

# The Northeast Beekeeper Winter 2011

## State Apiarist Report

Paul Cappy, NYS State Apiarist at the NYS Dept. of Ag and Markets sent me the following results from a statewide survey on *N. apis* and *N. ceranae* that he spearheaded. Below, I present part of Paul's report in his own words.

### **Survey Abstract:**

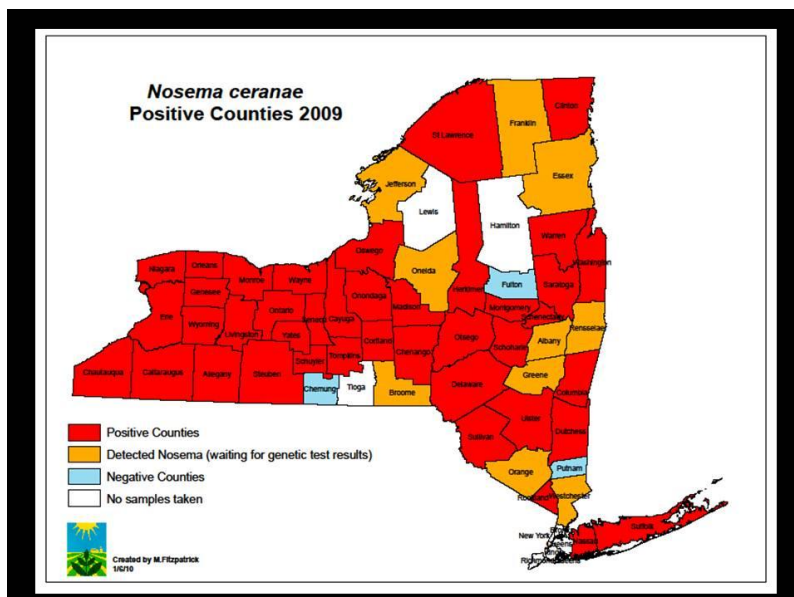
*The objective of the Nosema ceranae fungus (NCF) project is to test New York hobby, sideliners, and commercial beekeepers for levels of Nosema apis and Nosema ceranae. The NCF survey has measured the severity of the disease in New York. NCF survey has been used to gather the information on a yearly basis so researchers can observe trends and compare New York results with other global statistics. New York bee colonies are more severely impacted by the Nosema disease due to cold winters.*

### **Detection Protocol**

*Inspectors collected 25-30 adult field bees at the entrance of the colony. The sample was preserved in alcohol and shipped to the Beltsville laboratory. Samples are tested for Nosema spores and a spore count determines the disease level. Samples that are positive for Nosema are then forwarded to the University of Arkansas lab for species determination.*

### **Results of Survey**

*The Beltsville laboratory determines if bees have the Nosema disease using a 400 power microscope and a slide preparation to look for the spores. If the sample is found positive for the disease, a spore count is done to determine the level of the disease. Spore levels above the economic threshold of 1,000,000 spores*



*were considered for the antibiotic treatment of Fumagilin-B. Samples that are positive for Nosema are then sent to the Arkansas lab to determine which species of Nosema is present. Nosema ceranae is proving more virulent than the typical Nosema apis.*

*Forty-two counties of the 62 New York counties (68%) have been confirmed with Nosema ceranae and nine more are to be determined. The Beltsville lab results show 56% of the 1,200*

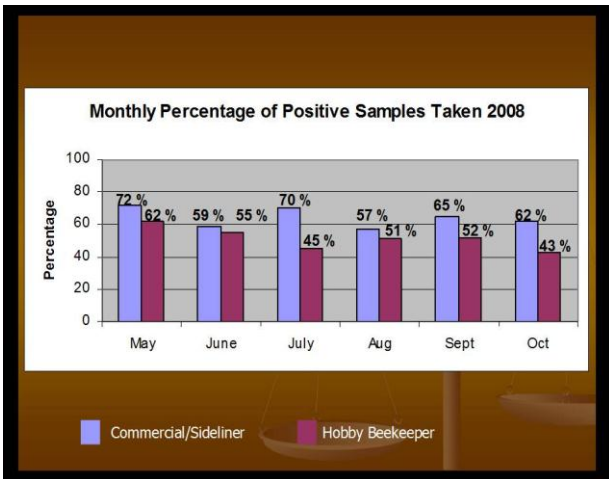
Counties in NY with confirmed *N. ceranae*

*samples were negative and of the positive samples about half (48%) were above the economic threshold of 1 million spores. The number of samples run through the Beltsville laboratory was approximately 1,200 and 488 positive samples were sent to the University of Arkansas lab for further diagnosis. Testing to species at the Arkansas lab found that 238 samples were Nosema ceranae and 6 additional samples were a combination of Nosema ceranae and Nosema apis for a total count of 244 samples.*

*The previous two years samples showed 27% positive the first year and 64% positive for the second year. A projection of 80% of 1,000 samples to be positive did not materialize in 2009. The disease is harmful if it is N. apis or if it is N. ceranae disease and the beekeepers need to know which species of Nosema disease they have to be able to properly manage the Nosema. 219 of the Beltsville Nosema samples did not yield Nosema results at the Arkansas laboratory. Arkansas will be working on why those samples did not produce results. If the laboratory finds the answer and determines the type of Nosema disease this could raise the number of results closer to 800. A final 24 samples have not been run to date.*

*The Arkansas lab results show 97% of the samples to be only Nosema. ceranae disease, 2% to be the combination of N. ceranae-N. apis and 1% to be only N. apis disease. The major Nosema disease in New York State is N. ceranae disease. The results show how important it was to test the samples for N. apis as well as the original examination for N. ceranae. This survey showed how limited N. apis disease is in NYS beekeeper's colonies.*

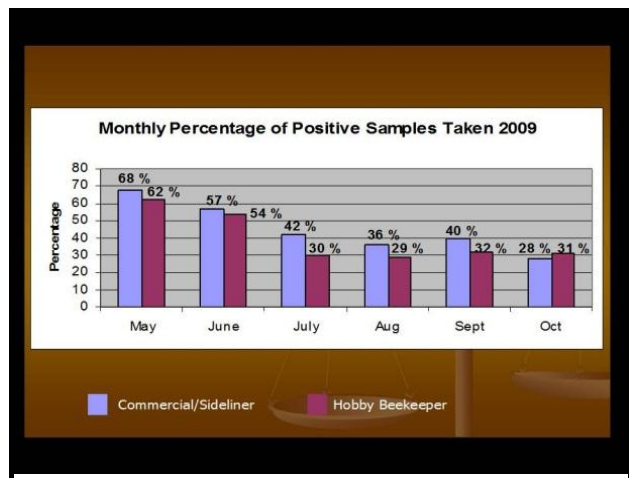
*The samples collected all season long were tabulated to determine what percent of the samples were positive for each month. The samples showed that the Nosema disease did not disappear during the*



**Incidence of *N. ceranae* over time in 2008**

*check the results and determined the summer months did follow the pattern of N. ceranae disease by being positive all summer long. Research from Spain has determined that Nosema ceranae stays positive all year long and continues to increase each year. Spain has more colonies than the United States and has documented the losses of thousands of colonies due to N. ceranae disease. The charts below show the percentage of positive samples collected each month in New York State.*

*summer as is typical for Nosema apis. This is another indication that the disease is N. ceranae since it is active all summer long and does not disappear like N. apis. Once it was confirmed 97% of the Nosema is N. ceranae disease, it was easy to*



**Incidence of *N. ceranae* over time in 2009**

***Benefits of Survey***

*Sampling for Nosema disease over the last three years and providing the lab results to the individual has helped beekeepers become aware of their individual situation. It appears many beekeepers, especially commercial beekeepers, started using the antibiotic Fumagilin-B to control the disease in the fall of 2008 and the spring of 2009. The levels of the disease were lowered by the fall of 2009 compared to 2008 year documented by the sampling done in both years. Nosema ceranae is the major disease covering New York State. The genetic testing to determine species was a critical step to complete the three years work on this new disease found in April of 2007. Beekeepers now know Nosema ceranae disease is the disease they must manage in their colonies.*

**GO TO PART C: LEGISLATIVE HAPPENINGS**