

Avipel Shield Bird Repellent Seed Treatment Study on Corn Seed



Cornell Cooperative Extension



Integrated Pest Management

Issue

- Crows, ravens, black birds, starlings, grackles, Canada geese and wild turkeys have been a pest problem annually for some corn growers in New York



Cornell Cooperative Extension



Integrated Pest Management



Birds feed on the corn
seed planted



Cornell Cooperative Extension



Integrated Pest Management

Avipel Shield Seed Treatment for Corn

- Avipel Shield™ is a liquid seed treatment that is classified as a bio-pesticide deigned to deter birds from feeding on the corn seed in a nontoxic manner.
- Avipel active ingredient is “anthraquinone.” This is a chemical found in many species of plants (notably rhubarb).
- The company states that the birds will ingest a few of the treated seeds and it will have an unpleasant stomach reaction that causes the birds to forage food elsewhere



Cornell Cooperative Extension



Integrated Pest Management

Pilot Study

- Mike Morales, Paul E. Cerosaletti, and Dale Dewing conducted a pilot study with Avipel treated corn seed in Delaware County.
- Split-Block 2.5 acre plots side by side.
- One plot treated with the Avipel and one plot was the control in 5 fields.
- Plant populations were taken on each of the plots.

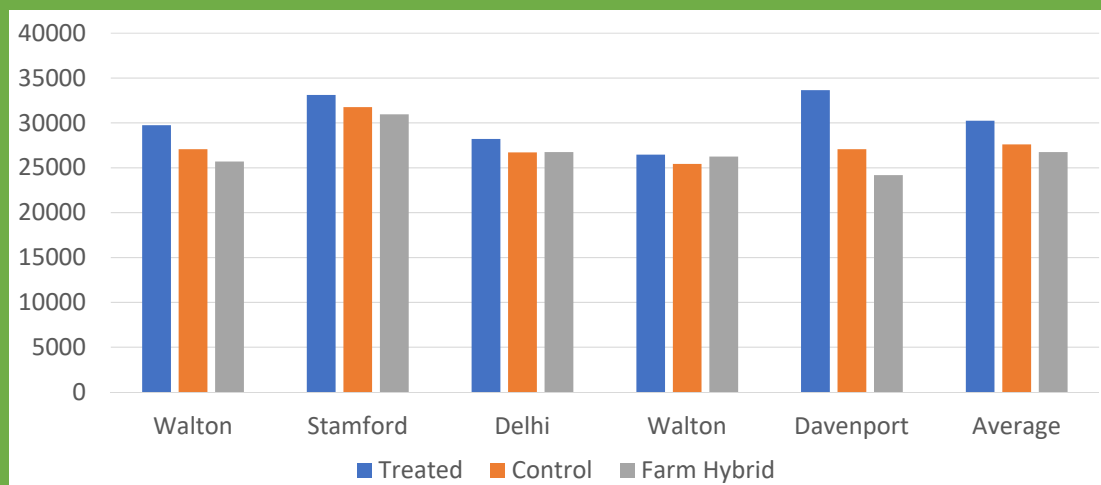


Cornell Cooperative Extension



Integrated Pest Management

Pilot Study in Delaware County



Cornell Cooperative Extension



Integrated Pest Management

Results of the Pilot Study

- Mean plant population for Dairyland hybrid treated with Avipel Shield™ was 2,632 plant per acre greater than the same hybrid untreated.
- Compared to the farmer hybrids in the same field, the mean treated Dairyland hybrid plant population was 3,495 plants per acre greater
- No yield data was collected



Cornell Cooperative Extension



Integrated Pest Management

Funding to conduct a larger study.

- NYS Corn Growers Association (Year 1-2017)
- NYS Farm Viability Institute (Year 2-2018)



Cornell Cooperative Extension



Integrated Pest Management

Project Cooperators



CCE Agronomy and Pro-Dairy Specialists

- Aaron Gabriel
- Kevin Ganoë
- Dale Dewing
- Jeff Miller
- Dr. Kitty O'Neil
- Paul Cerosaletti
- Joe Lawrence

Faculty Advisor

- Dr. Paul Curtis



Cornell Cooperative Extension



Integrated Pest Management

Plot Design

- Dairy Land-DS 9791RA, 95% SmartStax and 5% refuge
- Split Block-Side by Side 2.5 acre plots.
- One 2.5 acre plot is treated with Avipel
- One 2.5 acre is not treated (control)
- Replicated 2 times on each farm



Cornell Cooperative Extension



Integrated Pest Management

Plans

- Planned on 22 fields across Eastern, Central and Northern NY to be planted in the split plot design.
- There were weather and planting issues in the spring
- In the end we planted 18 fields
- Lost 2 fields to extreme weather events in Lewis County.
- 4 other fields did not get planted due to timing with grower and weather.



Cornell Cooperative Extension



Integrated Pest Management

Data Collection

Plant populations

1. Collect data on each of the treatments at the V1 and V3 stages of growth after planting in each treatment.
2. Take 2 randomized samples in each of 4 quadrants of each treatment and non-treatment plot area.
Counting plant populations in each of the quadrants will be taken at 100 feet lengths in 2 rows next to each other.
3. Weekly observations up to V3 would help to determine what birds are in the fields and document the damage with photos.
4. Other factors to be collected as data
 - Date Planted
 - Sample Date
 - What are the surface soil conditions?
 - What is the soil type?
 - Are there stony areas in the field?
 - What birds are feeding on corn?
 - What are the tillage practices?
 - Record areas of damage with photos and GPS



Cornell Cooperative Extension



Integrated Pest Management

Data Collection

Yield Measures

- Silage
 - Used scales and wagons/trucks to measure the wet plant weight of the entire treatment area (~2.5 acres)
 - Hand Sampling: 5 locations in each treatment block, cut a 20' row length at 10" above the soil surface. Weigh whole plant sample
- Grain
 - Use yield monitor to determine bushels/acre



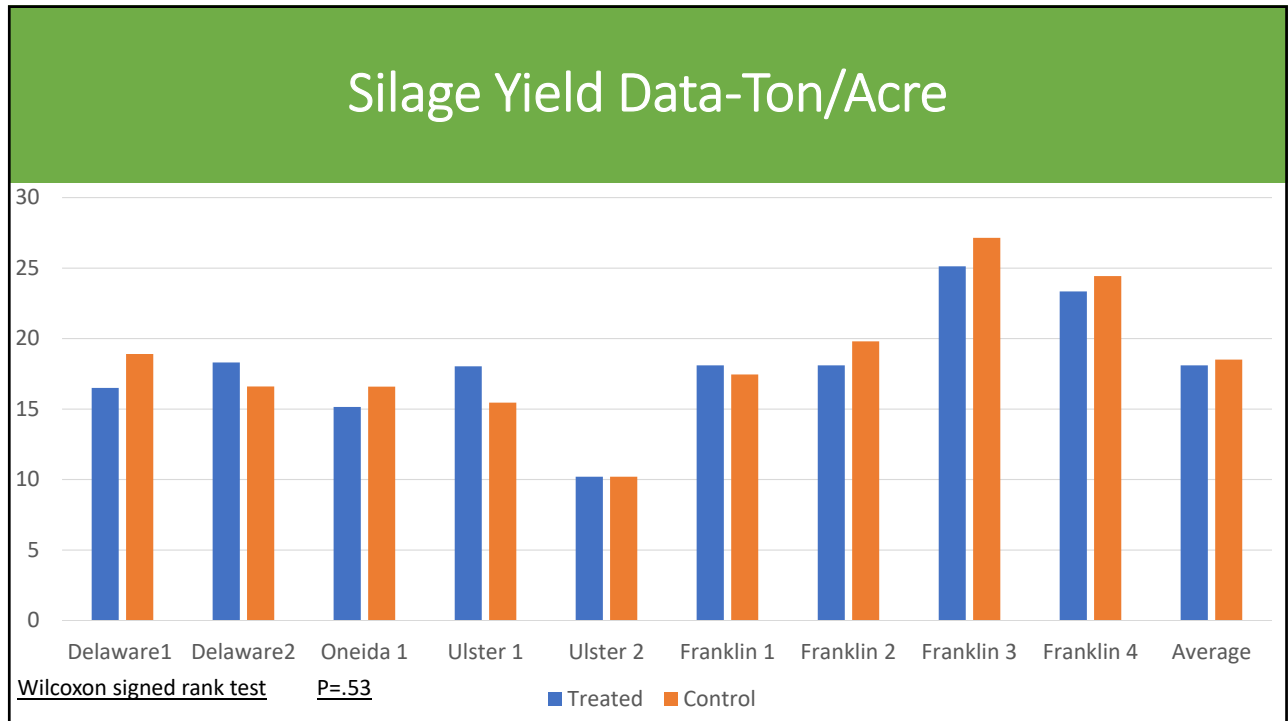
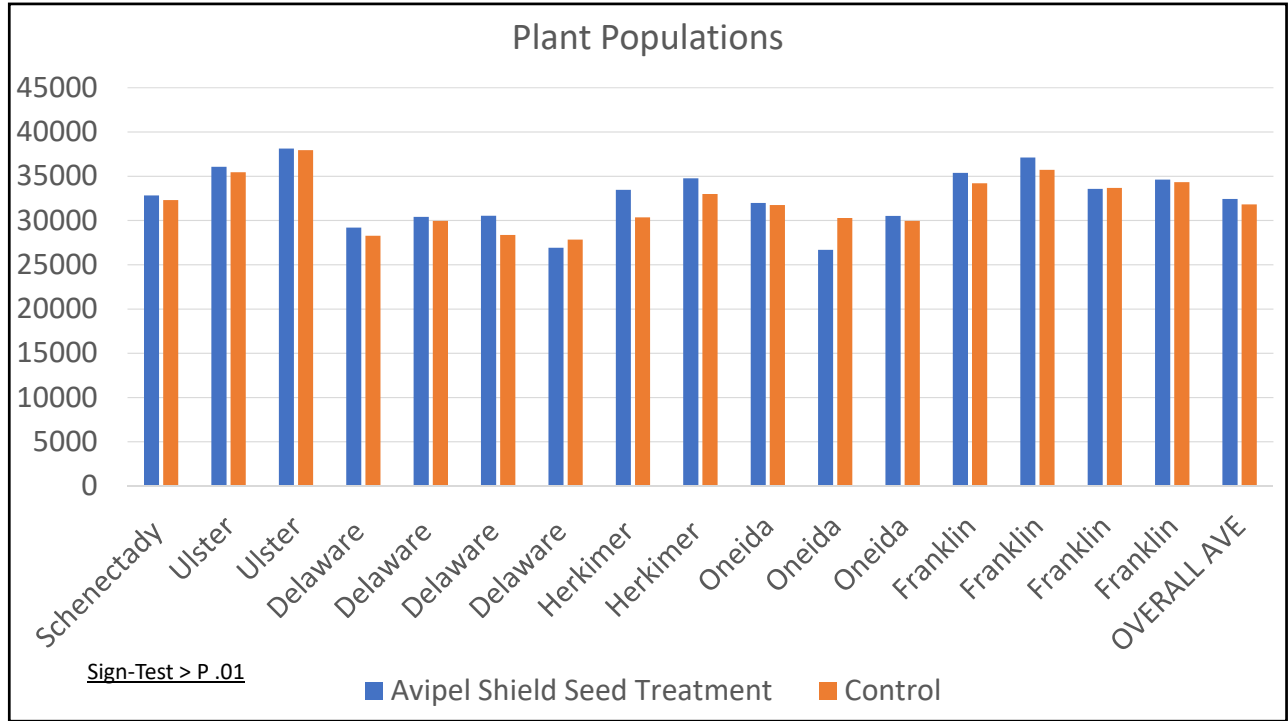
Cornell Cooperative Extension

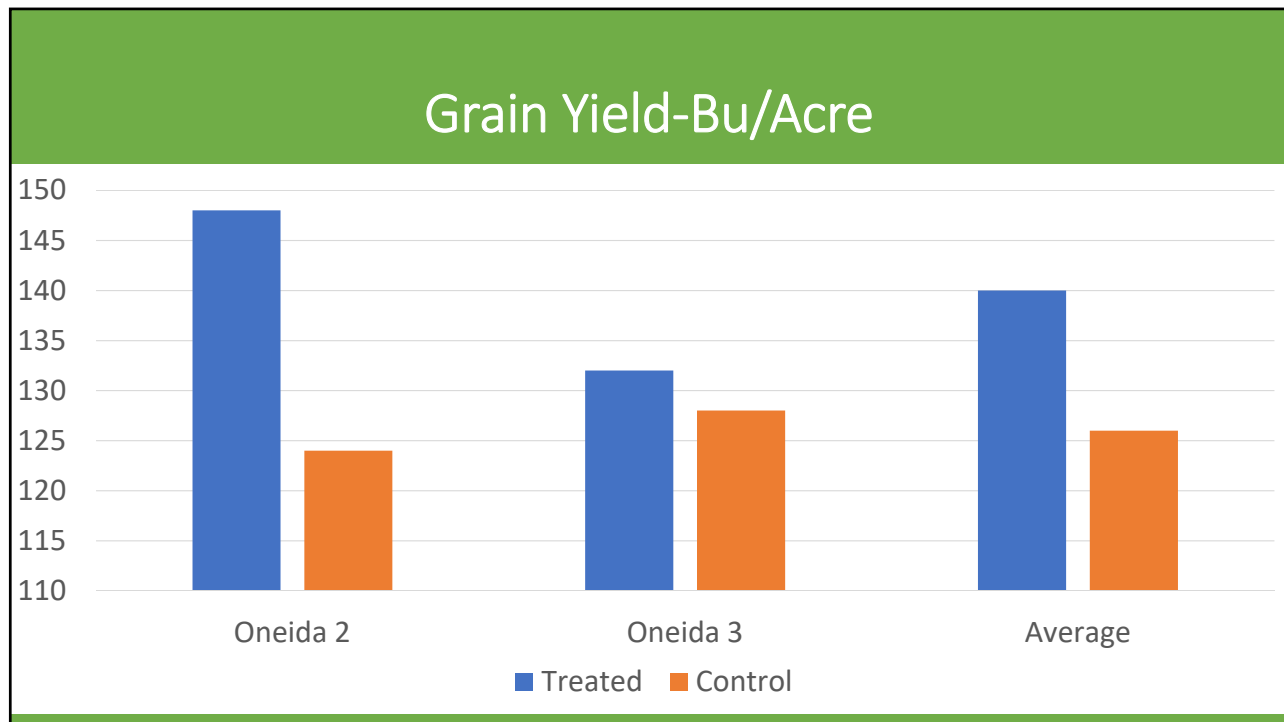


Integrated Pest Management

Field Work and Damage







Results

- There was a significate difference in plant populations. The Avipel did increase the plant populations.
- There was no significate difference in yields. We really needed to get more of the field data.
- Other issues in plots this last season was seedling diseases, lack of bird pressure and weather related issues.
- We have a second year of funding
- Farmers in the Catskills that have had problems with birds in the past and have used and claims it works very well.
- Avipel is now registered in NY as a Special Local Needs (SLN).



Cornell Cooperative Extension



Integrated Pest Management