



Madison County Agriculture and Farmland Protection Plan

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Madison County Farmland Protection Board

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INTRODUCTION

Agriculture has been the mainstay of the economy of Madison County for the past 200 years. In dominating the economy, it carved out an agricultural landscape that still exists. Today, both agriculture and its cultural landscape is threatened by the loss of farms, the loss of important agricultural soils, and the loss of important open space. Recognizing these changes, the Agricultural and Farmland Protection Board has developed an Agricultural Protection Plan to address the changes that are taking place in our agricultural economy.

Change in the County's agricultural economy has occurred repeatedly over the years. In general, those changes did not threaten the very livelihood of our farming community. However, the changes taking place today in production agriculture do just that. And the changes to our farming community create a challenge to our overall economic and social well being.

This Plan will examine the changes that have taken over time and the state of the agricultural economy today. It will suggest goals and actions that can be taken to ensure that despite changes in agriculture our farm community can continue to prosper and provide the prosperity necessary to maintain our quality of life.

The conversion of farmland to other uses is a complex and insidious process, often taking place over a period of fifteen or twenty years. It involves such factors as farm profitability, residential growth pressures, land values, personal decisions about work and retirement, community expectations, taxes and government programs, incentives, and regulations.

Generally, the tax returns to the community from the farms are greater than the service or facility outlays they require. This has been shown repeatedly. The American Farmland Trust, for example, estimates that for every dollar spent in taxes in New York State, residential lands receive \$1.32 while agricultural lands receive \$.21 in community-funded public services. Onondaga County estimates that they experienced a net economic loss of almost \$33,000 from the development of 20, five-acre home lots on 100 acres of farmland. Maintaining the land in agriculture could have brought a net gain of \$2,383.

Farming at the local level in Madison County is no less important. Not only is agriculture a major industry in the county but it has a tremendous influence on our quality of life. The value of farm products sold was more than \$81,000,000 in 2001 and as this money circulates through the local economy, it generates another \$240,000,000 worth of business in other sectors. Moreover, Madison County's character, like many rural counties, is defined in large part by the presence and distribution of farmland.

An unusual issue regarding the loss of farmland exists in the muckland area of northern Madison County. This once productive vegetable growing area has seen substantial soil erosion and abandonment of viable productive soil. There has been residential development on the "hard land" fringe of the muck soil areas and a federally financed wetland conversion of a significant number of properties. This issue and the approaches to address local concerns are summarized on page 65 of the Appendices.

In summary, there is great potential in the agricultural, human, and economic resources of Madison County. This Plan provides a framework and a starting point for devising strategies and actions that might mitigate or solve the problems and issues raised.

DESCRIPTION OF MADISON COUNTY

Madison County is located in the geographical center of New York State. It is roughly 20 miles from both Syracuse and Utica and is a part of the Syracuse Metropolitan Area. It covers an area of 656 square miles (423,168 acres).

Madison County's land development pattern is influenced by its two physiographic regions—the Oneida Lake Plain in the north and the Appalachian Uplands in the south. The Oneida Lake Plain is generally level while the Uplands rise abruptly from the plain and consist of rounded hills and broad, deep, and steep-sided valleys (Topography of Madison County, page 32). The population is concentrated in the Oneida Lake Plain with the Appalachian Upland population dispersed throughout the remainder of the County. A majority of the population (54 percent) lives outside of the incorporated boundaries of the villages and the city of Oneida. This pattern has accelerated since 1980, with most of the population growth taking place near these incorporated areas. The County has experienced only modest population growth over the past two decades, increasing from 65,150 in 1980 to 69,166 in 1990, and to 69,441 in the year 2000.

The land use pattern reflects the County's physical and historical geography with about 50 percent of the land in farming and 45 percent in forest. Manufacturing is concentrated primarily in the north in the City of Oneida and the villages of Canastota and Chittenango. Increased manufacturing activity has recently occurred in the Towns of Nelson and Cazenovia, and those areas now rival the traditionally more urbanized areas of the County. A number of agri-businesses serving farmers directly are located throughout the County. Two dairy processing/manufacturing plants – H. P. Hood, Inc. and Queensboro Farm Products, Inc. – are located in the City of Oneida and the Village of Canastota, respectively.

Not surprisingly, the two largest villages –Chittenango and Canastota – and the City of Oneida are located in the Oneida Lake Plain. The remaining 12 villages are found in the valleys of the upland region. The pattern can be easily seen in the topographic map on page 32. The transportation network first developed in these broad open spaces and population growth followed.

The most fertile soils are also found in these valleys and the lake plain. In more recent years this fertile farmland has been reduced through residential and commercial sprawl, and wetland restoration near these population centers and transportation corridors.



AGRICULTURAL OPPORTUNITIES & CHALLENGES

A recent report on Madison County agriculture stated that “the time has come to ‘safeguard the cultural heritage’ of agriculture in a way that places it not so much within a bygone era, but into one which encourages its enterprise in new and different ways.”¹

All county residents share a heritage where agricultural pursuits are valued. Some of agriculture’s most ardent supporters are residents who may have no ancestral or economic ties to agriculture itself, yet they value and appreciate the county’s aesthetic qualities, the products of its land, and the farm community’s enterprise – all which help preserve the county’s rural character and landscape.

In particular, the history, tradition, and economic impacts of the county’s dairy enterprise are worth noting. Dairy farming has remained relatively strong in spite of increasing price volatility, decreasing profit margins and demographic base, and remains an important part of our local economy. With it comes a significant number of agribusinesses which supply inputs and service to all kinds of farm operations. Many of these agribusinesses also purchase, distribute and market dairy and other agricultural commodities and products. Together these business owners benefit from the county’s central location, providing convenient access to other agricultural outlets and services throughout Central New York.

At the same time, individuals in search of new or existing residences also seek the same attributes that businesses need, such as proximity and access to urban and suburban amenities, labor, and services. With real estate so reasonably priced (compared to other areas of the state with similar population growth patterns), there is a growing demand for all real property, including agricultural farmland.

The convergence of agriculturally related enterprise and non-agricultural development in the county is an important reason for developing and implementing projects that will fulfill this Plan. Nevertheless, farm profitability continues to be the most important objective for the long-term preservation of agriculture and its farmland.

To that end, this section calls attention to Agriculture and Farmland Protection in the context of emerging trends and local opportunities that can conceivably will – or already help to sustain Madison County agriculture into the future. What are the characteristics of these trends? Can the challenges be turned into opportunities? Where are they located? How can the characteristics, which encourage agricultural enterprise in new and different ways, be preserved for the benefit of all?

Emerging Trends & Challenges

Small family farms have always characterized Madison County agriculture. During much of the 20th century, Madison County farms consisted primarily of vegetable operations in the

¹ Baase, K.A., *Production Agriculture in Madison County, New York: An Industry in Transition*. (Cornell University, 2000), 103.

mucklands of the Oneida Lake plain and dairy farms in the Appalachian Uplands. However, the conversion of farmland to other uses has occurred more rapidly within the county's northern lake plain – the place where the majority of residents live. This is in contrast to the Appalachian Uplands, where topography often limits the size and expansion potential of the majority of existing farms operations. At the same time, the increase in the number of small farms with less than 200 acres is an unusual, yet recent national and local phenomenon. Therefore, the county's agricultural land resources and its population corridor continue to influence farm size and location.

Over the last decade, a few dairy farms have undergone an expansion, which confounds the small farm phenomenon mentioned earlier. Driven by the advantages of economy of scale, commercial dairies of this size (200 or more milking cows) are increasingly under the scrutiny of government and industry regulators, as well as neighbors. These farms must comply with Animal Feeding Operation rules, emanating from the Clean Water Act of 1972, along with impending air emission rules put forth by the EPA. Moreover, because of the farm's visibility and size, neighbor conflicts can potentially arise over daily operations like fieldwork, manure spreading, and animal handling.

The proportion of Madison County farmers who are approaching retirement is gradually increasing. Within the next decade, the sale of these farms is a logical progression, converting the farms' value into retirement reserves for the owners. The opportunities for these kinds of sales have grown significantly. On the other hand, the percentage of Madison County farmers younger than 54 years of age is larger than in any other contiguous county within Central New York. Given these circumstances, the future of farm tenure may change dramatically unless the transfer of farm businesses within families and to other interested individuals is encouraged and promoted.

The diversity of Madison County agriculture is growing with respect to the kinds of enterprises represented and the characteristics of its owners. Even though dairy farming is the most visible activity because of the extent of its land use, history, and the economic value of its products, a growing number of farmers are part-time operators engaged in field crop and vegetable production, small livestock enterprises, equine, and other less intensive kinds of farm businesses. For part-time farmers, their enterprise choice is more a lifestyle decision than an economic one.

Wind farm and gravel pit development, the leasing of natural gas wells, and the sale of timber from woodlands take advantage of the farm's natural resources and location. As other forms of farm diversification, these opportunities have grown significantly over the last decade

The integration of on-farm processing, marketing, and distribution is another form of agricultural diversification that adds value to agricultural commodities. This movement is influenced by popular culture and social trends, as well as by the farmer's own desire to capture a larger portion of the revenue stream from agricultural product sales. Benefiting from the "locally-produced" phenomenon, which encourages consumers to buy locally, the number of certified organic farms, farmers' markets, U-Pick operations, and community-supported agriculture (subscription farms) has grown tremendously on a national level. Although small in

absolute numbers, the number of Madison County farms engaged in these kinds of enterprises is growing. Local resources that help encourage and facilitate these ventures include Nelson Farms and the Dairy Incubator at Morrisville State College as well as Small Street Co-op in Eaton.

The amount of leisure time available to Americans and their ongoing search for experiential and unusual entertainment is another social trend indirectly affecting agricultural diversity. Robinson & Godbey estimated that the amount of free time available to Americans grew by almost 18% between 1965 and 1997.² With the retirement of “baby boomers” and the county’s proximity to urban population centers, agri-entertainment or agritourism has the potential to be an important agricultural enterprise. Hunting preserves, riding stables, and a variety of farm tours and other on-farm events can provide uncommon experiences for non-farm families and individuals. Madison County’s hops enterprise and the Holstein historical site in Peterboro are other examples of tourism attractions with direct ties to agriculture.

Finally, an observable trend is the growing number of people who inquire, explore and even purchase second residences and open land in Madison County. Many of these potential buyers are from more urban areas, while others are farmers searching for more affordable farmland. Some have attributed this recent interest to the nation’s growing concerns about homeland security and terrorism and have called its influence the “9-11 effect.” These inquiries are the result of an affordable real estate market, the county’s rural landscape, a relatively low cost of living and property tax structure, proximity to urban amenities and services, and the increasing mobility of Americans citizens.

Opportunities

Based on the aforementioned characteristics and trends, it is incumbent on Madison County Farmland Protection Board, local leaders, government officials, and anyone with a stake in agricultural and farmland preservation to consider the following opportunities:

- 1) Sustain Farm & Land Resources
 - a) Identify specific localities
 - b) Describe services, businesses in those areas
 - c) Inventory
- 2) Keep farms in operation
 - a) Recruit new farmers
 - b) Encourage diversification that is consistent with the owner’s lifestyle.
 - c) Develop relationships with organizations that encourage farmland preservation and diversification.
 - d) Provide business and estate planning opportunities
- 3) Inform and engage the public in local agriculture – its history, culture, and practice.
 - a) Build on emerging social and cultural trends – healthy eating, buy local, leisure time and entertainment
 - b) Collaborate with non-traditional entities – private colleges & universities, community groups, historical societies, etc.

² Robinson, J. P. & Godbey, G., *Time for Life: The Surprising Ways Americans Use Their Time*, 2nd ed. University Park, PA. The Pennsylvania State University Press, 1997, p. 343.

HISTORY OF AGRICULTURE³

Madison County has historically been classified as a county with an agrarian-based economy. From the days of early settlement, cultivation of the land and development of related endeavors have always served as countywide sources of pride and industry.

Agricultural history in the county has seen three distinct, yet overlapping phases—grain and hop production, dairying, and vegetable crop farming. Various factors such as market demand, competition, transportation networks, government support, and technology have affected the rise and/or decline of each of these three phases.

A sign of agricultural progress and recognition of the important role agriculture played in the county's development was the formation of the Madison County Agricultural Society in 1841. Enacted by state legislation and supported by an annual allocation of \$120, the Society fostered and promoted agriculture in the county via publications and sponsorship of fairs, cattle shows, and various competitions. By 1852, the Society described the county's agrarian state in *A General View and Agricultural Survey of the County of Madison*. Author Gurdon Evans stated that "with a fertile soil affording abundant means for sustenance and prospective accumulation; it may fairly be claimed for the county, that her sons are prosperous and every improvement of the age is found within her border." In fact, the Society cited the premium county farm in 1851 for its well adapted and maintained buildings, surveyed fields, hydraulic rams, accurate bookkeeping, and "regularity and [efficient] system of a manufacturing business." This farm was operated by Hiram P. Potter of East Hamilton (709). In that very same year, statistics derived from the same publication show that a total of 251,027 acres (about one-half of the county's total acreage) were improved, with the towns of Brookfield and Lenox leading in cultivated area with just over 31,000 acres each. By 1875, more than 301,000 acres would be improved (accounting for approximately 70% of total acreage countywide) and by 1900, more than 90% of the county's land would be cultivated.

In the mid-nineteenth century the average Madison county farmer could learn about developments and current technology through the county agricultural society and publications like the *Genesee Farmer*, *American Agriculturist* or *Rural New-Yorker*. Even more importantly, he could seek out information from several local agricultural societies. As with the county society, the local groups were formed to disseminate literature and sponsor local fairs and exhibitions. Some of the earlier societies formed included one in the town of Stockbridge in the early 1840s; an association of farmers and mechanics in DeRuyter in 1847-48 (they even had a circulating library of 65 volumes); and a group in Brookfield in 1850.

Before the advent of these local societies and the county society, the early county farmers chiefly produced corn, flax, and wheat. Flax virtually disappeared by mid-century and wheat production gradually declined due to superior western competition. Corn continued as a farm staple and an important product for distilleries. Sheep and wool, cheese and butter, barley, and above all, hops, accounted for the main farm products at mid-century.

³ B. J. Giambastiani, ed., *Country Roads Revisited* (Oneida, NY: Madison County Historical Society, 1984).

The first sheep, 200 mixed breeds, were introduced into the county about 1810 by Curtis Hoppin, who also introduced Merino sheep from Massachusetts in the county (1823-24). By 1852, the towns of Brookfield and Madison led the county in sheep raising and wool production. At this same time—and although hop production was in its heyday and grain crops were still important—dairying was introduced. Many felt that the soil was better suited to dairying than cultivation. Eaton boasted of the county's first cheese factory and the towns of Brookfield, Eaton, Lebanon, and Nelson led the county in cheese and butter production. Barley was the principal small grain cash crop and the towns of Lenox and Fenner profited most from this situation. In fact, David Hess of Fenner discovered a new and hardy variety of barley in 1844 which was appropriately called "Hess" barley. Hop production was most successful in the towns of Brookfield, Eaton, and Hamilton.



Hops were first introduced into upstate in 1808 by James W. Cooledge, a Massachusetts native. Securing roots from his neighbors' gardens (New England was the nation's leading hop producer at that time), Cooledge propagated the roots near Madison. He had no idea how explosive an impact his "import" would have, not only on the county's agricultural economy, but also on the state's.

According to *Hop Culture in the United States* (1883) by E. Meeker and W. A. Lawrence, by 1849 the statewide hop production had grown astronomically. New York now was the nation's leading producer, accounting for five-sevenths of the entire U.S. crop. In Madison county, the Agricultural Society released figures in 1852 which revealed the county alone produced 640,000 pounds of hops with the towns of Brookfield, Eaton, and Hamilton collectively accounting for more than half that total. This demonstrated the county's strong leadership in the state and by 1879, Lawrence cited that the county was now officially ranked third in the state, just slightly behind Otsego and Oneida counties. This productivity was of national significance because New York produced more than one-half of the nation's total crop that year. Madison county was yielding an average of 629 pounds per acre which accounted for a total production of 3,823,963 pounds that year.

The growing and curing of hops involved several procedures, tools, and buildings peculiar to the industry alone. Cultivation, usually from cuttings, began in April or May and the hops gradually wrapped themselves about a simple system of hop poles. (This arrangement could also involve various pole supports or be replaced by a stringing system or trellises.) When the hops essential oil reached its peak potential, the ripe hops were picked in Indian summer. Itinerant hop pickers were usually "trained" in to the local depots for the event and everyone, even the women and children, would take part in the harvest. The curing, drying, and sulphuring processes next took place in the barn and kiln before the hops were ready for market.

Many ideas and inventions to increase efficiency and production were conceived of in the county. H. Niles Harrington and Charles Osborne of Peterboro were responsible for a cornbined hop picker and separator in 1878. H. H. Hathaway of Clockville invented a mechanized hop picker in 1880 and exhibited it at the Lenox Agricultural Fair in Oneida. Later in the century, A. S. Hart of Morrisville invented a new type of hop pole which allowed for "no sticking, no pulling, no vines broken in harvesting; [this hop pole] can raise one hundred pounds to the acre more than with any other way of poling." Such was Mr. Hart's own description of the device in an undated booklet he wrote entitled "A.S. Hart, Inventor of the Standard Hop Pole, Low Down Wagon, Horse Railroad, and Heated Omnibus, Morrisville, N.Y."

As might well be expected, any occasion connected with the anticipated processing of hops for ale or beer was met with jubilation and celebration. In 1878, the Hop Growers' Association was formed which enthusiastically sponsored an annual summer picnic to mark the coming harvest. Local Stockbridge historian Olive Boylan noted that "a record breaking 100 kegs of lager beer were sold by Sam Frank, of Oneida, for the 1880 hop growers picnic at Sylvan Beach. This was said to be the largest single day sale ever in Madison County" (20).

As the nineteenth century drew to a close and the twentieth began, there was less cause for celebration. Hop production gradually declined because of blue mould infestation, highly successful western competition, and market fluctuations. By the 1930s the organized hop industry in the county was but a memory.

Silk production was a small but relatively widespread venture during the middle of the hops era. Mulberry trees were grown in the county in the 1830s in Cazenovia, Morrisville, and Perryville and by 1840, cocoons and raw and reeled silk were marketed in the towns of Cazenovia, Eaton, Fenner, Lebanon, Lenox, Madison, Stockbridge, and Sullivan. In 1845, the census shows the total pounds of raw silk produced in the following towns: Eaton, 1; Fenner, 5; Madison, 5; Sullivan, 16. A silk factory was even built in Morrisville in 1853 by F. F. Stevens and Jonathan F. Gurley, but the next decade saw its decline and the demise of the county's silk production. An unsuited climate and withdrawal of tariff incentives insured that local farmers would look to other means to secure a livelihood.

Growing apples and running cider mills became a very thrifty business for several Madison county residents. "Ye olde" cider mills sprung up throughout the county and Samuel R. Mott began his mill (1868-1890) in Bouckville. According to the Duffy Mott Company, the Mott's brand we know today was launched from these humble beginnings.

Although popular, cider and processed apple products would never achieve the widespread attention and monetary return dairying products would in the county. Gradually dairying began to overshadow and eventually replace hop production and other agricultural industry. And, as the development of plank roads, the turnpike network, and the canal system had helped shape the well-traveled route of these products to market, so did the later development of new canals, railroads, and roads aid the dairying industry.

Butter and cheese production were to peak in the 1860s and 1870s, most assuredly due to the Agricultural Society's earlier efforts and recommendations. In 1852, the Society had reported that

Excellent butter is found at most farmhouses, yet the attention given this necessary of life is far too limited for a county of the area and character of Madison... there is an amount of knowledge and skill in the management of a cheese dairy not very readily attainable, hence it may be that the very inferior cheese produced is caused by unskillfulness and error which a few more years of observation and application will remove. And this inferiority must be admitted by those who have a knowledge of cheese and the prices which we obtained /or the article of this county.

By 1866 though, the Second Annual Report of the American Dairyman's Association noted the abundance of quality cheese in the county and the Excelsior factory in Brookfield was the first factory cited. The 1875 Association Report then included 65 flourishing cheese factories in the county, which were to account for production from more than 20,000 cows. Decline came shortly thereafter, however, due to the production of inferior skimmed cheese and market competition from Canada and the mid-west states.

As butter and cheese production waned by the 1880s, milk production and the number of cows steadily increased. The first cattle introduced in the county were from stock originating in nearby Whitestown and New Hartford. John Lincklaen had made the first attempts to breed cattle in the county in the early 1800s from cattle he had obtained through the Holland Land Company. Unfortunately his attempts failed miserably. The Devon bull was then introduced into Hamilton from Oneida County in 1830. The Ackley bull was then bred locally, a cross between a native cow and the Holderness. Shorthorns, Herefords, and Ayrshires were also gradually introduced into the county, but it was not until 1869 that Madison would become nationally known for its very own breed of cattle. In that year Gerrit Smith Miller successfully introduced and bred the Holstein-Friesian cow in this country. In fact, the New York Holstein-Friesian Association honored Miller's historical feat in 1928. A commemorative plaque in Peterboro states that Miller's Dowager #7 produced a record number of 12,681 pounds (8 oz.) milk in the year 1871.

The mechanization of milking greatly improved the production of milk in Madison county. Arthur V. and Ralph L. Hinman invented, developed, and manufactured a very successful milking machine. The Hinman operation was begun in Stockbridge but moved to Oneida in 1909.

Vegetable crop and the associated canning industry make up the third phase of Madison county's agricultural industry. Although alfalfa, grasses, hops, oats, and wheat accounted for more than 50,000 cultivated acres in 1910, the central and southern townships boasted of a blossoming string bean, green and wax bean, and pea production which flourished into the 1940s. Peas were the first canning crop to be grown in the county on a large scale in Earlville, Hamilton, and Morrisville in the 1910s.

West Coast competition and plant lice would quickly destroy this pea productivity, but beans, beets, and corn were planted in Cazenovia, Eaton, Hamilton, and Madison. By 1940, 6,800 acres of beans alone were planted. Migrant laborers were brought up from the South and Jamaica to pick and much of the crop went to local canneries or even New York. The rich alluvial soil in the northern parts of Lenox and Sullivan, referred to as the "mucklands," was once more than 15,000 acres of swamp-land.

In the early nineteenth century, the state had divided the land up into small parcels and, in 1850, the first attempt was made to drain the area when the Douglas Ditch was dug. The County Agricultural Society proclaimed just two years later that the mucklands "have received but little attention or examination, being deemed generally worthless ... [but] ultimately can be converted into rich pastures and meadows". It was not until 1867 and 1875, however, that the Ditch was extended sufficiently to drain enough area to cultivate. Clinton Colton and Dewitt Twogood are credited with being the first to extensively drain the area and, by 1887, 200 acres were cleared. The 1893 USGS map shows that the area was almost entirely cleared and roads were visible, along with a few shacks and houses. Celery and onions were planted and several local celery concerns flourished, including the Canastota, Chittenango, Jenks, Jennings Bros., Lenox, Madison County, and Warner Celery Companies.

Onions became an even more important crop in a short time. As chronicled by Joseph T. D'Amico in his study of the mucklands, *The Italian Farmers of Canastota*, the land, although originally cleared and cultivated by Sullivan and Lenox natives, was gradually taken over by Italian immigrants. Rising from the sharecrop system, Michael Patterelli was the first immigrant to purchase muck in 1902 (D'Amico 42-43). A trend quickly was set and by 1930, 155 immigrants owned more than 1600 acres. Although there were only a few larger farms, the average acreage per owner was less than fifteen. The immigrant's entire family worked the farm—cultivating, planting, weeding and topping. This close-knit guidance helped account for high productivity; in fact, the area assumed the title "Onion Capital of the U.S." in the '30s. Unfortunately, the industry began to wane in the 40's. "Although 1942 was a banner year, all was not smooth sailing... 1943 was a disastrous year due to price controls, bad weather conditions and a shortage of labor. Conditions improved, however, the next year when a bumper crop of food was produced to help feed the Allied Armies," according to Dorris Lawson.⁴

Today, although no longer the leading onion producing region, Madison county still ranks high in the nation and is similarly recognized as a prime potato producer in the northeast.

⁴ Lawson, Dorris. *Italians in Canastota* Canastota, New York: Canastota Publishing Company, 1976.

MADISON COUNTY AGRICULTURE⁵

Production agriculture dominates all land use in Madison County. Yet despite its size and scope on a geographic scale, the County's agricultural base is experiencing profound changes of both an economic and social nature. The following highlights the characteristics of Madison County Agriculture and the changes that have occurred since 1950.

Number of Farms

The 2002 Census of Agriculture reported 734 farms in Madison County. In 1997, the number of farms was revised from 622 to 807 – a number that more accurately reflects actual farm numbers. A farm is defined as any place that sold, or could have sold \$1,000 worth of agricultural products.

Farm number data since 1949 illustrate three general agricultural trends. One is the continuous decline in farm numbers – other than the increase reported in 2002. Another is the growth in farms with more than 500 acres in the latter half of the 20th century. Finally, there is evidence of the growing number of small farms, especially those with less than 179 acres. This trend is evident both locally and nationally, especially over the last ten years. (See Appendices Table 1. Number of Farms in Madison County Distributed By Acres Per Farm 1950-2002, page 58)

Farm Acreage

Three-quarters of Madison County was devoted to agriculture in 1949 compared to 40.1% in 2002. Over the last 53 years, the most dramatic change in farmland use occurred between 1949 and 1974, a period marked by a dramatic drop in farm numbers and at the same time significant advances in agricultural mechanization and technology. These advances allowed farmers to manage fewer acres and still maintain, or even increase total production. However, many farms on marginally productive land came off the census rolls altogether. Thus, there was a significant drop in total woodland and other less production pastureland. During this period, total land in farms dropped 49%. (See Appendices Table 2. Farmland Use in Madison County 1949-2002, page 59).

In 2002, total cropland in both New York State and Madison County made up approximately 65% of all farmland acreage. The most current land use breakdown for Madison County is as follows: 63% cropland, 18% woodland, 10% in other pastureland, and 8% of the land devoted to farmsteads, roadways, and ponds. Currently the average farm size is 229 acres, which is 10 acres smaller than in 1997. For a comparison of the proportional changes in Madison county farmland use, refer to Illustration 1. Change in Farmland Use in Madison County 1950 – 1997.

⁵ Baase, K.A., *Production Agriculture in Madison County, New York: An Industry in Transition*. (Cornell University, 2000).

Land Use in Madison County 1949 - 2002

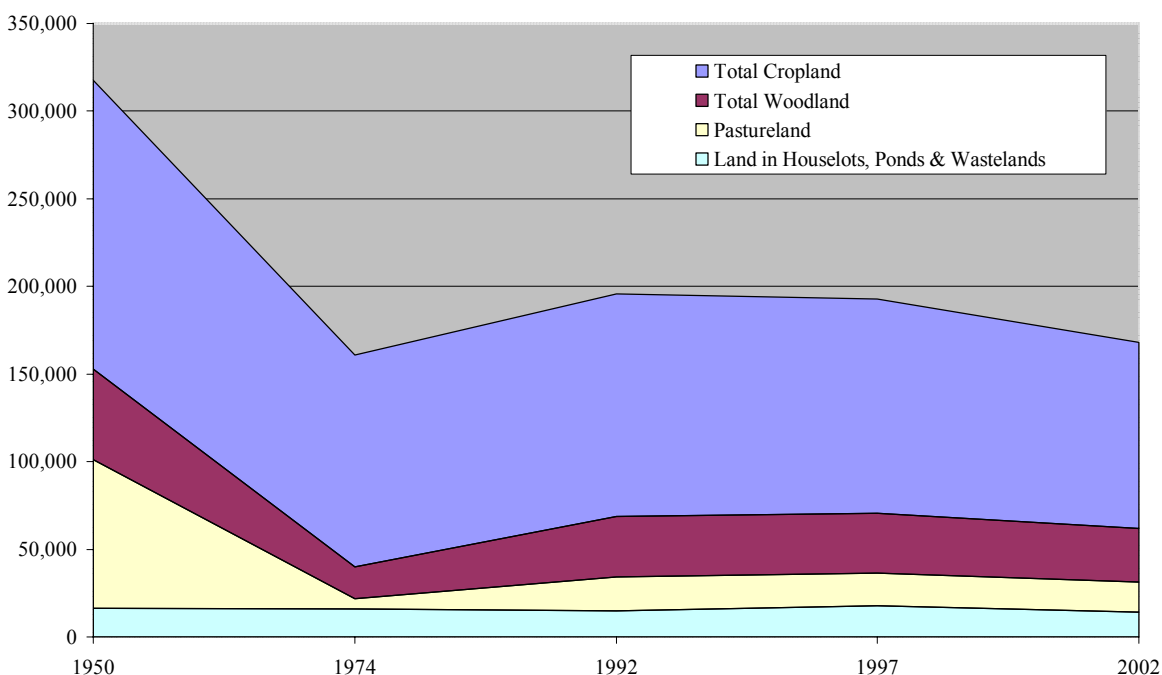


Illustration 1. Change in Farmland Use in Madison County 1949 - 2002

Types of Farms

Market conditions, commodity prices and social trends influence many of the changes in farm enterprises over the last 53 years. (See Appendices Table 3. Number of Madison County Farms Distributed by Farm Classification 1950 – 2002, page 60). Dairy farming, the county's leading agricultural enterprise, continued to decline throughout the period. As is often the case following the dispersal of a dairy herd, the farmer keeps the land and ventures into new or expands existing, less intensive enterprises e.g. hay, small grain production and livestock. Raising dairy replacements is another logical alternative, especially when replacement prices are high. Growth in the horse industry, interest in small-scale poultry and sheep production also influenced the upturn in the number of livestock farms.

Grain prices were moderate in 2002. Therefore, there was little or no economic incentive for farms to grow grain. Yet there were increases in the number of farms growing higher-end crops (Fruit & Tree Nuts and Nursery Products) and hay for the small and part-time farm operations, especially those with livestock of any kind.

Product Sales

Fifty-three years ago, the sales of all agricultural products totaled \$14,794,756 or \$36,247,152 (adjusted to 2002 dollars). (See Appendices Table 4. Market Value of Agricultural Products Sold by Madison County Farms 1949 – 2002, page 61) At that time, milk and dairy product sales made up over two-thirds of all agricultural sales, while in 2002 they represented 80%. In 1949, Dairy Product Sales (67%) was followed by Vegetable Sales

(14%), Other Livestock Products e.g. cattle, calf, and other livestock sales (10%), Other Crops e.g. small grains, fruits, nuts, and forest products (3%), Poultry Products (5%), and Nursery and Greenhouse products (<1%). Compared to Madison County, New York State's product mix in 1949 included only 51% from milk and dairy product sales but similar distributions of the aforementioned commodities and products.

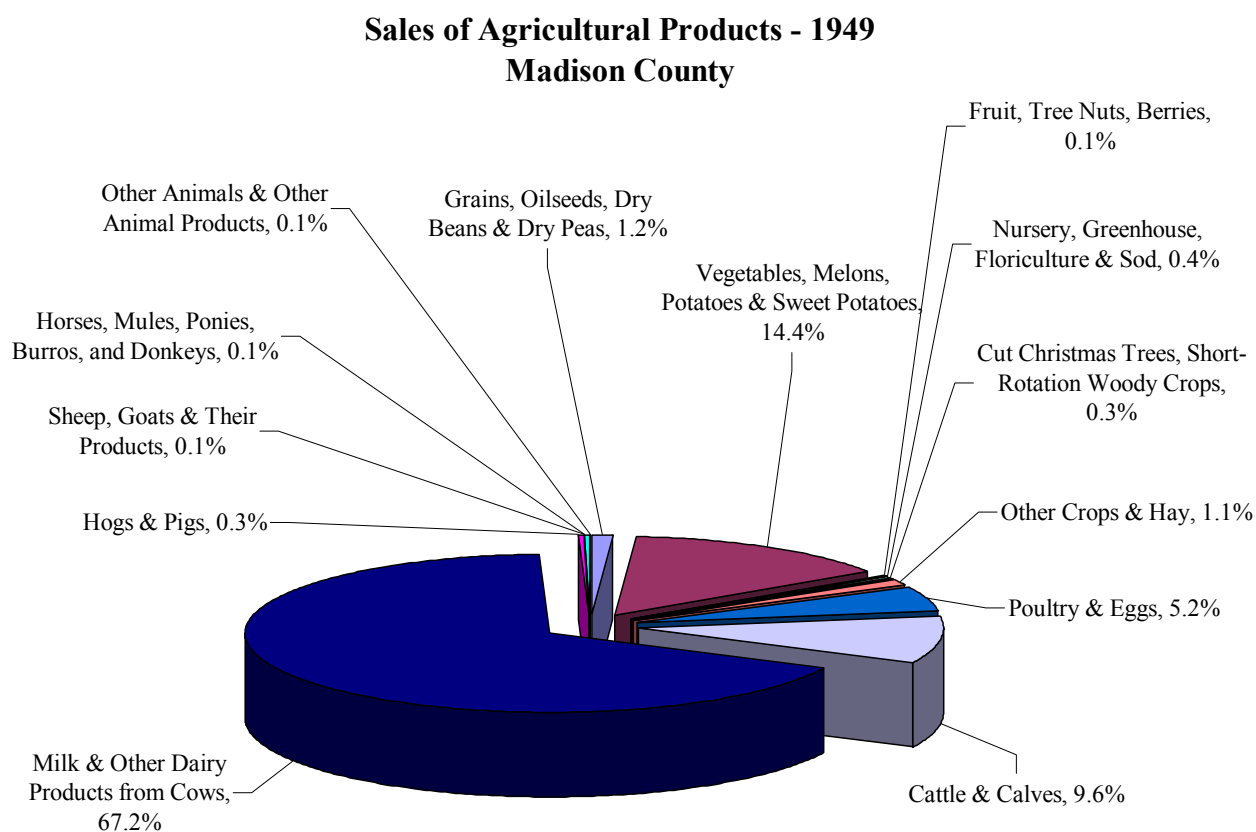


Illustration 2. Sales of Agricultural Products from Madison County, 1949

Sales of Agricultural Products - 2002 Madison County

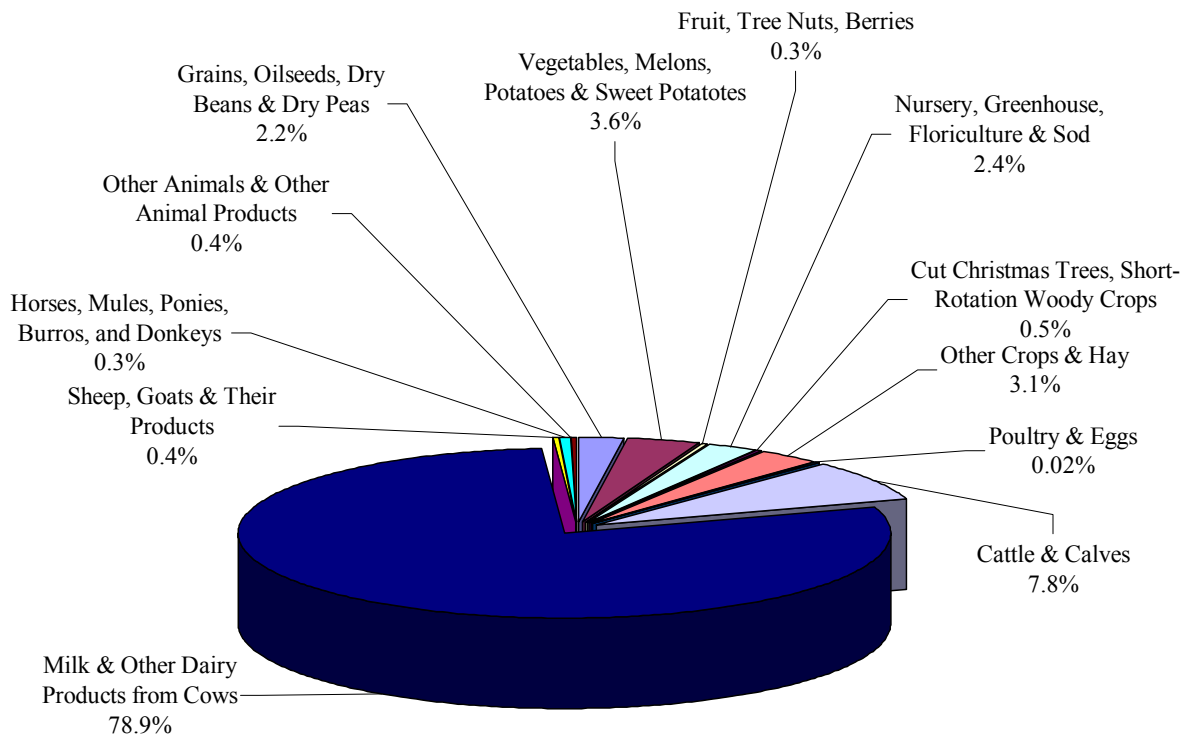


Illustration 2. Sales of Agricultural Products from Madison County, 2002

Overall, the variety – and to a lesser extent – the proportions of agricultural product sales in 2002 from Madison County farms has not changed dramatically over the last 53 years. Milk & Dairy Product sales and Cattle & Calves have always dominated the county's product mix. That domination increased as other enterprises like poultry, egg and potato production fell out of favor in the 50s and 60s. Expanded dairy enterprises took their place. The decrease in potato and other vegetable production on muckland farms is attributed in part to competition from producers in the South and West. Over the last 10 years, the number of farms and acres devoted to “higher-end” products like fruits and berries have increased.

Agricultural Crops

Crop production is an important enterprise on a majority of Madison County farms. In 2002, over 25% of the county's total land base was harvested cropland. More recently, however, Total Cropland Acreage decreased over 13% between 1997 and 2002. (See Appendices Table 2. Farmland Use in Madison County 1949-1997, page 59). Based on anecdotal information, this decline is primarily attributed to an 18-month decline in milk prices. Consequently, many farmers downsized their cropping enterprise because of unfavorable milk price prospects.

Percentage of Total Harvested Acres 1949 - 2002

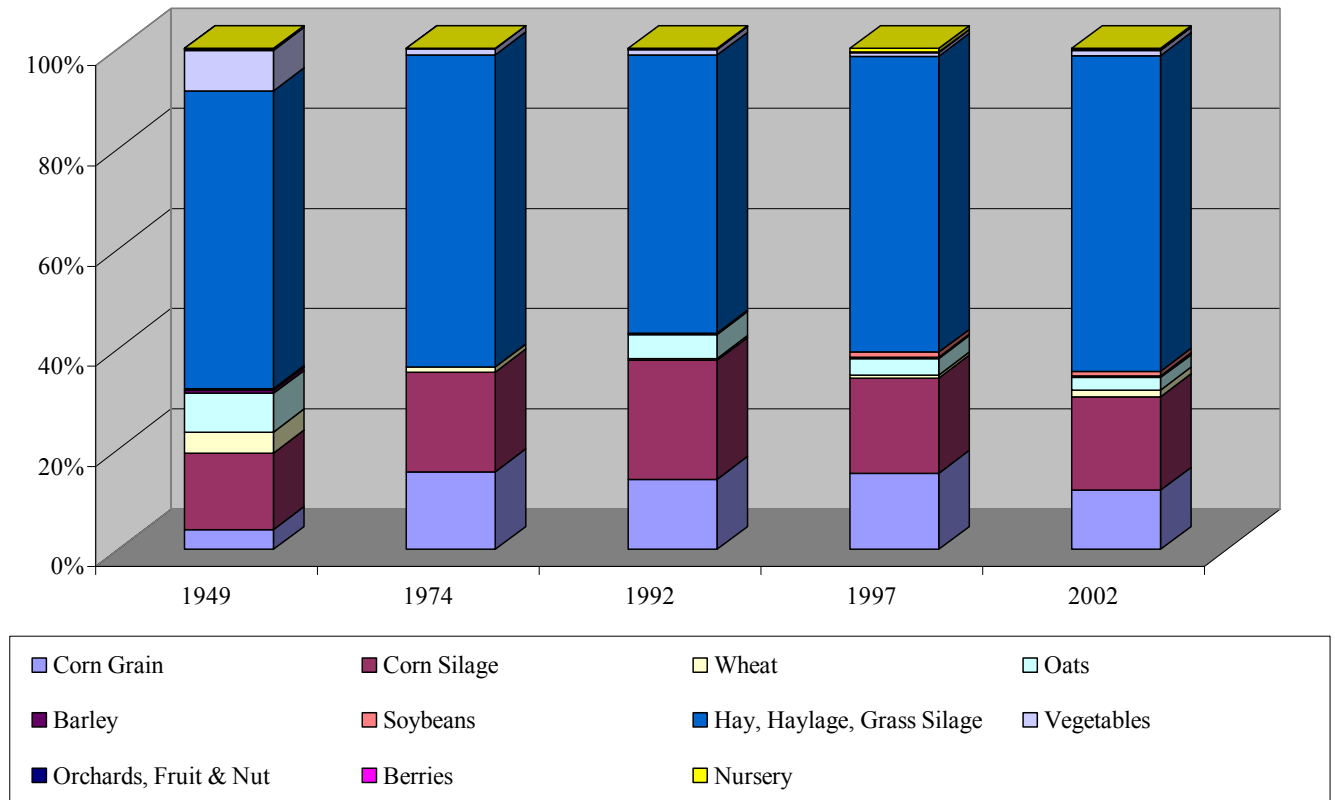


Illustration 3. Percentage of Total Harvested Acres, 1949 – 2002.

Illustration 3. reflects the dominance of forage production on dairy farms since 1949, as well as a number of other cropping changes. More than 50% of all Harvested Acres have been devoted to Hay, Haylage, and Grass Silage, followed by Harvested Corn Silage acres. These two crops make up over 80% of all harvested acres since 1949. At the same time, harvested vegetable acres decreased and corn grain production increased. Harvested small grain acreages e.g. wheat and oats have decreased, while the acreage of harvested soybean increased.

Compared to 1997, fewer Madison County farms grew major crops in 2002 – other than Orchards, Fruit & Nuts and Berries. The proportion of farms dependent on harvested cropland has proportionally decreased as well. In 1949, almost 94% of all farms harvested cropland; in 2002 it was just under 80%. Since most of these are dairy farms, it reflects in part the practice of purchasing forages off the farm and the higher productivity of today's cropland. For the first time in 2002, 7 Madison County farms reported growing "organically produced crops."

As was the case with fewer farms harvesting crops in 2002, the acres of most crops decreased as well. (See Appendices Table 6. Acreage of Harvested Cropland Distributed by

Crop 1949 – 2002, page 63). However, compared to 1997, there were more wheat and barley acres as well as more acres in Vegetables, Orchards, Fruit & Nut, and Berries of all kinds in 2002. The increase in wheat and barley acres reflects recent favorable price and market trends, whereas the increase in the acreage of Vegetables, Fruit & Nuts, and Berries is more indicative of a move to higher value products grown in smaller acreages by new farmers or those who are diversifying their enterprises.

Livestock Inventories

Just as the number of farms has decreased since 1949, the number of Cattle and Calves has decreased, though not as dramatically. This is especially true for older cattle – both dairy and beef. However, the number of Heifers and Calves increased over 10% since 1997, and in 2002 was 7.3% greater than in 1949. (See Appendices Table 7. Madison County Livestock Inventories 1949 – 2002, page 64).

During this 53-year period, the decrease in Madison County's Cattle and Calf inventories illustrate the growing concentration of more cattle on fewer farms. In 2002, there are almost 75% fewer dairy and livestock farms compared to 1950, but only 11.4% fewer cattle and calves. This contrasts to the poultry sector, which has seen farm numbers drop by almost 92% and, at the same time experienced a 99% loss in inventory.

The increase in the number of other livestock enterprises – other than dairy – is also reflected in livestock inventories in 2002. Sheep, poultry, horse, and goat inventories have all increased during the last five years. The equine livestock sector has gone through major transitions during this 53-year period. While horse inventories in 1950 were principally work-type livestock, by 1974 they were essentially for pleasure, and to a lesser extent, for the racing industry.

Dairy

The dairy industry has dominated Madison County agriculture for more than 100 years. Over the last 50 years, milk sales have consistently made up at least two-thirds of all agricultural sales from all county farms. This trend continues even today, as reported in the 2002 Census of Agriculture. In 2002, there were over \$61,609 million in total agricultural product sales; 79% was attributed to dairy product sales.

However, the dairy sector's dominance as an enterprise has decreased significantly. In 1950, over 60% of all farms were dairy farms. In 2002, they made up only 30% of all farm types. Similar to national dairy farm trends, the number of dairy farms has declined 36% since 1992. As of December 31, 2004, there were 223 dairy farms in Madison County.

Illustration 4. Percentage of All Milk Cows Distributed by Dairy Farm Size, 2002 & 1974 shows that herd size has increased, especially for farms with more than 100 milking cows. However, even with this increase in herd size, dairy farms with 50 – 100 milk cows still predominate.

Illustration 4. Percentage of All Milk Cows Distributed by Dairy Farm Size, 2002 & 1974.

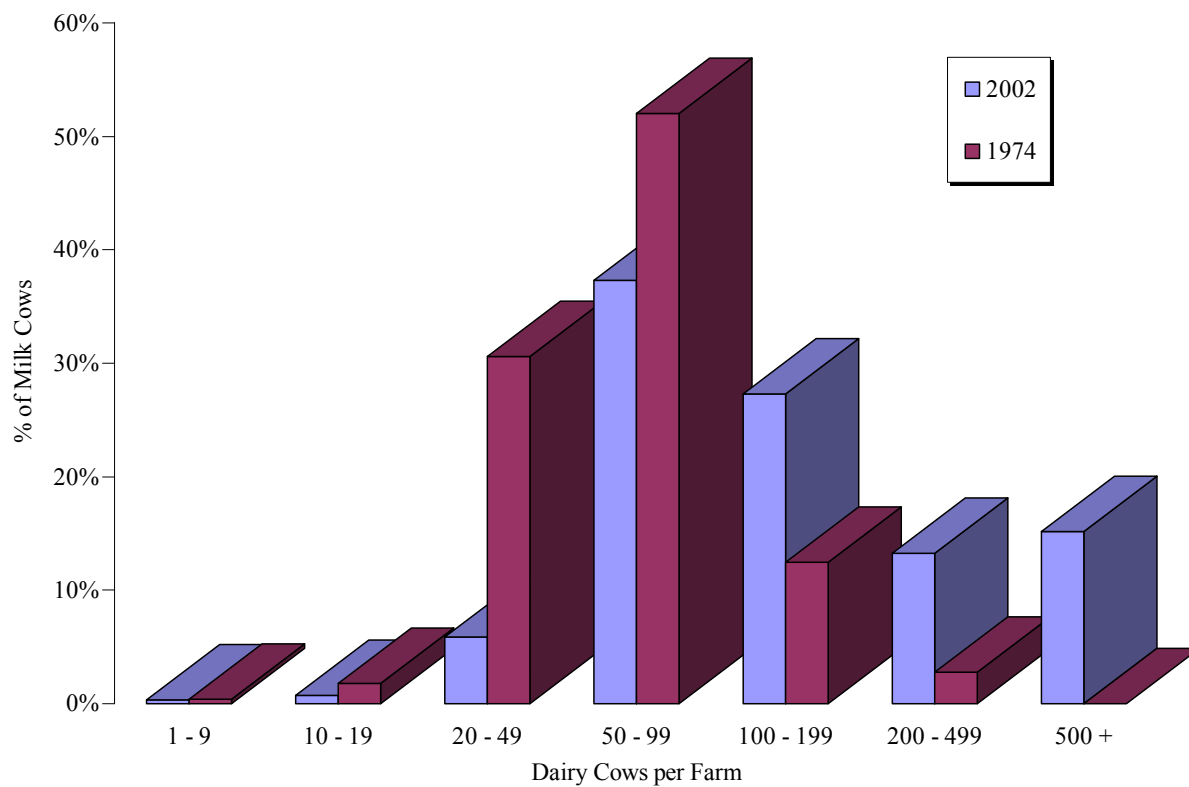
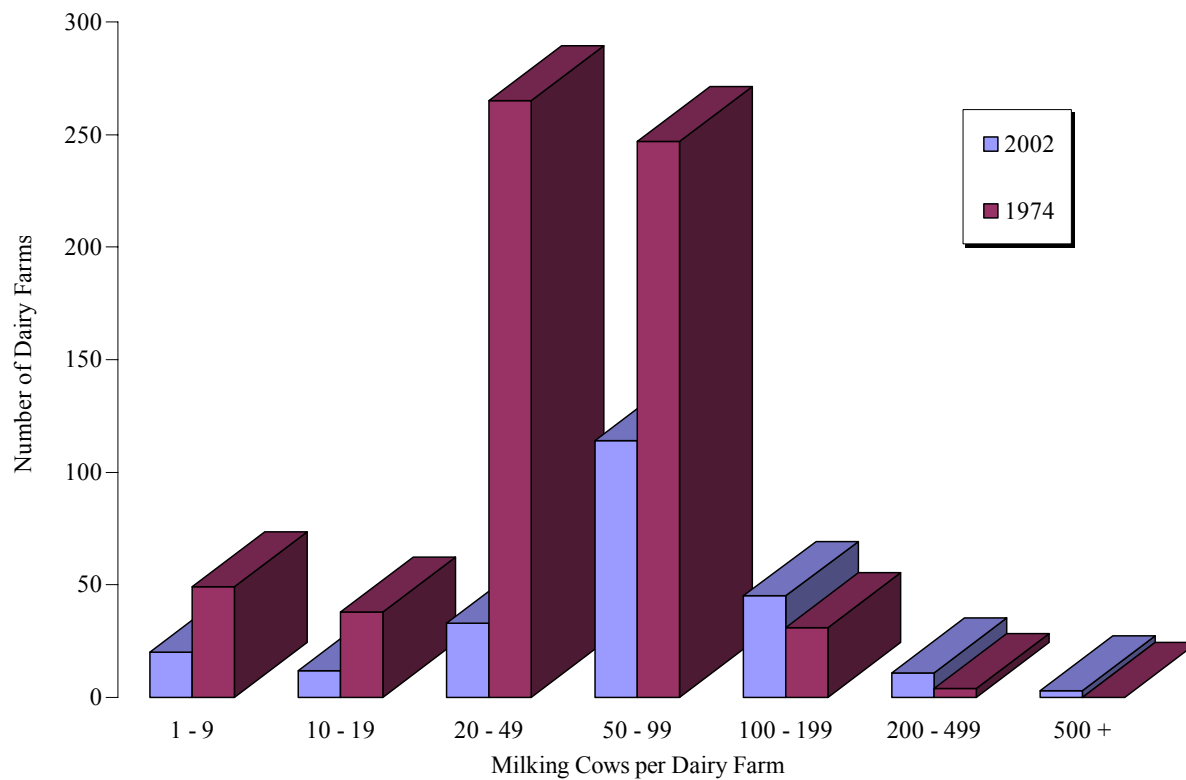


Illustration 5. Number of Milk Cows Distributed by Dairy Farm Size, 2002 & 1974



Madison County has experienced a dramatic decrease in its dairy herd since 1974, as shown in Illustration 5. Number of Milk Cows Distributed by Dairy Farm Size, 2002 & 1974. As with the previous illustration, it shows that close to half of all dairy farms (114 out of 223) have 50 – 99 milk cows. The preponderance of small size dairies is a consequence of topography, field dimensions, elevation and existing infrastructure within the Appalachian Uplands, the location of most dairy farms in the county.

A growing number of Madison County dairy farmers may exit dairy farming altogether in the future. With few young farmers entering the business, current owners prefer a more conservative approach that often precludes a major capital expansion, especially if they lack the support and commitment from the next generation of operators.

The aforementioned data reflects a diminishing dairy industry in Madison County. Yet this same trend is evident throughout New York and the Northeast. In 2003, Madison County's dairy industry ranked 9th in the state for the number of milking cows and 10th in total milk production, a slight improvement from previous rankings during the last 15 years.

Agricultural Districts & Farmland Preservation

There are currently 13 Agricultural Districts, which encompass over 153,000 acres in Madison County. Together these districts make up over 36% of the county's total land base, provide both economic and regulatory incentives for farmers to continue farming, and offer a starting point in the identification of farmland to preserve and protect.

However, these agricultural districts are quite different from one another. Classes of soil capability differ, as do the local zoning ordinances within each town. Each Ag District is under varying degrees of development pressure, especially those located close to incorporated municipalities. Because of these variations, the Farmland Protection Board will continue to explore how best to serve the farmland preservation needs within Madison County.

Notes

SOILS

The Natural Resources Conservation Service (NRCS) uses a “soils capability classification” system to define the ability of soil to support agronomic uses. Capability classes are determined by the limitation of the soils when they are used for field crops, the risk of damage when they are used, and the manner in which they respond to management.” Classes are designated by Roman numeral with Class I soils having the least limitations and Class VIII having the most severe limitations (Map of Soil Capability Classes of Madison County, page 33).

This Plan uses these classes to identify the areas in Madison County with the best soils and fewest agricultural limitations, i.e., risk of erosion, interference by water, and whether the soil is affected by depth, stony, or droughty conditions. The Class I soils in the County are generally found in the Chenango, Oriskany, and Oneida Creek watershed, with the most abundant area located in the Chenango River valley. These soils have few limitations that restrict their use. The Class II soils can be found throughout the County with the largest concentration of those soils found in northern uplands of the County stretching from the city of Oneida in the East to Sullivan and Cazenovia in the west. Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices. Class III soils are spread throughout the County. These are soils that have severe limitations that reduce the choice of plants, or that require special conservation practices, or both. Most of the southern half of the County is comprised of these soils. The exceptions are the river valleys.

Soil classes IV to VIII are spread throughout the County. These soils have very severe limitation for plant production. Class VIII includes the muckland in northern Madison County. The phenomenal agricultural productivity of this area is because of the extensive man-made drainage system employed in the Cowaseleon Creek Watershed. This area is a part of the federally established Cowaseleon Creek Watershed Drainage District, formed in 1950, to eliminate the flooding that occurred seasonally (See Appendix, Muckland Issues, page 65). The mucklands are a special farmland protection case as the threat to their agricultural use comes from the changing nature of agriculture, the loss of soil through erosion, and the introduction of the Federal Wetland Reserve Program.

Soil capability provides a basis for planning efforts, especially with regard to farmland protection. Agricultural Preservation Techniques (Appendices, page 44) discusses farmland preservation tools available to the County, and the soils capability map will help policy makers at both the County and local levels make informed decisions about approaches to farmland preservation.

DESCRIPTION OF THE PLANNING PROCESS

The Madison County Agriculture and Farmland Protection Plan is a project of the Madison County Farmland Protection Board in collaboration with the Madison County Planning Department, Madison County Board of Supervisors, Cornell Cooperative Extension, U.S. Environmental Protection Agency, and the New York State Department of Agriculture and Markets. Collectively, the objective in developing this Plan is to ensure the agricultural economic health of the county, keep viable acres in agriculture, and promote the industry's development in new and different ways.

In 1998 Madison County Planning Department received a Farmland Protection Planning grant from New York State Department of Agriculture and Markets. To help leverage the application, the Department had been awarded a research grant from the U. S. Environmental Protection Agency to complete an in depth analysis of the Cowaselon Creek Watershed Area, which includes the muck soils of Madison County. The goal of this research was to develop a multifaceted set of conclusions, recommendations, and decision making steps to guide future development in the area.

As the planning process began, Cornell Cooperative Extension of Madison County initiated a series of informal discussions in 1998 to publicly examine various issues related to Madison County agriculture and the development of its Agriculture and Farmland Protection Plan. The Ag Working Group, the group's name, met monthly for approximately two years. Meetings included discussion and presentations by agriculture development specialists, the director of Madison County Industrial Development Agency, faculty from Morrisville State College, farm business management specialists, Madison County farmers, representatives from Madison County Tourism, and reports on community initiatives in Hamilton and Cazenovia related to agriculture, land use and community development.

Additional information for the Plan came from a recently completed master's degree thesis devoted to Production Agriculture in Madison County. Cornell Cooperative Extension also developed an Agribusiness Survey with the assistance of faculty and extension specialists from Cornell University. Community volunteers conducted the survey in teams of two and interviewed and/or surveyed 51 agribusinesses in the county. The final report was completed in 2001 (See Appendices, page 52).

Madison County Planning Department and Cornell Cooperative Extension surveyed Madison County farmland owners in 2001. The survey tool was developed to collect basic demographic information about farmland owners, as well as to determine their needs regarding land use, the state of their farm business, and their prospective on the agricultural industry at large. Close to 40% of the 1,200 surveys were returned

In order to refine a set of goals extracted from the survey, Madison County Planning Department and Cornell Cooperative Extension of Madison County enlisted the assistance of Southern Madison Heritage Trust (SMHT), a not-for-profit land trust organization in southern Madison County. SMHT officers facilitated two public meetings in 2001 and 2002, giving participants a vote on updated versions of the objectives and tasks.

To complete the public solicitation process, the Madison County Farmland Protection Board organized the final public meeting in February 2005. A major publicity effort resulted in over 75 participants. Lee (Stanley) Telega, Senior Extension Associate with the PRO-DAIRY program, served as facilitator.

Finally, the Madison County Farmland Protection Board developed a 16-page synopsis of the Madison County Agriculture and Farmland Protection Plan. It was presented to the Planning, Economic Development, Environmental and Intergovernmental Affairs Committee in May 2005.



GOALS

The following goals were developed as a result of 4-year process that involved over 125 people who participated in 3 public meetings. These goals are the final product of the ongoing work of Madison County Farmland Protection Board and the Madison County Planning Department. While many of the objectives and tasks reflect current agricultural and social trends as outlined on pages 6-8 others have remained virtually intact throughout the development process. .

Goal 1. Farmland Protection

Objectives:

1.1 Prevent both urban and rural sprawl

Task: Encourage non-agricultural development, including expansion the of sewer and water systems, to take place within Villages, the City of Oneida, and other settled areas already developed rather in agricultural areas

Task: Develop agricultural based zoning

Task: Work more closely with Realtors to more effectively promote the Disclosure Notice on the sale of land within agricultural districts

1.2 Incorporate farmland protection into local plans

Task: Encourage adoption of zoning laws with districts that provide for agriculture through compatible development

Task: Increase the participation of farmers and agri-business owners on Town Planning Boards through appointment of agricultural members under section 271.11 of Town Law

Task: Educate Planning and Zoning Boards of Appeal on the nature and value of agriculture

Task: Promote development of town comprehensive plans and encourage the incorporation of agriculture and agri-business into those plans

1.3 Preserve most important agricultural soils

Task: Identify the most important agricultural soils and their location, and discourage non-agricultural use of and near them

Task: Establish a countywide structure that accepts, administers, and possibly funds farmland preservation tools such as the purchase, transfer, or lease of development rights; the use of conservation easements; and land conservancies

Task: Work closely with Soil and Water Conservation District on conservation and cropping plans, and encourage participation in USDA-sponsored programs, such as the Conservation Security Program (CSP) that help preserve agricultural soils

1.4 Adopt right-to-farm laws

Task: Develop model law for adaptation by local towns

Task: Identify and promote New York State right-to-farm provision in Agricultural District regulations

Task: Assemble, distribute, and include information about the New York right-to-farm provision in all town building ordinances in order to inform new property owners in agricultural areas and to acquaint town planning boards.

1.5 Promote and encourage farmer participation in state certified Agricultural Districts

Task: Incorporate location of districts into local comprehensive planning

Task: Promote and encourage enrollment in state Certified Agricultural Districts

Goal 2. Agricultural Economic Development: support and promote agriculture within the County

Objectives:

2.1 Create new and expand existing agricultural opportunities

Task: Encourage the development of specialty farm operations such as hops, organic milk and organic food products, and products for various ethnic groups and specialty markets

Task: Encourage the further development of direct marketing opportunities, including local and regional farmers' market

Task: Create new and added-value production opportunities, especially dairy products such as local cheeses, ice cream, and the like

Task: Work with Morrisville State and Cazenovia Colleges to develop local interest and expertise in horse farming; work with local equestrian groups to create events, activities, horse shows, and trails.

2.2 Employ an Agricultural Economic Development Specialist to provide leadership and coordination for agricultural development and expansion.

Task: Determine how an Agricultural Economic Development Specialist can best serve Madison County agriculture; what are the needs.

Task: Create AED job description; determine appropriate agencies to oversee this position; seek funding to establish the position

2.3 Ensure the continuation of businesses necessary to the success of farming

Task: Support secondary industries located in Madison and nearby Counties through Empire Zone designation, tax incentives, which are necessary to sustain agricultural

enterprises, such as milk processors, feed & farm supply establishments, slaughter houses, and auction barns

2.4 Integrate agriculture into Madison County's economic development strategy

Task: Use the County's Empire Zone designation and the Madison County Industrial Development Agency (IDA) tax abatement program to encourage the location and expansion of agri-businesses

Task: Promote use of the County's revolving loan fund for agricultural development

2.5 Expand agri-tourism efforts and activities

Task: Develop programs in collaboration Madison County Tourism, Inc. attractive to non-agriculturalists

Task: Develop the county fair into a county-wide event

Goal 3. Increase public awareness of agriculture as an economic resource

Objectives:

3.1 Promote agriculture to tourists

Task: Create opportunities for bringing consumers and the farming community together by direct marketing of local products through farmers markets, community support agriculture, "u-pick" operations, and the like.

Task: Develop and promote specific programs aimed at tourists.

Task: Develop ties with Madison County Tourism, Inc. and other tourism groups.

3.2 Promote agriculture to County youth

Task: Promote the inclusion of agriculture in schools in the curriculum and after school activities

Task: Adopt "Farm-to-School," "Seed to Table" or other similar programs that encourage the use of locally-grown farm products in local schools

Task: Encourage 4-H program participation by village, city and rural youth, addressing both the high-tech and/or sustainable nature of modern agriculture

3.3 Ensure that the public understands importance of agriculture

Task: Enlist the assistance of various farm organizations to inform the public and public officials on the problems faced by the farming community as well as on the benefits of maintaining a strong agricultural economy

Task: Conduct public education programs on the value of Madison County's agricultural industry

Goal 4. Prepare Madison County agriculture for the future

Objectives:

4.1 Establish stable farm ownership in near and long term

Task: Develop local programs to assist the transfer of farms to new farm owners

Task: Develop a program to attract out-of-state farmers looking to relocate or to start a farming operation (e.g. "Come Farm With Us" in Oneida, Jefferson, Lewis Counties)

Task: Educate Madison County farmers in the use of NY FarmLink resources

Task: Create an inventory of farms for sale

4.2 Promote expansion of non-dairy agriculture

Task: Identify potentially lucrative enterprises that are adaptable to Madison County soils, climate, and markets

Task: Identify and promote the processing and marketing needs and solutions for alternative enterprises

4.3 Ensure that profitability sustains Madison County agriculture.

Task: Advocate for the adoption of practices and management strategies, such as alternative means of production, and consideration of other enterprises and markets, which keep dairy farming a viable enterprise.

Task: Educate and train farmers in developing business and entrepreneurial skills that will improve farm profitability.

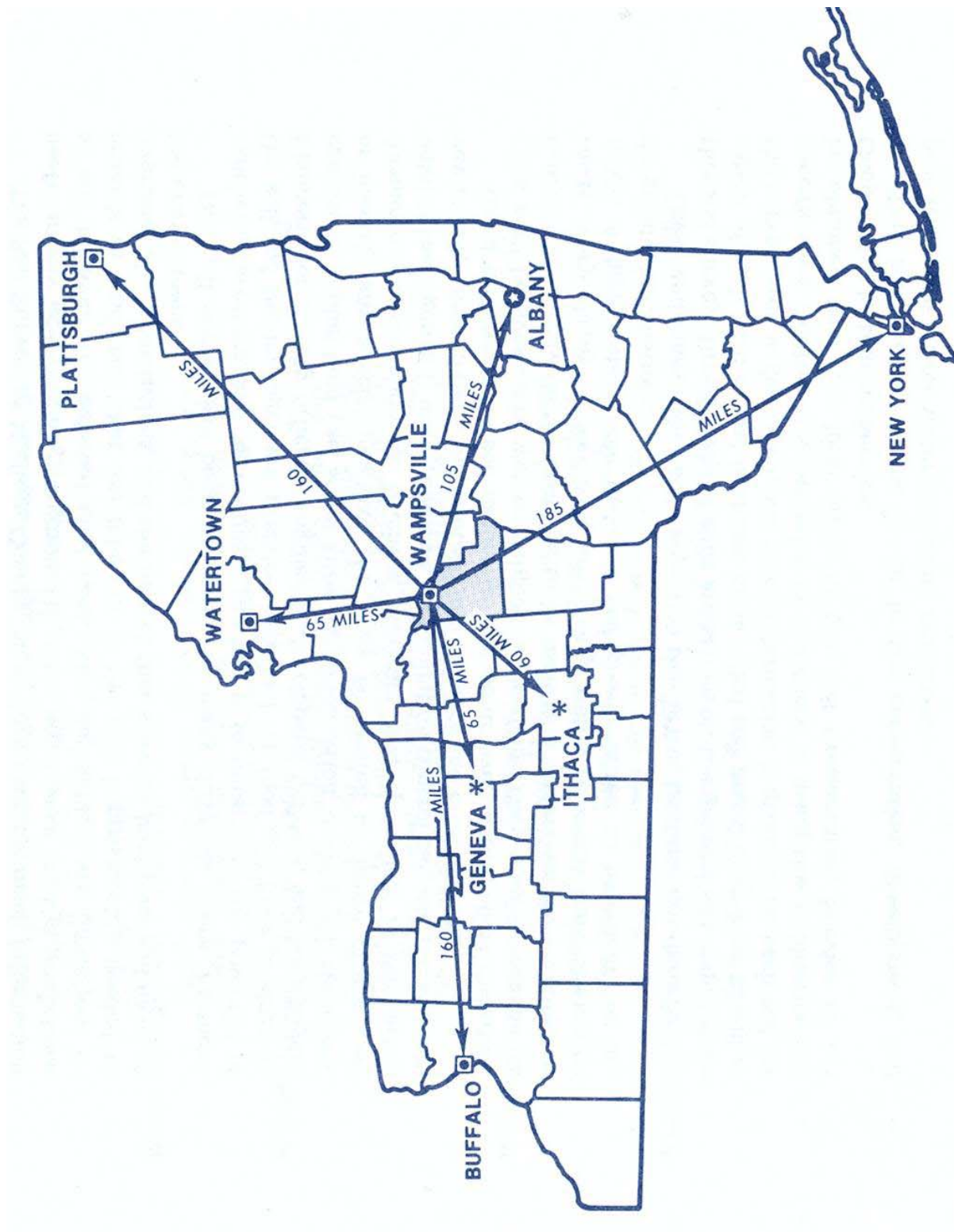
Task: Create opportunities to market local products that bring consumers and the farming community together, such as farmers markets, community supported agriculture, U-Pick operations, and other local distribution systems

Task: Encourage agricultural tourism as a potential means of diversification for interested farmers.

4.4 Ensure that farms have on-farm infrastructures (e.g. facilities, equipment and support) to meet future environmental regulations.

Task: Seek funding to provide resources for necessary improvements

MAPS



Topography of Madison County

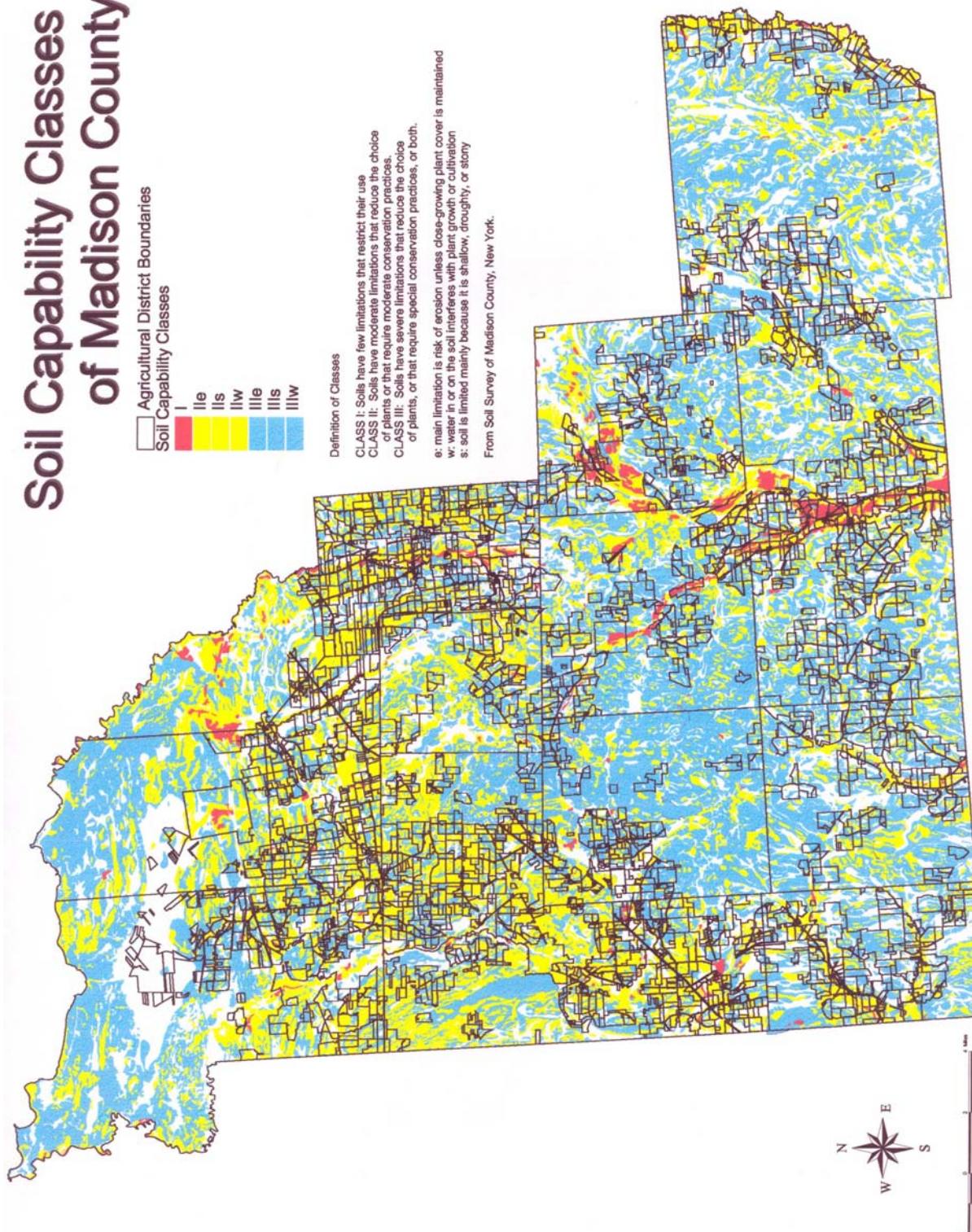
Legend

- Municipal Boundaries
- Lakes

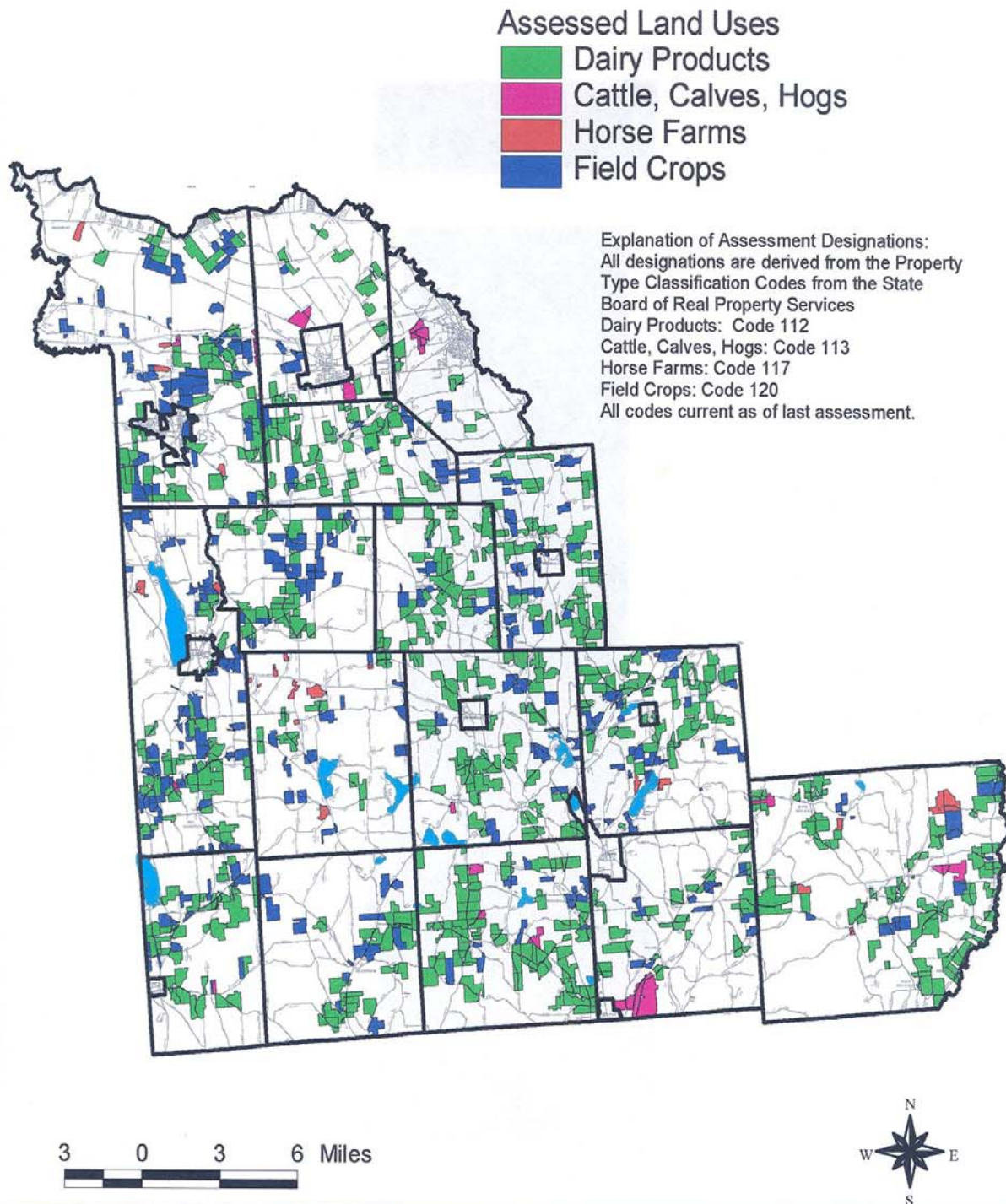
Map Prepared by the Madison County Planning Department

Map Prepared by the Madison County Planning Department

Soil Capability Classes of Madison County



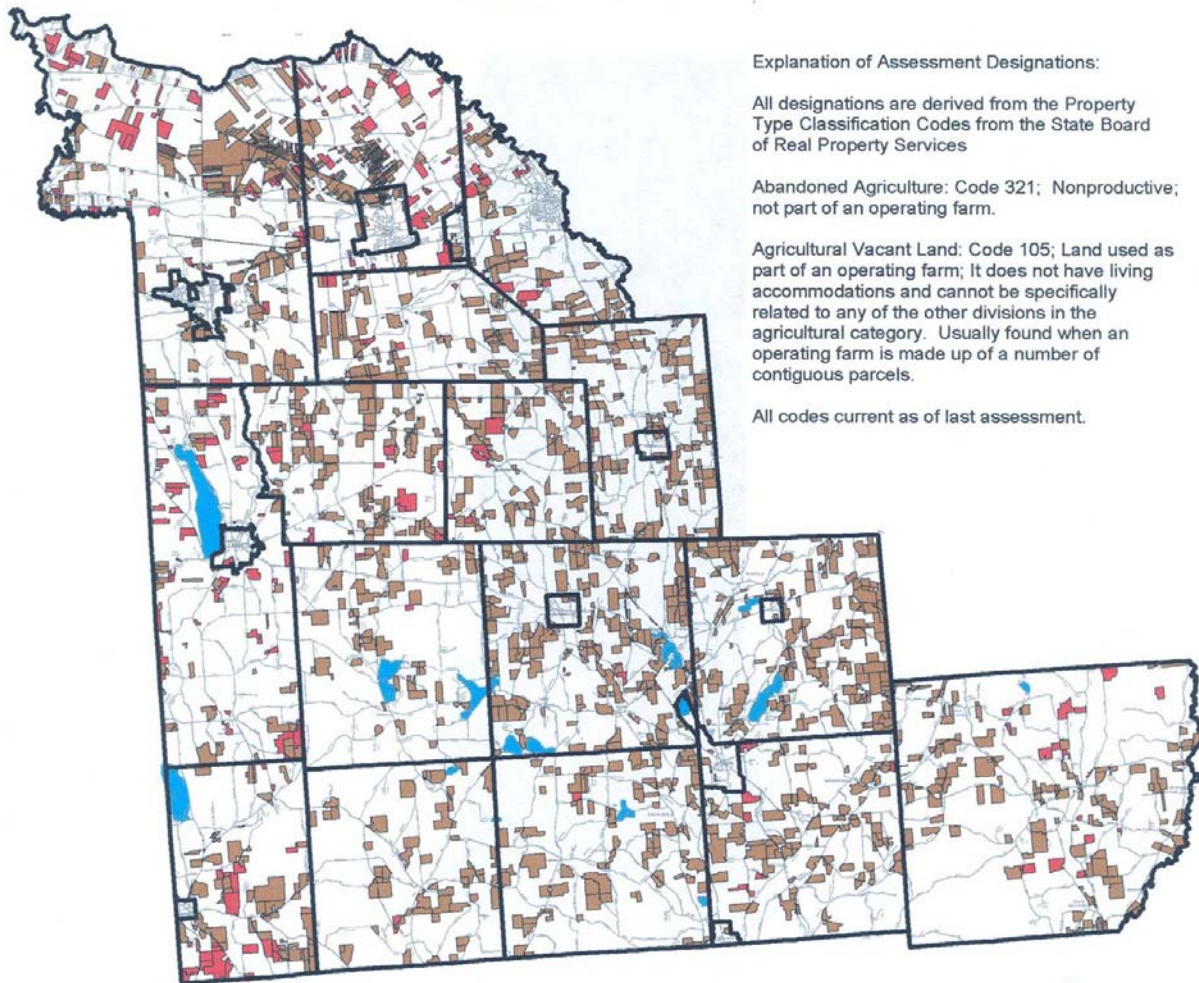
Major Agricultural Uses by Tax Assessment Classification



Unspecified Farmland-- In Production and Abandoned

Assessed Land Uses

-  Agricultural Vacant Land (Code 105)
-  Abandoned agriculture (Code 321)



Explanation of Assessment Designations:

All designations are derived from the Property Type Classification Codes from the State Board of Real Property Services

Abandoned Agriculture: Code 321; Nonproductive; not part of an operating farm.

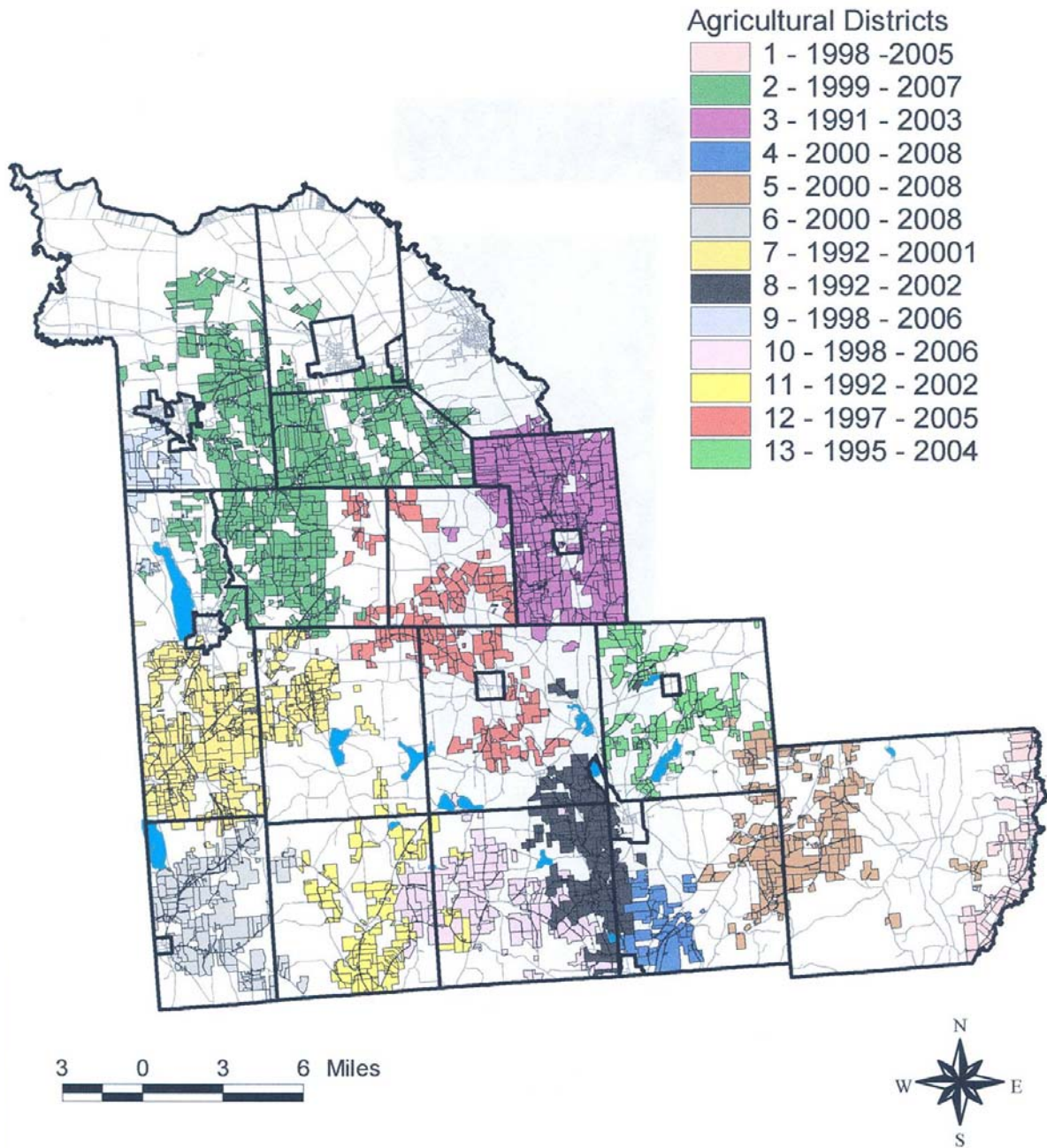
Agricultural Vacant Land: Code 105; Land used as part of an operating farm; It does not have living accommodations and cannot be specifically related to any of the other divisions in the agricultural category. Usually found when an operating farm is made up of a number of contiguous parcels.

All codes current as of last assessment.

4 0 4 8 Miles



Agricultural Districts



Appendices

Agricultural and Farmland Protection Board

Madison County
PO Box 606
Wampsville, NY 13163

Tel: (315) 366-2376
Fax: (315) 366-2742

December 2000

Dear Landowner:

Madison County has been awarded a planning grant to fund the development of the County's Agricultural and Farmland Protection Plan. The Madison County Planning Department is currently gathering data that will be used to create the final plan. We are collecting information through a short, yet comprehensive survey sent directly to farmers and farmland owners. While the survey is not the only activity by which the status of county agriculture is assessed, it is nevertheless a very important part. Your participation in the survey is very important to the Agricultural and Farmland Protection Plan of Madison County.

What follows are several definitions of terms used in the survey:

Agricultural and Farmland Protection Plan: A county-level plan to identify and describe activities, programs, and policies, suitable for support or adoption by county or local government, to improve the economic viability of farms and farming and maintain agricultural use of farmland in the face of pressures for its conversion to other uses.

Conservation Easement: A legal document that restricts the use of land to farming, open space, or wildlife habitat. A landowner may sell or donate an easement to a government agency or a private land trust.

Development Right: The rights to subdivide, construct upon, exploit the natural resources of, or otherwise alter for gain land owned in fee simple, as distinct from the other, non-development rights pertaining to land ownership.

Land Trust: A private nonprofit organization that qualifies as a charitable organization under Section 501 (c) (3) of the Internal Revenue Code. A land trust may receive donations of property, development rights, or money. Donations may qualify as tax deductions. A land trust may also purchase property and development rights.

Purchase of Development Rights (PDR): The voluntary sale of the rights to develop a piece of property by the landowner to a land trust or government agency. The sale price is determined by an appraisal. The land is restricted to farming or open space.

State-Certified Agricultural District: A mapped area of at least 500 acres proposed by land owner(s) within it and approved by the county legislature and the State Commissioner of Agriculture and created to protect working farmland from development-pressure-caused conversion or idling through limitations on: taxation, creation of special service districts, and imposition of zoning restrictions. Such an Agricultural District is *not* a part of local municipal zoning.

Please return this survey by January 15th, 2001 or earlier.

Please feel free to attach additional pages as needed.

1. In what Town are you currently residing?
2. Approximately how many acres do you farm—total owned and rented? Total____
 - Of the acres you farm how many acres do you own?
Farmstead____ Cropland____ Woodland____ Pasture____ Other____
 - Of the acres that you farm how many do you rent?

Farmstead____ Cropland____ Woodland____ Pasture____ Other____

3. If actively farmed, what is the major enterprise on your land?

| | |
|-------------------|----------------------------|
| ____ Dairy | ____ Livestock |
| ____ Hay | ____ Christmas trees |
| ____ Horses | ____ Vegetables |
| ____ Heifers | ____ Tree fruit |
| ____ Small fruit | ____ Other Cash Crops |
| ____ Horticulture | ____ Other Please explain: |

4. What is the approximate number of animals on your farm?

| | |
|-----------------------|-------------------------------------|
| ____ Adult dairy cows | ____ All other youngstock and Bulls |
| ____ Beef cattle | |
| ____ Horses | |
| ____ Sheep | |
| ____ Goats | |
| ____ Chickens | |
| ____ Hogs | |
| ____ Other | Please explain: |

5. What is the current use of land that you own? If more than one use, prioritize by numbering 1 = only one use; 2 = secondary use; 3 = third most common use.

| |
|-------------------------|
| ____ Actively farmed |
| ____ Rented to a farmer |
| ____ Rural residence |
| ____ Open, idle land |
| ____ Wooded |

6. Approximately how much of your workweek is spent tending to the farm?

| | | |
|---------------|------------|---------------|
| Less than 1/3 | 1/3 to 2/3 | more than 2/3 |
|---------------|------------|---------------|

7. Approximately how much of your net family income came from the farm last year?

| | |
|--------------------|---------------|
| ____ Less than 25% | ____ 25-49% |
| ____ 50-74% | ____ Over 75% |

8. What is the age of the principal farm operator? (If farm management responsibilities are shared what are the ages of those involved)_____

9. How many years has this farm been in your family?_____

10. If you are actively farming, how many years have you operated your farm?_____

11. How many farm family members are actively involved on the farm? _____
12. How many farm family members are *not* actively involved on the farm? _____
13. How many households does your farm support? _____
14. Do you feel that good farmland in Madison County is:
Available: Yes/No **Affordable:** Yes/No **Accessible:** Yes/No
15. Is most or all of your land currently located in a State-certified Agricultural District? Yes/No
16. Are you currently receiving Agricultural Assessment on your land? Yes/No
17. How would you describe the trends of your farm over the last five years?
Profits: Increasing____ Steady____ Declining____
Sales: Increasing____ Steady____ Declining____
18. How would you describe the trends of your farm presently?
Profits: Increasing____ Steady____ Declining____
Sales: Increasing____ Steady____ Declining____
19. In the past five years have you:
 ____ sold farmland ____ Bought farmland
 ____ Added livestock ____ Improved buildings
 ____ Added other structures ____ Added or switched to other enterprises
 ____ Added labor ____ Sold building lots
 ____ Sold other real property assets ____ Sold the business
20. Over the next five years do you intend to :
 ____ Sell farmland ____ Buy farmland
 ____ Add livestock ____ Improve buildings
 ____ Add other structures ____ Add or switch to other enterprises
 ____ Add labor ____ Sell building lots
 ____ Sell other real property assets ____ Sell the business
 ____ Transfer the business to a family member
21. How valuable do you think that Agricultural Districts are for the purpose of preserving farms and protecting agriculture?
 ____ Very valuable
 ____ Of some value
 ____ Of little value
 ____ Of no value
22. Have you ever been involved in a right-to-farm concern or nuisance suit complaint raised by a neighbor or municipality?
 ____ No
 ____ Yes Please Explain:
23. Please check all that apply to your farming operation:
 ____ You expect your farmland to fully fund your retirement
 ____ You expect your farmland to partially fund your retirement
 ____ A family member will continue to farm your land
 ____ You expect to diversify your farming operations
 ____ You expect to sell your land for non-agricultural use
 ____ You expect to sell your land for agricultural use

24. In your opinion, what are the three greatest issues facing farmers in your vicinity (list in priority 1-3, 1 being the most important):

☐ Loss of farmland
☐ Development pressure from suburban encroachment
☐ Competition
☐ Machinery costs
☐ Low profitability
☐ Federal Milk Market Order Reform
☐ Milk Marketing
☐ High land prices
☐ High taxes
☐ Farm labor scarcity
☐ No one interested in taking over the farm
☐ Access to and local availability of agri-services
☐ Environmental regulations:
 ☐ pesticide use
 ☐ fertilizer use
 ☐ land use
 ☐ wetlands
 ☐ nutrient management

25. What trends do you expect to see over the next 5 years? (list in priority 1-8, with 1 being the most likely and 8 the least likely)

☐ Increase of agricultural community
☐ No significant change in agricultural community
☐ Decrease of agricultural community
☐ A small number of very large farms
☐ A large number of small operations
☐ Relocation of operations outside of Madison County
☐ Relocation of operations into Madison County
☐ Change of emphasis from dairy to other types of operations

26. Are you personally more interested in selling your farmland than in continuing farming?

☐ Yes ☐ No

Please explain:

27. What type of assistance would help your operation the most:

| | |
|--|---|
| <input type="checkbox"/> Farm budgeting | <input type="checkbox"/> Retirement planning |
| <input type="checkbox"/> Estate planning | <input type="checkbox"/> Marketing advisement |
| <input type="checkbox"/> Cropping management | <input type="checkbox"/> Employee management |
| <input type="checkbox"/> Business planning | <input type="checkbox"/> Dairy management |
| <input type="checkbox"/> General financial | <input type="checkbox"/> General technical |
| <input type="checkbox"/> Advisor for farm related family and personal issues | <input type="checkbox"/> General mechanical |
| <input type="checkbox"/> Other Please explain: | |

28. How do *you* feel about development of farmland for non-agricultural purposes?

☐ It is an opportunity for farmers ☐ It presents problems for farmers
☐ Both opportunity and problems for farmers ☐ Undecided
 Please explain:

29. Please rank the importance you personally place on each of the following (rank in priority 1-6, with 1 being the most important):

- ☐ Preserving farmland as open space
☐ Preserving farmland as economically productive land
☐ Preserving economic sustainability of farms, regardless of possible change in farmland

acreage

- ☐ Continuation of farming on your land by others after your retirement
☐ Maximum freedom to sell off farmland for development
☐ Some freedom to sell off farmland for development

30. Are you familiar with the following Farmland Protection Strategies?

- Conservation Easements ☐ Yes ☐ No
 Land Conservancy or Trust ☐ Yes ☐ No
 Purchase of Development Rights ☐ Yes ☐ No
 Agricultural Zoning ☐ Yes ☐ No
 Local right to farm laws ☐ Yes ☐ No
 Right to farm provisions of certified Ag Districts ☐ Yes ☐ No

31. Would any of the strategies mentioned above benefit Madison County if practiced more widely?

Yes _____ No _____ Not sure _____
 Explain:

32. Do you think more needs to be done by the state or county to preserve agriculture?

Yes _____ No _____ Not sure _____
 Please Explain:

33. What initiatives or incentive should local/county governments undertake to help keep farming viable in Madison County?

- Property tax credit for active farms ☐ Yes ☐ No
 Start up loans for new farms ☐ Yes ☐ No
 Attract new farmers to Madison County ☐ Yes ☐ No
 Establish exclusive agriculture zoning ☐ Yes ☐ No
 Strengthen ag support agencies ☐ Yes ☐ No
 Other Please Explain:

34. What kind of information do you feel local planning and/or zoning boards need in order to make more effective land use decisions?

35. Please list any other comments or concerns not addressed on this survey:

36. If you are interested in getting more information about the Agricultural and Farmland Protection Plan please fill out the contact information below. This portion is voluntary and will be kept strictly confidential. Or call Madison County Planning Department at (315) 366-2376 for more information.

Name:

City, State, Zip:

Phone number:

E-mail address:

If there is a particular issue that you are interested in, please note it here:

Please return this survey by January 15th, 2001 or earlier. Thank you.

Surveys may also be faxed to (315) 366-2742.

AGRICULTURAL PRESERVATION TECHNIQUES⁹⁹

As the first section of this report indicated, there are a number of reasons why preservation techniques should be employed. Some local governments and states are trying to solve community problems caused by the loss of farmland by adopting a wide range of measures to combat it. Since no one technique can or should be prescribed for Madison County municipalities, several approaches are described. The intent is to provide an overview of the many ways to protect farmland. One thing evident from the literature is that more and more the newer techniques seem to be employing the attributes of older techniques. The key thing for citizens wanting to preserve farmland is to remain flexible because the political climate and needs of each community differs. The preservation techniques discussed are by no means exhaustive, but highlight some of the more common ones. Appendix B provides a summary of the extent to which various preservation techniques are used throughout the country. It is important to stress that the most successful local programs in farmland preservation share a common bond. The secret is to have the participation and cooperation of the agricultural community from the very start .

In addition, certain factors will influence the success of any agricultural preservation program. Among these are: political acceptability, cost, and location.

Agricultural Zoning

Zoning represents one familiar and convenient tool available to local units of government for encouraging certain growth patterns. The ultimate objective of zoning is to promote land uses in a manner which advances the public welfare. Zoning is a legally binding designation of the uses to which **land may be** put, including the type, density, and location of development. In examining Appendix B, which is a survey of existing programs to preserve farmland it become obvious that agricultural zoning is the most popular and common method used by local governments to prevent the use of agricultural land for non-agricultural purposes. Agricultural zoning usually restricts uses in particular areas to agriculture and related uses such as a farmstead or farm business. In this vein, the term often used is "exclusive agricultural zoning because other uses (i.e. high density residential and commercial uses) deemed incompatible with viable farm operations are not permitted in the agricultural zone. Often a large minimum lot size (10-160 acres) is stipulated in such a zone. This serves to prevent speculative development since a developer could not usually afford to build on such big lots. However, requiring large minimum lot sizes could also adversely affect the farmer since it would be much harder to market the property for development purposes. An attempt was made in York County, Pennsylvania to achieve a balance between the need to control development to ensure an adequate farmland base with the desires of older farmers who might want to eventually sell their farm for residential purposes as "retirement insurance". Many towns in York County adopted a zoning technique (or variations thereof) known as a "sliding scale" (Conn, 1980 p. 15). When the sliding scale is in effect each landowner is entitled to a certain number of buildable lots according to the size of the parcel - permitted densities vary inversely with the size of the parcel. Thus, small landowners are permitted to develop a higher percentage of their property than are large owners. For instance, in the Peachbottom township a 30 acre tract of land in the agricultural zone is permitted two single family dwellings (one per 15 acres) while a 400 acre tract is allowed ten single family dwellings (one per 40 acres).

In addition, a few other conditions are imposed whereby maximum lot sizes (ranging from one acre to one and a half acres) are required and stipulations are made that homes may be built only on soil of low productivity, based on a soil survey. Where location on low quality soil is not possible a home may be located on soil of a higher quality (Conn). The result is a flexible zoning technique

⁹⁹ Madison County Planning Department, *Agriculture in Madison County*. (Wampsville, NY, 1981).

which helps to minimize interference with agricultural production by considering less productive land for development first.

Apparently, this preservation program enjoys the support of the local farming community because of its flexibility, and of county real estate developers because it allots plenty of land in each municipality for more urban land uses (Pehowski, 1980).

In Black Hawk County, Iowa, soil surveys and soil interpretations of the Soil Conservation Service were used to determine those soils best suited for agricultural productivity. Areas with a soil productivity rating above 70 would be designated for exclusive agricultural use. Areas with a certain percentage of the soil falling below this rating of 70 would be designated for development.

A question often remains on the minds of skeptics - namely - is the preservation of farmland a legitimate use of zoning? On June 10, 1980 the U.S. Supreme Court unanimously upheld the power of local governments to employ zoning to preserve open space, promote orderly community growth and, by implication, to protect agricultural land. The Court ruled in *Agins vs Tiburon* that the zoning ordinance adopted by the city of Tiburon, California was not an unconstitutional "taking" of private property requiring payment of just compensation to landowners. Most significantly, the Court reaffirmed the principle that zoning is a legitimate means of preserving farmland for food and fiber production, and that preserving farmland is a specific goal that may be advanced by zoning (NACo Research Foundation, 1980).

Exclusive and large-lot agricultural zoning is being employed by many municipalities in New York with limited success. This type of land use control appears better suited to large contiguous farming areas not dissected by rural residential development. Flexible zoning controls supplemented by other land use controls (i.e. subdivision restrictions) may work best in New York. One reason being their ease of administration relative to other preservation techniques. It should be emphasized that any land use control to be considered should be preceded by a detailed inventory and analysis of the farmland base.

Agriculture Districting

New York State enacted the Agricultural District Law in 1971. It is one of the oldest and most well-known agricultural districting laws in the country (California was the first to pass a similar law in 1965, New York was second). The law declares that it is the policy of the state to preserve farmland for food production and as "valued natural and ecological resources".

Agricultural districting programs are designed to address such problems as: 1) Inflated market value and higher real property assessment for active farmlands, 2) Enforcement of nuisance ordinances against farming operations, 3) Inadvertent growth and development resulting from the expansion of public services, and 4) Increasing uncertainty felt by farmers over the future fate of farm enterprises in their area (Bryant, 1975).

Agricultural districts are legally recognized geographic areas whose formation is initiated by one or more farmers and approved by one or more governmental agencies. In New York the farmer or farmers who submit a district proposal must own 500 acres or at least ten percent of the land proposed to be included in the district. District proposals are reviewed by local government bodies and then sent for state agency review and approval before they receive final approval by the county government.

Once formed, the following provisions apply within an agricultural district.

1. Farm Assessments - Landowners may apply annually for an exemption from taxation on the value of their land in excess of its value for

- farming. To be eligible, a farmer must own ten or more acres of land used the preceding two years for agricultural production having a gross sales value of \$10,000 or more. Farmland which has received an exemption is subject to a maximum five year rollback if converted to a nonfarm use.
- 2. Ordinances - Local governments may not enact ordinances that would restrict or regulate farm structures or farm practices beyond the requirements of health and safety.
- 3. State Regulations - State agencies must modify administrative regulations and procedures to encourage the maintenance of commercial agriculture to the extent compatible with health, safety, and any applicable federal regulations.
- 4a. Eminent Domain - The right of public agencies to acquire farmland by eminent domain is modified, though not removed. These agencies are required to give serious consideration to alternative areas before good farmland can be taken for public uses.
- 4b. Development Funds - The right of public agencies to advance funds for sewer, water, and other facilities that would encourage nonfarm development is modified.
- 5. Special Service Assessments - The power of special districts to impose benefit assessment or special ad valorem levies on farmland for sewer, water, lights, or non-farm drainage is limited.

Taken in combination, the provisions of the law may be considered an integrated package designed to encourage the continuance of a strong agricultural industry in the face of growing urban pressure and speculation. On the one hand, certain provisions of the law offer farmers an opportunity to protect themselves from some of the rising costs and governmental actions associated with urbanization. On the other hand, certain provisions of the law are designed to discourage residential, industrial, and commercial development from locating within farm areas.

Eight years after formation, each agricultural district must be reexamined by the county and state. If a portion of a district is in strong demand for non-farm uses, the county and state may change the district boundary. Boundary changes, however, can be made only at eight year intervals.

Madison County presently has nine agricultural districts encompassing 90,135 acres or 22 percent of the county's land base. Based on recent requests from farmers interested in forming new districts, or at least attaching to an existing one, this percentage will likely increase. Appendix C is a map portraying the geographical extent of the nine agricultural districts in Madison County. In addition, a table follows this map, which "explains the quality of land within the districts as well as when each district was formed. Since the review period for reevaluating districts starts 300 days before the anniversary date, Agricultural Districts numbers 3 and 5 will come up for review sometime in the summer of 1982. Agricultural District number 1 is currently in the review process.

At this point, a thorough analysis of the impact this New York Agricultural District Law has not been done to measure its success, but certain experts (Bryant, Toner, Esseks) concede that New York's Agricultural District Law has been relatively ineffective as a farmland preservation mechanism. What it accomplishes is modest protection against special assessments which normally raise the cost of farming, and to a limited extent protects against actions which encourage non-farm growth.

One particularly significant aspect of the district concept is the fact it recognizes the importance of preserving a "critical mass" of farmland. In the case of districts, the minimum critical mass is 500 acres. The idea of preserving large contiguous blocks of farmland is being embraced as a much more justifiable approach to farmland preservation (Bryant). Thus, in developing local

programs dealing with farmland preservation, one criteria for determining the value of farmland should be the size of the parcels involved. Since some farmland will inevitably be converted to other uses, it becomes a question of protecting those tracts that, due to their size and productive characteristics, are best suited for preservation.

Differential Assessment

This is a catchy term for a simple method of reducing the burden of real property taxes on farmers. The problem with farmland is that it often has two values: 1) Its agricultural use value, and the other, 2) Its value as a site for residential, commercial, or industrial development. The latter refers to its fair market value. In most cases, the fair market value of farmland is much greater than the agricultural use value. Many farmers find that their real property taxes go up because of the rising fair market value of their land and increased fiscal burdens which go along with suburbanization. With differential assessment, the farm owner's assessment is based on the value of his property for agricultural purposes as opposed to its fair market value.

Differential assessment has two primary purposes: to reduce taxes for farmers, and, as a consequence of that reduction, to lower the rate of conversion of farmland to non-farm uses by reducing the number of tax-motivated sales. A third purpose closely related to the ones mentioned above is that differential assessment encourages farmers to reinvest in new plant and equipment thus maintaining the viability of the farming operation. In an examination of the property tax situation in Orange County, New York, most of the farmers interviewed indicated that they would be financially able to remain

in farming at the reduced agricultural use value assessment (Conklin, 1978). Prior to this form of tax incentive, farmers were hesitant to invest new capital in much needed new, modern barns.

Differential assessment is one element of New York's Agricultural District Law which is discussed elsewhere in this report. The tax roles for land assessed under this statute must include a notation of what the higher assessment would be if the land did not qualify for farm use value assessment. This recorded excess amount is used to calculate "roll-back taxes" due if agricultural land is converted to another use. This "roll-back tax" then can be thought of as a penalty to the farmer if he/she does convert and provides a means of recapturing part of the taxes lost through the differential assessment. This tax involves the payment of all or part of the difference between what the taxes would have been if there had been no farm use value assessment and the taxes actually levied. In New York, the roll-back applies to the five years preceding such conversion.

Transfer of Development Rights (TDR)

Another possible means of preserving farmland is by government supervised or voluntary transfer of development rights. This concept involves the transfer of development rights from designated agricultural preservation areas to designated areas of development. TDR systems are intended to maintain designated land in agriculture and compensate the owners of the preserved land for the loss of their right to develop it.

In simple terms, a development right is a privilege that permits a property owner to build upon or develop his land. It is one of the bundle of rights associated with real property ownership. Mineral rights, air rights, and access rights are other rights of real property ownership. Any of these rights may be separated from the bundle of rights and then sold or transferred.

Under the supervised transfer of development rights, an agricultural preserve has to be established where the only permitted activity is farming. Once the preserved agricultural district is designated, the residential capacity it would have had must be calculated and converted into a stated

quantity of development rights. Each landowner in the agricultural preserve receives development rights on the basis of his land's development potential.

The other part of the public transfer of development rights program involves the designation of districts where development is permitted. Higher density development is permitted in these districts if the developer purchases development rights from the owners of farmland in the agricultural district. The total permitted increase in density in the development districts depends on the number of development rights issued in the agricultural preserves. Thus, the transfer of development rights does not reduce a municipality's total development potential.

Theoretically, incentives exist for developers to buy development rights from landowners in the agricultural preserve because it presumably is more profitable to build at higher densities. The price of development rights is determined by competitive forces in the "development rights market." This market eliminates the need for a government agency to determine the value of development rights and is a potential advantage of transfer of development rights. Additionally, large sums of public monies are not needed to implement this type of farmland preservation program (Cortland County Planning Department, 1978).

At this writing there are approximately twelve communities that have enacted TDR systems. In general, these systems recognize that in order for the system to work, three conditions must be met. The owner of the land in the preservation district must have an incentive to sell his rights for transfer rather than to exercise them by developing his own land. The developer must have an incentive to acquire rights rather than to build under the usual density restrictions of the zoning ordinance. Thirdly, neighbors of the potential development must have some assurances that excessive densities will not result from the transfer.

Designating agricultural preserves under the TDR resembles the creation of agricultural use zones with exclusive agricultural zoning. The problem of compensation, the pitfall of exclusive agricultural zoning, is supposedly circumvented by the transfer of development rights. Compensation to the **landowner**, when this land use technique is used takes place through the development rights market at the time the development rights are sold. In effect then, these systems consist of agricultural zoning addressed in a previous section with the TDR added as a way of compensating landowners for the loss of their development rights.

Owners of farmland in semi-suburban areas may not react favorably to having their land placed in an agricultural preserve. They may not be convinced that the ability to transfer their development rights in the open "development rights market" is adequate compensation for having their land placed in an exclusive agricultural zone. The owner of farmland may feel he has lost control of his development rights since he cannot use them and their sale is contingent upon a land transaction occurring between a developer and a landowner outside the preserve.

The TDR system is a complicated concept and addressing many of its complexities are not within the scope of this report. Suffice it to say that experiences to date indicate successful TDR systems are those that provide a market situation enabling the developer to realize enough profit from the purchase and transfer of development so that he will find it worthwhile to engage in the TDR process and thus offer an attractive price to the farmland owner. This involves not only providing incentives for the landowner to sell his rights and providing density incentives for the developer, but also designating areas under strong development pressure as development districts and assuring the availability of facilities (sewer and water) necessary for higher density development (Coughlin and Keene, page 178).

Purchase of Development Rights

Purchase of Development Rights (PDR) like TRD is another alternative to exclusive agricultural zoning and attempts to address the problems of uncompensated restrictions on development found with traditional zoning practices. It simply involves the purchase of the right to develop from owners of specific parcels, leaving the owner all other rights of ownership. The acquisition of development rights and their separation from the "bundle of property rights" entitled to landowners is equivalent to the acquisition of an easement on the property (Coughlin, Keene). These are often thought of as negative easements because they prevent the owner from doing something with his land (that is developing it).

The price of the development rights is the difference between the market value of the property, and the property's "farm use" value. If the government or some other entity buys the development rights of a parcel of land, the land, if farmland preservation is the intent of the purchase, cannot be sold for any purpose other than farming.

Statutory authorization for Suffolk County's purchase of development rights program is found in Section 247 of New York State's General Municipal Law and in Suffolk County Local Law Number 19. Section 247 of the General Municipal Law authorized local governments, including counties, to acquire full title or lesser interest in lands to be preserved as open space. Local Law Number 19, passed by the Suffolk County Legislature in 1974, authorizes the expenditure of public funds for the acquisition of development rights on agricultural lands. This law defines development right as "the permanent legal interest in the use of agricultural lands and the right to restrict, prohibit, or limit the use of such lands for any purpose other than agricultural production."

Although Suffolk's program emphasizes the purchase of development rights it allows for fee simple acquisition of farmland by the County. It is planned that this option will be exercised only in special circumstances where it is impossible to purchase the development rights alone. When fee simple acquisition is used, the agricultural rights will be offered for sale before an attempt is made to lease the land to farmers. Non-farm owners of farmland will be urged to sell their development rights to the County and their agricultural rights to adjoining or nearby farmers so that fee simple acquisition by the County does not have to be used.

Participation in Suffolk County's program is voluntary. During specified periods, the owners of farmland submit offers to the County for their development rights on less than the full extent of their holdings.

The benefits accruing from a purchase of development rights program are numerous. Most importantly, farmland cannot be sold for any purpose other than farming once the development rights have been sold to the government. With the opportunity for a non-farm sale removed, speculation will no longer have an adverse effect on farm investments. For farmers a public purchase of development rights program may provide the "best of both worlds." The farmer can continue to farm while receiving payment for the non-farm value of his land. Property tax assessments based on non-farm uses are no longer a problem to the farmer. The payment of estate **taxes** is less of a problem once the development rights have been converted from real property to case or some other more liquid asset. Proceeds from the sale of development rights can be used in the farm business as operating and investment capital or placed in other income-producing investments. Finally, pride of ownership is maintained because the farmer retains ownership of the agricultural rights and is free to sell the land for farming purposes at a competitively determined agricultural price when he wishes.

An obvious disadvantage of development rights purchase is its relatively high cost. Twenty-one million dollars was approved by the Suffolk County Legislature in 1976 for 60 parcels, though in the end only \$10 million was spent. Needed revenue will be raised through the sale of 30 year

municipal bonds. The cost in Madison County would not be as high as Suffolk County since land values and development pressures are not as great here.

Despite its relatively high cost, development rights purchase has been well received by the general public in Suffolk County. Other units of government considering the use of public development rights purchase should realize a few things. First PDR programs tend to be found only in jurisdictions experiencing considerable development pressure. In such jurisdictions there tends to be a strong awareness of increased public service costs which accompany development, and expenditures for purchasing development rights is justified in that it will avoid increases in the tax rate (Coughlin and Keene). Second, a study of enacted PDR programs indicated strong local desires to: preserve the community's aesthetic and cultural values, and the desire to protect local sources of food production.

Transfer Fee Plan

Another idea for agricultural preservation has been recommended by Wallace E. Washburn (Washburn, 1976). Entitled a Transfer Fee Plan, it involves the development of state enabling legislation to authorize counties to establish county prime farmland reserves under the jurisdiction of a county farmland preservation board. The plan would work essentially as follows: once a prime farmland reserve has been designated, the sale of any land in the reserve for non-farm use would have to be approved by the County Preservation Board. If the sale were approved the County would levy a Transfer Fee. It is suggested that such a fee be high, such as \$2000 per acre or higher to discourage non-farm development and speculative land buying. If the land is sold, the county collects the fee and redistributes it evenly among farmers in the reserve. This compensates the farmers for the development restriction placed on their lands and at the same time offers them a financial incentive to continue farming.

Land Banking

This alternative has received very little attention to date in this country but, is worth mentioning. It involves purchasing farmland in fee simple by a government agency and then leasing it back to farmers with restrictions on use. While often thought of as a means of preserving farmland or open space, the government agency could also sell such land for urban development (Coughlin and Keene). In effect the government becomes a "landlord" and the public is thus able to designate the future use of the "banked land" and sell or lease it with appropriate restrictions. After government purchase, farmers would pay rent in lieu of property taxes and other costs associated with land ownership. Such fee simple purchase provides landowners with full compensation for their farmland. In addition, the increase in land values resulting from public development decisions and investments will benefit the public rather than individual landowners who hold key sites.

However, having the government as landlord may be unpalatable to the farmer, since his status changes from owner-operator to a tenant. Pride of ownership, an important factor to many farmers, is lost.

In addition, the initial costs for implementing land banking are high. Moreover, constituent pressure from special interest groups could force the governmental administering agency to change policies inconsistent with original purposes for establishing the land bank.

Right to Farm Laws

Legislation in New York stating the local ordinances cannot be adopted which restrict normal farming practices unless they endanger public health or safety had been adopted as part of the Agricultural District Law of 1971. Right-to-farm legislation has been passed in many states for protection of the farmer against legal actions taken by their neighbors and local governments. The intent of such legislation is to reduce the loss of agricultural resources by limiting the circumstances under which agricultural operations may be considered a nuisance.

Productivity Assessment

A new method of assessing farmland should become operational in New York next year. Simply called a "Land Classification System". This method will assess farmland according to its "soil productivity and capability", while taking into account climatic conditions (NYS Department of Agriculture and Markets, 1980). The premise of the system is that agricultural lands should be assessed on their productivity, not on the particular use a land can be put to. It does not consider what crops are grown but is keyed strictly to the capabilities of the soil, thus market factors are not accounted for.

While this system cannot be judged yet, it appears to be one of the more objective and equitable methods of assessing farmland, if based on accurate soil information, since soils can be judged uniformly across the state.

Agri-Business Survey Report 2001

Introduction

Agricultural businesses in Madison County make significant contributions to the local economy. Besides supplying and servicing farms, they also conduct a growing share of commerce with non-farm businesses and individual residents. In 2001, these businesses helped make it possible for Madison County farms to sell \$81,024,000 worth of farm products. Eighty-eight percent of these sales were from livestock-related sales – milk and cattle sales in particular – while the rest were primarily crop sales.¹

According to records maintained by the agricultural staff at Cornell Cooperative Extension of Madison County, 51 agribusiness firms conduct business in the county. A few are based outside of the county, yet do a significant amount of business here. These firms represent a variety of enterprises including tractor and machinery sales and service, banking and lending institutions, milk processors, dairy and farm supply cooperatives, insurance, accounting, building contractors, feed and farm supply outlets, etc. Additionally, there are a small number of other part-time and smaller businesses that deal directly with farmers that haven't been included in Cooperative Extension's list.

This report is part of the Madison County Farmland Protection Plan. Our goal was to describe more fully the county's agribusiness sector. The planning team, which organized this project/survey, consisted of staff from Madison County Planning Department and the extension educator with Cornell Cooperative Extension of Madison County. Through this activity, we gained a better sense of:

1. Businesses that participated in the survey e.g. types of products or services sold, number of employees, training methods & sources, renovation/expansion plans, geographic base of operations, business tenure, etc.
2. Their thoughts on Madison County as a place to do business;
3. Their perspective on Madison County as a place to live;

Initially, staff from Madison County Planning Department and Cornell Cooperative Extension met with representatives for Cornell University, who explained the AIDER (Agriculture Industry Development, Enhancement and Retention) program. This program builds community capacity through volunteer involvement and is designed to strengthen and expand the impacts of agriculture and food sectors. By using information gathered from surveys as to agribusinesses' needs e.g. new technology, markets, skills, value-added products, public support, or workforce development, the implementation phase of the county's Farmland Protection Plan takes on more relevance, especially as it relates to local agribusinesses. In this case, we developed our initial survey tool specifically for Madison County based on the AIDER model survey.

Maureen Maloney Robb, the AIDER coordinator, trained 9 volunteers in one-on-one interview techniques. Team members worked in teams of two and were given two or three businesses to contact. The group consisted of Retired Senior Volunteer Program (RSVP) volunteers, members of the Madison County Ag Working Group, and other interested community leaders. Once the surveys were returned to Cooperative Extension, we enlisted

the help of Emory Creel, a local statistician, to summarize the data.

Summary

Fourteen businesses were surveyed. These firms had been in business 43 years, on average, and ranged anywhere from 1 to 130 years. Seventy-eight percent of these firms were locally owned and operated, while the rest were either a franchise or part of a national or regional chain or cooperative. Over 40% of the firms were structured as sole proprietorships. The rest included a variety of business structures; family and personal corporations, local and farmer-owned cooperatives, and partnerships.

Of those responding, half reported that over 50% of their gross sales were agriculturally related. At the other end of the spectrum, more than a third reported that ag related sales amounted to 25% or less of their business volume. Three firms reported having sales in excess of \$3 million in 2000. Three others reported sales between \$1 and \$3 million, while the rest had total gross sales fairly evenly distributed between \$25,000 and \$500,000.

Two of these firms purchase 100% of their agricultural supplies in Madison County. Two others reported purchasing 80% and 50% of their supplies from within the county. Of the 5 contiguous counties listed as supply sources, Oneida County outranked all the others by almost 4 to 1. Five firms reported significant supplies coming from NY counties other than the contiguous ones. Three firms purchase between 70 and 90% of their supplies from out-of-state.

The distribution of customers is more regionalized than are their supply sources. For over 42% of the firms, Madison County customers made up at least 50% of their customer base. Customers from outside Madison County came from Oneida, Chenango, Onondaga, other NYS counties, Cortland, Otsego, and Oswego Counties, in descending order.

These agribusinesses experienced a variety of trends between 1998 and 2000. Fifty percent noted an increase in customers, while 43% reported a decrease. One reported no change in the number of customers. Sales volume increased for over 70% of those surveyed. Over one-fifth of those surveyed experienced no change in business volume, while one firm reported a decrease. Similarly, gross sales increased for 78% of the respondents, while they remained the same for 14% of those reporting. One business reported a decrease in gross sales. Close to 2/3's of those responding reported an increase in profit. Slightly fewer than 30% of those surveyed indicated that their profit level remained the same. One reported a decrease in profit.

The agribusinesses that were surveyed employed anywhere from 1 to 40 full-time workers on the local level. Although one firm represented a much larger agribusiness that employs close to 3,200 full-time workers, we counted only the local branch/franchise. Together, these firms are divided as to their perspective on workforce availability and the difficulty in finding qualified workers. Smaller businesses, which often rely on seasonal or part-time unskilled employees seem to have greater success than the larger firms, which often recruit for semi-skilled or skilled positions. "Poor work attitude" is the problem most often cited by those experiencing problems with employee recruitment.

Employers were “very interested” in the following topics related to their own education and training (in descending order): healthcare for employees, estate planning, inheritance taxes and marketing strategies. The top three topics that were of “some interest” to them included tax information on employees, labor availability, developing a business plan.

Employee training resources that had already been used included (listed in descending order): on-site training conducted by the employer, Cornell Cooperative Extension, community colleges/university, and previous job experience. For the employer’s own training and continuing education in the past, they listed Cornell Cooperative Extension, community colleges/university, and agriservice as educational resources.

Most agribusinesses agreed that environmental regulations reduce their “bottom line,” require additional training for them and their employees, and increase their capital costs. However, their comments tended to be more positive, citing “being helped by the EPA,” appreciating the appearance of responsible management and how it improved the public’s attitude and opinion of farm and agribusiness-related practices. One employer stated that capital costs may increase, but over the long run, operating costs would decrease once they were in compliance with environmental regulations. One respondent said that environmental regulations have created jobs for him.

During the last three years several firms had expanded or renovated their operations. Others were considering such a move in the next three years. Over 90% of the respondents agreed that market availability would be the most important factor in insuring future profits. The next most common response from 42% of those surveyed were the issues of changing consumer tastes and the cost of inputs, inventory, and supplies.

Eighty-six percent of these business owners/managers had attended business training of some sort and/or had computerized their records or inventory during the last three years. More than half of these businesses had improved their facilities or expanded their existing business. In the future, these agribusinesses cited these same four activities as their primary focus. Over 75% indicated other future expansion/renovation/changes that are currently being considered.

In terms of the resources required to expand or renovate, 70% of the respondents who said that land was readily available were considering such a move. In the majority of cases, the cost of land would be less than \$25,000, if it were even required. For those planning such a change, they estimated that they would invest between \$25,000 and \$49,999 in machinery and less than \$25,00 in buildings and structures.

Yet the obstacles they cited in moving ahead with such plans included insufficient time and labor, mounting local, state and federal regulations, cost of utility services, questionable return on assets and capital, and a somewhat pessimistic perspective on farming and its future.

Agribusinesses that have already planned or completed an expansion consulted with the following organizations as resources (listed in descending order of frequency): accountants and financial planners, financial institutions, Cornell Cooperative Extension, and local Chambers of Commerce.

More than three-quarters of those surveyed intended to remain in business between 7 and 10 or more years. Half of the firms had already completed plans for transferring the business, or were in the process of completing them. Most of these business transfer considerations did not include a generational transfer within the family.

For those that had expanded during the last three years, more than half had added additional products and/or increased their existing inventory levels. In more than a third of these expansions, they renovated existing facilities, added new facilities, and hired more employees. There was considerable variation in the cost of these expansions given the wide range of installations and changes made; everything from installing a local area network and server to expanding a greenhouse.

For those who hadn't significantly changed their businesses, 2/3's reported that declining local agricultural clientele was the factor most responsible for their not changing or expanding in any significant way.

In assessing Madison County as a place to live and work, those surveyed were mostly positive in their responses. Yet when the same kind of question was asked with regards to the county's business climate for agribusiness, they expressed less optimism. Four issues that drew the highest level of concern for more than a third of those surveyed included the availability of labor, employee work ethic, current growth trends, and the protection of farmland, in that order. However, in each of these areas, over two-thirds of those surveyed rated them as okay or strong. The county's business environment; housing; roads and bridges; transportation; and specialty services were rated the highest.

Local banks were by far the single largest source of credit followed by out-of-county banks, Farm Credit Service, and credit cards in that order. More than half of those responding rated their banks and other financial institutions as good or very good in their knowledge of agriculture, willingness to make loans, customer service, service hours, and serving the needs of agriculture. At the same time 35% of those surveyed gave poor marks to banks for not serving the needs of agriculture and for lacking agricultural knowledge.

County and state organizations – including everything from local land trusts to New York State agencies and corporations – were rated for their effectiveness in supporting and promoting agriculture. Organizations rating the highest in effectiveness included Cornell Cooperative Extension, Madison County Soil & Water Conservation District, Farm Bureau, New York State Department of Agriculture & Markets, and veterinarians. No one organization was singled out as ineffective, though 74% of all those listed were noted as being ineffective at least once. Similarly, 96% of the organizations listed were marked as “needing more information.”

When asked to evaluate public and government perceptions of agriculture in Madison County, respondents overwhelmingly agreed that local and county officials knew and appreciated agriculture's importance. However, state officials were viewed more skeptically, with more than 25% expressing disapproval to some degree. When asked to respond to the statement “residential growth does not pose a threat to farmers,” over 92% disagreed. Their responses to “farming is a business and farmers are business people,” were split between 3/4's agreeing and the rest disagreeing to some extent. Everyone surveyed answered positively

with respect to the future of agriculture in Madison and its dependence on support from business and government leaders. Planning in the county was viewed as being favorable to agriculture and its interests, though close to 15% expressed some degree of disagreement.

Finally, over two-thirds of those surveyed responded positively to two open-ended questions on local or countywide perceptions of agriculture and farmers. Yet over ½ of the positive respondents qualified their remarks by stating, for instance, that farming’s viability as a long-term local business is very tenuous – at best. Or the “public” perception that as an industry, agriculture adds much to the local economy, but implied that if individual property or personal rights were threatened by agriculture in any way, then the individuals’ rights should supercede those of agriculture’s.

Beyond the Survey

As implied in the introduction, there is a direct relationship between the farms and the agribusinesses in Madison County. Besides the survey, another way to characterize the agricultural economy is to consider both cash sales of farm marketings and the cumulative effect these sales have within the local economy in terms of total income and employment. Economic multipliers reflect “an initial change in final demand plus the resulting series of successive rounds of spending within the local economy. It is the ratio between the total change in spending and initial change in final demand (or the income or employment implied by it).”²

In New York State, it has been estimated that Total Income Multipliers of 2.29 and 2.28, respectively, apply to dairy and crop production.³ Using those values together with the breakdown of cash market sales in the aforementioned production areas, it can be estimated that agriculture’s largest sectors contribute close to \$146 million to Madison County’s economy:

$$\text{Total Income} = [(0.88) \times (2.29) \times \$71,078,000] + [(0.12) \times (2.28) \times \$9,946,000]$$

$$\$143,236,000 + \$2,721,226$$

$$\$145,957,226$$

From an employment perspective, the cumulative multiplier effect of dairy and crop production has been estimated at 1.52 and 1.51, respectively. According to the 1997 Census of Agriculture, there were 468 farm operators who identified farming as their principal occupation and 303 workers who worked more than 150 days per year.⁴ Taken together, there were 771 (468 + 303) full-time farm workers, employers and employees combined.

For farm operators or employees employed on a part time basis, many of them are often involved in the production of either poultry and livestock or nursery and wood products production. Consequently, I took the average of their employment economic multipliers

i.e. $(1.39 + 1.37)/2$ which is 1.38.)

There were 224 part time farm operators and 542 part time employees, as noted in the 1997 Census of Agriculture. Based on these estimates, employment and employment “spin-offs” can be estimated by adding full time employment with part-time employment as follows:

$$\text{Full time farmers and employees} = 1.515 \times (468 + 303) = 1,168$$

$$\text{Part-time farmers and employees} = 1.38 \times (224 + 542) = \underline{1,057}$$

Total F/T & P/T 2,225

These employment numbers seem slightly lower than what was previously reported for agricultural-related employment in Madison County. Six years ago, it was estimated that 4% of the county’s total population was employed in either farming or other ag-related businesses.

$$\text{Madison County Population (est.)} = 69,714$$

$$2,225 \div 69,714 = 3.2\%$$

While 4% may have been accurate in 1996, 3.2% may be more accurate for today, since the county has experienced a slight increase in population and at the same time, a significant loss of farms and a few ag related agribusinesses.

References

National Agriculture Statistics Service/USDA, *Cash Receipts from Farm Marketings, by County*, August, 2002. www.nass.usda.gov/ny/08aug/csh0802.htm.

Department of Agricultural, Resource and Managerial Economics, *Policy Issues in Rural Land Use*, Vol. 9, No. 2, December 1996, “Economic Multipliers and the New York State Economy.”

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¹ National Agriculture Statistics Service/USDA, *Cash Receipts from Farm Marketings, by County*, August, 2002.

² Department of Agricultural, Resource and Managerial Economics, *Policy Issues in Rural Land Use*, Vol. 9, No. 2, December 1996, “Economic Multipliers and the New York State Economy.”

³ Ibid. pge.3.

⁴ 1997 Census of Agriculture, Table 5, Hired Farm Labor—Workers and Payroll: 1997, pge. 212.

Table 1. Number of Farms In Madison County Distributed By Acres Per Farm 1950-2002**

| Farm Size in Acres per Farm | 1950 | 1969 | % Change Between 1950 and 1969 | 1992 | % Change Between 1969 and 1992 | 2002 | % Change between 1992 and 2002** | % Change between 1949 and 2002** |
|-----------------------------|-------|-------|--------------------------------|------|--------------------------------|------|----------------------------------|----------------------------------|
| 1-9 | 222 | 19 | - 91% | 25 | +32% | 49 | +96% | -56.8% |
| 10-49 | 457 | 96 | - 79% | 90 | -6% | 136 | +51% | -70.2% |
| 50-179 | 1058 | 376 | - 65% | 192 | - 49% | 256 | +33% | -75.8 |
| 180-499 | 583 | 524 | - 10% | 289 | - 45% | 207 | -28% | -64.5% |
| 500-999 | 35 | 55 | +57% | 87 | +58% | 74 | -15% | 211% |
| 1000-1999 | 5 | 5 | 0% | 13 | +160% | 8 | -39% | 60% |
| ≥2000 | 0* | 5 | +500% | 3 | -40% | 4 | +33% | - |
| Total Number of Farms | 2,360 | 1,075 | - 54% | 699 | - 35% | 734 | +5% | -68.9% |

* There were no farms reported in the 1950 Census of Agriculture with ≥ 2,000 acres; only those with ≥ 1,000 acres.

** A more thorough method in data collection was implemented in 2002; previous Census underreported farm numbers.

Table 2. Farmland Use in Madison County 1949-2002

| Farmland Use | 1949 | 1974 | % Change '49-'74 | 1992 | % Change '74-'92 | 1997* | % Change '92-'97 | 2002 | % Change '97-2002 |
|--|---------|---------|------------------------|---------|------------------------|---------|------------------------|---------|-------------------------|
| Total Cropland | 164,814 | 121,053 | -26.6 | 126,785 | +4.7 | 122,192 | -3.6 | 106,245 | -13.1 |
| Harvested | 120,781 | 85,384 | -29.3 | 96,511 | +13.0 | 100,073 | +3.7 | 86,164 | -13.9 |
| Cropland Pasture | 25,559 | 27,730 | +8.5 | 18,380 | -33.7 | 15,495 | -15.7 | 12,813 | -17.3 |
| Idle Cropland & Government Programs | 18,474 | 7,939 | -57.0 | 7,515 | +60.5 | 6,624 | -44.3 | 7,268 | +9.7 |
| All Other Cropland | | | | 4,379 | | | | | |
| Total Woodland | 51,720 | 18,032 | -65.1 | 34,714 | +92.5 | 34,218 | -1.4 | 30,549 | -10.7 |
| Woodland Pastured | | | | 6,530 | | 5,052 | -22.6 | 4,083 | -19.2 |
| Woodland not Pastured | | | | 28,184 | | 29,166 | +3.5 | 26,466 | -9.3 |
| Other Pastureland and Rangeland | 84,752 | 5,739 | -93.2 | 19,315 | +236.6 | 18,600 | -3.7 | 17,144 | -7.8 |
| Land in House Lots, Ponds, Roads & Wasteland | 16,292 | 16,130 | -1.0 | 14,812 | -8.2 | 17,859 | +20.6 | 14,326 | -19.8 |
| Total Land in Farms | 317,578 | 160,954 | -49.3 | 195,626 | +21.5 | 192,869 | -1.4 | 168,264 | -12.8 |

* cropland values were adjusted from what was originally reported in 1997.

Table 3. Number of Madison County Farms Distributed by Farm Classification 1950 – 2002

| Farm Classifications | 1950 | 1978 | % Change from 1950 | 1992 | % Change from 1978 | 1997 | % Change from 1992 | 2002 | % Change from 1997 |
|--|-------|------|--------------------------|------|--------------------------|------|--------------------------|------|--------------------------|
| Field Crop other than Cash Grain, Fruit & Nut, and Vegetable (Irish potatoes, hay, etc.) | 26 | 129 | + 396% | 90 | - 30% | 104 | +16% | 156 | +50% |
| Cash Grain | 42 | 58 | + 38% | 35 | - 40% | 59 | +69% | 31 | -48% |
| Fruit & Tree Nuts | 0 | 11 | +1,100% | 8 | - 27% | 6 | - 25% | 13 | +116% |
| Vegetable & Melon | 162 | 32 | - 80% | 25 | - 22% | 21 | - 15% | 20 | -5% |
| Horticulture Specialties | 0 | 28 | + 2,800% | 18 | - 36% | 38 | + 111% | 39 | +3% |
| Dairy | 1,477 | 503 | - 66% | 353 | - 30% | 299 | - 15% | 226 | -24% |
| Poultry | 108 | 5 | - 95% | 9 | + 80% | 1 | - 89% | 9 | +800% |
| Livestock other than dairy | 70 | 120 | + 71% | 100 | - 17% | 117 | + 17% | 152 | +30% |
| General Farms | 39 | 36 | - 8% | 24 | - 33% | 0 | - 100% | - | - |
| Animal Specialties | 0 | 15 | + 1,500% | 37 | + 147% | 47 | +27% | 88 | +87% |
| Miscellaneous and Unclassified | 436 | 0 | - | 0 | - | 0 | 0 | - | |

Table 4. Market Value of Agricultural Products Sold by Madison County Farms 1949 – 2002.

| | 1949 | 1949 Dollar Values Adjusted to 2002* | 1974 | 1974 Dollar Values Adjusted to 1997* | 1992 | 1992 Dollar Values Adjusted to 2002* | 1997 | 1997 Dollar Values Adjusted to 2002 | 2002 |
|--|--------------|---|--------------|---|--------------|---|--------------|--|--------------|
| Number of Farms | 2,360 | | 942 | | 699 | | 692 | | 734 |
| Market Value of Ag Products Sold | \$14,794,756 | \$36,247,152 | \$35,146,000 | \$45,924,107 | \$67,932,000 | \$67,932,000 | \$60,164,673 | \$67,261,510 | \$61,604,000 |
| Ave. per Farm Ag Products Sold | \$6,269 | \$15,359 | \$37,310 | \$48,752 | \$97,184 | \$97,184 | \$94,928 | \$86,943 | \$83,929 |
| All Crops Sold | \$2,565,217 | \$6,284,782 | \$4,323,000 | \$5,648,720 | \$5,788,000 | \$5,788,000 | \$8,811,000 | \$8,069,888 | \$7,438,000 |
| All Livestock Products Sold | \$12,187,005 | \$29,858,162 | \$30,717,000 | \$40,136,880 | \$62,144,000 | \$62,144,000 | \$56,879,000 | \$52,094,785 | \$54,165,000 |
| Forest Products | \$42,534 | \$104,208 | \$107,000 | \$139,813 | ** | - | ** | - | ** |
| Percent “All Crops Sold” is of Total | 17.6% | 17.6% | 12.6% | 12.6% | 8.5% | 8.5% | 13.4% | 13.4% | 12.1% |
| Percent “All Livestock Products Sold” is of Total | 82.4% | 82.4% | 87.4% | 87.4% | 91.5% | 91.5% | 86.6% | 86.6% | 87.9% |

* Agricultural Statistics 1961, 1975, 1989, 1999. “Prices Received by Farmers indexed by parity 1910-14.

** Forest Products Sold included in “All Crops Sold” in 1992 and 1997.

Table 5. Madison County Farms Harvesting Cropland Distributed by Crop 1949 – 2002

| | 1949* | 1974 | % Change from 1949 | 1992 | % Change from 1974 | 1997 | % Change From 1992 | 2002 | % Change from 1997 |
|------------------------------------|-------|------|-----------------------------|------|-----------------------------|------|-----------------------------|------|-----------------------------|
| Farms with Harvested Cropland | 2,209 | 893 | -59.6% | 631 | -29% | 616 | -2.4% | 585 | -5.0% |
| Corn Grain | 767 | 423 | -44.9% | 186 | -56.0% | 197 | 5.9% | 127 | -35.5% |
| Corn Silage | 1,304 | 240 | -81.6% | 362 | 50.8% | 322 | -11.0% | 228 | -29.2% |
| Wheat | 417 | 63 | -84.9% | 12 | -81.0% | 19 | 58.3% | 14 | -26.3% |
| Oats for Grain | 797 | 398 | -50.1% | 166 | -58.3% | 129 | -22.3% | 81 | -37.2% |
| Barley | 102 | 14 | -86.3% | 16 | 14.3% | 13 | -18.8% | 11 | -15.4% |
| Soybeans | 40 | 3 | -92.5% | NA | - | 13 | - | 13 | 0 |
| Hay & Hay Crop Silage | 1,837 | 800 | -56.5% | 543 | -32.1% | 540 | -0.6% | 496 | -8.2% |
| Vegetables | 438 | 70 | -84.0% | 43 | -38.6% | 41 | -4.7% | 28 | -31.7% |
| Orchards, Fruit & Nut | 646 | 18 | -97.2% | 13 | -27.8% | 7 | -46.2% | 16 | 229% |
| Berries | 64 | 11 | -82.8% | 9 | -18.2% | 7 | -22.2% | 15 | 214% |
| Nursery, Greenhouse & Floriculture | 7 | 16 | 128.6% | 22 | 37.5% | 47 | 113.6% | 33 | -29.8% |
| Organically Produced Crops** | - | - | - | - | - | - | - | 7 | - |

* Farms reporting various cropland uses.

** New information collected in 2002

Table 6. Acreage of Harvested Cropland Distributed by Crop 1949 – 2002

| | 1949 | 1974 | % Change from 1949 | 1992 | % Change from 1974 | 1997 | % Change from 1992 | 2002 | % Change from 1997 |
|-----------------------------------|---------|---------|-----------------------|--------|-----------------------|---------|-----------------------|--------|-----------------------|
| Total Acres of Harvested Cropland | 120,781 | 107,595 | -10.9% | 96,511 | -10.3% | 100,079 | 3.7% | 86,164 | -13.9% |
| Corn Grain | 4,335 | 15,093 | 248.2% | 14,348 | -4.9% | 16,344 | 13.9% | 10,552 | -35.4% |
| Corn Silage | 16,715 | 19,445 | 16.3% | 24,391 | 25.4% | 20,372 | -16.5% | 16,616 | -18.4% |
| Wheat | 4,564 | 984 | -78.4% | 376 | -61.8% | 660 | 75.5% | 1,165 | 176.5% |
| Oats | 8,446 | * | | 4,866 | - | 3,532 | -27.4% | 2,226 | -.37.0% |
| Barley | 790 | * | | 372 | - | 285 | -23.4% | 371 | 29.8% |
| Soybeans | 311 | 52 | -83.3% | NA | - | 1,039 | - | 780 | -24.9% |
| Hay, Haylage, Grass Silage | 64,943 | 60,749 | -6.5% | 56,898 | -6.3% | 63,397 | 11.4% | 56,135 | -11.5% |
| Vegetables | 8,935 | 1,170 | -86.9% | 1,099 | -6.1% | 772 | -29.8% | 901 | 16.7% |
| Orchards, Fruit & Nut | 347 | 89 | -74.4% | 135 | 51.7% | 50 | -63.0% | 52 | 0.04% |
| Berries | 30 | 10 | -66.7% | D | - | 20 | - | 42 | 210% |
| Nursery | 6 | 36** | 500% | 146 | 305% | 807 | 452.7% | 287 | ??? |

* Data not available in 1974.

** Includes only farms with sales of >\$2,500.

Table7. Madison County Livestock Inventories 1949 – 2002

| | 1949 | 1974 | % Change '49-'74 | 1992 | % Change '74-'92 | 1997 | % Change '92-'97 | 2002 | % Change '97-'02 |
|--------------------------------------|---------|--------|------------------------|--------|------------------------|--------|------------------------|--------|------------------------|
| Cattle And Calves | 56,254 | 55,192 | -2% | 51,676 | -6% | 46,823 | -9% | 44,476 | -5.0% |
| Cows and Heifers that have calved | 35,142 | 33,042 | -6% | 29,499 | -11% | 26,588 | -10% | 22,918 | -13.8% |
| Beef Cows* | 571 * | 1,499 | +163% | 957 | -36% | 1,518 | +59% | 1,310 | -13.7% |
| Milk Cows | 34,571 | 31,543 | -9% | 28,542 | -10% | 25,070 | -12% | 21,608 | -13.8% |
| Heifers and Calves | 18,879 | 22,150 | +17% | 20,047 | -10% | 18,731 | -7% | 20,248 | +10.0% |
| Steers and Bulls | 2,233 | - | - | - | - | - | - | - | |
| Hogs And Pigs | 2,002 | 803 | -60% | 339 | -58% | 830 | +149% | 685 | -17.5% |
| Sheep And Lambs | 1,081 | 334 | -69% | 1,187 | +255% | 965 | -19% | 2,691 | +278.9% |
| Any Poultry | 137,485 | 72,257 | -48% | 1,519 | -98% | 1,484 | -3% | 2,031 | +36.8% |
| Horses | 2,968 | 715 | -76% | 1,181 | +65% | 922 | -22% | 1,313 | +42.4% |
| Goats | * | * | - | 124 | - | 103 | -17% | 111 | +7.8% |

Agricultural and Farmland Protection Plan (Muckland Issues)

3. Special Project Area: Muckland Issues

Nearly 12,500 years ago, a massive glacier dammed the St. Lawrence River and subsequently flooded much of Central New York. The resulting waterbody, called Lake Iroquios, covered a vast depression and was likely similar in appearance to our Great Lakes. When the glacier retreated, a huge shallow depression remained inundated with water in the northern portion of Madison County. Locally, this became known as the “great swamp”. Over thousands of years, organic deposits were transformed into rich black muck soils. The area remained flooded until drainage efforts were pursued to tap the rich agricultural resource in the Mid 19th Century. By the 1960’s, the entire area had been extensively drained by tile drains, small surface drains, and large ditches, with the largest being the 8 mile long Douglas Ditch (Cowaselon Creek).

Once drained, there were just under 6,000 acres of muckland exposed in the Towns of Lenox and Sullivan. The onion, celery, lettuce, carrot, and potato farming industry thrived on this rich resource. The prosperity extended through the better part of the 20th Century, with declines becoming noticeably prominent in the 1980’s and 1990’s. Today, around 3,000 acres remain in production, however in any given season, more land typically lies out of production (fallow) than land under cultivation. The industry currently relies on sod, potatoes, corn, soybeans, and onions as the primary cash crops, a much different array of crops than in the past. Market forces, a lack of willing farmers, and soil depletion have been the primary factors leading to the decreases in production. Much of the muckland is no longer maintained and areas that were once cleared fields are now grown over with scrub-shrub or forest vegetation.

In this area, the viability of a muck soil is most impacted by the soils depth. In many areas of the muck, soil depletion has been a primary factor in the demise of the muck farming industry. However, many viable areas of muck soil remain. In the Summer of 2000, over 500 soil cores were taken throughout the muck to determine the depth of existing muck deposits. The results showed that the deepest muck soil was the Edwards muck, with an average depth of 20 inches. The data was combined into a GIS overlay that prioritized the muck based primarily on depth, but also on inherent soil properties. The results suggested that approximately 1,694 acres of relatively deep mucks remain, with most of these occurring in the town of Sullivan.

In some areas of the mucklands, new forms of use and development are becoming more common. The most dominant of these is wetland creation. Unique hydrologic and soil features have focused the attention of federal wetland creation programs and private citizens on the fallow muck areas. Although a lack of definitive information exists, it is believed that approximately 500 acres (as of October 2000) of muckland may be enrolled in Federal wetland creation programs. It is anticipated, that despite the time frame of easements which are in some cases placed on the land, it is intended that these creations are permanent and may be regulated as such. The permanency of such activities has received much attention and debate and most agree that some steps must be taken to ensure the protection of the muck soils for current and future farming activities in light of wetland creation.

In March of 2001, the Planning Department completed a comprehensive study titled “The Cowaselon Creek Watershed Area Agricultural Protection and Wetland Restoration Project” which was aimed at examining the current issues facing the muckland agriculture industry and the area surrounding it. A number of recommendations were developed which relied upon zoning changes to address these issues in the long term.

4b-1: Opportunities for Biomass Production

A promising new agricultural opportunity for the mucklands area of Madison County involves the growth of short rotation woody crops (primarily willow) for biomass to be used in the generation of energy. The biomass crops are an alternative farm crop that can be used to meet increased bioenergy and bioproduct demands while providing numerous positive environmental and economic benefits (Abrahamson et al. 1998). Madison County is currently working with the Short Rotation Woody Crops Program of the State University of New York College of Environmental Science and Forestry and a prominent local muckland farmer to seek funding to begin trials of this crop on muck soils. SUNY ESF has been a leader in biomass crop research since the mid 1980's. The University is involved in a network of willow bioenergy clone-site trials to determine which clones produce the greatest yields on various soils across a range of climate conditions. To date, there are 21 different trials, in nine different states, with over 50 willow clones (Volk et al. 2000). If efforts move ahead as planned, this will represent the first time that willow biomass trials will be established on muck soils in the United States. It is anticipated that planting efforts will be initiated on approximately 2 hectares of muck soil in the Spring of 2002.

The highly fertile muck soils have the potential to increase the yields per acre of biomass without increasing production costs to the farmer. If true, the biomass crops could become a viable competitor with existing coal based energy production methods. Co-firing woody biomass with coal at a 10:1 coal: biomass mixture to generate electricity reduces power plant emissions of SO₂ by 9% and NO_x by 5 - 15%, depending on firing and fuel conditions (NYSEG 1996). Woody crops, like willow and poplar, are considered CO₂ neutral fuels (Mann and Spaeth 1998). As a result, a 10% replacement of coal with biomass can result in a 10% reduction in greenhouse gases because fossil fuels are offset. Marketing strategies are currently being examined by SUNY ESF and the Salix Consortium here in New York State.

There are a number of innovative environmentally beneficial methods used in growing willow biomass. Soil erosion will be reduced under willow biomass crops due to the dense planting and perennial nature of the crop. Application of pesticides is lower than conventional agriculture since herbicides are only used during the first one or two growing seasons until the site is fully occupied. After planting, the crop is harvested on three-to-five year rotations, resprouting (coppicing) after each cut. Studies indicate that 6 - 7 harvests can be made before replanting the crop, which means that willow biomass crops are only planted once every 19 - 36 years. These factors, and the efficient use of nutrients due to rapid growth and a well-established, extensive, perennial root system, will result in reduced non-point source pollution from farmland.

As an alternative farm crop, willow has the potential to revitalize rural economies. A recent study indicated that for each 10,000 acres of willow biomass crops established,

75 rural based jobs would be created and over \$520,000 per year in state and local revenue would be generated (Proakis et al. 1999). This would be a welcome development in New York where the \$2.6 billion agriculture industry has been in decline over the past decade. At its peak, the muckland region of Madison County farmed 4,500-5000 acres. The local farm community realistically believes that approximately 3,000 acres of existing muckland could be used for willow biomass production. If that is the case, this clone site trial may be the first step in the eventual creation of 56 rural based jobs and could add \$390,000 in state and local revenue to the regions economy.

4d. Special Project Area: Muckland Recommendations

As noted, the competing desire for a variety of uses have resulted in a complexity of issues facing the muckland region of Northern Madison County. In light of these issues, steps need to be taken to protect this rich agricultural resource for the future as well as foster innovative agricultural practices that maintain the current industry while promoting future growth.

The field study portion of the “Cowaselon Creek Watershed Area Agricultural Protection and Wetland Restoration Project” highlighted that nearly 1,300 acres of muckland remained viable. In light of current wetland creation activities, these areas were specifically targeted for protection using overlay zoning techniques. These areas were targeted for protection based on being viable lands for the continuation of more traditional muck farming that the area has experienced in the past. The adoption of a “muckland protection overlay zone” over the carefully defined area comprising only the best, most agriculturally valuable muck soils would have a single, simple regulatory provision: the prohibition of wetland restoration/creation—as defined by the U.S. Army Corps of Engineers and over an appropriate “accessory use” size (perhaps a half acre) within its bounds. The remainder of the muckland area would be included within a “Wetland Restoration Overlay Zone”, which would allow wetland creation by right within the zone in order to direct wetland creation where it is most suited. At this point, neither of the zoning recommendations have been implemented. It is anticipated that measures will be continued to address these complex issues in the near future.

Although specific areas of the muck have been targeted for protection, this does not suggest that other areas are without agricultural importance. There are a number of other crops that may be examined for these areas. One with particular promise is Willow Biomass. Other niche crops such as herbs, nutraceuticals, or gourmet salad greens could be explored as alternative viable crops. Other future opportunities for diversification may present themselves, but without adequate protection measures today, the land may not be available in the future. To many, the draw toward wetland creation is the financial incentive provided by the conservation easement. Many, especially those in the agricultural community have noted that if market forces and crops were able to increase

farm profitability, the land currently in production would remain and perhaps new muck tracts would be opened up.

Full Recommendations:

The series of maps presented show that the Cowaselon Creek Watershed Area is physically and hydrologically complex. The area has experienced myriad physical changes from glaciation thousands of years ago and subsequent wetland development, to drainage and clearing of wetlands for muck agriculture, to current mixes of fallow recreational land, restored/created wetland areas, continued agriculture, housing, and industrial development. The current state of land use has led to the pressing need for long term planning and increased institutional cooperation. As efforts proceed, decisions about future land uses and implementation programs will be made by the local community based upon their values and goals.

There are a number of important general conclusions that are supported by the findings of this study. First, it is clear that agriculture is still viable on the muck soils in some areas, with the most important factor for viability governed by soil depth. Second, wetland restoration/ creation is viable anyplace in the mucklands and, in certain places, within the CCWA that are outside of the muck soils. Third, other land uses, such as commercial and residential development are possible within the CCWA.

It is clear from public meetings and discussion, that there is a competing desire for all of these land uses within the Cowaselon Creek Watershed Area. For example, the municipal governments have expressed a strong interest in developing a plan to address the wetland restoration/creation underway in the Towns. In addition, they are deeply concerned with maintaining their tax base, both in the CCWA and outside. The outdoor enthusiasts appear to desire a mixed use within the CCWA: the protection of open space, more restoration/creation projects, and the promotion of recreation opportunities in and around the Cowaselon Creek and the new or natural wetlands. The farming community would like to see conditions that would allow agriculture to profitably continue on the muck. If profitable farming can not continue in certain areas, the farm community wants options for the most profitable sale of their land or options to enter into wetland restoration/creation or other appropriate programs. The wetland restorers wish to be allowed the opportunity to restore/create wetlands on all sites with the appropriate environmental conditions, so long as their budgets allow. In addition, they wish to build wetlands in the area that are consistent with all/some the functions and values typically associated with these systems. Finally, the Cowaselon Creek Watershed Protection District still maintains the miles of ditches that run through the CCWA. Their duties are aimed at keeping the mucklands properly drained, largely in the interests of the agricultural community. Although these stakeholder goals often compete, this study provides a detailed source of data which can be used to foster planning and compromise.

Recommendations:

Using the information developed for this project and input from local stakeholders, a number of recommendations will be presented. These recommendations are offered as a starting place for local discussion. Decisions on final action will be made by the local community and will be a reflection their values.

Continuation of Agriculture

If the community decides that it wants only agriculture to occur within this area, there are a number of possible avenues for attaining this outcome.

Easements

Easements could be put on agricultural land in the same manner that the Wetland Reserve Program is using to protect wetlands. This could be done through a purchase of development rights (PDR) program, implemented by the Town, a not-for-profit or some other group. Such a program could prevent development that might eliminate the future of farming in an area. The purchase of development rights (PDR) would allow the farmer to sell an easement on their property to protect certain areas from development while allowing them to cash in on a percentage of the development value of that land. The farmer could continue to farm the land as he/she did before. In addition, the easement would allow the land to be taxed for its agricultural value, not its market value, thereby providing added tax relief.

Land Development Tools

A number of other economic development efforts can also be implemented to protect agriculture. Cluster development and large minimum lot sizes, both aimed at protecting larger tracts of land from being developed entirely, could be required in the CCWA. The main effort of these tools would be to discourage other types of development. It would not however, prevent conversion of the land to wetland. A very restrictive farmland protection zone could be established that would limit land use of anything other than agriculture. Agriculture could be included in local economic development plans committing localities to promote and research alternative crops that may increase the profitability of current farming operations.

Wetland Restoration/Creation

Easements

Easements may also be an option for the promotion of wetland restoration/creation. The Wetland Reserve Program currently uses 30 year and permanent easement options for land enrolled in the program. In addition to the WRP easements, new easement programs could be developed by a Town, not-for-profit, or other group.

Land Development Tools

If the community decides that it wants only wetland restoration/creation to occur in the CCWA, there are a number of possible avenues to pursue. The local land use regulations could be changed so that agriculture becomes a non-conforming use, but when the farming stops, the land must be turned into wetland. Wetland restoration, creation, mitigation, or even wetland banking are potential sources of funding. The CCWPD could be used to flood the mucklands and effectively return the entire area back to a wetland. In addition, the local community as well as state and federal agencies could

lobby to promote further funding of wetland restoration/ creation in the area. Finally, the community may decide to do nothing and let the area revert to wetlands naturally.

Wetland Banking

The CCWA has been shown to contain much potential for wetland restoration. In that light, an additional measure that may provide significant future income and opportunity for the Towns and their citizens is a wetland mitigation bank. “Mitigation banking has been defined as wetland restoration, creation, enhancement, and in exceptional circumstances, preservation undertaken expressly for the purpose of compensating for

unavoidable wetland losses in advance of development actions, when such compensation cannot be achieved at the development site or would not be as environmentally beneficial” (Federal Register 1995). The first wetland mitigation bank in NY occurred in Rochester, NY and was developed by the Cornerstone Group. Although details on this program are not available at this time, this may be a lucrative and environmentally beneficial avenue for the Towns of Lenox and Sullivan to pursue.

An Alternative Solution

The areal patterns... provide a basis for targeting both non-regulatory (economic) and regulatory measures so as to encourage and channel both continued agriculture and the restoration and creation of wetlands, respectively, into the most appropriate portions of the CCWA.

Economic Measures

The conservation easement purchase program in aid of wetland restoration within the CCWA conducted by the USDA/NRCS under the Wetland Reserve Program is already well-known. While the NRCS itself needs no encouragement in this regard, County and municipal support of the program within the wetland restoration area mapped ..., particularly with regard to wavering landowners, may prove beneficial and complement the similar ongoing efforts of the private Great Swamp Conservancy.

While the ... areal pattern mapped ... was originally conceived of as an agriculture protection overlay zone, it may turn out to have more value as a target area for the direction of economic incentives toward active farmland preservation. Identification of working farming operations within this area and their inclusion as priority sites within the Madison County Farmland Protection Plan—and perhaps within individual Lenox or Sullivan counterpart plans—would be a logical part of this. This, in turn, would provide the basis for selection of such farms for the State Environmental Protection Fund-financed Farmland Protection purchase of development rights (PDR) program or for local, municipally-supported conservation easement purchase programs in aid of retention of viable farming. Outreach efforts toward encouraging inclusion of farmed land within this area into Madison County Agricultural District #2 might be initiated. Alternatively, encouraging farmers not now benefiting from individual agricultural tax assessments to applying for them might be directed here. Likewise it could serve as a focus for muck-oriented innovative niche crop diversification suitable for muck soils—

herbs, nutraceuticals, gourmet salad greens for restaurants, and biomass fuel crops, for example.

Land Use Regulation

Changes in local zoning regulations may complement economic measures in encouraging wetland restoration where most valuable, while limiting the potential of such restoration efforts from interfering with appropriate and legitimate land uses and municipal interests with which they may coexist.

Overlay zoning is a technique particularly suited to dealing with individual land uses and environmental conditions that may affect only parts of existing conventional zones and that do not invalidate the original basis of those underlying zones. A technical definition of an overlay zone describes it as “a mapped...district superimposed on one or

more established zoning districts [which] may be used to impose supplemental restrictions on uses in these districts, [or, on the other hand] permits uses otherwise disallowed, or implements some form of density bonus or incentive bonus program” (Jones and Bavoso 1996). This overlay zoning techniques thus subjects a parcel to both the underlying and the overlay zones’ provisions.

Using this overlay zoning technique, a wetland restoration zone might be created legislatively for the areas determined to be most suited for wetland restoration and least suited for alternative uses. One of the contested issues within the CCWA has been the determination of where WRP wetlands are being placed. As noted, legal issues have prohibited the NRCS from divulging such information on its own. Consequently the simple identification by municipalities of parcels within their boundaries that are participating in the WRP has been difficult; attempts at such identification have sometimes yielded inaccurate results. In order to solve this identification problem for local government and planning bodies, while at the same time expediting actual wetland restoration in the best suited areas for landowners and for sponsoring governmental and non-profit entities, a simple but innovative form of overlay zone might be tailored.

Such a “Wetland Restoration Overlay Zone” might be placed on the respective town zoning map to cover each town’s portion of the areas. Its provisions would apply only to those restoration or creation projects greater than 1 acre in size. Such wetland restoration or creation would be allowed by right, subject only to any applicable setback requirements (see below) and to two simple administratively-determined (that is, not needing the discretionary approval of any board) conditions. First, the landowner would need to file a Notice of Intent form through the Zoning Enforcement Officer (ZEO) for the town Planning Board. And second, the applicant would have to submit a site plan for the work as part of an application for a non-discretionary land disturbance permit through the ZEO. Since the area of this overlay zone has already been determined as appropriate for restoration, the applicant would not have to wait on the schedule and discretion of a monthly-meeting planning board. Nor would that planning board incur any new regulatory burden. But the town planners would be able to keep tabs on the extent and locations of wetland reversion, and the Enforcement Officer would have a means of checking that newly created wetlands were, in fact, being constructed in compliance with established locational standards. Since the boundaries of the overlay zone would not follow parcel boundaries, the towns might consider simplifying the Enforcement

Officer's task by writing the overlay zone provisions to make them apply to *all* of the area of those parcels of which at least half the area was covered on the zoning map by the overlay zone.

The towns might want to consider, as well, placing a second type of overlay district on their zoning maps, as a complement to the non-regulatory measures described earlier aimed at encouraging the continuation of farming on those much soils best suited for it. Such a "Muckland Protection Overlay Zone," aimed at protecting the best mucks from premature wetland conversion/reversion, might follow the limits of the same bright red area shown on Figure 36 and mentioned earlier. Under existing zoning in both towns, the issue of wetland creation or restoration is nowhere addressed—'wetland' is found in *no* zone, whether as a principal, an accessory, or a special use. By default, then, wetland creation is presently allowed without any regulation in *all* areas. The adoption of a muckland protection overlay zone over the carefully defined area comprising only the

best, most agriculturally valuable muck soils would have a single, simple regulatory provision: the prohibition of wetland restoration/creation—as defined by the U.S. Army Corps of Engineers and over an appropriate "accessory use" size (perhaps a half acre) within its bounds. This zone would, as mapped, be overlain only over a limited portion of the existing Agricultural ("AG" in Lenox, "A" in Sullivan) zones of the two towns: 1237 acres, or 4 percent of the entire CCWA area and about 1.8 percent of the combined total areas of the two towns. This mapped area is the result after some discretionary editing was done in order to eliminate small unconnected areas otherwise meeting the zone's muckland soil suitability standards. A further reduction of the area of this zone might be accomplished by the towns by the elimination of portions of it where only a few acres—presumably too small to be significant from a farming preservation perspective—spread over parcel boundaries from large areas on adjoining property. Periodic review of the land within these boundaries might be undertaken at intervals—ten years, perhaps—in order to determine if degradation of soil suitability for continued farming had taken place over the intervening time sufficient to justify retraction of the zone's boundaries.

It should be noted that when the idea of such a muckland protection overlay zone was presented publicly, those members of the farming community in attendance felt that it would do them more harm than good—specifically by limiting their ability to restore or create wetlands on their property when they were through farming their land. They suggested that the economic market, without any regulatory help, would keep their land in production for as long as the soil remained, and that they neither needed nor wanted protective zoning regulations. Rather, they would prefer to see this area combined into a wetland restoration overlay zone along the lines previously described. However, there was strong interest in searching for alternative agricultural crops, such as biomass fuel crops, that might feasibly be produced on these muck soils. (See discussion of Economic Measures above).

Within the CCWA, but outside any newly established "fast-track" wetland restoration overlay zone, the towns should consider establishment within their zoning regulations of either *special conditions* for zoning approval of proposed restored or created wetlands or *specific standards* for such wetlands as *special uses*. These would apply to proposed wetlands over the threshold area for "accessory" status previously

suggested. Three examples of such special conditions or standards may be suggested here.

First, a minimum setback for the physical boundary of a newly created wetland from the road along which a site property fronts would serve an important public purpose. It would preserve and protect the property frontage along the road for potentially needed infrastructural use—whether extension of utility lines either above or below ground or needed road repair or widening. Bringing the physical edge of a new wetland close to the edge of such a road obviously could physically interfere with the space needed for the infrastructure and for the greater space needed in the process of putting the infrastructure in.

Less obvious, but potentially equally as important in such situations, is the necessity for local regulatory protection for locally needed roadside infrastructure development against potentially pre-emptive State regulatory impacts that might easily apply to them as a direct consequence of wetland creation. The State's regulatory imposition of a 100 foot buffer zone around the physical edge of State-regulated wetlands

needs to be considered in *addition* to the potential physical problems of more direct proximity to the roadside of a newly-created wetland's physical edge. As things stand now, the DEC does add newly created or newly discovered wetlands meeting its regulatory criteria to its regulatory maps—and to these newly mapped regulatory wetlands automatically are added their standard 100 foot regulatory buffer zone. Since a setback needs to cumulatively take into account both physical infrastructure construction needs along the roadside and the State's 100 foot regulatory buffer, a 200 foot setback, measured from centerline of the road, seems a reasonable starting point for discussion of such setback depth within which a new wetland could not be extended. Measuring the setback depth from the edge of the road right of way (rather than the centerline) would certainly allow for some reductions in this. And perhaps discussion with town and county highway departments and utility companies may reveal some limited further reduction would not be irresponsible. The mistake should not be made, however, of ignoring the potential impact of the DEC's 100 foot regulatory buffer and treating a local wetland front setback as comparable to a conventional building line front yard setback.

A second type of special condition or standard would provide for on-site field determination, by NRCS staff (or perhaps by private soil scientist, as well, where NRCS had no interest in the matter) of soil suitability type and applicability of local zoning provisions in cases where accuracy of the overlay zone mapping based on this study is called into question.

A third possible special condition or standard for wetland creation or restoration outside the restoration overlay zone might be the determination that the proposed new wetland would not interfere with existing drainage conditions that are necessary for the continued use either of farming operations or of existing non-farming structures within a certain specified distance of the proposed wetland.

The two techniques of proposed new/newly restored wetland—*allowed uses subject to special conditions* and *special uses with specific standards* are related, but they differ significantly. The former classification allows a determination of the satisfaction (or non-satisfaction) of the conditions to be made administratively by the Enforcement

Officer, without further recourse to the discretion of the planning board. From the property owner's perspective it would normally be more expeditious. From the towns' perspective, though, it is not well-suited to conditions (such as the third, unless it could be written so as to remove the discretionary element) that are inherently difficult to determine by an enforcement officer on an completely clear-cut and objective "It meets it, or it doesn't" basis. Both the specific conditions or standards and their regulatory form, then, would need to be worked out by the individual town boards.

The Cowaselon Creek Watershed Protection District

A final suggestion calls for an examination of the activities and influence of the Cowaselon Creek Watershed Protection District (CCWPD) to determine if change is needed to address the current state of the Cowaselon Creek Watershed Area. The Cowaselon Creek Watershed Protection District (CCWPD) was originally created to maintain and enhance the ditches and drainage mechanisms in the CCWA to protect and enhance the agricultural lands, specifically on the muck soils. Their duties today remain largely unchanged. With the changes in land use, it may be appropriate to review its role

and duties. First, could the CCWPD be used to maintain the proper hydrologic regimes in the restored/created wetlands? Second, can the CCWPD property be used to foster recreation activities including hiking, birding, fishing, canoeing, etc? Finally, in the areas of the muck not identified as viable farmland, can the CCWPD work with the NRCS, GSC, the USFWS, and landowners to restore hydrology/create wetlands without large scale excavation and construction?

Next Steps

Open dialogue between landowners, interested citizens, local politicians, and agency representatives should be a regular component of future activities in the CCWA. As land use and the roles of organizations continue to change, new and emerging issues must be addressed in a prompt fashion. In this light, newly created and compiled digital information, such as National Wetland Inventory maps and the re-mapping of the soil survey, will be constantly developed. This new information should be periodically reviewed so that it can be included within any planning that occurs here in the future.

A general examination and evaluation of the fiscal impacts of different wetland restoration scenarios should be undertaken. The development of a protocol for the maintenance of an up to date database on restored/created wetlands should also be initiated. This measure should include the development of a GIS layer containing the actual restored wetland boundaries which would be an accurate reflection of the overall impacts of the WRP, PFFW, and other programs. Currently, crop alternatives are being sought for the mucklands area, with special emphasis being placed upon willow biomass (see section 4b-1) . These efforts and others like it should continue in conjunction with local farmers.

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Beef Production in Madison County

There are over 100 beef cattle operations in Madison County. As of 2001, cattle prices are at a cyclical high, and most of the county's beef farmers can show a positive net return to labor and capital. Their unanimous cry, however, as they each try to individually market their beef, is "we need a program to help us retail our meat."

Most of Madison County's 1,200 beef cows are on land that is no longer prime dairy land, whether because the farm is not large enough to support a viable family farm, or because the soil type or slope is not suitable for high-production cropping.

The predominant management system in the county, as in the state, is the "cow-calf" operation, using Angus or Hereford cows. Farmers will calve in spring, run the calves with the cows through summer and autumn, and then wean and sell the calves as 400- to 600-lb weaners in early winter. Calves can be sold through auction, through brokers, or directly to feedlots.

Interestingly, although most people have visions of feedlot cattle in Oklahoma or Colorado, each year nearly 40,000 weaners (half of the state's annual production) are fed out in New York's western grain-producing counties.

Nationally, the wholesale beef market is cyclical in nature, and over the past 100 years it has repeatedly followed a 10-year cycle. In the mid-1990's the cycle was at its low point, with NYS feeder calves fetching only \$.40/lb liveweight (LW). In 2001 the cycle is at its high end; quality feeder calves are selling at \$.95/lb LW on the wholesale market.

The price a Madison County beef producer receives for a market animal on the wholesale market is usually extremely variable, however, because of the small number of animals he or she can offer.

The great opportunity for Madison County beef producers, says Mike Baker, New York's Beef Cattle Extension Specialist, lies in the potential to market directly to the retail consumer. "New York producers," he says, "can't compete with, say, the Wyoming beef industry, which has lower winter costs, lower land costs, and can move great numbers onto the commodity market. But we can compete with quality. That local niche market is an opportunity for us if we can tap into it."

Most agree that at least 75 to 100 brood cows are needed for a producer to make an independent living from a beef operation. Many beef producers, therefore, raise beef animals for other reasons: to keep their land open, as a way to market hay or grain grown on the property, as a hobby, or as a way to make some extra dollars on the side.

The return on a traditional cow-calf operation is marginal. With an average cost of \$300 to winter a cow, the \$400 gross receipts from the sale of a steer calf (450 lb @ \$.95/lb) leaves very little return to labor and capital. Many Madison County producers attempt to improve their returns by adding value to their market animals, particularly by feeding their calves to finished weights, and either selling them wholesale as prime beef or marketing them to retail customers as freezer beef.

Finishing for the freezer market

Eve Ann Schwartz and Harmon Hoff own a beef herd on the Schwartz family farm in Earlville. The farm's prime bottom land is rented to a neighboring dairy farmer, while the hillside pastures support 60 beef cows, their calves, and yearlings being grown out for market.

Ms Schwartz does not sell her calves as weaners. Instead she rears them to finished weights (about 1,200 lb LW -- 700 lb carcass weight) for the retail freezer market. Selling weaner calves, she says, is a low-margin, high-risk endeavor. "The price fluctuates enormously. There's no market control -- it's no basis for business."

Over half of her finished cattle are sold wholesale to a packer, and in early 2001 were fetching \$1.15/lb CW for choice, yield-grade-3 carcasses. The remainder are sold directly to retail customers. Her cattle are hormone-free, which reduces growth rate but allows her to sell to a "specialty" natural beef market, for an additional \$.30/lb CW.



Beef cattle at the Schwartz barn in winter.

Ms Schwartz figures there is a \$30 to \$50 per-head advantage to finishing beef animals instead of selling them at weaning. But, she warns, with the increased return comes increased risk. "It requires more management skills to grow the animals well and know when and how to market them to get that top dollar." If, for instance, the carcasses grade select instead of choice, the price drops \$.10/lb -- that's \$70 on a 700-lb carcass.

Backgrounding

Backgrounding is a beef production system that uses pasture to grow weaned calves until they are ready to be put on a feedlot ration for finishing. At present, there are no large-scale backgrounding operations in Madison County, but there is real potential, as Oneida County's Troy Bishopp explains.

Mr Bishopp contracts with cow-calf producers to graze their weaners during spring, summer, and autumn. These "stocker" cattle will put on about 300 lb of gain per head before being returned to the owner for finishing. Payment is per pound of gain; the going rate is \$.25 to \$.30/lb.

The Bishopps currently run 300 head of stockers per season on 450 acres of rented land. Troy pays \$10/acre for unimproved fallow land, and works on a 5-year lease, improving the pastures by overseeding.

A full-time backgrounding operation would be about 500 head, Mr Bishopp reckons. Backgrounding on good forage can gross \$80 per head and net \$40-45 per head after labor, equipment repair, and fencing costs. "It isn't a ton of money, but it is another option and the opportunities are enormous," he says.

Dairy beef

Production of dairy beef can be a nice supplemental income for those with access to traditional cattle feeds such as hay and silage. Bull calves are steered (castrated) and fed to either weaner weight or to a lighter finished weight (1,100 to 1,300 pounds for dairy steers) at 12 to 14 months of age.

By raising dairy beef, dairy farmers can add value to their bull calves without investing in capital stock, special facilities, or special feeds.

Doug Parsons, a Morrisville dairy farmer, milks 85 cows with his family, and raises about 20 bull calves per year. Most are sold as feeders, with a half-dozen per year sold as finished cattle. "They get fed the same as our replacement heifers," he says. "Milk replacer for a couple months, then hay and grain, then mostly corn silage after they're 8 or 9 months old."

The frustrating thing about this system, he says, is that "the market varies enormously." In the fall of 2000, Mr Parsons sold 13 calves as weaners because the price for finished cattle was low. By late winter, the price had shot up to \$1.32/lb CW. "I could have fed them corn through the winter and sold them to a broker for \$900 each."

More farmers would raise dairy beef, he believes, if they could work with a local processor to supply a regional market. "You need something definite, someone that would take a regular amount of beef and pay a premium price for a guaranteed quality."

Red veal

A number of farmers in the region, including a few in Madison County, are raising veal calves for the "red veal" market.

Red veal calves can be reared by grafting two-day-old calves onto nurse cows, or by feeding them milk replacer. After a couple months, calves are weaned to pasture and some supplemental grain, and then sold for slaughter when they reach about 400 lb LW.

According to Amy Kenyon, Project Coordinator for the Pastured Meats Initiative at the Center for Agricultural Development and Entrepreneurship (CADE) in Oneonta, there are generally three markets for red veal calves. Calves fed on milk replacer can be directly marketed to the local "ethnic" market (approx. \$100/hd return to labor), or marketed through a broker to a packer (\$75/hd return to labor). Calves reared on nurse cows can be marketed to high-end

restaurants, and can return about \$250 per head.

Ms Kenyon explains that the Meadow-Raised Meats marketing group, established through CADE's work with grass-based livestock farmers, works to find markets for farmers who believe in raising meat "non-conventionally". Farmers in this program agree to follow a management system similar to organic guidelines, and participate in the group's marketing and organizational activities.



Purebred/seedstock production

Quite a number of beef farmers in Madison County produce purebred or seedstock beef cattle, including the Angus, Hereford, Simmental, and Scottish Highland breeds.

One such enterprise is that of Gene and Mary Smith, of Cazenovia. The Smiths started raising Highland cattle in 1990 as a "retirement project". By 1992 they had over 100 head on a 200-acre ex-dairy farm. "We thought the breed was interesting, and it was a way to keep the land productive without the labor and capital investments required by a dairy farm," says Mr Smith.

Most of the Smiths' youngstock is sold as breeding stock to buyers who want show animals or just want some low-input beef animals on their hobby farms.

Originally from Connecticut, the Smiths chose to retire to a Madison County farm

because of the scenic aspects of Central New York, the proximity to the cultural

opportunities in the area, and the price and availability of farmland.



Gene Smith with his Scottish Highland cattle



New York Beef Producers Association

The New York Beef Producers Association is made up of both commercial and seedstock producers.

Its activities include an annual bull test and sale, with over 100 bulls on test; a Beef Expo, where hundreds of kids learn to care for and groom beef animals; the Heifer Project, which feeds and tests heifers through the winter; and the Pooled Weaner Sale, which allows small producers to precondition their weaners at Cornell before pooling them in the Sale.

To contact the NYBPA, call:
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Alpacas in Madison County

By Jennifer Marti

Apple Ridge Alpacas, Cazenovia

Alpacas: Webster defines them as “a domesticated South American hoofed mammal, *Lamas pacos*, having long, soft, silky fleece, related to the llama and believed to be a variety of the guanaco”.

To myself and more that 3,000 other people in the United States, alpacas have become a way of life. Treasured for their cashmere like fleece, and loved for their beauty and gentle nature, alpacas are an exceptional financial, as well as emotional investment. Alpacas are members of the Camelid family which also includes camels and llamas. Unlike their beast of burden cousins, alpacas are bred for their exquisite fleece which can be found in 22 natural colors and 250 shades in between. Alpacas are the worlds’ most color diverse animals. The ancient Peruvians domesticated the alpaca 5,000 years ago. Garments made from alpaca fleece were reserved for Inca nobility and has become known as the “fiber of the Gods”.

Alpacas were first imported into the United States in 1984. In 1988 the Alpaca Owners and Breeders Association (AOBA) was formed with 87 members and 392 animals. During the industry’s infancy, alpacas were put into the category of “exotics” along with ostrich, emu and pot-belly pigs. Since that time, the industry has matured. Alpacas are now viewed as a worth while livestock investment capable of producing exceptional returns. In the late 1990’s importation of alpacas into the U.S. was stopped in order to ensure the strength of the North American market. In short, the alpaca industry has withstood the test of time. At the close of 2002, due in part to the appeal of the alpaca lifestyle, as well as an extremely strong national marketing committee, AOBA members numbered more than 3,000, with greater than 40,000 alpacas accounted for. Each of those 40,000 alpacas is registered (through blood-typing) with the Alpaca Registry, Inc., one of the finest livestock registries in the world, and a model for other registries to follow. In 1998 the Alpaca Fiber Cooperative of North America (AFCNA) was established. The AFCNA manages the national fiber clip of its’ members. It is also responsible for the creation of America’s Alpacas, an online catalog which sells alpaca garments and accessories made in part from co-op members contributed fleece. The goal of the AFCNA is to maximize the long term benefits for their members the alpaca producers, and also the alpaca breeding industry as a whole. In a relatively short time, the alpaca industry in North American has grown exponentially.

What is the appeal of alpacas? At first the attraction lies in the aesthetics of the animal. Long and graceful legs, an elegantly elongated neck, huge eyes with incredibly lengthy, cartoon like eyelashes. An entire body covered in a fluffy mass of brilliantly lustrous fleece. Their gentle, inquisitive nature adds to the magic, and finally their hums...yes, they hum. Also included in their repertoire of sounds are clucks, which a mother uses when talking to her cria (baby), screeches which are usually heard at feeding time as the alpacas jockey for position at the grain bins and finally a scream, almost like a horse whiney when they sense danger. From there, the allure of alpacas is generated by how

little they ask of us as their keepers. Five to seven animals can graze on an acre of pasture. When pasture is not available a herd of eight will consume less than half a bale of quality hay per day. Grain is fed at approximately 2 cups per head per day. Fresh water must be available however a single automatic waterer can service an entire barn. Herd health, which includes wormers and vaccinations for various other parasites, is required every one to two months depending on the time of year. Alpacas require at least a three-sided structure, but a barn is recommended if you live in an area like Central New York where the winters can be brutal. They are found in every state except Hawaii and are very adaptable. Shearing in the spring is necessary for the harvest of your cash-crop, as well as the health of the animal through out the hot summer months. Alpacas love to be hosed down in the summer to cool them off, and a fan in the barn is helpful to keep the air moving. Toe nail trimming should be done as needed, which can vary from two times a year to more depending on the conformation of the individual animal. An alpaca with good feet will need no more than the minimum, as the toe nails will tend to wear down with walking. Fencing should be adequate as to keep predators out since alpacas have not natural defenses. Alpacas are amazingly clean, as evidenced by our barn being directly under our house. The “selling point” that has become my husband Brians’ favorite is that they all go to the bathroom in the same place, which makes barn chores a snap! Female alpacas will give birth to one baby per year, twinning is extremely rare. They are pregnant for 11 months and can be re-bred three weeks after the cria is born. Crias are usually born in the morning and the female usually does not require human intervention during the birth. Females can begin breeding at 18 months to 2 years of age and males usually start some time after their third birthday.

The business of alpacas revolves mainly around breeding females and is currently fueled by supply and demand. There are approximately 40,000 alpacas in North America, half of those are male. Bred females are currently selling for, on average, \$ 15,000. Proven herd sire males sell anywhere from \$10,000 to upwards of \$200,000. Stud fees run from \$1,500 to around \$3,000, there is no artificial insemination of alpacas at this time. Pet quality males sell for approximately \$1,000. Many people have asked me if it is the fiber that makes alpacas so expensive and my answer is always “yes and no”. The high cost of alpacas is based on the fact that currently in North America, the demand for these animals out weighs the supply. Are the prices going to stabilize? Absolutely. At some point in the distant future the supply will begin to match the demand and that will begin to soften the prices. With females producing only one cria per year, national herd growth is relatively slow. Is the amount of fiber harvested per animal equal to the animals’ value in the current market? Of course not. However, alpaca fleece is a luxury item and in high demand. I was once told that sheep wool is worth approximately 3cents per pound. I have sold my alpaca fleece for \$1 to \$4 per ounce depending on the fleece and the extent of processing. Alpaca fleece is warmer, softer, lighter and stronger than sheep wool; it does not contain lanolin and is hypoallergenic. Alpaca garments become family heirlooms because of their durability and are a pleasure to wear because of their softness and lack of “prickle”.

Who is their right-mind would spend that much money on an animal? The answer is lots of people, from many different walks of life. A large percentage of alpaca owners in this

country are retired folks who are looking for something to do with their spare time. There are also married couples with or without children, single people and friends that have invested together. Furthermore, not all alpaca owners are in it for the investment aspect, some are fiber artisans, others are involved in cottage industry and some own alpacas only as pets. The only quality typical to all alpaca farmers is a love of these magnificent animals. However, the investment potential is quite enticing. If a farmer purchases a female alpaca for \$15,000 and that alpaca produces a female offspring of the same quality, the offspring will also have a value of around \$15,000 when it reaches breeding age. If the farmer sells the offspring for \$15,000 he has now made his money back, and that original female will continue to produce and cost him very little in the process. Naturally, half of the offspring will potentially be males and since only a very small percent of the male population should be used for breeding. Most male offspring will be gelded and the value dropped. However, the gelding will continue to produce valuable fleece. It should be understood that marketing alpacas, just like anything else take time, commitment and hard work.

Madison County is home to four working alpaca farms. They can be found in Cazenovia, Morrisville, Canastota and Sheds. Of the four farms, three of them are or have been active in the alpaca community on the national and regional levels. Each farm is considered small and owns less than 15 animals. Being small has allowed (or encouraged) us to work together through combined marketing efforts and hands on care of the animals. Especially at shearing time, the more hands that we have working together, the smoother the day goes which equates to less stress for the alpacas as well as the humans. And we also have a great time doing it. If there is ever a farm emergency it is comforting to know that there are knowledgeable people who can help just ten minutes away. I have had many people ask me if I view the other farms in such close vicinity as competition, I don't. Having this number of farms close together is truly a marketing tool and we treat it as such. Brian and I work together quite often with Tim and Barb Wilson of Alpacas of Pleasant Valley. We each have small herds and working together allows us to have more animals to offer for sale, which equals more choices for perspective buyers. If a possible client was interested in one of our animals and had a distance to travel to get to us, I believe that having other "alpaca" stops in the general area helps to encourage the visit. In addition, purchasing a "package" of animals from 2 farms working together entitles the buyer the customer support of two farms rather than just one, it is a win-win situation for everyone involved. Having our farms close together also allows us to share tools that aren't needed very often. Not only do we work collectively on hands-on and sales matters, some of us actually spin, knit and use our own fleece in various other ways. It is always nice to have a friend close-by to throw an idea at when working on a project, or share ideas about building equipment to make the job of fleece processing that much easier. The addition of alpacas to Madison County has added to the great variety of agriculture and attractions already found in the area. Where else can a family visit and find working dairy, goat and sheep farms; horses; corn mazes, Christmas trees, pumpkins and a petting zoo; quaint villages with abundant shopping; herb farms; farmers markets (look for alpaca products at Cazenovias' market this year); hiking trails; beautiful lakes; the Boxing Hall of Fame; colleges; year round ice skating as well as alpacas and alpaca products? We truly have it all!

FEATURE

HOPS AS A SPECIALTY CROP New York growers look to the past to find the future

by Kara Dunn

Central New York was once the Hop Capital of the Western Hemisphere. By 1870, more than 50 million pounds of hops were grown in New York State. Madison County alone reaped 7 million dollars a

year from the hops harvest at its peak with some 6,900 hopyards. Today, growers, researchers, historians and home brewers in New York are considering the feasibility of reviving the commercial

production of hops.

While the industry may not reach the levels of financial success once seen in Madison County, members of the young Northeast Hop Alliance (NeHA) say hops may have potential as a regionally-produced specialty crop. The group is pursuing grants to fund a feasibility study on producing hops in the Empire State and throughout the Northeast.

"The emergence of a craft brewing industry, including microbreweries, brew pubs and home brewers, along with

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HOPS AS A SPECIALTY CROP

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interest in hops for homeopathic and ornamental uses, has sparked interest in reintroducing small-scale, specialty hop production in the Northeast U.S.," says Duncan Hiltche, agriculture development specialist with Cornell

University's Farming Alternatives Program. "Hop buyers are looking for unique quality hops that suit their brewing objectives, whether at home or in the marketplace. For commercial brewers, a local hop will help them differentiate their products and market their beers as truly "unique to place" in much the same way the wine industry successfully markets its products.

"New disease-resistance hop

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Members of the Northeast Hop Alliance plant a new hopyard at Fisher Farm, May 2001.

DEBORAH HARMON PHOTO

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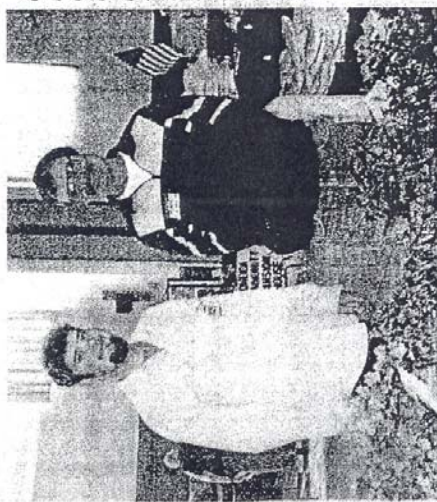
varieties, dwarf hops and small-scale production technology have emerged, which could make regional production commercially feasible again and promote an alternative income source for small farmers in the Northeast," Hilchey adds. He is working on a census to identify New York's hop growers and on a market feasibility survey of microbrewers and pub owners in the Northeast.

Hilchey describes a potential three-pronged strategy to revive commercial hop production in New York and the Northeast:

- 1) expansion of current production of non-native hop varieties foreign to New York (due to differences in soil, climate and production methods, northern production of Pacific Northwest or European varieties can yield a unique product);
- 2) the import of a native New York hop germplasm from a collection in England (this variety is known to have been a commercial variety many years ago); and
- 3) the development of modern indigenous cultivars (which would take many years, and is probably too costly an endeavor).

Dr. William D. Pardee, a retired Cornell University professor of Plant Breeding, is leading the effort to obtain what is considered to be the only known genetic material for a native New York hop. The material would come from a germplasm collection in England and be quarantined for use in test plots in spring 2002.

Can New York compete in the hops market at modern commercial levels? "We need more information," Dr. William Pardee says. "Can we grow hops to the



KARA LYNN DUINN PHOTO

Paul Mitchell (left) and Dick deGraff of Grindstone Farm Organics, Pulaski, brought hop wreaths to the 2001 Madison County Hops Festival. Grindstone's half acre of hops is one of the larger hopyards in New York State. Some of the crop is sold to home brewers.

from the Pacific Northwest, where Washington has about 27,000 acres planted with hops, mostly in the Yakima Valley; Oregon grows about 6,000 acres of hops; and Idaho grows about 3,000 acres of hops. Pederson's not quite one acre is one of the two largest hopyards in New York state. (The other is a one-acre yard at the Farmers' Museum in Cooperstown.)

"The second year we had a fairly good yield from some scrawny, 16-foot plants. This year, we settled on growing three varieties—Cascade, Willamette and Mt. Hood—to develop the critical mass needed to supply microbreweries," Pederson says.

The 2001 crop was in a cooler in late November as Pederson began sourcing a pelletizer. His early research showed one could be leased for \$1,200 a month, or purchased for \$12,000, almost the amount Pederson already has invested in his hopyard. He notes that the mechanized harvester, which plucks the hop cones from the bine (hop vines are called bines), was essential to saving labor. He likens the handpicking of hops to shelling one's field corn by hand—"you don't want to do it by hand."

Although he will not make any money on his third-year crop, Pederson says, "You don't go to the time and

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consistency and dependability required by the marketplace? Some questions can only be answered by experience. We have to keep in mind that the hop industry moved west for several reasons—the soil, the climate and the yields were better—at first in Michigan, now in the Pacific Northwest. That said, I think hops could become a niche crop, supporting specialty beer-making, home brewers and regional brewers in the Northeast.

"The big question is what is the potential yield per acre in New York State," Dr. Pardee continues. "New Jersey test yields show 200 to 400

pounds of production per acre. Good yield in western (U.S.) economic terms is 2,000 pounds of dried hops per acre with an average price of \$1.80 per pound. A gross return of \$3,600 per acre does not cover the average growing costs of \$4,000 per acre. We are just beginning to gain New York-based information from field tests by Rick Pederson."

Three years ago, Rick Pederson planted 400 hills of hops on not quite one acre of his 1,200-acre vegetable farm in Seneca Castle in Ontario County in western New York. He used starter stock

HOPS AS A SPECIALTY CROP

Continued from page 17

expense of putting up a trellis system on a whim. I have come this far; I'm not going to quit now, and, once you plant hops, they are there forever (due to a massive root system). We may be a long way from economic vitality, but we gain a little each year, increasing our yield and quality," says Pederson, who would like to develop an "estate beer" using ingredients grown on his farm.

A \$7,350 New York State Department of Agriculture Grow New York grant, citing "the increasing number of microbreweries and the increasing demand for New York hops," will help Pederson Farms, Inc. develop post-harvest handling and marketing strategies for hops.

"We are learning to adapt the crop to New York conditions. We need to figure out the best way to process and market the hops and to improve our



A hop plant.

yield depending upon the variety. I want to redesign my trellis system and use mechanical labor to pick the hops to cut my 2002 production costs in half," Pederson says. He expected to review the results of the first alpha acid tests of his hops in late 2001.

Alpha acid is the hop plant's bittering compound. Brewers want growers to test their crops for alpha acid levels so

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adjustments can be made in the brewing process, says Jeff Hopson, a third-generation hop grower, home brewer and Northeast Hops Alliance board member. "All hops have both acid and aroma. Super alpha varieties test at 12 to 14 percent of bitterness. Eight percent allows for aroma plus bittering. Commercial and home brewers want certain levels of alpha acid and aroma

for certain recipes."

Steve Van Houten of the Salt City Brew Club, a group for homebrewers in the Syracuse area, says homebrewing allows for personally tailoring the taste of one's beer. He says homebrewers generally prefer working with the hops flower that are easier to filter and produce a cleaner flavor than pelletized hops, which can leave a residue. He believes locally-grown hops will offer home and regional brewers a certain cachet, and that organically-grown hops can become one more quality ingredient that is not available on a large, commercial scale.

Van Houten says that an education process is required to help market regional beers. "A lot of people think Budweiser is what every beer should taste like, but that's just one style of beer from among as many as 60 styles. We need to educate people about the variety of beers that are available locally," Van Houten says.

Pederson agrees, "We need to work

toward building a public appreciation for a fine quality beer, just as the wine industry has done for New York wines. We can capitalize on our terroir."

Promoting terroir

"Terroir (ter-WAIR) is a French word for the linking of food to the location of its production and to its relationship with sun, soil, water and microclimate. Terroir is also linked to how a food is produced and who produces it. There is a human component to terroir that links food to tradition, history and culture, and to the blood, sweat and tears of the people of a region," says Hiltchey, who introduced the concept of terroir to New York growers following a trip to France to study the marketing of food there.

The concept of terroir has been embodied in New York's Finger Lakes region through the founding of Finger Lakes Culinary Bounty (FLCB) by French-born, award-winning Chef

James Beard and Agriculture Development Consultant Henry Benveniste. FLCB connects local fresh and value-added food producers with restaurants and tourism advocates to promote a regional cuisine.

"Terroir must be experienced seasonally, and in person, in the area where the food is grown or made," says Benveniste. "Regionally-made beers most definitely fit the concept of terroir. The individualized art of the brewer and the locally-produced crops used in the beer-making process come together to create distinct flavors. And, just as they do with wines, chefs can match their culinary creations to the different tastes of regional beers to create a unique dining experience."

[Editor's Note: Look for Part 2 in our February issue.]

The author is a freelance writer who keeps horses and sheep on a 100-acre farm in Mammothville, N.Y.

FEATURE

HOPS AS A SPECIALTY CROP

New York growers look to the past to find the future

by Kara Lynn Dunn

Interest in regional products is increasingly evidenced by tourists and by the attendance of growers, historians, Extension educators and landowners at meetings of the Northeast Hops Alliance (NeHA) since summer 2000. NeHA, housed at the State University of New York, Morrisville, is applying in cooperation with Cornell University, Rutgers University and possibly other institutions, for feasibility study funding in support of hops industry development. NeHA has more than 100 members.

"The turnout at NeHA meetings is testimony to how integrated hops are into the local culture. Interest in keeping this tradition alive is due, in large measure, to the work of the Madison County Historical Society and its annual Hops Festival," Duncan Hickey of Cornell says. "The festival offers a marvelous opportunity to educate the public about the differences between craft brews and beers. The festival organizers have applied a chapter from the wineries' success story by pairing hops with food and music in a festival setting."

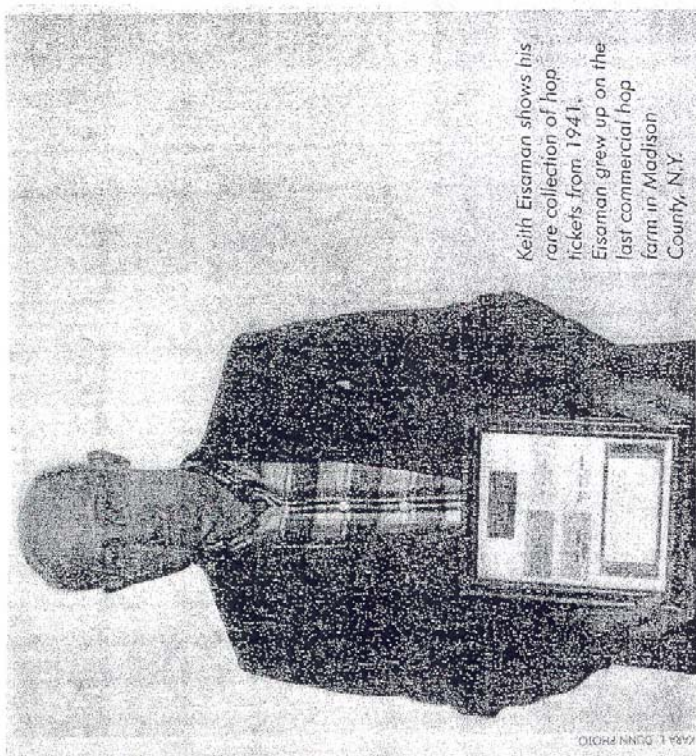
Madison County Historian Deborah Harmon serves as NeHA's public relations chair. She says the interest in hops has united diverse

PART 2
OF A
2-PART
SERIES



The historic Lipsey Hop House in Stockbridge is seen through a trio of hop poles. This barn received funds through the first round of New York State grants for historic barn preservation.

72 LIPSEY PHOTO



Keith Eisaman shows his rare collection of hop pickers from 1941. Eisaman grew up on the last commercial hop farm in Madison County, N.Y.

Looking Back

Keith Eisaman grew up on the last commercial hop farm in Madison County, N.Y. Dairying was the family's main source of income, but hops were grown on five acres from the 1930s to 1951.

The hops were first grown on poles until 1941, when a trellis system was put in place. Blue mold, hop lice and hop vine borer were problems that required spraying or handcutting.

"The pickers used four boxes under a canopy. There were four pickers and one man bringing the full poles to the boxes," Mr. Eisaman says. "We picked the first two weeks in September, with 20 to 30 pickers. We did not pick on Sundays. A burlap bag could hold seven bushels of hops. We would take the hops to the driving room floor, heated by a coal-fired stove. In 1941, we produced 25 bales, weighing 170 pounds each. The hops were sold to New York City buyers for 87 cents a pound. The pickers received one ticket per box picked, about 80 cents a box," Mr. Eisaman says.

Mr. Eisaman's collection of hop tickets from 1941 has been displayed at the New York State Historical Association's Farmers' Museum in Cooperstown.

community members in a county that is one of the few in New York state to have a hops heritage and existing traditional buildings, in various states of structural integrity. She points out that one of the first New York State Barn Restoration and Preservation grants will help restore the historic Lipsey Hop House in Stockbridge in Madison County. Harmon notes that central New York is the origination point for several hops-industry inventions, including a mechanical hop picker and a combined picker-separator.

NehA is considering several educational activities for 2002. A series of tasting dinners may be stretched across the region, throughout the year, to educate the public about how to sample beers and march them to cuisine as the brewers' equivalent to wine pairing, with a speaker talking about such topics as the brewing process, growing hops and the history of hops, Harmon says. She says the group also anticipates development of a Spring Field Day, an August Harvesting Day and a Fall Field Trip to tour historic hop farms.

One place where visitors are already learning about the rich regional history of hop growing is the one-acre hopyard at the New York State Historical Association Farmers'

Museum in Cooperstown.

"We grow our hops traditionally, as they were grown in the 1800s," says Farm Manager Joe Caffery. "We hand set 27-foot poles using hop bars. We use hand and horse-drawn cultivation twice a week. Feel, smell and taste are used to determine the time to pick, using the traditional hop picker boxes. The hops are hand-turned to dry."

Caffery estimates that 15 to 20 work hours are spent to cultivate the hopyard, with 40 work hours each week required during the harvest season. The museum hopyard grows Fuggle and Kent Golding varieties traditional to the Cooperstown area. The staff makes hopvine wreaths, hop tea and hop pillows to sell. They boil hops to make yeast cakes at the museum, and the harvested hops are sold to home brewers for \$7 to 8 per pound.

The fact that hops have interest for non-brewers is evidenced by the October 2001 *Better Homes and Gardens* and by Norm Dann. The magazine includes a color photo of a "Hoppy Halloween" door wreath made with dried hops and bright orange Japanese lanterns. Dann grows hops as an ornamental vine, decorating his garage and 1840 vintage home in Madison County.

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HOPS AS A SPECIALTY CROP

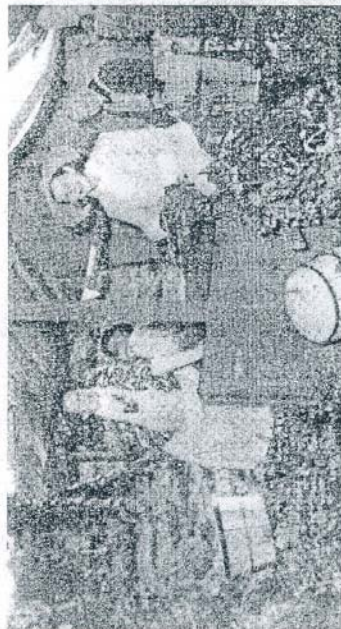
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Norm's wife Dot is a former president of the Madison County Historical Society and a current board member of NCHA.

"I began growing hops by digging up a wild variety known as 'Buckville Wild.' I now have 40-foot vines decorating the garage and growing along the sunny south side edge of our home," says Dann, who uses 20-foot cedar poles from the Eisaman farm, the last commercial hop farm in the county (see sidebar on page 23).

"I like the aroma and ornamental nature of the plant," says Dann. "The hop motif is seen on many antiques in the area, on everything from china to sterling silver and leather. This plant has a fascinating history to learn and to share."

Hops also have potential to be



This old photo shows a traditional hop pickers' box with hop vines growing on poles in the background. Pickers earned one tickle per box picked. A tickle in 1941 was worth about 80 cents.

marketed as a medicinal and flavoring herb.

Beth Hill, a consultant with the Healing Spirits Fellowship, Truxton,

N.Y., came to her interest in herbs through a personal health crisis. She now consults with others interested in herbs and foods as alternative medicine.

She says hops makes a bitter tea that can serve as a relaxant and sleep inducer. She suggests that those interested in herbs take classes to learn about the various properties of herbs, and how to use them appropriately to maintain the body's delicate balance.

Organically grown hops may be developed as a niche within a niche. A report from the Northeast Region Sustainable Agriculture Research and Education Program says, "the demand for organic hops is high, and most of the product comes from New Zealand (the world's third largest producer behind the Pacific Northwest U.S. and Germany)." The program funded field trials at Jeffrey Klein's Westerlo, N.Y., organic farm, where Klein grows 130 vines on a quarter acre. He experimented with shorter trellises and sold his hops to home brewers and a producer of homeopathic medicine. The SARE report says Klein believes that small-scale production can be profitable, and

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but an individual farm can capitalize on a reputation for growing a "craft" ops known for a particular quality or flavor.

Hopsyads Elsewhere

To determine if the plant could be grown in New Jersey, Rutgers University's Snyder Research Farm planted five varieties of hops in 1994, in-foot-high trellises and a trickle irrigation system were used. Insecticide was used to battle pests. Harvesting was completed by hand, with the crop dried, aged and frozen. Yields measured annually, from 1996 through 1999, grew by twice to six times the first-year harvest results; that is to say that the field of the Chinook variety grown on a trellis system increased from 133 pounds in 1998 to 653 pounds in 1999.

"Our initial project was just to see if we could grow quality hops," says Bill Amka, county agricultural agent with Burlington County Extension, Mount Holly, N.J. "Right now, we continue to grow hops, but are at an impasse as far as resolving production issues, such as labor costs. We are working with Duncan Hickey at Cornell on possible sources to fund a study of the feasibility of developing a commercial hops industry in the Northeast. We have some small-scale growers, who have been surprised at how well their hops have sold to local home brewers and supply shops, but the sale of hops is only a supplemental income source at this point."

Dr. Leonard Perry, Extension

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professor with the University of Vermont Plant & Soil Science Department, has run hop trials for several years. The challenges of growing hops in Vermont, that he wrote about in 1994, are valid today in New York.

"Harvesting is currently the biggest limitation to commercial production," Dr. Perry wrote. "In the west... quarter million dollar facilities are used to mechanically harvest the hops (basically beating them off the vines). One can purchase smaller units from Germany for \$30,000 to \$70,000, which is still out of reach of most budgets. Historically (and currently in our trials) hops are picked by hand. As an example, this year at one site, four of us picked hops for 6 hours (24 person hours), yielding about 5 pounds of dried cones—about what we need in a year for our weekly homebrewing, which points out the clear market potential if commercial production could be made economically viable."

More recently, Dr. Perry told Mike Gallagher, Midwest editor for *Cornucopia* Folks Grower, that while many brewers were interested in local hops, they were only willing to pay maybe 10 to 20 percent more, and many only wanted pellets or specific varieties at certain times, which would require freezer storage by the producers.

Dr. Perry says he has not been

involved in hop research for at least three years and knows of only one person still growing hops, on less than two acres, in Vermont. Jeff Carpenter of Zack Woods Herb Farm may be that person. The farm in Hyde Park has three acres of 35 varieties of herbs, raised strictly for medicinal use.

"We want to increase our production of hops due to the demand for it as a medicinal plant," Carpenter says. "Right now, we grow two varieties that we planted three years ago along our porch, and we harvest some more growing at my mother-in-law's house. We sell the dried flowers for hop pillows, and for people to make their own extract. Our 2001 crop sold out, and we still had inquiries for more."

In New Hampshire, Gail McWilliam, director of the Division of Agricultural Development with the New Hampshire Department of Agriculture, Markets and Food, says she does not know of anyone growing hops commercially. Bar Manager Barrett Lewis at The Flying Cowse Brew Pub at the Four Corners Grille in New London says the twenty hop bines growing on strings in the air across the restaurant's backyard are more for visual effect and have been there about six years, since the property became a brew pub making many kinds of beer. He says, "It's easier to buy hops. No one here has time to

focus on growing hops for brewing."

Bill Metzger, publisher of the *Great Lakes Brewing News* and four other regional brewing publications, travels to offices across the U.S. He says the standout leader for marketing craft brews has to be the Pacific Northwest. That region "has relatively large, successful breweries, and a lot of people drinking (regionally-made) beers. Even pizza joints are multi-tap pourers."

Metzger says an area where the effort to create a regional brand name is relatively young and growing stronger is the Midwest, particularly in Wisconsin, Minnesota and Michigan. He is skeptical about New York's efforts to establish itself as a producer of quality, regional beers, in part because of the lack of state government assistance, and difficulties caused by a monopolistic distribution system. He says the people he has spoken with in the West don't see much potential for commercial production of a native New York hop variety, mostly due to the huge investment of capital it would require. Metzger also says, however, that he would be very pleased to have New York's hops enthusiasts and regional brewers prove this pessimism wrong. Folks like grower Rick Pedersen, researcher Dr. William Parake and agriculture development specialist Duncan Hickey are working hard to do just that!

The author is a freelance writer who keeps horses and sheep on a 100-acre farm in Mammoth, N.Y.

Fenner Windmills Brochure

Renewable Energy Presentation

"Winds Of Change", by Carl Stone

Open House at Fenner Wind Farm



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Wind power: an alternative energy source

The windmills of Fenner can be seen from the north shore of Oneida Lake, from vantage points in Onondaga County and from portions of the towns of Cazenovia, Lenox, Smithfield, Sullivan, Nelson and Madison. Their gigantic blades can be seen from as far away as Lowville in Lewis County, about 25 miles southeast of Watertown. To hundreds of motorists on the New York State Thruway, the windmills standing tall on the horizon are the most visible part of the Town of Fenner.

The 30-megawatt Fenner wind farm, comprising 20 windmills, is expected to generate enough power to provide 7,000 homes with electricity. These 1.5-megawatt windmills are over 320 feet tall and weigh 375,000 pounds, including the tower, blades and generator.

The average wind speed at the Fenner site is about 17mph. According to the National Climate Data Center, only three of the potentially developable 271 sites tested across the country had higher speeds.

One of the sites tested might have been in South Dakota. A recent news article on new and/or proposed wind farm across the country noted that wind speeds on the Rosebud Sioux Reservation averaged 18 mph, "enough wind to supply 2.4 million kilowatt-hours of electricity in a year."

The Town of Madison also has a Windmill Farm, on Stone Rd. (off of U.S. Rte. 20).

This site has seven windmills that create “clean & green” energy. These windmills drive turbines with generating capacity of 1.65 megawatts each – the highest individual operating capacity of any units in the United States when they went on line in the fall of 2000.

Although wind power is a renewable natural resource, the cost of harnessing this power is quite costly. All costs associated with acquiring and erecting one turbine the size of those in Fenner and Madison are about \$2.5 million.

Wind power has been used as a source of energy since ancient times. The Babylonians used windmills for irrigation in the 17th century BC. By 1000 AD windmills were in operation in Europe. For centuries ships were dependent on the wind. The Dutch settlers introduced windmills in the United States in the early seventeenth century.

Some books written on the life expectancy of our fossil fuel deposits indicate they will be gone sometime before 2040, depending on when the reference material was written.

Today’s worldwide energy crisis has once again made wind an increasingly attractive source of energy. Wind power is renewable, nonpolluting and produces no radioactive by products. The fossil fuels we have been dependent on for so many years cause serious damage to the Earth’s environment. When burned, fossil fuels produce atmospheric gases that aggravate respiratory and heart diseases and cause acid rain. Acid rain pollutes vast areas of the world, killing trees, fish and wildlife.

Fossil fuel combustion also produces large quantities of atmospheric carbon dioxide suspected of causing global warming.