



# Got Milk?

## The Decline and Compositional Change of Dairy Farms in New York State

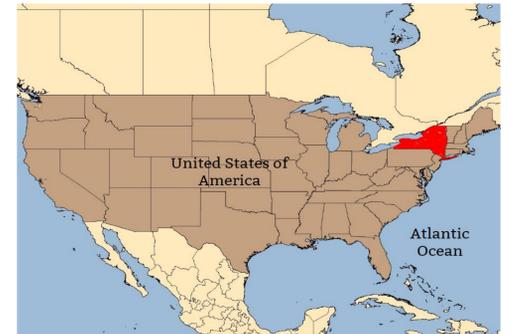


### Introduction

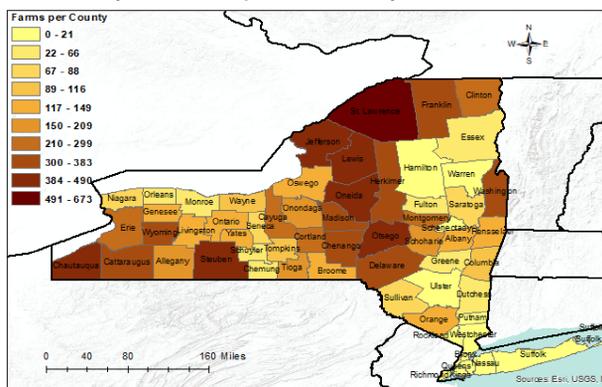
The dairy industry has not been immune to rapid changes occurring in agricultural systems in the past decades. Improvements in cattle and crop genetics along with agricultural technology have greatly expanded the production potential per dairy farm. The resulting decreases in labor inputs and increased efficiency have led to farm concentration, with the number of farms decreasing and the average number of cows, acres in cultivation, and milk production per farm increasing. Importantly, milk prices in the United States have lagged far behind traditional prices, especially considering inflation, due to a combination of factors including changing global market access and decreased consumer demand domestically. Persistently low and highly variable prices have forced many smaller farms out of business. New York from the third to the fourth largest dairy producing state. This makes the industry, worth \$2.7 billion in NY, very important for rural upstate communities. As the overall number of farms decreases, the composition of remaining dairy farms is changing as well. Dairy farms are getting much bigger both in acres tilled and number of cows per farm. At the same time, technology and genetics are driving a decline in the number of cows and employees necessary per 100 lbs of milk produced.

### Methodology

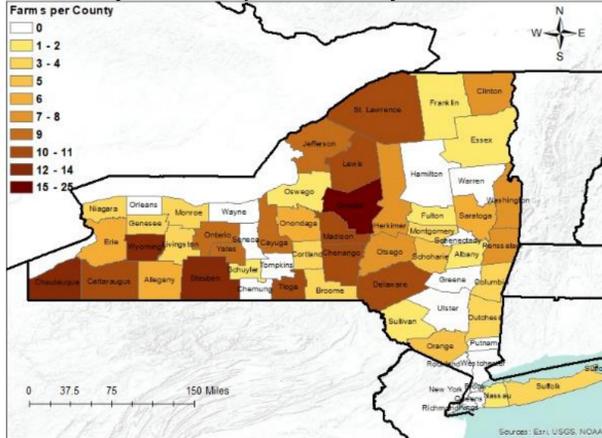
This analysis focuses on the location of dairy farms in New York, and how the number of dairy farms is decreasing. Secondly, it seeks to demonstrate how the size of dairy farms in NY is changing. Excel data for the number of farms present in each NY county was converted to an ArcMap table, summarized to total number when necessary, and joined by county name. The difference in dairy farm number was calculated as the percent of farms in 1989 that remain in 2019. This was done by performing calculations in excel and once again joining to the NY county map by county name after using the excel to table tool. Counties were separated into 10 classes by graduated colors. Data was also compiled in pie chart form as the most effective way to present the difference in cow distribution by farm size from 1997 to 2012.



Dairy Farms per County - 1989

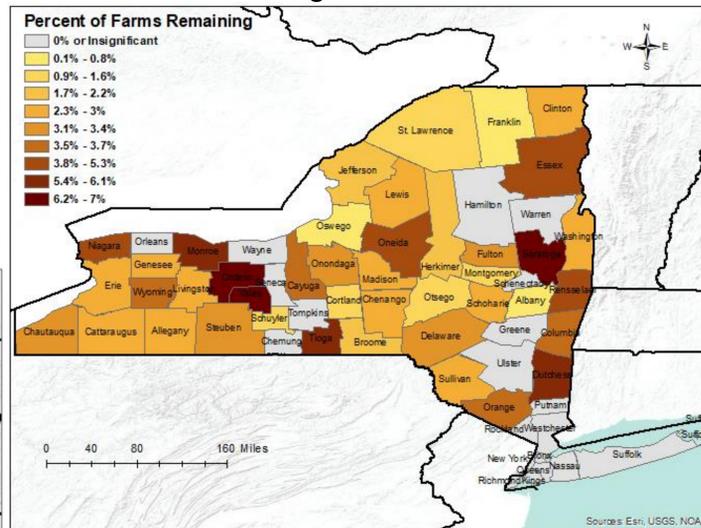


Dairy Farms per County - 2019

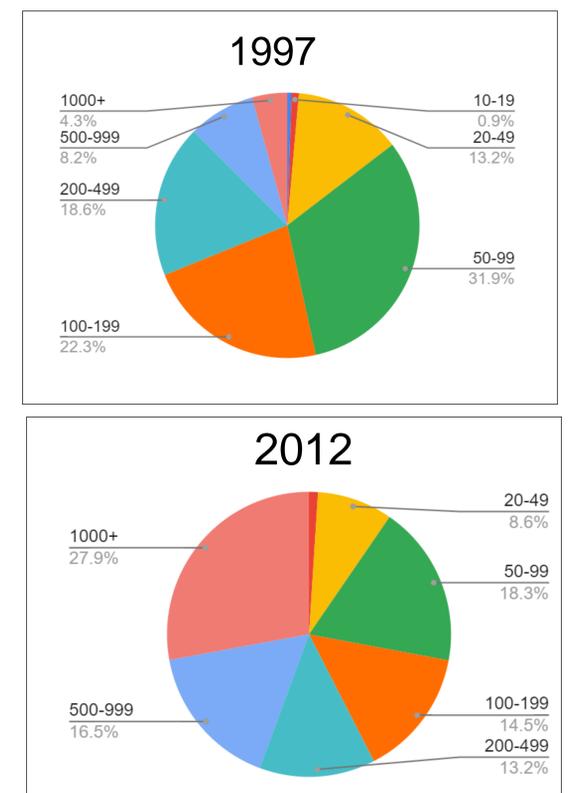


### Results

Percent of Dairy Farms Remaining - 1989 to 2019



Milk Cow Inventory by Herd Size - 1997 to 2012



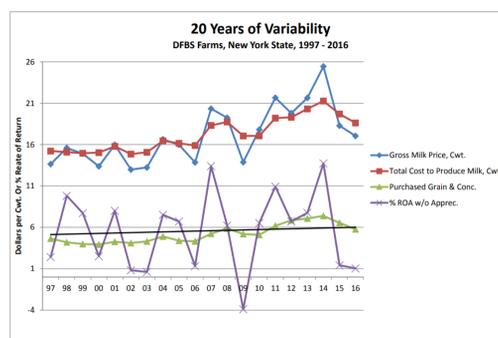
### Conclusions

#### Decreasing Dairy Farm Numbers

This analysis shows a drastic reduction in dairy farm numbers in the past 30 years, with New York counties seeing reductions of 93-100%. As compared to 1989 levels, a total of 20 counties had insignificant numbers of dairy farms remaining.

#### Increasing Farm Size

Farm size increased rapidly from 1997 to 2012. Farms with 1000+ head went from representing 4.3% to 27.9% of the total herd in that time period. Farms with 500-999 head doubled from 8.2% to 16.5% of the total herd. Those changes resulted in a decrease in the percent of the total herd represented by all levels of smaller farms.



Source: Dairy Industry Trends in NYS – Benchmarking, Jason Karszes, Senior Extension Associate PRO-DAIRY, Cornell University.

#### Causes and Effects

The price variability and very low profit margins represented in the figure to the right are one of the chief causes for the compositional changes in New York dairy farms represented in this analysis. Small dairy farms are often unable to cope with prolonged periods of negative profit, especially concerning the continuously low prices of milk for the past several decades. Milk pricing is coupled with an increasingly competitive market, where larger farms have become increasingly mechanized, lowering production costs. While these changes may not directly affect most consumers, they follow a general trend in agricultural consolidation. Next time you go to the grocery store, think of the farmer, land and system that brought that product to you.

Gabriel Yerdon

GIS 101/ ENV 107/ INTR 81: Introduction to Geographic Information Systems  
Projection: Lambert Conformational Conic

Data Sources: Reference USA Journal of Dairy Science; New York Milk Production from 1979 to 1989: A County and Regional Analysis, Cornell University; 2014 - 2015 Agricultural Statistics Annual Bulletin New York; Dairy Industry Trends in NYS – Benchmarking, Cornell University; ESRI, USDA