



CORNELL VEGETABLE PROGRAM HIGHLIGHTS

OCTOBER – DECEMBER 2013

Cornell Vegetable Program Identifies Cause & Cure to Excessive Leaf Dieback in Onions

A curious situation occurred during the 2013 growing season where despite very favorable conditions for growing onions, a lot of fields suffered from excessive leaf dieback and browning, which caused the onion plants to “die standing up”(Fig. 1). When onion plants

die standing up, proper maturation is halted at the expense of bulb size and quality. The CVP Onion Specialist was able to determine that *Stemphylium* leaf blight (SLB) caused the excessive leaf dieback. SLB normally occurs in onion fields as a secondary pathogen. Although it is not known exactly why in 2013 SLB moved from its usual backseat position into the forefront as an aggressive pathogen, based on recent history in Ontario,



Figure 1. (Above) Onions “dying standing up.” If an onion plant dies before it finishes growing, the plant will not lodge properly, which can ultimately reduce the quality of the bulb.

Figure 2. (Left) Extended lesions of *Stemphylium* leaf blight with black sporulation.

Photos: C. Hoepfing, CCE Cornell Vegetable Program

Canada with this disease, it is expected that SLB will be a regular contender in New York onion fields. Fortunately, the Cornell Vegetable Program was able to identify some promising new fungicides to combat SLB in our 2013 on-farm small-plot onion fungicide trial. Based on our results, it is expected that when fungicides with excellent activity against SLB are incorporated into the onion fungicide spray program, New York onion growers will never experience such severe SLB again.

Western Bean Cutworm Population Continues to Climb

The CVP has continued to monitor the population of the Western bean cutworm (WBC) since 2011 as it has steadily increased. Both corn and dry bean fields are being monitored for this new pest. WBC damaged dry bean seed is unmarketable but difficult to separate out at the elevator so there’s a low tolerance for the pest in this crop. Traps with a WBC pheromone attractant were set out at 11 dry bean fields in 2013. The highest cumulative moth catch in bean fields occurred once again in Attica, with 181 moths, well over the threshold of 100-150 moths. No damage could be found in the pods or dry beans in that area, however, since the grower promptly sprayed insecticide when alerted to the high moth numbers. WBC larvae were found in corn adjacent to the Monroe Co. dry bean trap, where the moth count reached 109, but no damage was seen in the dry beans. The WBC threshold was just surpassed in 2 more of the 11 traps in dry bean fields, with another 3 traps over the threshold near dry bean fields. The WBC is overwintering in NYS, being a hardy pest from the U.S. High Plains. Snow cover, high summer humidity, lighter soils and reduced tillage all favor a continuing increase in the population. We have not had losses in NY due to WBC to date, but the population is expected to climb. *(Supported by the NYS Dry Bean Industry Committee, with assistance from the NYS IPM Program, WNY Crop Management Assoc. and CCE – Wyoming Co.)*



Western bean cutworm damage on pods and kidney beans.
Photos: C. DiFonzo, Michigan State

Reduced Tillage Cabbage Becomes Standard on Two CVP Farms

The CVP has been working with growers the past ten years to improve soil functioning and health. Most recently we have collaborated with two cabbage farms, Hemdale Farms, Seneca Castle, and Brightly Farms, Hamlin, to evaluate cabbage yields and quality under conventional vs reduced tillage (RT) systems. Comparisons over multiple years on both farms have shown RT cabbage production to equal conventional cabbage. Both farms have now adopted RT cabbage as a standard practice, to improve soil health, and to reduce fuel use and the time for field preparation. For vegetables, which generally have shallow, weaker root systems than field crops, it is important to rip deep enough to break through the compaction layer, and to plant right over the rip. Joe Brightly adjusted the spacing on both his ripper and cabbage transplanter to accomplish this. Most growers who have tried RT for a crop have adopted the practice and adapted its use for other crops. They have also generally increased cover cropping.



Reduced till cabbage, Brightly Farm, Hamlin
Photo: C. MacNeil, CCE Cornell Vegetable Program

For a comparison of two different tillage systems it is necessary that all factors, other than the tillage, remain the same. The sweet corn, dry bean, winter squash, pumpkin and tomato growers, as well as the cabbage grower cooperators we worked with, took the extra time to ensure that yield data collected would be valid, essential for making an objective decision. The tillage comparison was done in the same field, on the same soil type, with the same previous management. The same variety was used and it was planted at the same time. Herbicide choice and timing was as close as possible, except for the essential vegetation burn down in the RT area. The amount of fertilizer applied was the same, though timing and method of application occasionally varied. For example, in the cabbage tillage comparison nitrogen was split between a deep application in the rip and a sidedress in the RT, while the conventional area received two sidedressings. Finally, repeating the comparison a few times is essential. These principles are important for comparing any production practices. (2013 work supported by a NY Farm Viability Grant)

CVP Diagnoses Devastating Disease Affecting Hundreds of Acres of Processing Spinach

In late September, the CVP was called to a ca. 40 acre processing spinach field which was not growing properly and had an unhealthy color. The CVP specialist determined that there were 3 distinct things going on: 1) tan colored, papery areas on the leaves, 2) dead plants or plants with dead lower leaves, and 3) twisting and stunting of the growing tip and young leaves. Whole plants with the various symptoms were dug up and taken to plant pathologists at the Geneva Experiment Station for testing. Downy mildew and leaf miners were ruled out, while Fusarium wilt seemed to be involved with plants that were dead. After conducting background research on spinach disorders, the CVP specialist requested that the spinach plants also be tested for Cucumber Mosaic Virus and the plants were found to be positive. In mid-October, the CVP specialist was again called to look at additional spinach fields all showing yellowing and leaf twisting. This time the symptoms of the virus were very severe and diagnostic. Plants were collected from spinach fields of 4 different growers and all were found to have a very high concentration of the virus within the plants. Some spinach varieties have resistance to the virus, but this can breakdown at temperatures over 80°F. The CVP compiled data to show that there were several days in August and September with temperatures over 80°F. At the Geneva Experiment Station, seeds and germinated seedlings from the same seed lot used to plant the fields were tested for the virus and all were negative, indicating that the seeds were not the source of the virus. Rather, it is likely that the virus was spread by waves of virus carrying aphids (an insect) feeding on the spinach plants. There are approximately 800 acres of processing spinach grown in WNY and there was a 50% yield reduction due to this disease. Resistant varieties are the only way to manage the virus.



Spinach severely infected by Cucumber Mosaic Virus.
Photo: J. Kikkert, CCE Cornell Vegetable Program

Testimony Provided to the NYS Assembly Agriculture Committee on Food Hubs, Season Extension & Produce Auctions

Cornell Vegetable Specialist Judson Reid provided testimony to the New York State Assembly Agriculture Committee on December 10, 2013 emphasizing the impacts of our program and Western NY's agriculture development team, Harvest NY.

Our work with Food Hubs:

- Harvest NY recently connected 6 new farmers to the Finger Lakes Fresh Food Hub which created \$92,000 in new sales for these farms.
- Harvest NY successfully developed a proposal to secure \$175,000 in funding from Farm Credit Northeast and the Western New Power Proceeds Allocation Fund to commence a "Ready to Grow Food Hub Planning Project".

Season Extension and Auctions:

- The Cornell Vegetable Program (CVP) is the statewide leader on Season Extension having successfully competed for over \$500,000 for research and education with NY growers, and NY is now the national leader in winter farmers markets (fueled by season extension).
- A recent study found that farmers that participated in our educational programming were more likely to adopt season extension, which was then correlated with farm profitability and wholesale produce auction growth.
- The same study found a correlation between auction economic growth and support from the CVP. The auction in our study that received the most extension support grew in sales by \$185,612 per year, more than three times the rate of other auctions.
- In 2014 there will be 6 produce auctions in New York with sales approaching \$10,000,000. Harvest NY and CVP worked together to create a webpage for NY produce auctions to help buyers understand and access these points of local product aggregation.

A YouTube video featuring this testimony is being developed.

Intensive Vegetable Production "Schools" Attract Area Growers

The Cornell Vegetable Program hosted two intensive, all-day educational sessions: Tomato School (November 7, 2013 in Geneva) and Squash School (November 8, 2013 in Rochester).

Tomato School was a thorough school for tomato growers of any size and management style covering topics ranging from pest/disease management, cultural practices, grower experiences, marketing, and nutritional management. 4.75 DEC recertification credits were offered. Over 60 growers attended the School in Geneva. The meeting was broadcast to two remote sites, as well, in the Erie/Cattaraugus area and in the North Country.

Squash School presented growers with information related to pest, weed, disease, and fertility management and provided updates on cultural practices such as the use of plastic mulch, planting date, supplemental pollinators, variety selection, reduced tillage, and post-harvest handling. 4.25 DEC credits were offered to the 50+ growers in attendance at this School.



Poor water and fertility management can lead to insect and rot problems in tomatoes. Photo: E. Buck, CCE Cornell Vegetable Program

Processing Advisory Meetings Set Priorities for Research

Each year, the Cornell Vegetable Program organizes a series of processing advisory meetings focused around specific crops. On December 3rd in Batavia, NY, a group met to discuss the pea crop in the morning and beets and carrots in the afternoon. Similarly, groups met on December 11th in Geneva, NY to discuss sweet corn and then snap and lima beans. All processing vegetable growers are invited to attend meetings of interest. Each meeting consisted of a total of 30-40 growers, processors, crop consultants, and Cornell University researchers and extension educators. All agreed that the 2013 growing season was a tough one, with too much rain affecting planting, growing and harvesting operations. Other concerns included troublesome weeds, diseases and insects. Priorities were set for upcoming research proposals, which are funded by the growers and processors through the New York State Vegetable Research Association. Attendees could earn DEC pesticide applicator recertification credits or Certified Crop Advisor continuing education credits. There are more than 30,000 acres of processing vegetables grown in New York state each year, with a combined value of \$44.9 million.

Newly Funded Grants

Each year, the Cornell Vegetable Program is tasked with generating a certain percentage of our operating funds, or Program Generated Income (PGI), through research grants, sponsorships, and meeting registration revenue. This quarter, we are pleased to have received the following grant funds:

- Increasing High Tunnel Profitability with Improved Soil Management. \$80,922 from the New York Farm Viability Institute.

The project team is composed of Extension Educators covering more than 30 NY counties, with Judson Reid of the CVP serving as PI. The team will work one-on-one with 20 producers who are new high tunnel operators unfamiliar with potential soil health problems and experienced high tunnel operators trying to correct soil health problems.

An extensive on-farm and educational outreach will reach over 100 NY growers on the subject of high tunnel soil management. The team will develop a fact sheet on high tunnel soil health management Best Management Practices (BMPs) for use and dissemination by various Cornell University departments, associations and teams. In addition, our results will be shared through the Cornell Vegetable Program VegEdge newsletter (more than 850 recipients), the New York Berry News (525 recipients), the Eastern New York Commercial Horticulture Program newsletter, the Southern Tier Produce newsletter (more than 140 recipients) and numerous print articles in industry publications.

We anticipate that producers who adopt soil health management BMPs will experience yield increases and/or input decreases, resulting in a 25% net increase in high tunnel profitability per farm.

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- **Together, over 365 farm visits and phone/email consultations were made by our Vegetable Specialists**
 - **12 educational events were organized by the Cornell Vegetable Program during this quarter**
 - **Nearly 800 people attended meetings where presentations were made by our Vegetable Specialists**
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**For more information about our program, contact Julie Kikkert at
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<http://cvp.cce.cornell.edu>**

