased interest in incorporating edibles, such as fruit trees, vegetables and herbs in the home landscape. Some of the local garden centers that previously only carried ornamental plants have recently increased their selection of edible plants for sale, including less common species such as paw-paw, elderberry and nut trees. There is also strong demand for native plants and the creation of more sustainable permaculture oriented landscapes.

Opportunities for future growth of this sector will require increased outreach to educate new customers as many of the older patrons of local horticulture businesses are downsizing to smaller properties without gardens. It is easy to see properties that have transitioned from a manicured landscape to a state of neglect. It is essential to continue to reach younger customers, including new homeowners, apartment dwellers and even renters, using updated marketing strategies. Areas of expansion include more businesses having online ordering and mail order options, facilities to attract tourists such as display gardens and cafes, and special events to draw customers at slower times of the year.

Marketing Strategies

Horticulture businesses in Tompkins County use a diverse array of marketing strategies. All are engaged in direct marketing through garden centers and greenhouses, mail order, at farmer's markets, and gardening events such as the Spring Garden Fair and Plant Sale, which features over 30 plant growers and attracts approximately 3,000 customers at the 5 hour event. Marketing channels include traditional methods such as newspaper advertising and customer newsletters while newer methods include websites featuring updated plant lists and growing information, use of social media, and e-newsletters and direct mailings via email.

Group marketing has been a recent innovation for this sector, with a several horticulture businesses located on the east shore of Cayuga Lake participating in the Cayuga's East Shore marketing promotion, which has a website and printed brochures that also includes accommodation, dining and wineries in the area. Another group marketing effort is a joint brochure that lists 13 locally-owned horticulture businesses with descriptions of products and services offered, directions to each business, website links and contact information.

Challenges

- Increased competition from big box store nurseries
- Need to reach new customers as older customers age out of gardening activities
- Retaining experienced staff, especially seasonal staff

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- Seasonal nature of the business
- Challenges to ornamental gardening (deer, drought, new insect pests)
- Poor weather during busiest months (April-June)
- Updating marketing strategies to reach younger customers

Industry Needs: Services and Support

- Consumer education about where/what/why to buy locally-produced plants
- Marketing support to promote locally-owned businesses
- Strengthened connections between local plant/soil producers and local wholesale buyers
- Knowledgeable seasonal labor force
- Infrastructure: hoop houses and sales facilities
- Training on current means of reaching customers, including social media

Tompkins County Agriculture and Farmland Protection Plan

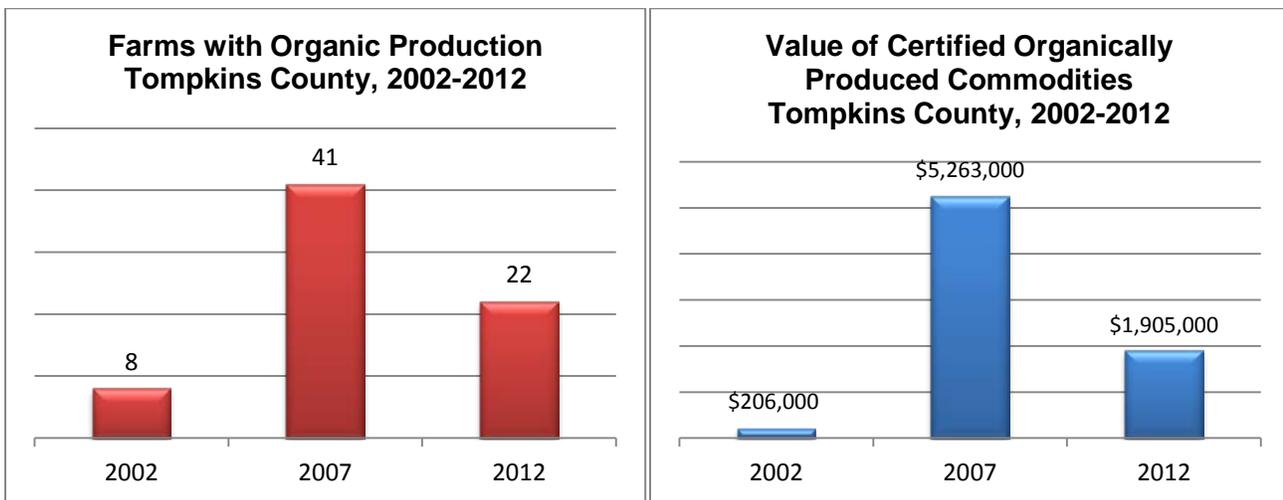
7. Organic Agriculture

Organic agriculture has a long tradition in Tompkins County, starting with small farms involved in the back to the land movement of the early 1970's. Many of these farms were involved in starting the Ithaca Farmers Market in 1973. This is around the time that the organic movement began and the NY Organic Farming and Gardening Association was founded. For many years, organic farming was mostly practiced by vegetable farmers growing for the local market.

Today, most of the farmers raising produce for local sales are farming using organic methods, though not all are certified, in part due to the cost and records required and because their customers do not require certification. Approximately 1500 acres of produce is organically raised in Tompkins County.

Since 2000 there has been a significant increase in organic field crops and dairy farms. In Tompkins County, these farms operate nearly 15,000 acres of certified organic cropland. These farms have benefitted from higher prices and growing demand. In the case of the dairy farms, all were conventional farms that converted to organic production. The field crop producers include mostly new startups. The growth of organic dairies has resulted in demand for organic crop production and in facilities able to raise heifers using organic practices.

Organic Production (Data from the Agriculture Census)



As happens with the Agriculture Census from time to time, the way and type of data collected has changed for Organic Production. In 2002, only acreage of certified organic crops was collected (not livestock or poultry or livestock or poultry products). In 2007, data collection expanded to include to the new National Organic Production standards (NOP) and included crops, nursery and greenhouse crops, livestock, poultry, livestock and poultry products; however, the USDA did not check for organic certification, and commodities were combined into one question. Then in 2012, the USDA's NOP standards were used. Crops, livestock and poultry products were reported individually. Data was also collected about USDA NOP certification, exempt organically produced commodities, and farms transitioning to NOP certification.

We know that organic production expanded overall in Tompkins County from 2002 to 2007. Based on the data, we added 24 crop farms, and started counting 11 organic livestock and poultry products (11 farms). Some of the 24 new organic crops farms likely existed in 2002, but were not certified. Perhaps close to 20 of these farms remained NOP uncertified, as an explanation for why the USDA numbers suggest Tompkins County lost 22 organic farms from 2007 to 2012. From farm data collected by CCE-Tompkins, we know that there are over 30 organic farms in the county, most of them certified. Additionally there are dozens of livestock farms using organic practices with incomes under the \$5000 minimum required for NOP certification or who chose not to be certified. This data more accurately reflects the state of organic agriculture in the county, which we know continues to increase.

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8. Beginning Farmers

While the Agriculture Census suggests the farm community is aging, Cooperative Extension and the Groundswell Center for Local Food and Farming, receive weekly contacts from individuals interested in farming. Though some established older farmers have no heir apparent, many farms have younger generations in place working towards ownership.

There has been increasing interest in farming in response to the demand for local foods. There is a mix of individuals who are seeking to farm, mostly with little or no farming experience. Some are seeking to homestead (grow their own food) on land they own, while others are serious about establishing a farm business. Cooperative Extension has a long history of advising beginning farmers and, since 2009 Groundswell Center has been offering a variety of new farm business training classes. In the past three years there have been 36 farm business training graduates that have gone on to start farm businesses.

Key challenges for beginning farmers are identifying profitable niches that are not already filled by other producers and acquiring farming equipment and suitable land. Very few seek financial services to get started; many start out with very limited resources, which is a good risk management strategy during the startup years as they gain experience with production and marketing. Business development from the point of getting started to generating income is seven years on average. This transition requires financial assets to start with (savings, family support, off-farm job), acquisition of land, infrastructure and equipment, and production and marketing knowledge. Tenacity, hard work, and good management are essential traits for success.

Beginning farmers associated with family farming operations have added, distinct challenges. While these individuals have more experience in farming, their key challenges are the cost of transitioning an established farm business to the next generation. The younger generation in a family farm operation must slowly acquire the business assets in order to make it financially feasible to transition the business. Farm transition and estate planning are critical to assisting with these conversions.

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Part III Land Use Development and Policies

A. Land Use Development

1. Development patterns and implications for agriculture

The pattern of development in Tompkins County still shows signs of traditional development including that within neighborhoods of the City of Ithaca, and in most village and hamlets. Suburban development patterns along with low-density, scattered development became much more common in the second half of the 20th century. The development of formerly open lands, including agricultural lands has degraded water resources and influenced transportation choices. Between 1995 and 2012, the amount of developed land in Tompkins County increase by 25 percent, or 6,000 acres, while population increased by 5 percent. Nearly 90 percent of the newly developed lands were outside established centers. The agricultural community is quick to note that this style of development complicates how and where agricultural land is worked, and also drives up the competition for and cost of land. This tension is particularly obvious in the northern portion of the county, including the Town of Lansing.

Though there has been substantial loss of active agricultural land across the county since 1969, the majority of land removed from agriculture has been marginal in nature. This land has been allowed to return to brush or forest or, in some cases, developed for residential or commercial uses. Generally, this has not had much of a negative impact on agriculture, as the best lands have remained part of the agricultural base of the County. However, certain areas of the County, particularly the North Lansing-West Groton ARFA, the eastern edge of the Northwest ARFA, and the southern reaches of the Northeast ARFA closest to the Village of Dryden are under growing development pressure and are susceptible to loss of farmland and conflicting land uses. Farmland located on State highway frontage (State Routes 13, 79, and 96) has high visibility and access, making it inherently vulnerable to development pressure.

2. Farmland Demand: implications on sectors and farm size

As mentioned earlier in this document, in 2013 agricultural land owners throughout the County saw assessed value increases of 100+%. This is the result of larger agricultural parcels (100-200 acres and more) selling to farmers at prices that are competitive with development prices; agricultural acreage has sold for \$300 to over \$500 per acre. This demand for land is driven primarily by larger dairy and crop farmers who have increasing income as a result of continuing strong markets and a need to acquire additional land to expand. At the same time, the increase in organic dairy and crop production has led to a return to production of previously fallow land.

As less land is available for new and expanding operations, farmers have begun to out-compete each other for available land, both for land purchases and land rentals. This makes it difficult for a new operation to find an affordable parcel of even 30 acres or less, and for smaller operations to hold on to rented land bases without a significant increasing in rental rates.

Overall, it will be difficult for new market growers to find a foothold in the County without a significant financial investment in land. Small farms (owning 150-250 acres) will be able to continue as long as they don't need much, or any, rental land. Dairy and field crop farmers will mostly continue to get larger, and will continue to cross County borders (in both directions) to find the land they need. Mid-size dairy and crops farmers (250-500 acres) will be the group most likely struggling to hold onto the land they rent, as larger operations offer more in rent and purchase the land they currently work.

B. Local Policy: Implications for Agriculture

Tompkins County municipalities are increasingly turning to formal planning mechanisms and official policies to advance farmland protection. It is safe to say that every municipality in Tompkins County is supportive of agriculture; however the ways in which this support is manifested does vary based on municipality size, location, planning support, and regulatory philosophy. This section will

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briefly summarize the activity that has occurred at both the County and local government level. This work includes planning along with specific projects and also regulation.

1. County Wide Planning Efforts

As framed by New York State Law, land use authority resides at the local level, so Tompkins County government's role in farmland protection remains at the planning and project levels. Building from the 1996 Tompkins County Agriculture & Farmland Protection Plan, the County has led a number of agricultural planning initiatives. Those efforts include, but are not limited to, the following.

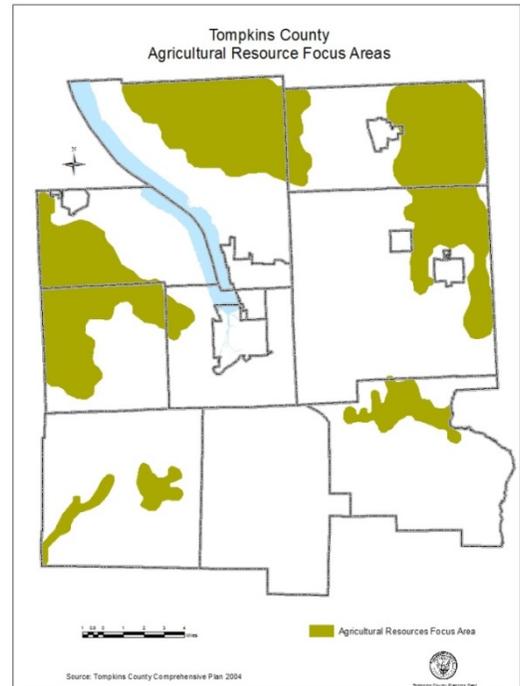
Comprehensive Plan and Agricultural Feature Focus Areas

The basis for this planning work was established in the Tompkins County Comprehensive Plan (2004) which has recently been updated (2015). Among other things, the County Comprehensive Plan recognized the Agricultural Resources Focus Areas (ARFAs) as key areas for protection. These areas were further examined as a part of the development of the County Conservation Plan which identified the need for countywide agricultural actions. This led to a formal Conservation Strategy adopted by the County Legislature that included the following key strategies:

- Prepare a long-range Purchase of Development Rights Implementation Plan to actively market the program to farmers in the ARFAs and identify farms that are suitable for the program
- Conduct a feasibility study for a Transfer of Development Rights Program with interested municipalities
- Promote specific land use tools that protect important lands
- Develop an Agricultural Planning Referral Program to help farmers and municipal planning boards conduct agricultural land planning
- Create a pilot program to connect farmers with landowners of agricultural properties that are for lease or sale
- Proactively engage owners of land that is located in priority protection areas to participate in long-term conservation programs
- Promote stream corridor protection efforts
- Create a long-range conservation funding strategy to support land acquisition, purchase conservation easements, and manage and monitor conserved land resources

The County Hazard Mitigation Plan

A further County Planning effort was the update of the County Hazard Mitigation Plan. This update examined 22 natural and technological hazards affecting Tompkins County including the impact of climate change on these hazards. Tompkins County agriculture was one of the major industries that received a hazard impact analysis. Potential impacts ranged from the increase in invasive species, extreme temperatures, and drought. Farmers are already responding to warmer temperatures of the past few seasons by raising longer season crops, more hay cuttings per season, and growing longer season varieties. Drought and excess rain will prove to be more of a challenge. Some farmers lack adequate pond resources for irrigation and there are many crops in the area that are not normally irrigated. Additionally many farmers report that old tile drains installed many years ago are no longer functioning properly.



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2. Regional Sustainability Plan

In 2013, Tompkins County, in partnership with the counties of the Southern Tier, developed the Cleaner Greener Southern Tier Regional Sustainability Plan (<http://www.nyserda.ny.gov/All-Programs/Programs/Cleaner-Greener-Communities/Regional-Sustainability-Plans/Southern-Tier>). The Plan established 18 goals and outlines a detailed strategy for a future that is economically prosperous, environmentally sound and socially responsible. Those goals connected with *Working Lands and Open Space* include protecting best management of fields, forests and farmland, as well as, preserving and connecting natural resources and open spaces. It further notes 65 actions that together have the potential to reduce regional greenhouse gas emissions by over 32 percent within 20 years. Two of the high priority actions related to agriculture include “supporting the development of processing and distribution facilities (Food Hubs) for local and value-added products” and “develop a regional program to promote sustainable forestry and wood products.” These actions are intended to help the region meet greenhouse gas emissions reduction goals, but also help reinvigorate the rural economy where natural systems are protected and quality of life is enhanced

3. Tompkins County Economic Development Plan

The Tompkins County Economic Development Strategy includes a focus to:

- Connect agriculture to value-added food production to increase financial returns to farmers
- Ensure succession of farms to new farmer ownership
- Develop financing models to support agriculture and food production
- Encourage shared infrastructure for agriculture and farm commodities storage, processing, and distribution

4. Town-Level Land Use Planning

Local municipalities have a broad range of tools available to them, including local land use regulations. Many of these planning mechanisms, and municipal involvement, are summarized at right:

Planning Mechanisms for Tompkins County Jurisdictions*										
Plans	Jurisdiction									
	Town of Caroline	Town of Danby	Town of Dryden	Town of Enfield	Town of Groton	Town of Ithaca	Town of Lansing	Town of Newfield	Town of Ulysses	Tompkins County
Comprehensive Plan	'06	'03	'05	'02*	'05	'93*	'06*	'13	'09	'04*
Local Ag Plan	No	No	No	No	No	Yes	Yes*	No	Yes	Yes
Agricultural Zoning	No	No	Yes	No	No	No	Yes	No	No	No
Cluster Zoning	No	No	Yes	No	No	Yes	No	No	Yes	Yes
Important Ag Areas Identified in Plan	Yes	Yes	No	No	No	Yes	No	Yes	Yes	Yes
Open Space Plan	No	No	No	No	No	Yes	No	No	No	Yes
Policies/Ordinances										
Zoning/Land Use Codes/Restriction	No	'05	'95*	No	'11	'03	'04	No	'07	No
Subdivision Regulations	'00	'07	'12*	'06	'70	'96	'04	No	'07	No
Property Set-back Ordinance	No	No	Yes	No	No	*	No	No	Yes	No
Right-to-Farm Law	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No
Site Plan Review Requirements	No	'05	'96	'96*	'97	'00	'04	No	'07	No
Active with NYS PDR	No	No	Yes	No	No	Yes	Yes	No	No	Yes
Local PDR Program	No	No	No	No	No	Yes	No	No	No	No

*Due to a lack of farmland the City and Villages are not included in this analysis.

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A cursory review of the Local Comprehensive Plans throughout Tompkins County reveals a mix of different strategies and actions. Most discuss broad support for enhancing agricultural viability, though few provide specific actions to implement this viability. Some plans like the Towns of Groton and Danby call for the further definition of land use regulations to help support agricultural operations. Most local comprehensive plans, including the Towns of Caroline, Danby, Ithaca, Newfield and Ulysses, identify and map key areas for protecting farmland. Those communities that have undertaken Town level agricultural plans (Ithaca, Ulysses, and Lansing) have prioritized actions for advancing local agricultural protection and enhancement.

Right-to-Farm laws have been enacted in every Town in Tompkins County, though in reviewing town planning documents most jurisdictions indicate an interest in making these laws more impactful. One of the ways Towns have achieved this is by integrating the right to farm law directly into the Town's rural agriculture zoning district language. For communities without zoning, other strategies such as integration of the right-to-farm law into planning documents, site plan review or subdivision regulations might serve as an added avenue to promote the law and importance of agriculture in the Town.

Land Use Regulations

For those communities with zoning (Ulysses, Ithaca, Danby, Groton, Lansing, and Dryden) more tools are available for farmland protection. When designed properly, zoning can be advantageous to protecting agriculture. Examples of key provisions in agricultural zoning districts include broad definitions of farming to help support the diverse nature of farming in Tompkins County now and into the future; a very clear "purpose" of the zoning district which outlines the intended permitted uses and those that are not compatible with agriculture; allowance for direct market farm businesses, such as farm stands, within these zones, etc..

Municipal Comprehensive Plans & Agriculture

Throughout the County, municipalities are planning for agriculture in diverse ways. As examples, the Town of Dryden's comprehensive plan includes an appendix on developing strategies for supporting agriculture; specifically, PDR, TDR, tax benefits for current use, and agricultural exemptions.

The Town of Groton's comprehensive plan identified the goal of enhancing agricultural economic viability through land use (farm-based agricultural allowance, cluster, smart subdivision), protecting key agricultural land uses, and better integration of agriculture into local government policy making. They also expressed an interest in developing new crops and markets.

The Town of Lansing is actively developing its own town-specific agriculture and farmland protection plan, which includes specific farmland protection and enhancement strategies. Prior to that effort, the Town comprehensive plan which is currently being updated, included goals and objectives to protect farmland, businesses that are compatible with agriculture, and establishing a rural zoning district that is supportive of agriculture.

The Town of Ulysses has adopted a town-specific agriculture and farmland protection plan that recommends establishing an agriculture committee, further identifying critical agricultural lands to protect, and supporting expansion of direct marketing opportunities including agri-tourism.

The Town of Newfield finalized its comprehensive plan, which won an Upstate New York American Planning Association planning award, in 2013. The plan recognized the importance of agricultural and forestry resources in the ARFAs within the Town. They further identified an interest in increasing the viability of agriculture, CSA farm development and pickup locations, a directory of agricultural enterprises, value-added operations, preservation of large sections of farmland, a farmer advisory committee, and improved farmland access through leasing.

The Town of Enfield's comprehensive plan identifies the importance of preserving swaths of farmland and promotion of a diversity of farming operations. Enfield is predominantly agricultural, and has not felt significant development pressure yet, but is seeing an increase in new construction of homes and businesses along the Town of Ithaca border given the lack of zoning compared to the neighboring towns of Ithaca and Ulysses.

The Town of Ithaca developed an agriculture and farmland protection plan in 2011 and includes a host of prioritized actions for supporting the town's remaining agriculture. One of the plan's

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suggestions was having a dedicated staff person to facilitate questions from the agricultural community. The Town's comprehensive plan includes recommendations affecting agriculture, including active implementation of PDR, enlarged setbacks between agriculture and non-agricultural uses, requiring space for community gardens in new developments and promoting household food production. An active Town Agriculture committee has been moving forward with implementation of many of the actions recommended in the Town's Ag plan.

The Town of Caroline's comprehensive plan supports farming and forestry through the identification of key protection areas and broad goals of promoting the best agricultural lands, enhancing healthy woodlands, and developing strong lumber markets.

The Town of Danby comprehensive plan recommends greater involvement of agriculture in municipal planning, investigating added agricultural tax relief, conservation easement options, farmland access through lease support, developing an open space protection plan, and reviewing current zoning to identify its impact on farmland.

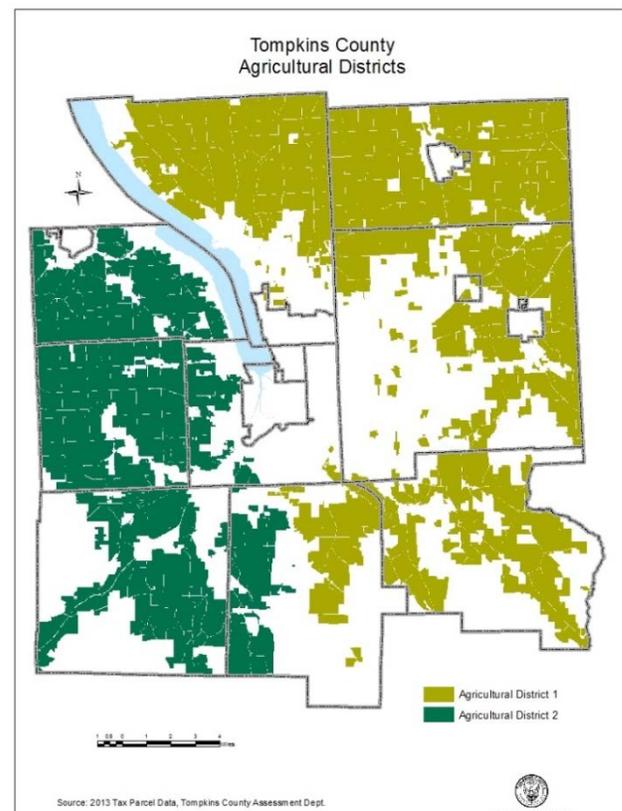
C. State Policies and Local Agriculture

1. Agricultural Districts

Other County planning efforts that support agriculture have included the coordination of the County Agricultural Districts which include over 169,000 acres in two separate districts. New York State Agricultural District law (Article 25-AA of the Agriculture and Markets Law) recognizes that agricultural lands are an important and irreplaceable natural resource that is being lost to development, high costs of doing business, and some regulatory constraints, and that certain actions can be taken to retain lands in agriculture. It authorizes the creation of local agricultural districts pursuant to landowner initiative, preliminary county review, State certification, and County adoption. The purpose of agricultural districts is to encourage the continued use of farmland for agricultural production. The law provides a combination of landowner incentives and protections, all of which are designed to forestall the conversion of farmland to non-agricultural uses. Benefits include: preferential real property tax treatment (agricultural assessment and special benefit assessment), protection against overly restrictive local laws and government funded acquisition or construction projects, and private nuisance suits involving agricultural practices.

The State Department of Agriculture & Markets Division of Farmland Protection manages the certification of new districts and the review and recertification of existing districts. State certification confirms that a district meets the purposes and intent of the Agricultural District Law and all eligibility criteria described therein. Districts are reviewed for recertification every 8 years at which time the County recommends properties for removal or inclusion (the State certifies all changes for district continuation). Properties can be added to districts annually but removed only during the 8-year review.

The Tompkins County Agriculture and Farmland Protection Board, along with the full County Legislature, are responsible for conducting reviews of agriculture districts in Tompkins County. A locally-added step in the review process is to meet with Town Boards to ensure that local land use plans and agriculture district boundaries remain compatible and to inform local officials about the provisions of the Agriculture District Law as it relates to local laws.



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Provisions of the NYS Agriculture & Markets Law, Section 305a - Agriculture Districts

Agricultural Assessment

One of the most important benefits of the NYS Agricultural Districts Program is the opportunity for farmland owners to receive real property assessments based on the value of their land for agricultural production rather than its development value. The Department of Agriculture and Markets uses a Land Classification System based on soil productivity to calculate agricultural assessments for individual farms. Farmers qualify for Agricultural Assessment if they operate seven acres or more that has been farmed for two years, and they generate \$10,000 in agricultural product sales. Landowners may qualify for agricultural assessment if they have a written five-year lease with a farmer who qualifies for agricultural assessment. To receive the exemption, farmers and landowners renting land to farmers fill out a soils worksheet to classify their soil and then apply each year by April 1st with County Assessment.

Notice of Intent

Another important provision of the NYS Agricultural District Law is the mandate it places on state agencies, local governments, and public benefit corporations to avoid or minimize adverse impacts to farm operations when pursuing projects within an agricultural district that involve either the acquisition of farmland or the advance of public funds for certain construction activities. Agriculture & Markets staff conducts detailed reviews of Notice of Intent documents provided by project sponsors and recommend mitigating action where necessary. Such projects cannot proceed until the Notice of Intent process is completed.

Restrictive Local Laws

NYS Agricultural District Law protects farm within an agricultural district against local laws which unreasonably restrict operations. Agriculture & Markets staff, together with Department legal staff, reviews 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 works with local government to develop mutually acceptable modifications. If local government is unwilling to modify a restrictive law or agree to not enforce it on a plaintive farmer, the Department is authorized to take legal action to compel compliance with NYS Agricultural District Law.

Sound Agricultural Practices

The NYS Agricultural District Law also authorizes the NYS Agriculture Commissioner to issue opinions, upon request, concerning the soundness of specific agricultural practices. If the Commissioner determines that a practice is sound, it shall not constitute a private nuisance. In order for a practice to be considered sound, it must be legal, not harmful, necessary, and supported by expert guidance or opinion. Cornell Cooperative Extension educators or Soil and Water District staff may be called upon to issue an opinion regarding sound practices.

Agricultural Enterprise Determinations

Under Section 308(4), the NYS Agriculture Commissioner is authorized to issue an opinion on whether particular land uses are agricultural in nature.

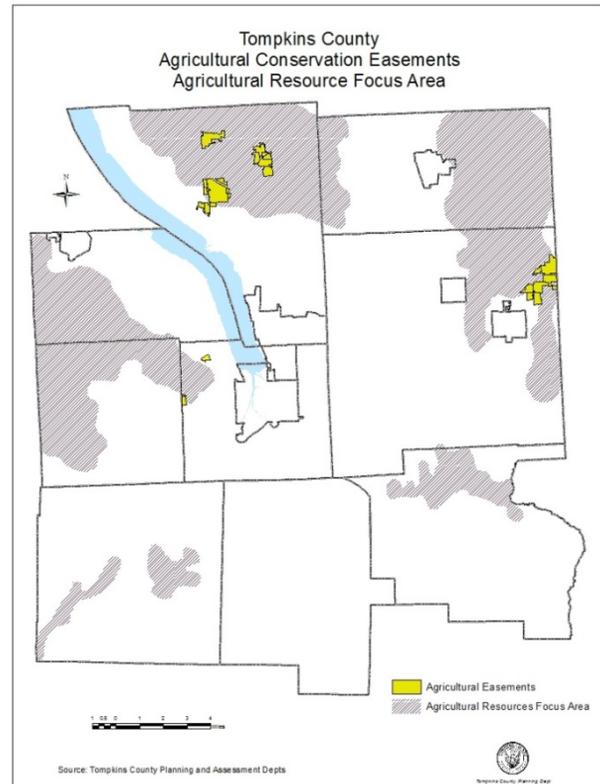
Tompkins County Agriculture and Farmland Protection Plan

2. Farmland Protection

The County Agriculture & Farmland Protection Board (AFPB) has been active in educating farmers about the NYS Farmland Protection Program funding for the Purchase of Development Rights (PDR). AFPB has a process by which farmers can submit a pre-application to the AFPB for review. Then when state funding is available, the board will contract farmers, review and prioritize applications based on how closely they meet the state program criteria.

The County program, which utilizes state funding, has worked with seven farms in the Towns of Lansing, Dryden, and Ithaca to permanently protect over 2,200 acres of important farmland in the ARFAs. The Town of Ithaca has also coordinated the implementation of its own local PDR program in the protection of an additional farm. Other municipalities and farm families are considering this for its function of protecting and reinvesting in their farmland.

Given the increased competition for State funds, the strongest candidate farms, those with high development pressure, high quality soils, and strong agricultural operations should be proactively engaged to increase the likelihood for continued PDR funding in Tompkins County. A summary of those farms protected through the state program is noted below.



Summary of Farms Protected Through New York State Purchase of Development Rights Program

Farm Name	Municipality	Acreage
Howser Farm	Town of Lansing	439 acres
Bensvue Farm	Town of Lansing	951 acres
Lew-Lin Farm	Town of Dryden	432 acres
Jerry Dell Farm	Town of Dryden	375 acres
Ithaca Organics	Town of Dryden	45 acres
Indian Creek Farm	Town of Ithaca	42 acres

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Part IV Priority Goals, Strategies, and Actions

A. Priority Areas for Farmland Protection

1. Location of Areas Proposed for Protection

Tompkins County has important, high quality farmland worthy of protection. Some of those lands provide a wider range of benefits than others. The lands of highest value, and locations proposed for agricultural protection, are those of highest quality soils and contiguous active, working farmland. The maps of highest priority lands for protection are noted on to the right.

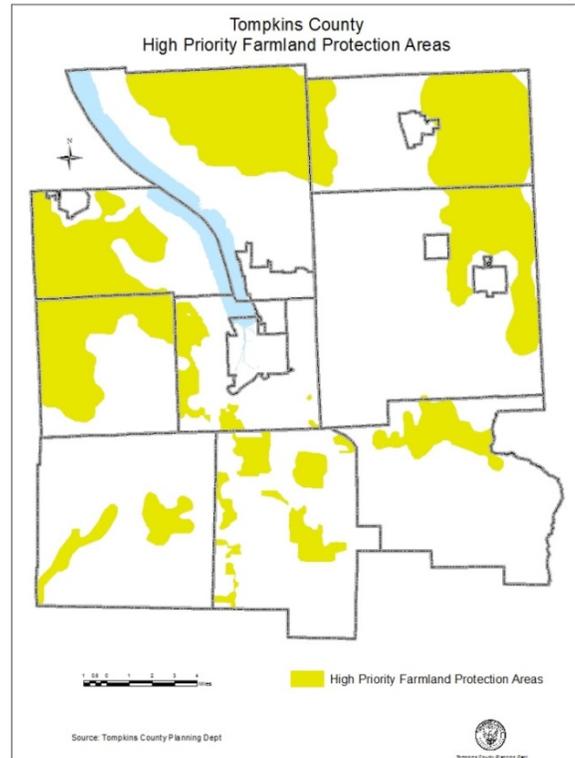
At the core of these lands are the Agricultural Resource Focus Areas (ARFAs). These six agricultural areas were identified in a 2002 countywide study, and detailed in Part II of the County Conservation Plan¹, which captured the highest concentrations of quality agricultural soils and contiguous, actively-farmed land. Although this study is over a decade old, these areas, which extend into almost every municipality and include 63 percent of all farm operations in the county, still remain the core basis for local agricultural operations. Of these areas, the North Lansing-West Groton ARFA remains the highest quality and is also at most risk from development.

Combined with the ARFAs are the *Locally Important Agricultural Areas* which are locations designated by municipal comprehensive or farmland protection plans as areas of highest agricultural worth by local communities. The County Agricultural Farmland Protection Plan recognizes the importance of these locally designated areas. Special care should be taken to preserve the land that supports agriculture in those areas. Actions should include proactive efforts include support for acquiring agricultural easements in these areas, very careful scrutiny for any non-farm development proposed in these areas, and support for agricultural uses in these areas. Together the *Locally Important Agricultural Areas* and ARFAs constitute a total of 89,960 acres and represent the *Tompkins County High Priority Farmland Protection Areas*.

There remain lands outside the *High Priority Farmland Protection Areas* where farmland protection efforts should also be supported, though perhaps not focused. These areas include lands that fall within Agricultural Districts 1 and 2 and farmland either owned or rented that is assessed for agriculture. Rental lands continue to be of particular concern for long term protection as very few are under long term leases despite the fact that they provide critical land that supports agricultural operations.

2. Value to Agricultural Economy of the County

The vast majority of the 90,774 acres of farm base noted in the 2012 USDA Census of Agriculture is located within the 89,960 acre *High Priority Farmland Protection Area*. This base of 558 farms is noted as producing \$67,391,000 in total agricultural sales. The total value of those agricultural properties within the protection areas is \$191,525,409. Conversion of these lands to non-agricultural



¹ For more information on the Agricultural Resource Focus Areas (ARFA) visit the Tompkins County Planning Department Webpage at <http://www.tompkinscountyny.gov/planning/rural-resources> and the appendix which summarizes ARFA actions.

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use effectively eliminates that portion of the agricultural economy, perhaps forever. Protecting working landscapes not only protects the economic contribution agriculture makes to the rural economy and rural jobs, but also provides open space and natural areas found on or near farms.

3. Open Space Value

Tompkins County's agricultural lands form the backbone of the local rural economy and provide quality of life amenities, such as scenic viewsheds, rural character, and open space. Agricultural lands make up a significant portion of the Finger Lakes region. Much of the county's tourism industry, which in 2013 generated \$2.15 million in room tax revenues, is reliant on the landscape; those scenic resources framed by active farmland. On top to this, farms play a vital role in connecting natural areas that assist in creating wildlife corridors, stream buffers which filter water and stabilize soil to increase water quality. All of these functions are difficult to quantify, but farmland's open space value is core to the identity and economy of Tompkins County.

4. Consequences of Possible Conversion

With large parcels (100+ acres) continuing to be bought up quickly by farmers, the land most vulnerable to development is that which is in parcels of less than 50 acres, especially if it is partly wooded, divided up by hedge rows, difficult to access, and/or isolated from likely purchasers. These parcels are often found within or in proximity to existing agricultural land, and although it will take time for them to be fully developed into residential properties, when and as that is happening farmers will experience more neighbor and community complaints. Farmer will also have more difficulty accessing available land, as farmland becomes more fragmented.

5. Level of Conversion Pressure

Farmland road frontage in Tompkins County is slowly being converted to non-agricultural uses, with most of this activity occurring predominately in the Towns of Lansing and Dryden. Development in communities that are largely agricultural, such as Enfield and the western half of Ulysses, may be less noticeable, as one or two houses a year seeming to have little impact in those agricultural areas. However, as zoning restrictions in other communities further restrict what and where people can build, people will more frequently look a little further out for a place to build their home.

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B. Vision, Goals, and Actions for Strengthening Tompkins County Agriculture

1. Vision and Purpose

The Vision for Tompkins County Agriculture is a diverse (small and large, variety of enterprise types) and viable farming sector that contributes local food and agricultural product sales resulting in employment and economic activity. Established farmers plan for the future and new farmers can access land and other resources to grow their businesses. Farmers follow sound agriculture practices that protect the environment and contribute to the rural quality of life and scenic landscapes. Consumers and local policy makers value the contributions that agriculture makes and support policies that allow for the continuation and expansion of farming enterprises.

The purpose of the Tompkins County Agriculture and Farmland Protection Plan is protect, preserve, and provide support for farmers to sustainably manage agricultural resources; to maintain and enhance their contribution to food and other agricultural production in Tompkins County; and to support current and future farmers in maintaining economically successful farm operations. This can be accomplished by prioritizing and guiding the actions of county and town governments, agricultural agencies, businesses, farmers, and the community at large in responding appropriately to the needs, conditions and opportunities that will maintain a viable agricultural economy in Tompkins County.

The Mission of the Tompkins County Agriculture and Farmland Protection Board is to encourage farming in the County through local initiatives which create favorable conditions that allow farmers to operate economically viable enterprises.

2. Goals, Objectives and Priority Actions

Agriculture Economic Development

Goal: Support a diversity of viable farm businesses.

- Objective 1: Link farmers to business and marketing opportunities that enable them to expand, diversify, increase the value of their products, and contribute to the viability of the local and regional farm economy.
- Objective 2: Assist interested producers with securing funding for infrastructure and other improvements to address high priority economic development needs.
- Objective 3: Assist interested farmers in evaluating their capacity for agri-tourism and provide necessary training, collaborative packaging and promotion assistance. In addition, expand and promote culinary and agri-toursim opportunities and support the implementation of the County Agri-Culinary tourism strategy plan.
- Objective 4: Create a comprehensive central access point for information that will help farmers locate services, supplies, facilities, regulatory requirements, grants and other funding sources, and other programs that will improve farming operations and reduce costs.

Short Term Priority Actions

- Action 1: Conduct agritourism assessments on interested farms (USDA AMS grant submitted for this purpose).
- Action 2: Establish a dedicated website clearinghouse of resources identified by farmers during focus group meetings (refer to chart in appendix).
- Action 3: Pursue funding via state and federal sources to address the High Priority Agriculture Economic Development needs (see appendix A for details).

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Local Foods

Goal: A vibrant local food system based on local food production supported by local purchasing that enables producers to grow and thrive.

- Objective 1: Expand local and regional marketing opportunities by identifying products in demand and linking producers with buyers.
- Objective 2: Work with area distributors and food hubs to build relationships and capacity to serve area farmers.
- Objective 3: Help secure funding for on-farm and common infrastructure needed by farmers to increase the market season, add value to products, and reduce costs (as per High Priority Agriculture Economic Development needs – Appendix A).
- Objective 4: Promote local food purchasing options to consumers and address barriers to local food consumption.

Short Term Priority Actions

- Action 1: Facilitate farmer-buyer connections to increase local product presence in area stores, restaurants, and at other retail and wholesale outlets.
- Action 2: Provide Good Ag Practices (GAPS) and food safety training for farmers selling to outlets where this assurance is required.
- Action 3: Pursue innovative direct marketing opportunities such as workplace wellness programs for CSA distribution.
- Action 4: Evaluate and strengthen the role farmers' markets play in local foods marketing and their contribution to farm income (USDA SARE Grant submitted).
- Action 5: Increase use of SNAP and FMNP benefits at farmers markets through additional outreach.
- Action 6: Initiate a Buy Local Campaign (including an online searchable database, promotion, and farm events) to raise consumer awareness of where and how to buy local foods (Grant submitted to Park Foundation). Prepare a local foods exhibit in conjunction with the Sustainability Center (Fall 2015).

Farmland Protection, Land Use Policy and Regulations

Goal: Farming is supported through local land use policies and actions that protect farmland, allow the development of diverse farming enterprises, avoid increased costs of doing business, and ensure access to quality farmland for future farming.

- Objective 1: Work with municipal officials to ensure state and local regulations, including NYS Agriculture District Law provisions, are clear as to their role in protecting farmland and working farms.
- Objective 2: Ensure that there is active involvement and input from the agriculture community on matters pertaining to local land use policy and long range planning.
- Objective 3: Facilitate protection of farmland through the use of permanent easements and prepare a long-range Purchase of Development Rights Implementation Plan in high priority farmland protection areas.

Short Term Priority Actions

- Action 1: Offer training and tours of local farms for local municipal officials that satisfies state municipal training requirements and improves their understanding of farming activities, farmland protection tools, and the NYS Ag District Law.
- Action 2: Advocate that towns establish agricultural advisory committees and encourage their involvement in review of municipal decisions that impact agriculture.

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- Action 3: Encourage municipalities to develop comprehensive plans with strong agricultural sections or town based agricultural plans.
- Action 4: Reach out to farms in the high priority protection areas to explain the protection options afforded by agricultural easements through the State Purchase of Development Rights (PDR) Program in addition to easement development outside of the PDR program.
- Action 5: Explore options for building a County conservation funding strategy that addresses the need for key conservation and farmland acquisitions.
- Action 6: Conduct the 8 year review of Agriculture District #2 as per the required 300 day review period (to be completed by June 7, 2016).

Agriculture Awareness

Goal: A high level of community awareness and appreciation of sustainable farming practices and agriculture's contribution to the economy, rural life, scenic landscapes, natural resource preservation, agritourism and local foods.

- Objective 1: Involve the farm community in active outreach via media, tours, events, classroom visits, town meetings, neighbor networks, meetings with elected officials, etc. to raise awareness of agriculture's impact and needs; provide training as needed to improve farmer communication skills.
- Objective 2: Focus on educating youth about farming and where food comes from - encourage development of FFA, Agriculture Education, and 4-H agriculture clubs in schools; support hands-on learning through initiatives like school gardens, the Youth Farm Project, farm internships, etc.; provide teacher training.

Short Term Priority Actions

- Action 1: Provide farmers with tools and information on how to improve neighbor understanding of farming activities.
- Action 2: Update the Living in the Country brochure for distribution to realtors and rural residents in Ag Districts.
- Action 3: Meet with the Tompkins County Sheriff's Office to gain a better understanding about farm complaints they receive; identify ways to resolve them.
- Action 4: Identify a core group of farmers who are willing to be part of a "Speakers Bureau"; provide training and reach out to groups to inform them about the opportunity to have a farmer speak at group meetings.
- Action 5: Utilize a variety of outreach strategies to educate the public about road safety and farm equipment e.g. farm safety week ads, PSA's, exhibits at community fairs, etc.
- Action 6: Identify strategies for more effective teacher and school-based programming that help educators and students gain a better understanding of local and national agriculture issues.
- Action 7: Sponsor annual events such as Farm City Day, farm tours, Agstravaganza, and other such activities that provide opportunities for community families and youth to learn about farming.

Environmental Conservation

Goal: Farmers follow sustainable farming practices that protect natural resources and mitigate negative environmental impacts on soil, water, ecology, wildlife, and people while increasing resilience to address climate change and environmental challenges over the long term.

- Objective 1: Promote sustainable farming and forest management practices that protect the environment and contribute to carbon sequestration. Work should include the increased

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adoption and funding of Best Management Practices on farms as well as stream corridor protection efforts.

- Objective 2: Provide farmers with research based information to help them prepare for emerging invasive species and impacts of climate change.
- Objective 3: Link farmers to funding and programs that improve farm energy conservation and maximize farm-based renewable energy production opportunities.
- Objective 4: Coordinate Tompkins agriculture plan efforts with regional plans related to forest resources, conservation and farmland land protection.

Short Term Priority Actions

- Action 1: Ensure that farmers are aware of NRCS and other programs that provide funding for implementation of conservation practices. Raise awareness and increase participation in these programs by county farmers.
- Action 2: Work with municipalities, the farm community and rural landowners to advance projects that reduce property risk from stormwater while not contributing to flooding on surrounding land uses.
- Action 3: Identify and share key strategies for addressing changes in climate as it pertains to farm operations
- Action 4: Work with rural landowners and farmers on effective eradication methods for addressing invasive species
- Action 5: Encourage farmers to sign up for energy audits and direct them to funding sources for improvements.
- Action 6: Identify farmers interested in investing in renewable energy, biofuel crop production, vegetable oil extruders, pellet production, etc. and if appropriate host a workshop to explain appropriate funding opportunities.
- Action 7: Include information on conservation practices and funding sources, land leases, hunting leases, forest management resources and methods of determining appropriate land rental rates on the website of farming resources to be created.
- Action 8: Conduct a benchmark study of farming practices that reduce pesticide use, improve fertility management, and other practices that minimize environmental impacts of farming.

Future Farmers/Workforce

Goal: People interested in farming will become successful future farmers or farm employees.

- Objective 1: Promote farm transfer options to farmers and encourage them to plan for future transfer of their farm to family members or non-family farmers.
- Objective 2: Help beginning farmers gain access to training and mentoring programs (such as Groundswell and TC3's Sustainable Farming program), farming experience and expertise, land, markets, and other services that help them successfully establish and build a viable farming enterprise,
- Objective 3: Educate area youth interested in farming about career opportunities by connecting them with agriculture clubs and programs and on farm experiences.
- Objective 4: Provide training on a variety of labor management and regulatory topics (webinars for self-directed study) that helps farms become more effective employers.
- Objective 5: Identify resources/training tools for all farmers to utilize in providing safety training for farm workers.

Short Term Priority Actions

- Action 1: Host a workshop focused on the integration of the next generation, related or non-related, into farm operation and ownership.

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- Action 2: Provide in-depth business training for newer farmers and provide one-on-one consulting as needed (Groundswell & Cooperative Extension partnership)
- Action 3: Conduct outreach to school guidance counselors to help connect youth with an interest in agriculture to area programs that provide training (4-H clubs, FFA, BOCES New Visions, Youth Farm, Ithaca Children's Garden – Teen Urban Farmers, etc.)
- Action 5: Work with NYCAM and local farmers to identify farm safety training tools and share these with farmers via newsletters and meetings.
- Action 6: Ensure farmers are aware of OSHA rules and understand what an inspection entails.

Note: the above list of actions has been synthesized from a much larger list of specifics steps suggested by farmers and that can be found in the appendix as reference to inform the annual work plan of the AFPB in implementation of this plan.

C. Implementation Recommendations

The Tompkins County Agriculture and Farmland Protection Board will take leadership for the implementation of this Agriculture and Farmland Protection Plan by taking the following steps to ensure that priority recommendations are pursued in a timely manner.

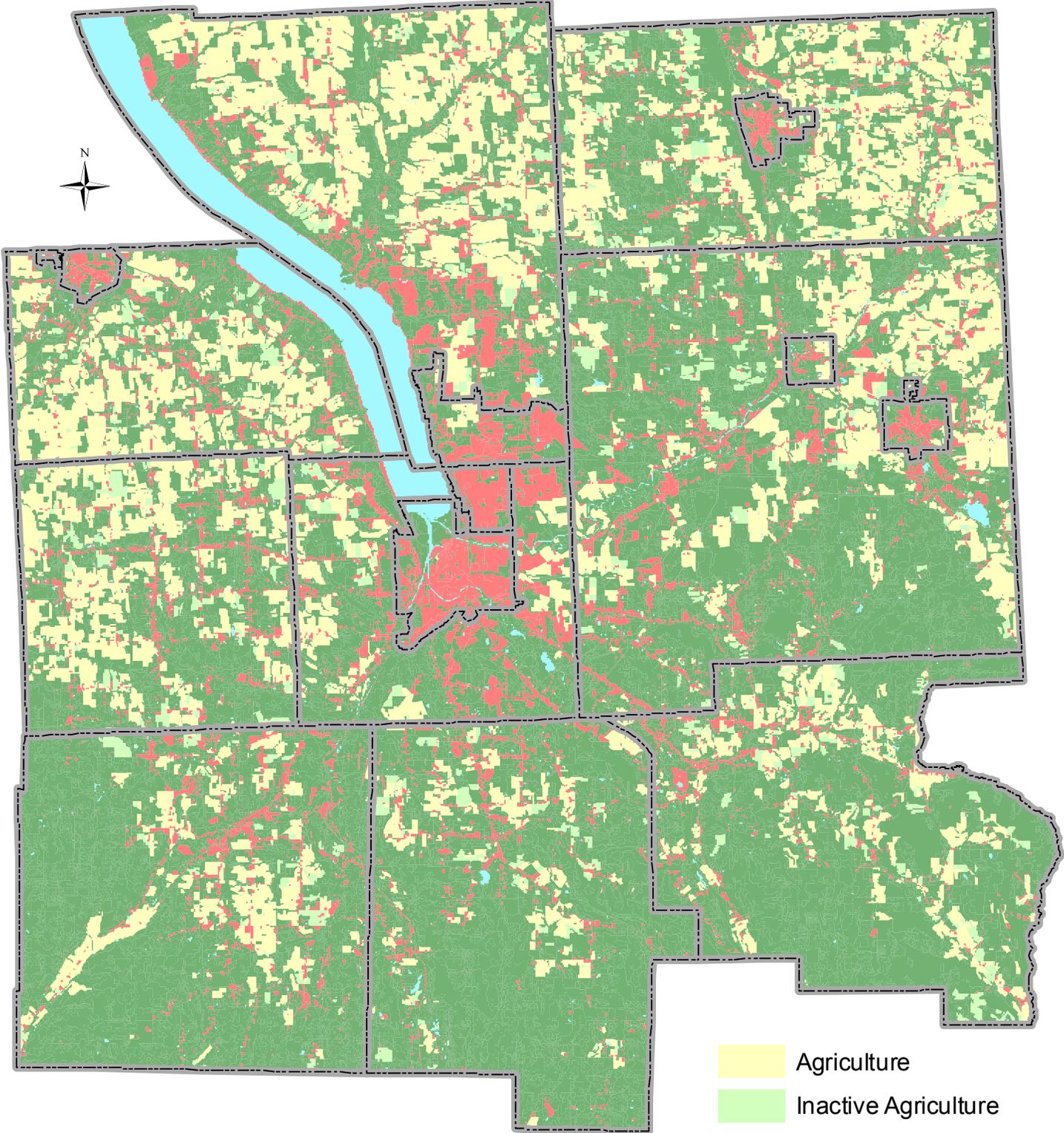
- Develop and implement an annual work plan that addresses issues the farm community has identified in this plan.
- Compile an annual report that summarizes the advancement of actions identified in this plan to be shared with the community.
- Identify those key organizations capable and willing to undertake actions with existing resources including but not limited to the Tompkins County Agriculture and Farmland Protection Board itself, Cornell Cooperative Extension of Tompkins County, Tompkins County Planning Department, town officials, and town agricultural committees, County Soil and Water Conservation District, Federal and State agency partners (NRCS, FSA, Rural Development, NY Department of Agriculture & Markets, DEC, NYS Economic Development), Farm Bureau, Groundswell Center for Local Food & Farming, TCAD, Cornell, TC3, and others.
- Evaluate plan progress.

Monitor emerging issues and adjust the annual work plan accordingly as needed.

Part V Tompkins County Agriculture and Farmland Protection Plan Maps

1. Tompkins County Land Cover
2. Tompkins County Agricultural Assessed Land: Owned and Leased
3. Tompkins County Agricultural Districts
4. Tompkins County Agricultural Conservation Easements and Agricultural Resource Focus Areas
5. Tompkins County Land Use and Land Cover 2012
6. Tompkins County Agricultural Soils and Priority Protection Areas
7. Tompkins County High Priority Farmland Protection Areas

Tompkins County Land Cover



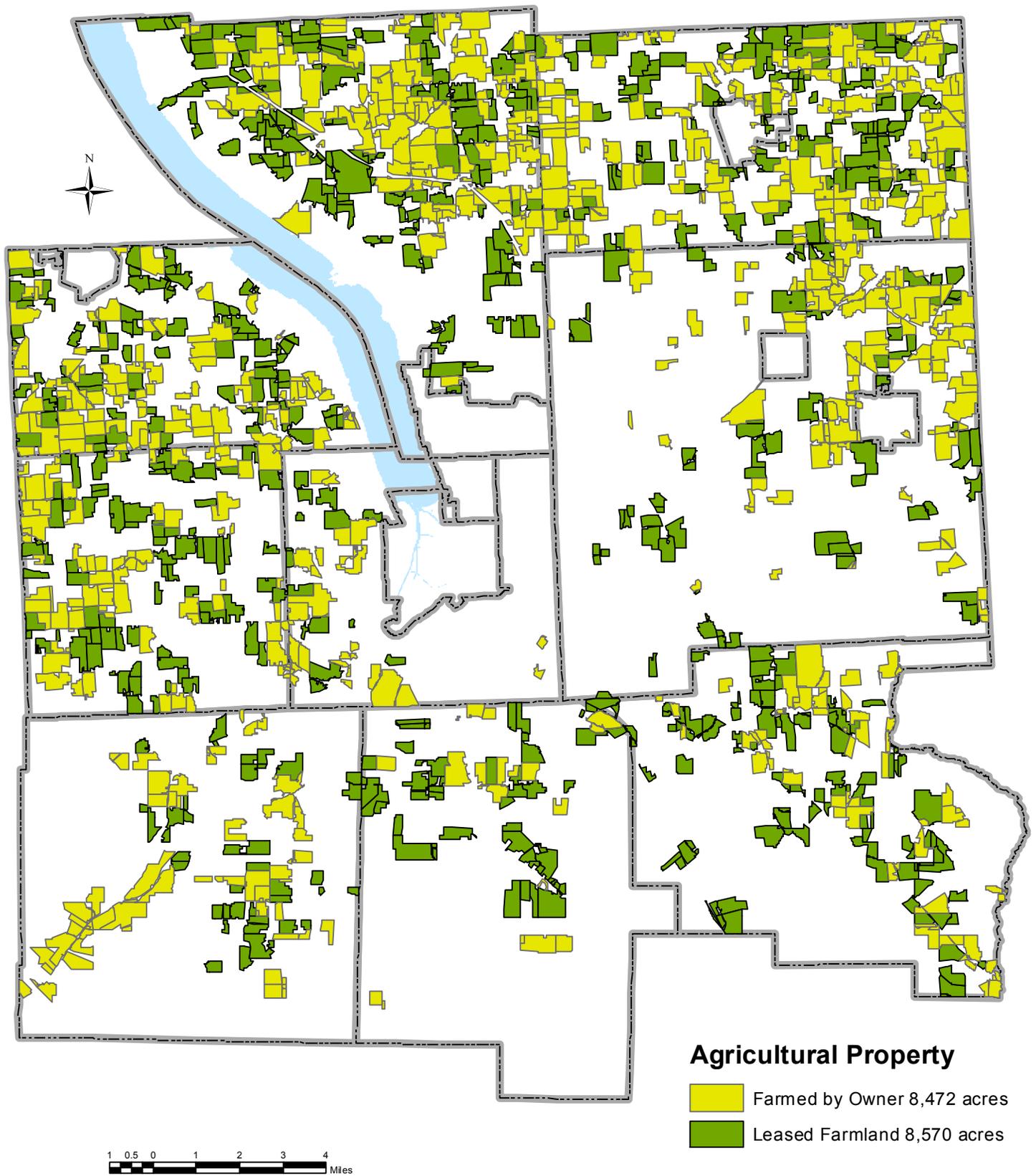
-  Agriculture
-  Inactive Agriculture
-  Developed
-  Natural
-  Water

1 0.5 0 1 2 3 4 Miles

Source: Tompkins County Planning Dept, 2012 Land Use and Land Cover from 2012 OrthoImagery



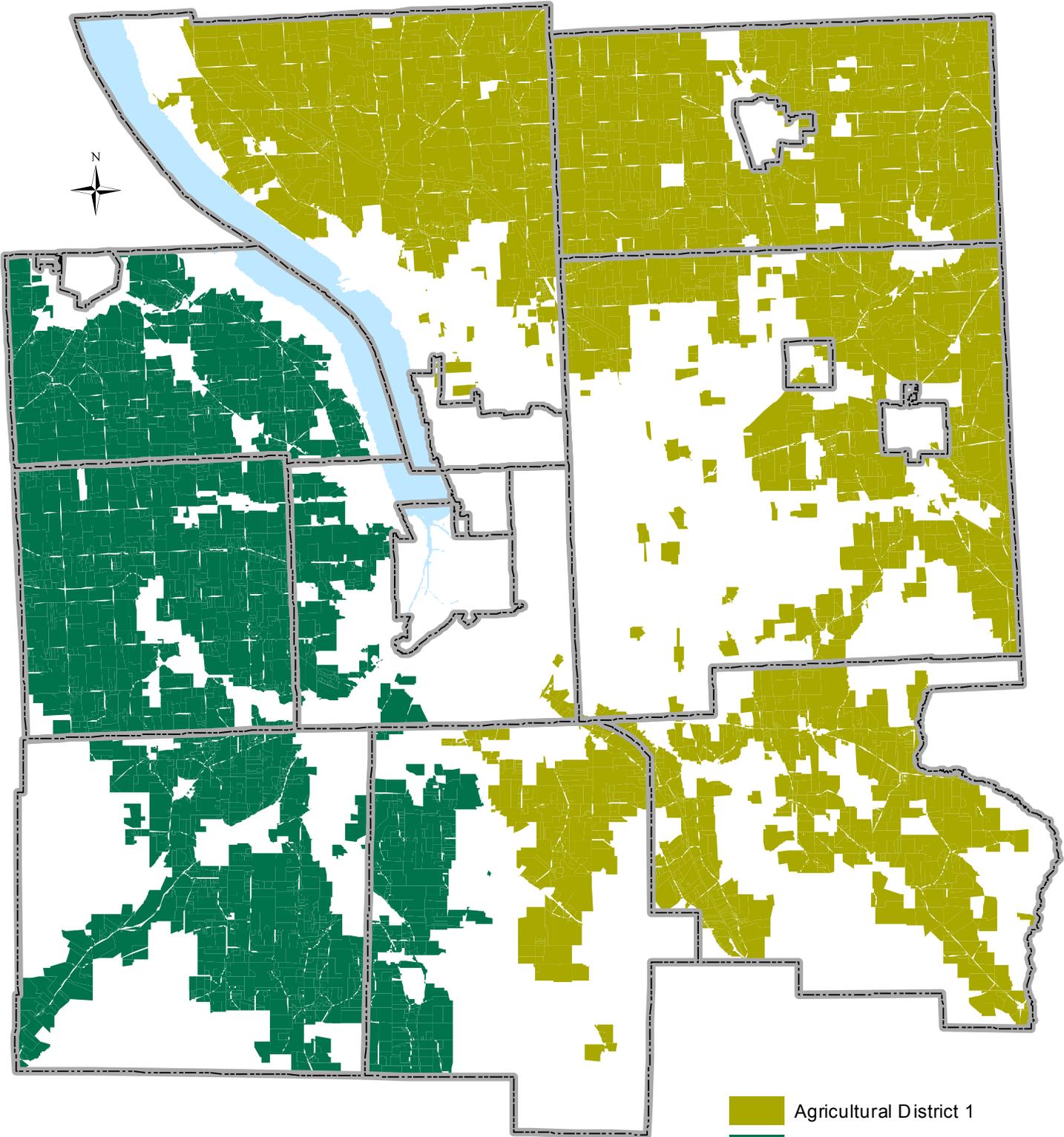
Tompkins County Agriculturally Assessed Land



Source: 2013 Tax Parcel Data, Tompkins County Assessment Dept.



Tompkins County Agricultural Districts



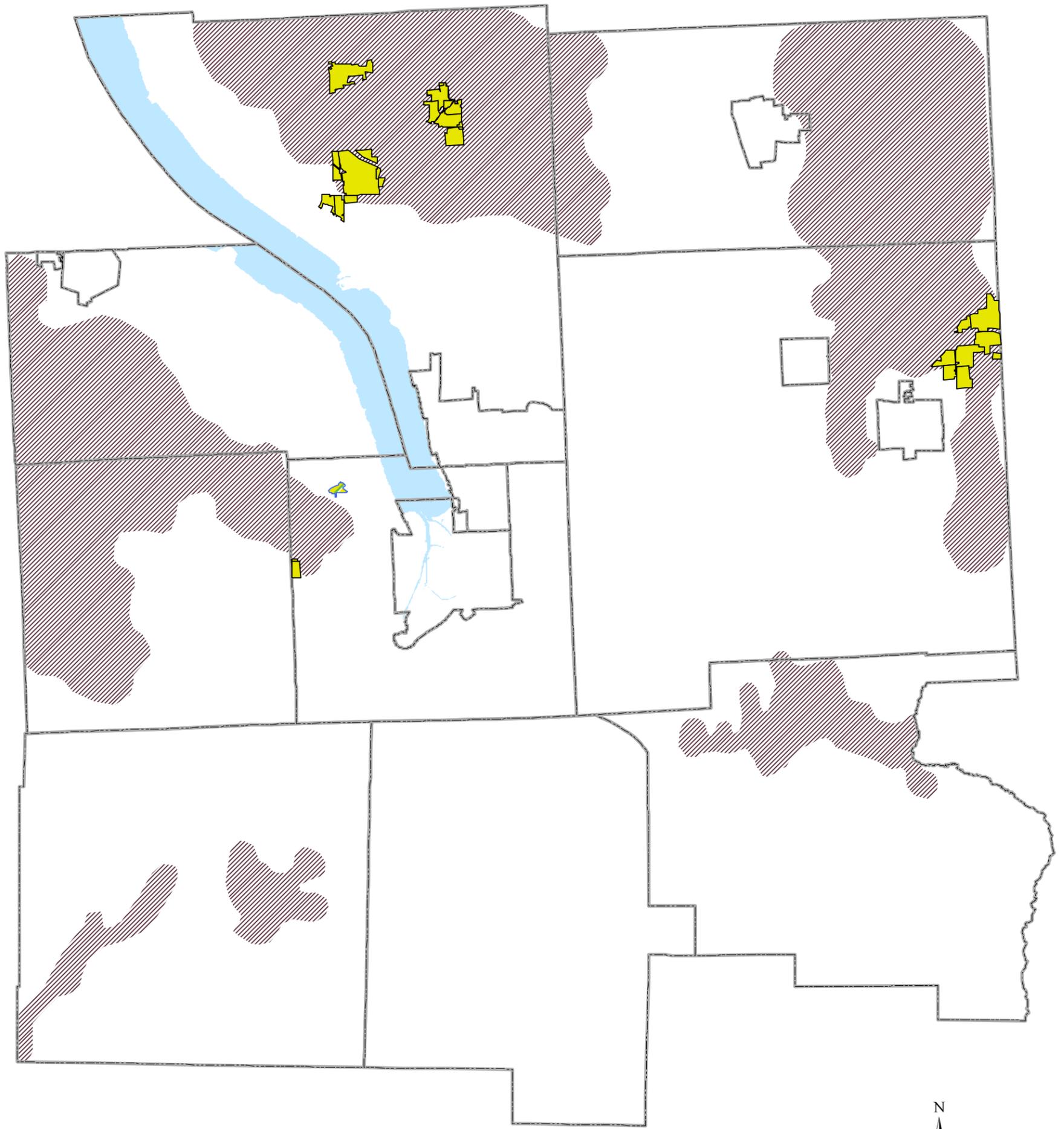
1 0.5 0 1 2 3 4
Miles

 Agricultural District 1
 Agricultural District 2

Source: 2013 Tax Parcel Data, Tompkins County Assessment Dept.



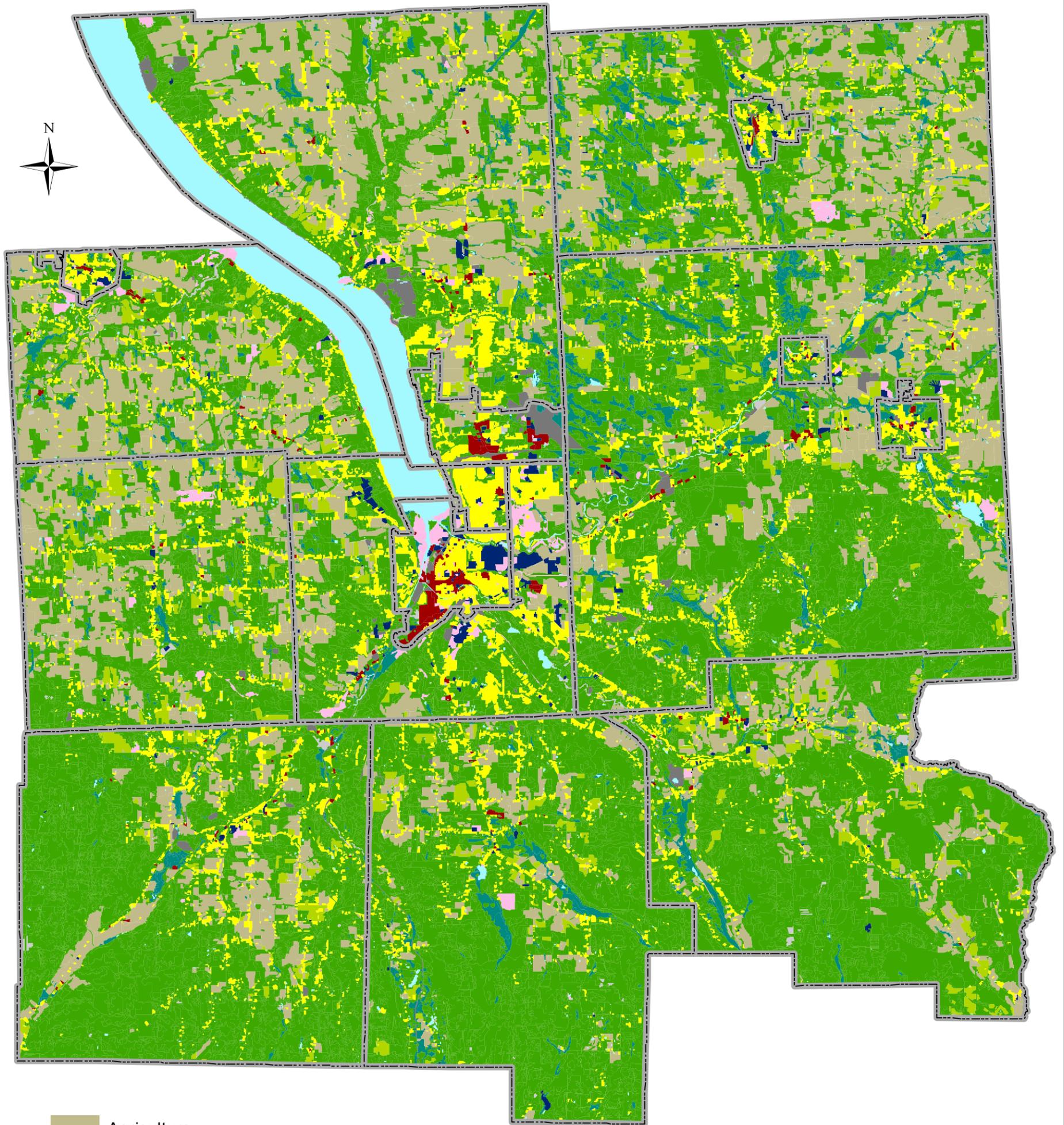
Tompkins County Agricultural Conservation Easements Agricultural Resource Focus Area



-  Agricultural Easements
-  Pending Agricultural Easement
-  Agricultural Resources Focus Area



Tompkins County Land Use and Land Cover 2012



- Agriculture
- Inactive Agriculture
- Residential
- Commercial
- Public/Institutional
- Industrial, Transportation, Transmission
- Recreation
- Barren or Disturbed
- Vegetative Cover
- Wetlands 6,079 acres
- Water 6,079 acres

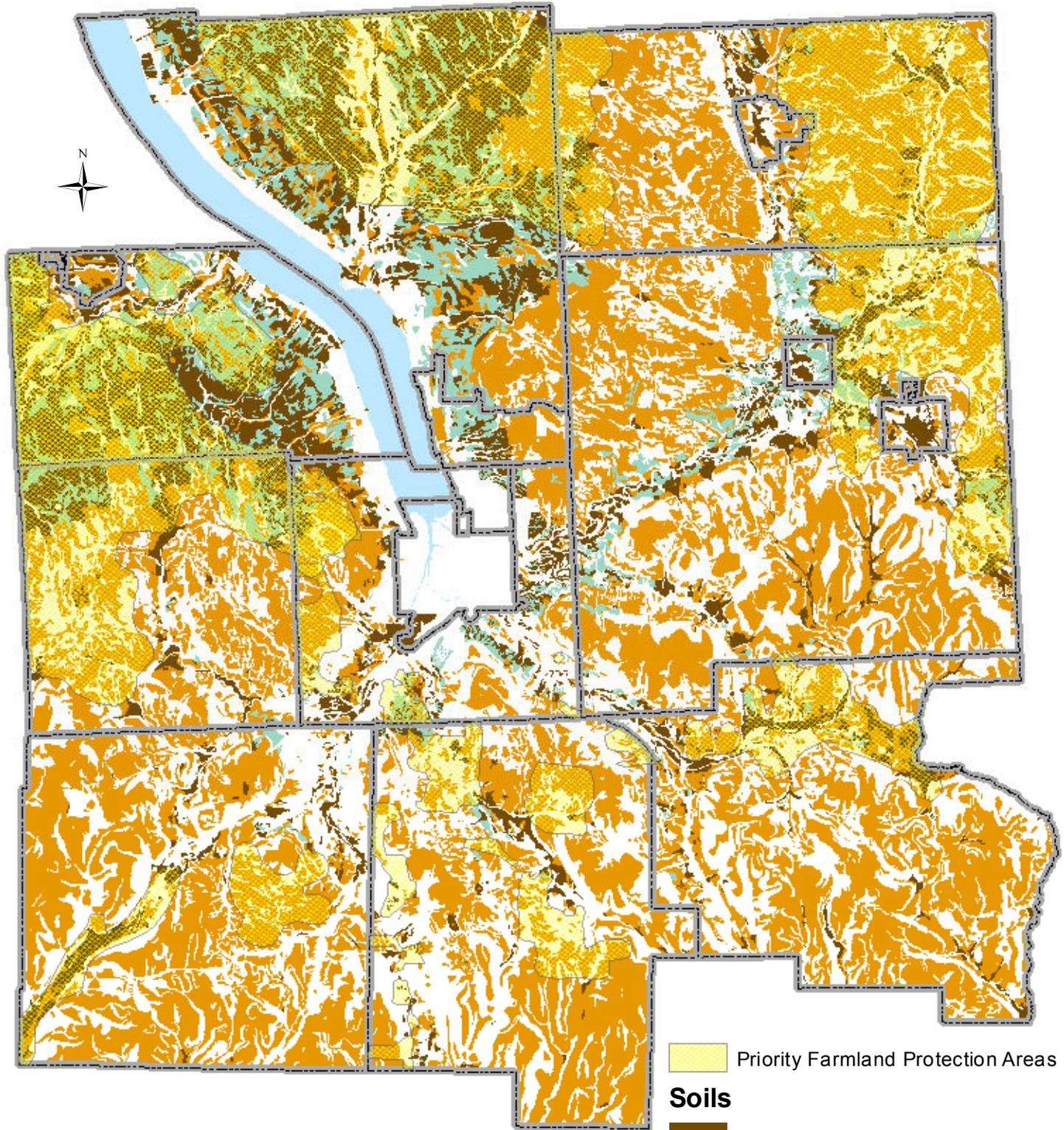
General	1995 Acres	Percent 1995	2007 acres	Percent 2007	Percent Change	2012 acres	Percent 2012	Percent Change
Agriculture	14632	32.70%	13711	30.64%	-6.29%	14728	32.92%	7.42%
Barren or Disturbed	217	0.48%	118	0.26%	-45.52%	164	0.37%	38.92%
Commercial	330	0.74%	423	0.95%	28.28%	441	0.98%	4.07%
Inactive Agriculture	3282	7.33%	1866	4.17%	-43.14%	980	2.19%	-47.48%
Industrial, Transportation, Transmission	1087	2.43%	1094	2.44%	0.67%	1157	2.59%	5.81%
Public/Institutional	190	0.42%	210	0.47%	10.81%	223	0.50%	5.98%
Recreation	215	0.48%	238	0.53%	10.81%	228	0.51%	-4.11%
Residential	3144	7.03%	3995	8.93%	27.05%	4145	9.26%	3.77%
Vegetative Cover	14632	32.70%	16078	35.93%	9.89%	15632	34.94%	-2.78%
Water	6016	13.45%	6059	13.54%	0.70%	6079	13.59%	0.33%
Wetlands	1001	2.24%	952	2.13%	-4.90%	968	2.16%	1.70%



Source: Tompkins County Planning Dept, 2012 Ortho Imagery



Tompkins County Agricultural Soils



1 0.5 0 1 2 3 4 Miles

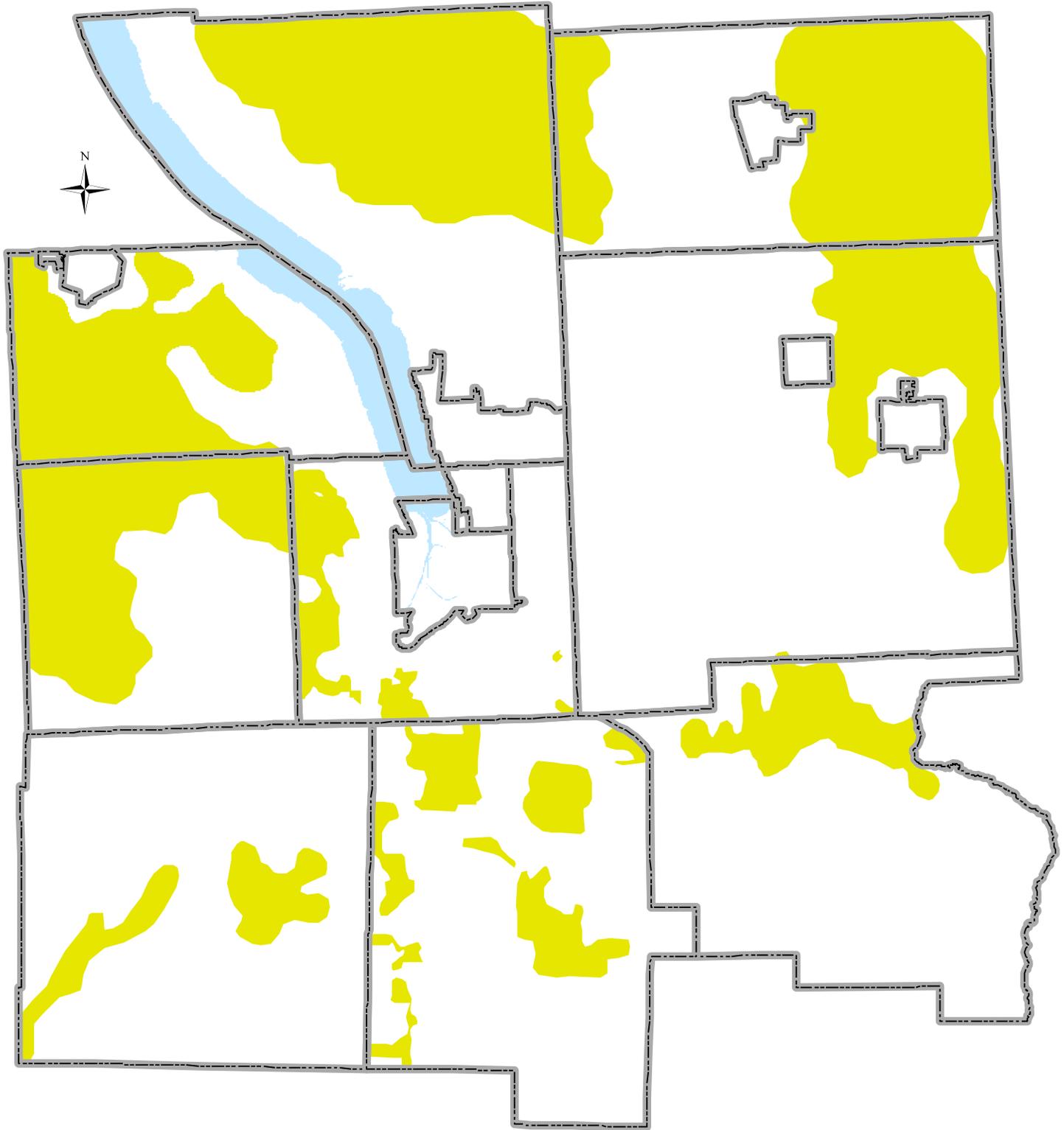
-  Priority Farmland Protection Areas
- Soils**
-  All Areas Prime Farmland
-  Farmland of Statewide Importance
-  Prime Farmland if Drained

Source: Tompkins County Soil Survey 1965



Tompkins County Planning Dept

Tompkins County High Priority Farmland Protection Areas



1 0.5 0 1 2 3 4 Miles

 High Priority Farmland Protection Areas

