Best management practices should be followed throughout onion harvest and storage to ensure best bulb quality.

PAGE 1

Alternaria leaf spot is a common disease of cabbage, kale, cauliflower, Brussels sprouts, and broccoli.

PAGE 5

Downy mildew has been confirmed in WNY. Learn more about the characteristic disease symptoms and fungicide sprays available for use in NY.

PAGE 7

Insect control may benefit cucurbits in bloom but you don't want to kill the bees. What should you do?

PAGE 8

VEGEdge

YOUR TRUSTED SOURCE FOR RESEARCH-BASED KNOWLEDGE

Volume 10 | Issue 21 | September 3, 2014

Photo: Jarmila Haseler, CCE

Cornell University
Cooperative Extension
Cornell Vegetable Program

Tips for Best Onion Bulb Quality

Christy Hoepting, CCE Cornell Vegetable Program

The 2014 onion crop appears to be one of the highest yielding that New York has seen in several years. As a general rule of thumb, cooler and wet seasons result in higher yields and bigger bulbs that tend to be of lesser quality mostly due to various bulb rot problems. As moderate seasons are favorable for onion growth, ample rainfall and cooler temperatures also tend to favor leaf and bacterial diseases. However, there have been comparatively very few above-ground symptoms of bacterial diseases this season and downy mildew, Purple Blotch and Stemphylium leaf blight have been kept in check, and onions for the most part have matured naturally as opposed to "dying standing up". Best management practices should be followed throughout harvest and storage to ensure best bulb quality.

Freshly pulled storage-bound onions will not be topped until the neck is dry and tight to ensure best bulb quality. *Photo: Christy Hoepting, Cornell Vegetable Program*

Pulling and windrowing

- Do not pull onions and leave them in the hot sun when temperatures are in the high 80s and into the 90s, because they

continued on page 3

VegEdge newsletter is exclusively for enrollees in the Cornell Vegetable Program, a Cornell Cooperative Extension regional agriculture team, serving 11 counties in Western New York.

The newsletter is a service to our enrollees and is intended for educational purposes, strengthening the relationship between our enrollees, the Cornell Vegetable Program team, and Cornell University.

We're interested in your comments. Contact us at:
CCE Cornell Vegetable Program
480 North Main Street, Canandaigua, NY 14224
Email: cce-cvp@cornell.edu

Web address: cvp.cce.cornell.edu

Editor
Carol MacNeil

Contributing Writers
Robert Hadad
Christy Hoepting
Julie Kikkert
Carol MacNeil
Judson Reid
Darcy E. P. Telenko

Publishing Specialist/Distribution/Sponsors
Angela Parr

VegEdge is published 25 times per year, parallel to the production schedule of Western New York growers. Enrollees in the Cornell Vegetable Program receive a complimentary electronic subscription to the newsletter. Print copies are available for an additional fee. You must be enrolled in the Cornell Vegetable Program to subscribe to the newsletter. For information about enrolling in our program, visit cvp.cce.cornell.edu. Cornell Cooperative Extension staff, Cornell faculty, and other states' Extension personnel may request to receive a complimentary electronic subscription to VegEdge by emailing Angela Parr at aep63@cornell.edu. Total readership varies but averages 750 readers.

Help us serve you better by telling us what you think. Email us at *cce-cvp@cornell.edu* or write to us at Cornell Vegetable Program, 480 North Main Street, Canandaigua, NY 14424.

Cornell University
Cooperative Extension
Cornell Vegetable Program

Contents

The next issue of VegEdge will be produced in TWO WEEKS on September 17, 2014.

36 growers and agribusiness reps from across Western NY and the Finger Lakes Region attended the Fresh Market Potato Variety, and Disease & Insect Management Meeting, hosted by Williams Farms, Marion, on August 28. Those attending learned ways to control Colorado potato beetle and late blight. Don Halseth, Cornell Potato Specialist for over 30 years, reported on his last potato variety and breeding line trials, and promising new material for growers to try. Don will be retiring in January. Good luck and good health in your retirement, Don!

Don Halseth, Cornell, speaking to growers at last week's potato meeting. *Photo: Carol MacNeil, CVP*

continued from cover - Tips for Best Onion Bulb Quality

can get **sunscald**, especially if the relative humidity is high and they are pulled on the green side. Secondary bacterial pathogens invade tissue damaged by sunscald resulting in rotten bulbs.

- A common technique used for field drying is to orient the pulled onions so that the leaves lay over top of the bulbs.
- Some growers move the pulled onions with the tops on into a greenhouse or high tunnel to dry. Temperatures should be held below 85°F, which will probably require leaving everything wide open. Black shade curtain/cloth over the house can also help to moderate temperature. Ensure good air movement.

Topping and harvesting

- Do not harvest onions when conditions reach 90°F and 90% relative humidity, because **black mold** could develop. Harvest dry onions during the cooler part of the day as long as they are not wet from dew or rain or wait until a cooler day.
- Storage-bound onions should only be topped when the neck is dry and has no green tissue (i.e. the tissue does not slide when you roll the neck between your fingers). **Bacterial diseases**, **Botrytis neck rot** (caused by the fungal pathogen, *Botrytis allii*) and **black mold** can enter into and move through green tissue into the bulbs. These diseases do not infect or move in dry tissue.
- Leave 2-3 inches of neck on the bulb when topping. This increases the distance from the cut surface to the bulb for fungal and bacterial pathogens to travel. Theoretically, if the neck dries down before the disease gets to the bulb, the bulb should be sound in storage.
- If onions are dying standing up due to excessive leaf dieback caused by disease or other stress, and they are not lodging, they should be pulled and note that it may take a bit longer for the necks to dry on these onions.
- Conduct harvest practices when the weather is dry. Ideally, onions should not be handled when wet to prevent skin quality issues from **Brown Stain**, caused by *Botrytis cinerea* and **Black mold**. When wet harvested onions are placed into boxes, it takes longer for them to cure properly, and the added moisture can stimulate disease development and **rooting**, which in turn will stimulate **sprouting**.
- Avoid bruising during harvest procedures. **Bruises** provide direct entry points for diseases to get started.
  - Reduce drops to 6” and pad sharp surfaces.
  - On mechanical harvesters, minimize mechanical injury during harvesting by adjusting the chain speed to make sure the chain is always full. This will help reduce rolling and bumping of the bulbs.

Onion harvest on the Elba muck. *Photo: Cordelia Hall, Cornell Vegetable Program*

Curing

For optimum storage quality, onions must be cured soon after harvest. Curing decreases the incidence of **neck rot** and **bacterial diseases**, reduces **water loss** during storage and is desirable for development of good scale color.

- Optimum conditions are 68-86°F and 70% relative humidity for at least 12 to 24 h. Best skin color develops at 75-90°F.
- Artificial curing can be done with outside air, which is heated to approximately 77°F or 3-5°F above the ambient air temperature. Higher temperatures, up to 90°F can be used if onions are of high quality with several layers of good skins.
- Avoid temperatures greater than 90°F, because this is favorable for development of **bacterial diseases.**
- Avoid temperatures greater than 82°F, because **Black mold** is more likely to develop at this temperature.
- A lower temperature, down to 68°F should be used if onions are **poorly skinned**, have been **touched by frost** or have **bacterial diseases**.
- Relative humidity should not fall below 65% or exceed 80%. RH going into the boxes should ideally be 50% and less than 100% coming out.
- Airflow should be no less than 3 cubic feet per minute per cubic foot of product.

Onion Storage

To ensure maximum storage life, onions should be stored after curing. The optimum temperature for long-term storage of onions is 32°F with 65-70% relative humidity, but it is important to bring them down to this temperature slowly.

- Get them out of the sun or protect them from direct sunlight; exposure to light after curing will induce greening of the outer scales.
- Damaged or rotten bulbs should be graded out before putting them into storage. Damaged bulbs give off moisture which is favorable for development of diseases in storage. Rotten bulbs can ooze onto healthy bulbs and stain them.
- Avoid condensation by not circulating air onto onions that is a warmer temperature than the onions.

CROP INSIGHTS

DRY BEANS

Pods continue to fill and earlier fields are yellowing. White mold (WM) continues to develop in some fields. Dry bean defoliation is recommended when 80% of seed is physiologically mature (white, not green under the seed coat) to open up and dry the canopy to slow WM development. Kill will be quicker in warm, sunny weather.

Robin Bellinder, Cornell, recommends:

Gramoxone Inteon (paraquat) – Plants should be mature with 80% yellow pods, no more than 40% green leaves. Use 1.2 – 2 pts/acre, split if foliage is dense. [Addition of crop oil concentrate (COC) or methylated seed oil (MSO) enhances bean and weed desiccation compared to a non-ionic surfactant (NIS). *C. MacNeil, CVP*] Controls/suppresses annual broadleaves and grasses, and burns back many perennials.

Defol 750 (sodium chlorate) –Use 3.2 qts/acre, repeat if needed. Use a NIS or COC. Weak against weeds.

Touchdown Total, Roundup, OLF (glyphosate) - Apply a max of 0.75 lb/acre active ingredient – amount of product varies with formulation, at the hard dough stage (max 30% moisture), and when no green leaves are visible. Add ammonium sulfate (AMS) as an adjuvant. Provides broad spectrum weed burn down, with no bean re-growth. Some importing countries have a low residue tolerance for glyphosate.

Valor SX (flumioxazin) – Use 1.5 – 2.0 oz/acre. Use a COC or MSO, PLUS spray grade AMS or liquid N. In Robin Bellinder's trials flumioxazin outperformed paraquat in terms of bean desiccation but weed control was not as good. Use special tank cleaners after Valor. Wait 30 days after application and 1" of rain before wheat planting; 3 months for barley, rye!

GREENS

The heat of the past week and what is being predicted for the end of this week doesn't bode well for growing spinach or the brassicas. Keep irrigation going to avoid heat stress.

Flea beetles are still a problem despite the heat and aphids are numerous in many locations. Keep an eye out for leaf miners.

ONIONS

After a week of weather in mid-August where day time highs were less than 70 degrees, onion growers were starting to get nervous about the prospect of their crop finishing on time. Fortunately, the recent summery weather of the past week has helped move things along quite nicely and field after field of onions are now lodging beautifully (Fig. 1). Most impressive is how the moderate growing season of 2014 resulted in the onions having notably less heat and drought stress than what normally occurs during a New York summer. It is suspected that the lack of stress enabled the onion plants to better tolerate disease pressure despite very favorable conditions for disease development. At the end of the season, foliage was healthier and greener than normal, which has translated into bigger bulbs. Above-ground symptoms of bacterial disease were minor throughout the growing season, and hopefully the large crop will be of excellent quality. See the cover article for tips for best bulb quality.

Figure 1. Healthy onions lodging/maturing on time in Elba muck land. *Photo: Christy Hoepting, Cornell Vegetable Program*

PEPPERS

Keep an eye out for aphids. Examine ten sites throughout field. Treatment should begin before population exceeds five nymphs per leaf. Natural enemies help suppress aphid infestations such as ladybug larvae and minute pirate bug (*Orius*). Increases in aphid infestations are sometimes associated with application of broad spectrum insecticides that have killed natural enemies.

Aphid infestation on potato (left) and pepper (right). *Photos: Darcy Telenko, CVP*

Natural enemies of aphids – ladybug larvae (left) and aphid mummies post parasitism by minute pirate bug. *Photos: Darcy Telenko, CVP*

continued - CROP insights

POTATOES

Continue applying fungicide until potato vines are completely dead and dry, and as long as tomato foliage and stems remain green. If tuber disease is present consider waiting a couple weeks to harvest for the infected tubers to break down. Potato virus Y, PVYntn, the necrotic tuber strain, has been reported in Wayne County and on Long Island, in Yukon Golds. This causes Potato Tuber Necrotic Ringspot Disease (PTNRD). Tuber symptoms show up as raised ring spots on the skin of the tuber. Yellow-fleshed varieties like Yukon Gold are more susceptible to expressing symptoms on the tuber. Many other varieties show no symptoms of infection, making it difficult to detect. This disease is seedborne so buying certified seed is the first step in management. If you suspect PVYntn contact Carol at crm6@cornell.edu or 585-313-8796.

Take care during harvest to minimize tuber bruising to limit entrance points for Pythium leak, Fusarium dry rot and bacterial soft rot. On the harvester, pad deflectors and sharp points. Reduce drops to no more than 6". Adjust chain speeds to keep them full of potatoes to avoid roll back. Reduce chain bouncing. During potato washing water temp should be at or above tuber temp to avoid water being sucked into the lenticels. Sodium hypochlorite can be used in the wash water to prevent spread of bacteria. Check frequently to maintain 65-125 ppm chlorine, and a pH between 6.0 - 7.5. Use new foam rollers at the end of the wash line to remove as much water as possible from the tubers. Circulate lots of air around boxes of washed potatoes to completely dry tubers. Don't pack until tubers are dry. Holding in a cooled storage can further dry tubers but they must remain cold temp to avoid condensation. Clean up your storages, boxes and handling equipment. Use compressed air and/or a pressure washer to clean off all debris. Check for breaks in insulation and vapor barriers in the storage to avoid cold spots which can result in drip. Air intakes, exhaust vents, air ducts and tubes should be clean and working properly.

TOMATO

Late blight is continuing to spread, continue to stay on top of your management programs to protect against late blight, especially if you have a late planting.

VINE CROPS

As expected from the prediction of hot weather and westerly winds, downy mildew (DM) has reached WNY with a confirmed case reported in Niagara County. For those with late cucumbers, it is time to step up the spray program to keep DM from really taking hold. Refer to the Cornell Vegetable Guidelines for a complete list of products available. Rotating fungicides is essential to reduce chances of resistance. Forceful sprays are needed to reach the undersides of leaves. (For more information on downy mildew, see article on page 7.) The forecast is for more hot weather which will spur on the growth of the vines for a late set. Tuesday's prices at the NYC wholesale markets as reported by USDA were $14-$16 for 11/9 bushel. Ontario cukes are $18-$20.

Powdery mildew is rampant as usual for this time of year. For those with late planted winter squash and melons, step up the spray program to kill the spores. The new vine growth will keep the plants productive a little while longer.

Bacterial wilt is appearing in pumpkin and gourd plantings. It is a bacterium that is spread by both the striped cucumber beetle and spotted cucumber beetle. It is a primary concern in cucumber and melon but gourd, pumpkin and squash are susceptible. Management options need to look at managing the striped and spotted cucumber beetles in susceptible crops.

Bacterial wilt in pumpkin. *Photos: Darcy Telenko, CVP*

Alternaria Leaf Spot of Cabbage and Other Cole Crops

Adrienne Gorny, Rachel Kreis, and Helene Dillard, Dept of Plant Pathology and Plant-Microbe Biology, Cornell (edited by Christy Hoepting, CVP)

Introduction

Alternaria Leaf Spot is a common disease of cabbage caused by the fungal pathogen *Alternaria brassicicola*. In New York, it is commonly found on many types of crucifers, including kale, cauliflower (Figure 1), Brussels sprouts (Figure 2) and broccoli.

Alternaria leaf spot on cauliflower (Fig. 1) and Brussels sprouts (Fig. 2). *Photos: Helene Dillard, Cornell*

continued on page 6

continued from page 5 - Alternaria Leaf Spot of Cabbage and Other Cole Crops

Identification

Symptoms of Alternaria Leaf Spot on Cole crops may first develop on young plants in seedbeds, where leaf spots, stunting, or damping off may occur. Dark brown to black leaf spots may appear on tissues of any age and vary in size from pinpoint to 2-inches in diameter. The leaf spots enlarge in concentric circles and mature lesions have a bull's eye type appearance (Fig. 3). The species that occurs most frequently in New York (*Alternaria brassicicola*) will produce black sooty colored spores within the leaf spots. The black spores easily detach from the leaf if touched and are visible on the leaf surface, fingers and tools.

Disease Cycle and Epidemiology

Alternaria brassicicola may be seed-borne, soil-borne, and wind-borne. Seeds may be contaminated by surface-borne spores or internally infected by the fungus. The fungus can also survive in infested crucifer debris in the soil or on cruciferous weeds. The spores can be blown in the wind for long distances and have been documented to travel on air currents for 1.1 miles. Spores may also be carried by tools, equipment, people, and animals throughout fields. In addition, it has been observed that flea beetles can transmit the fungus to healthy plants when the insects first feed on infected plants (Fig. 4).

Dispersal of spores occurs during the warmest, driest part of the day; however, germination of spores occurs when the leaf surfaces are wet. Research has shown that rain or dew that persists for more than 9 hours is required for germination and infection to occur.

Figure 3. Alternaria leaf spot on cabbage leaf. Lesions are dark brown to black and enlarge in concentric circles.
Photo: Helene Dillard, Cornell

Figure 4. Flea beetles can transmit *Alternaria* to healthy plants.
Photo: Christy Hoepting, Cornell Vegetable Program

Management

- Use disease free seed.
- Some varieties show more tolerance than others; growers should avoid using varieties that have shown chronic problems with this disease.
- Incorporate crop residue immediately after harvest to remove this as a source of disease for other plantings and to hasten decomposition of the infested material.
- A minimum two year crop rotation is recommended, alternating with non-cruciferous crops. Cabbage should not be planted in or near fields or seedbeds that have been used for crucifers the previous year.
- It is recommended to start scouting fields, seedbeds, and greenhouses beginning at emergence for symptoms of Alternaria Leaf Spot.
- Protectant fungicides should be used *before* disease levels are high and uniform coverage of fungicides is essential.
  - In recent Cornell studies, Helene Dillard found that different strains of ALS respond differently to different fungicides with not all strains being susceptible to all fungicides. Therefore, for best control, when disease pressure is threatening head quality, a tank mix of Quadris/Quadris Top + Bravo should be used, perhaps alternated with Switch or Inspire Super.
  - Note that there are restrictions on the number of consecutive applications and rotation partners that can be used with Quadris/Quadris Top and Inspire Super for resistance management. For example, Inspire Super, Quadris and Cabrio cannot be used as rotation partners with Quadris Top.
  - Bravo, Quadris and Cabrio will also provide some protection against downy mildew, which can also cause problems to heads in wet and cool weather.
  - The preharvest interval for Bravo, Inspire Super and Switch is 7 days and 1 day for Quadris Top.
- Straw mulch can reduce disease incidence by providing a protective barrier against soil-borne inoculum.
- Excessive irrigation should be avoided and good weed control maintained.
- Storage cabbage should be handled carefully during harvest to avoid bruising and other wounds that will allow easy entry of the fungus.
- Storage facilities should be thoroughly cleaned of debris before harvest and wooden storage boxes disinfected.

Downy Mildew is Here in Western NY!

Darcy Telenko, CCE Cornell Vegetable Program

Characteristic disease symptoms are angular, pale green areas bounded by the leaf veins. They will turn yellow and later necrotic (see photos). Under high humidity conditions sporulation will occur on the lower leaf surface. Apply targeted fungicides tank- mixed with protectant fungicides weekly and alternated among available modes of action (FRAC code), starting when there is a risk for specific crop based on forecasting program. See table for available fungicides. There are a number of OMRI-listed products purported to help control downy mildew in cucurbits: copper, neem, biofungicides (e.g., Serenade®), peroxides (e.g., OxiDate®), and bicarbonates (e.g., Kaligreen®). Copper may be the best organic option, but only on the crops that show little to no symptoms, if the infection is far along spraying wouldn't do much good. Spray early in the morning to avoid phytotoxicity problems caused by spraying in the heat of the day. If the disease is present on the farm, a prophylactic application of a copper product can be made to curcurbit crops that show mild or no symptoms. If the weather does not favor the disease (which likes it warm and wet and humid), then the copper is more likely to suppress the disease. In other words, the copper may help but it may not be enough.

Downy mildew in cucumber, symptoms on leaf surface – yellow angular lesions, necrotic angular lesions, and sporulation on the underside of the leaf.
Photos: Darcy Telenko, Cornell Vegetable Program

Fungicide	Common name	FRAC	REI (hours)	PHI (days)	Max. Applications during season and other comments
Recommended downy mildew specific fungicides					
Ranman	cyazofamid	21	12	0	No more than 6 times a season, with no more than 3 consecutive application
Previcur Flex	propamocarb	28	12	2	No more than 5 times a season
Revus	mandipropamid	40	12	0	No more than 4 times in a season, do not make more than 1 application before alternating with a different MOA. Must be tank mixed with spreading/penetrating type adjuvant (poor on cucumber, excellent on pumpkin)
Curzate	cymoxanil	27	12	3	Must be tank mixed with a protectant. Apply no more than 6-9 times a season depending on rate (not labelled for Phytophthora blight)
Tanos	cymoxanil + famoxadone	11+27	12	3	Must be tank mixed with a protectant. Apply no more than 4 times in a season, no consecutive applications.
Gavel	zoxamide + mancozeb	22 + M3	48	5	Only product with targeted fungicide plus protectant. No more than 8 times in a season. Some cantaloupe varieties are sensitive and workers must be notified of dermal sensitizer was applied both orally and by posting for 4 days.
Presidio	fluopicolide	43	12	2	Must be tank mixed with another labeled fungicide with different MOA (mancozeb) No more than 12 fl oz/A per season, 4 applications with no more than 2 consecutive. Resistant strains appear to be in eastern US. Long rotation with non-labeled crops -18 months.
Recommended protectant fungicides					
BravoWS/OLP	chlorothalonil	M3	12	0	WPS provision for 6.5 due to severe eye irritant.
DithaneDF/Manzate Pro-Stick/ Penncozeb or OLP	mancozeb	M3	24	5	No more than 25.6 lb/A per season, 8 applications per season. Sensitivity for some muskmelon varieties on labels.

Late Blight Risk

Carol MacNeil and John Gibbons, CCE Cornell Vegetable Program

Late blight (LB) was newly reported in Cayuga, Oneida and Niagara counties this week. All recent infections where the strain was identified have been US-23, except for in Allegany County, where the unknown strain continues to be found. Bill Fry, Cornell, gave a late blight update at the Aug 28 potato meeting in Wayne County and emphasized the need to apply mefenoxam (Ridomil, etc.) at the very first sign of LB, less than 5% infection, for best results. The LB Decision Support System (DSS) called for a 4 - 7 day fungicide spray interval during the past week, depending on location (assuming a susceptible variety and the use of chlorothalonil). In Albion fungicide (loss) units triggered the spray recommendation on the full DSS. Reaching 30 blight units (see the chart) triggers the recommendation to apply a fungicide under these criteria.

Ranman, Gavel and mefenoxam (Ridomil, etc.) are more effective at reducing tuber blight than other fungicides and should be included in the spray program at the end of the season if LB is present or nearby. Chlorothalonil (Bravo, etc.) is poor at protecting tubers. Continue to apply at least a protectant fungicide (chlorothalonil, mancozeb or copper) until all potato leaves and stems are dead and brown. If a field is infected with LB wait 3 weeks to harvest from the time the foliage is dead and dry, to avoid having LB spores infect tubers during harvest. Spores can survive for a few weeks in moist soil.

Wisconsin is reporting both US-23 and US-8 on potatoes in the same county. US-23 is the A1 Mating Type while US-8 is the A2 Mating Type. Sexual reproduction between the two strains could result in the production of overwintering oospores.

If you think you might have LB contact Carol MacNeil at 585-313-8796 or crm6@cornell.edu, John Gibbons at 585-394-3977 x405, or another Cornell Vegetable Program staff member. *LB DSS users*: If you need assistance contact Ian Small at ims56@cornell.edu or Carol MacNeil at crm6@cornell.edu or 585-313-8796.

Late Blight Risk Chart, 8/26/14

Location[1]	Blight Units[2] 8/27-9/02	Blight Units[3] 9/03-9/05	Location[1]	Blight Units[2] 8/27-9/02	Blight Units[3] 9/03-9/05
Albion	NA	NA	Lodi	11	14
Appleton	19	13	Medina	34	13
Baldwinsville	26	19	Penn Yan	45	19
Buffalo	20	13	Ransomville	33	13
Ceres	45	20	Rochester	40	13
Elba	54	13	Romulus	NA	NA
Farmington	30	18	Silver Creek	24	13
Gainesville	NA	NA	Sodus	34	20
Geneva	18	19	Versailles	12	13
Kendall	17	12	Williamson	42	19

1 Weather stations. For more sites, and varietal susceptibility to LB: http://newa.cornell.edu
2 Passed Week Simcast Blight Units (BUs)
3 Three days predicted Simcast Blight Units (BUs)

Recommendations on Using Insecticides during Bloom in Cucurbits

Rick Weinsierl, Department of Crop Sciences, University of Illinois; from Illinois Fruit and Vegetable News, 8/28/14

[Not all products listed for use in other states are available for use in NY, check the Cornell PIMS website for up to date listings. R. Hadad, CVP]

Among several crops that may benefit from insect control during bloom, cucurbits are a common concern. Cucumber beetles feed on fruits and foliage of most cucurbits, and they transmit bacterial wilt, a disease that can devastate cucumbers and muskmelons. They are often present during bloom. Squash bugs and squash vine borer can greatly reduce yields of squash and pumpkin plantings ... and they damage plants while bloom is underway. Aphid control may be needed in pumpkins to prevent honeydew and sooty mold from discoloring fruits and making them less marketable, and this problem occurs as late flowers are still attracting pollinators. So, what's a grower to do. A few imperfect recommendations …

- Do not use any of the highly soluble neonicotinoid insecticides on cucurbits later than a week or so after emergence or transplanting. Included in this group of products to avoid are Admire (and the generic formulations of imidacloprid), Actara, Platinum, and Belay. These are very highly toxic to bees and move into pollen and nectar via the vascular system.
- If insecticides have to be applied during bloom …
  - ◊ Apply insecticides only when blossoms are closed and/or bees are not actively foraging.
  - ◊ Use liquid formulations of insecticides (not wettable powders).
  - ◊ Use insecticides that are least toxic to bees. For control of common cucurbit insects, these include Beleaf and Fulfill for aphid control, neem, insecticidal soaps, and Pyganic and other natural pyrethrins (though they will kill bees directly contacted by sprays). Insecticides that are moderately toxic to bees – and can be used during bloom IF they are applied when flowers are closed and/or bees are not actively foraging – include Assail (for aphids and cucumber beetle control), Sevin XLR Plus (for cucumber beetle control), and Entrust and Radiant (for thrips control). There are other insecticides that are low in toxicity to bees, but they are not effective against key pests of cucurbits.

continued on page 9

Unfortunately, there are no insecticides that are great for squash bug control and not toxic to bees. Brigade, Mustang Max, and Warrior are used – with little impact on pollinators – by timing applications when pollinators are not active and blossoms are closed. Use them if you have to, and not if you don't. The threshold for squash bug control is 1 to 1.5 egg masses per plant ... but when we get to this time of year, the more practical assessment is, "Are infestations widespread in the field, and are they reducing plant vigor or directly feeding on fruits?"

WNY Sweet Corn Trap Network Report

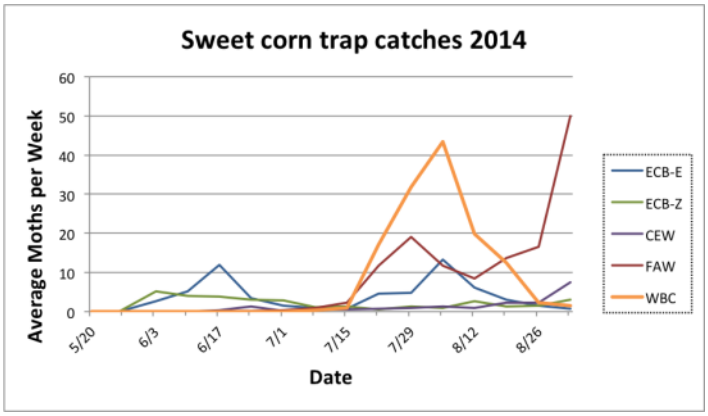
Marion Zuefle, NYS IPM Program

Sixteen sites reported this week. Only three sites reported European corn borer-E (ECB-E) and five sites had ECB-Z. Corn earworm (CEW) was reported at 8 sites with all sites high enough to drive the spray schedule. For recommended spray intervals based on trap catches see chart at bottom. Fall armyworm (FAW) numbers continue to increase with 14 sites reporting catches one as high as 220 moths. Western bean cutworm moths have decreased significantly with only three sites reporting catches.

The graph below shows the average number of moths caught per week throughout the season. FAW is still increasing and numbers of CEW have also been on the rise.

CEW is most attracted to green silk stage fields for egg-laying but as the number of attractive fields decreases, fields with drying silk may become more attractive. Other worm pests will be controlled at sites with high enough CEW catches to drive the spray schedule. At locations where CEW numbers are still low, scout tassel emergence and silk stage fields for ECB and FAW larvae. Use a threshold of 15% infested plants in tassel emergence stage fields and 5% in silk stage fields. For WBC the threshold is 1% for fresh market sweet corn.

Average sweet corn trap catches for all reporting sites, 5/20/14 - 9/2/14



CEW eggs on silk (see red arrows).

Corn earworm adult.

WNY Pheromone Trap Catches: September 2, 2014

Location	ECB-E	ECB-Z	CEW	FAW	WBC
Baldwinsville (Onondaga)	0	0	6	7	8
Batavia (Genesee)	0	0	3	3	0
Bellona (Yates)	0	0	0	7	0
Eden (Erie)	0	0	7	80	0
Farmington (Ontario)	0	0	0	0	0
Hamlin (Monroe)	0	1	4	7	0
LeRoy (Genesee)	0	NA	10	4	2
Lockport (Niagara)	0	7	2	4	0
Pavilion	0	0	0	220	0
Penn Yan (Yates)	0	2	0	8	0
Seneca Castle (Ontario)	3	4	0	4	0
Spencerport (Monroe)	NA	NA	NA	NA	NA
Waterport (Orleans)	NA	NA	NA	NA	NA
Williamson (Wayne)	NA	NA	NA	NA	NA

ECB - European Corn Borer
CEW - Corn Earworm
FAW - Fall Armyworm
WBC - Western Bean Cutworm
NA - not available

Average corn earworm catch			
Per Day	**Per Five Days**	**Per Week**	**Days Between Sprays**
<0.2	<1.0	<1.4	No Spray (for CEW)
0.2-0.5	1.0-2.5	1.4-3.5	6 days
0.5-1.0	2.5-5.0	3.5-7.0	5 days
1-13	5-65	7-91	4 days
over 13	over 65	over 91	3 days

Add one day to the recommended spray interval if daily maximum temperatures are less than 80°F for the previous 2-3 days.

UPCOMING EVENTS

Walk & Talk Discussion Group – September Meeting

September 10, 2014 | 6:00 PM
Quest Farm, 7142 State Rt 21, Almond 14804

An end of season meeting focused on late season crops, storage, field best management practices. This discussion group is free to join, and new growers are particularly encouraged to attend. Meetings are held on various farms in Allegany and Cattaraugus counties. Contact Elizabeth Buck at 607-425-3494 for more info.

TENTATIVE – Rolling Hills Discussion Group – September Meeting

September 16, 2014 | 5:30 PM
Peacework Farm, 2231 Welcher Rd, Newark 14513

Peacework Farm will host a crop walk and share their experience. Discussion will focus on end of season best management practices and question-driven topics. Free to attend. Contact Robert Hadad at 585-739-4065 for more information.

2014 NYS Dry Bean Field Meeting

September 18, 2014 | 5:15 PM - 7:45 PM
Tom Corcoran's farm, 1302 McEwen Rd, Caledonia 14423

Tour the Cornell dry bean variety trial and nearby strip trials. Cornell professors will share research-based ideas on pest issues and management including bacterial diseases and Western bean cutworm updates. Changing bean plant architecture to improve yields will also be discussed. DEC pesticide recertification and CCA credits will be available. A light supper will be provided. Cost: $5 for Cornell Vegetable Program enrollees; $10 for all others. The full agenda and directions to this event can be found on our website. Pre-register by contacting Angela Parr at aep6@cornell.edu or 585-394-3977 x426 by September 12. *Meeting sponsored by Genesee Valley Bean, Gowan Company, King Cole Bean, and New York Bean.*

Disease and Weed Management Workshop

September 29, 2014 | 8:30 AM - 12:00 PM
CCE Allegany-Cattaraugus Belmont Office, 5435A County Road 48, Belmont 14813

Topics covered will include: Vegetable disease control; focusing on the main diseases of vegetable crops in NYS and their management options; both organic and conventional. Weed topics include: weed biology and identification, difference between annual, perennial and biennial weeds, grasses, sedges and broadleaf, and cool vs. warm season. The major weeds that affect vegetable crops in NYS will be discussed and their management options reviewed. Growers are encouraged to ask questions and actively participate in the course. Hands on examples will be used if available. Pesticide recertification credits will be available.

Cost of the program is $15.00 per person or $25.00 for two people from the same farm. If you are interested in signing up for this program, please contact Colleen Cavagna at 585-268-7644 ext. 12. Hosted by CCE Allegany-Cattaraugus and the Cornell Vegetable Program.

2014 Agribusiness Economic Outlook Conference

December 9, 2014 | Time
Cornell University, Warren Hall, Ithaca 14853

New York agricultural leaders (industry leaders, agribusiness professionals, policymakers, educators, and farm managers) learn about the short-and long-term outlook for agriculture and agricultural products in New York and the Northeast. Breakout sessions will provide the near-term outlook for major New York commodities including dairy, grains and feed, and horticultural products. For more information, contact Gretchen Gilbert at 607-254-1281 or gcg4@cornell.edu.

2015 Empire State Producers Expo

January 20-22, 2015
Oncenter Convention Center, Syracuse

This show combines the major fruit, flower, vegetable, and direct marketing associations of New York State in order to provide a comprehensive trade show and educational conference for the fruit and vegetable growers of this state, as well as the surrounding states and Eastern Canada. The Cornell Vegetable Program Specialists are helping to organize sessions on Processing Vegetables, Potatoes, Onions, Cabbage/Cole Crops, Soil Health, Managing Herbicide Resistance, Tunnels, and Ethnic Vegetables. Registration information will be available soon.

Weather Charts

John Gibbons, CCE Cornell Vegetable Program

Weekly Weather Summary: 8/26 – 9/1/14

Location	Rainfall (inch)		Temp (°F)	
	Week	Month August	Max	Min
Albion	NA	NA	NA	NA
Appleton, North	0.00	1.21	86	48
Baldwinsville	0.31	4.18	86	48
Buffalo*	0.81	3.16	87	52
Ceres	0.79	4.49	84	45
Elba	0.39	1.49	85	44
Farmington	0.25	3.01	86	48
Gainesville	0.42	3.49	84	43
Geneva	0.51	2.93	83	52
Kendall	0.01	1.78	88	50
Lodi	0.14	2.79	86	48
Penn Yan*	0.23	3.95	84	52
Ransomville	NA	NA	86	47
Rochester*	0.22	2.27	87	51
Romulus	NA	NA	85	51
Silver Creek	0.66	3.01	88	57
Sodus	0.38	4.31	85	46
Versailles	NA	NA	86	52
Williamson	0.36	6.68	86	47

Accumulated Growing Degree Days (AGDD) Base 50°F: April 1 – September 1, 2014

Location	2014	2013	2012
Albion	NA	NA	NA
Appleton, North	1756	1909	2214
Baldwinsville	2107	2183	2414
Buffalo	2062	2188	2517
Ceres	1769	1806	1975
Elba	1596	1874	2131
Farmington	1942	2019	2204
Gainesville	1564	NA	2066
Geneva	1986	2115	2397
Kendall	1978	2233	NA
Lodi	2178	2342	NA
Penn Yan	2147	2160	2408
Ransomville	1842	1855	2317
Rochester	2130	2254	2443
Romulus	2050	2193	NA
Silver Creek	1981	2123	2313
Sodus	1877	1937	2152
Versailles	1923	2071	2232
Williamson	1878	2177	2405

* Airport stations
** Data from other station/airport sites is at: http://newa.cornell.edu/ Weather Data, Daily Summary and Degree Days.

Cornell University
Cooperative Extension
Cornell Vegetable Program

480 North Main Street
Canandaigua, NY 14424

VEGEdge

YOUR TRUSTED SOURCE FOR RESEARCH-BASED KNOWLEDGE

VEGEdge

YOUR TRUSTED SOURCE FOR RESEARCH-BASED KNOWLEDGE

VegEdge is the award-winning newsletter produced by the Cornell Vegetable Program in Western New York. It provides readers with information on upcoming meetings, pesticide updates, pest management strategies, cultural practices, marketing ideas and research results from Cornell and Cornell Cooperative Extension. VegEdge is produced every few weeks, with frequency increasing leading up to and during the growing season.

VEGETABLE SPECIALISTS

Robert Hadad | 585-739-4065 cell | 716-433-8839 x228 office | rgh26@cornell.edu
food safety & quality, organic, business & marketing, and fresh market vegetables

Christy Hoepting | 585-721-6953 cell | 585-798-4265 x38 office | cah59@cornell.edu
onions, cabbage and pesticide management

Julie Kikkert | 585-313-8160 cell | 585-394-3977 x404 office | jrk2@cornell.edu
processing crops (sweet corn, snap beans, lima beans, peas, beets, and carrots)

Carol MacNeil | 585-313-8796 cell | 585-394-3977 x406 office | crm6@cornell.edu
potatoes, dry beans, and soil health

Judson Reid | 585-313-8912 cell | 315-536-5123 office | jer11@cornell.edu
greenhouse production, small farming operations, and fresh market vegetables

Darcy Telenko | 716-697-4965 cell | 716-652-6400 x178 office | dep10@cornell.edu
soil health, weed management, plant pathology

PROGRAM ASSISTANTS

Elizabeth Buck | 607-425-3494 cell | emb273@cornell.edu

John Gibbons | 716-474-5238 cell | jpg10@cornell.edu

Cordelia Hall | ch776@cornell.edu

Nelson Hoover

ADMINISTRATION

Angela Parr | 585-394-3977 x426 office | aep63@cornell.edu

Steve Reiners | sr43@cornell.edu

Mark Giles | fmg4@cornell.edu

For more information about our program, email cce-cvp@cornell.edu or visit us at CVP.CCE.CORNELL.EDU

Cornell University
Cooperative Extension
Cornell Vegetable Program