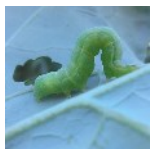




A warm, dry fall is predicted. Protecting vine crops and tomatoes from insects and diseases now might get higher prices for the crop into the fall.

PAGE 1



There are 3 worm pests of cabbage and cole crops. Learn how to scout for and control them. A

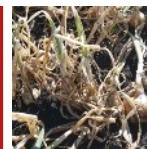
relative efficacy table of insecticides is provided.

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Plastic mulches are used to preserve soil moisture, increase soil temps, and reduce weed growth. But does the color of the plastic matter?

PAGE 7



Iris yellow spot virus of onion can cause excessive leaf dieback. This year seems to be one of the years when the virus is worse in our region.

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VEGE

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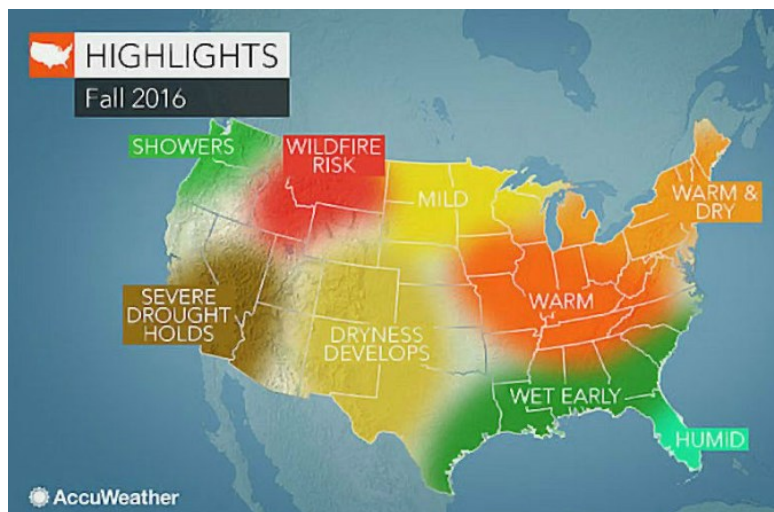
Photo: Angela Parr

Weather Predictions Could Mean a Longer Season this Fall

Robert Hadad, CCE Cornell Vegetable Program

According to an August 5, 2016 article in *Growing Produce*, the La Niña weather pattern will strongly influence our fall conditions positively. The prediction is for a warm, dry fall. There might be a few brief spells of cooler temperatures but generally we are predicted to have decent temperatures well into November. This could mean extended sales with hopefully higher prices.

If you enjoy gambling, then spending the money now to keep vine crops, tomatoes, and other crops protected from insects and diseases, the odds of increasing prices for produce available later in the season might prove a good bet. The hot dry summer has been bad enough but many farmers have also been complaining that along with the high temperatures there have been low prices for pro-



From <http://www.growingproduce.com>

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VegEdge newsletter is exclusively for enrollees in the Cornell Vegetable Program, a Cornell Cooperative Extension regional agriculture team, serving 12 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:
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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.



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The next issue of VegEdge will be produced on August 24, 2016.



CVP Specialist Robert Hadad and Jeff Werner at the Summer Vegetable and Cut Flower Grower Twilight Meeting on Monday evening in Rush, NY. Photo: C. Hall, CVP

duce. Generally we tend to see prices rise in the fall.

The current NY terminal prices for some items still appear to be low. Cabbage 1.75bu \$12-13; beets 12 bunches \$12-14; cauliflower case of 12 \$12-15;

cucumber 1 1/9bu med \$20-22; peppers green 1 1/9bu \$8-9, red \$22.

The weather predictions notes that the Midwest is supposed to stay hot and very dry while the Southeast is expected to be hammered by strong storms, lots of rain, and localized flooding. This scenario could play out for a better end to our droughty season with extended sales and better prices. ●

Flea Beetle Control on High Tunnel Eggplant

Judson Reid, CCE Cornell Vegetable Program

There are several species of flea beetles that attack eggplant, including the potato, tobacco and eggplant flea beetle. These black quick moving beetles pupate in the soil then pass into a larval (worm) stage, before emerging again to leave 'shot-hole' damage on the foliage. There are 2-3 generations per season, with adults overwintering in the soil. Rain, cool weather and cold winters reduce Flea Beetle activity; all conspicuously absent this season.

Since the pest overwinters and pupates in the soil cover crops and crop rota-

tion are very important. This will also help with pests such as Colorado Potato Beetle. Mulches may also suppress the movement of the beetles between the soil and crop canopy. Do high tunnels help manage their population? In our experience they do not, if possible Flea Beetle damage may be more severe on tunnel plantings of eggplant than in the field. For a full grown eggplant the threshold for management is 8 beetles per plant. Most tunnel plantings easily exceed this threshold.

What spray options do we have for Flea Beetles on eggplants in tunnels?

Product	PHI	REI	Organic?
Mustang Maxx	1	12	No
Sevin	3	12	No
Baythroid XL	7	12	No
PyGanic	0	12	Yes



Flea beetle close-up on high tunnel eggplant.
Photo: Judson Reid, CVP



Flea beetle damage to high tunnel eggplant. Photo: Judson Reid, CVP ●

Cover Cropping: Great for Sustaining Beneficial Insects

Gretchen Seigworth and Darcy Telenko, CCE Cornell Vegetable Program

Soil erosion prevention, soil health improvement, weed management, pesticide reduction, and additional income have contributed to the continued popularity of cover cropping. Many New York farmers are utilizing clover, sorghum-sudangrass, tillage radish, alfalfa and other cover crops in their crop rotations, and are having great results. One more reason to integrate

cover crops into your planting schedule is to provide a harbor and food source for "good bugs" like pollinating and predatory insects.

Ideally, farms can sustain honey bees in certain areas of their farm that need to be pollinated. Unfortunately, honey bees can become scarce and costly, often requiring extra time and expertise. Luckily, there are many other species of wild bees and pollinators in New York that can help out with pollination. Planting cocktails of native or nearly native flowering cover crops will attract and sustain wild and supplemented pollinators. Your choice of cover crops will vary by location and purpose to best fit your needs. For example, alfalfa, white or red clover, and cowpea are great pollinator-friendly cover crops for nitrogen affixation, whereas buckwheat and sun-

continued on page 4

flower are great for pollinators and weed management.

Beneficial predatory insects like pirate bugs (*Orius insidiosus*) are also attracted to flowering cover crops as an alternate food source. Well-managed cover crop systems can provide a vegetative structure for egg-laying and overwintering of beneficial insects, and they also result in fewer pests in following years. Some non-flowering cover crops are also great options for predatory insects, as they can provide a “beetle bank” or a stable supply of food sources for the beneficial insect if prey pests are completely controlled in target areas. Beneficial insects may overwinter in unmowed sections of cover crops, along with a few of their prey insects, possibly allowing your good bugs to be sustained for generations of their population.

There are a few important things to remember when using cover crops for pollinators and beneficial insects:

- Where possible, wait until most of the cover crop is past peak bloom

before mowing

- If you cannot wait until peak bloom, consider leaving a few strips of the cover crop standing to prevent a crash of beneficial insect populations
- Leave as much cover crop residue as possible to protect beneficial insect eggs and any hibernating adults
- Implement IPM techniques to minimize insecticide use in the crops that follow cover crops to avoid harm to beneficial insects

For more information on beneficial insects, pollinators, cover crop cocktail examples, rotation suggestions, and cover crop management, you can read the complete SARE publication: “Cover Cropping for Pollinators and Beneficial Insects” at <http://www.sare.org/Learning-Center/Bulletins/Cover-Cropping-for-Pollinators-and-Beneficial-Insects> or call (301) 779-1007 to order hard copies.



Honey bees are attracted to buckwheat, and it also helps to manage weeds for the next planting season.
Photo: pacificnorthwesthoney.com



Flowering alfalfa is a great food source for pollinators and it aids in nitrogen affixation. Photo: Britannica.com

WNY Sweet Corn Trap Network Report, 8/16/16

Marion Zuefle, NYS IPM Program; <http://sweetcorn.nysipm.cornell.edu>

Eighteen sites reported this week for Western NY. European corn borer (ECB)-E and ECB-Z were caught at eight sites this week. Corn earworm (CEW) are still increasing with ten sites reporting trap catches this week, with eight sites high enough to require a 4, 5, or 6 day spray schedule (see table at bottom of post). Fall armyworm (FAW) was caught at thirteen sites. Western bean cutworm (WBC) was caught at twelve sites this week.

Fields that are in whorl or early tassel stage should be scouted for WBC egg masses with a 4% threshold for processing sweet corn and a 1% threshold for fresh market sweet corn. It takes between 5-7 days WBC eggs to hatch. It is critical that sprays are timed before the larvae have a chance to enter the ear. The egg mass will become purple in color approximately 24 hours before egg hatch. To see a

[video](#) from Purdue on scouting for WBC egg masses and larvae, go to <http://youtu.be/Rlt9NftKTjA>

WNY Pheromone Trap Catches: August 16, 2016

Location	ECB-E	ECB-Z	CEW	FAW	WBC	DD to Date
Baldwinsville (Onondaga)	3	1	3	12	15	1897
Batavia (Genesee)	0	2	11	0	11	1460
Belfast	NA	NA	NA	NA	NA	1657
Bellona (Yates)	1	2	1	20	0	2000
Eden (Erie)	1	0	NA	21	8	1740
Farmington (Ontario)	0	2	0	2	0	1791
Hamlin (Monroe)	NA	NA	NA	NA	NA	1821
LeRoy (Genesee)	NA	NA	NA	NA	NA	1782
Pavilion	0	7	5	1	13	1476
Penn Yan (Yates)	0	0	0	3	4	1953
Ransomville (Niagara)	0	0	0	0	3	1966
Seneca Castle (Ontario)	1	12	0	1	11	1843
Spencerport (Monroe)	0	0	2	2	0	1999
Waterport (Orleans)	NA	NA	NA	NA	NA	1816
Williamson (Wayne)	NA	NA	NA	NA	NA	1729

ECB - European Corn Borer

CEW - Corn Earworm

FAW - Fall Armyworm

WBC - Western Bean Cutworm

NA - not available

DD - Degree Day (modified base 50F) accumulation

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.

Worm Control in Cole Crops

Christy Hoepting, CCE Cornell Vegetable Program

The three worm pests of cabbage and other cole crops include diamondback moth (DBM) (Fig. 1), imported cabbage worm (ICW) (Fig. 2) and cabbage looper (CL) (Fig. 3).



Figure 1. Diamondback moth larvae feeding on underside of cabbage leaf, causing window-paning effect. Photo: C. Hoepting, CVP

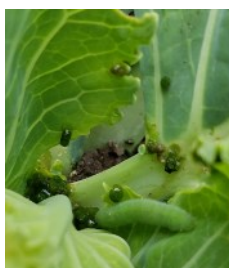


Figure 2. Large imported cabbage worm and its frass in cabbage. Photo: C. Hoepting, CVP



Figure 3. Characteristic looping of cabbage looper in broccoli. Photo: C. Hoepting, CVP

The critical growth stage to control these worms is from the 8 leaf stage until head formation. Look for newly hatched larvae in the heart leaves where their feeding leaves tiny brown scarring (Fig. 4). Once they get bigger, they generally feed on the undersides of leaves making small irregular holes (windows) leaving the upper leaf surface intact (Fig. 1). Larger larvae of ICW and CL make ragged holes in the leaves (Fig. 5) and generally feed on the base of the head. A large CL causes 5 times more damage than DBM. This type of injury generally does not affect yield. However, presence of larvae and frass in heads of fresh market cabbage, broccoli and cauliflower can render them unmarketable.

When scouting, be sure to look at both the undersides of leaves as well as digging into the heart leaves. DBM wriggle when prodded and hang by a silk thread and ICW are sluggish and fuzzy. CL can be distinguished from other worm pests by its characteristic "looping" habit when it moves and reach 1.5 inches long when mature. In seedlings, treatment is warranted if 20% (all worms included) of plants are infested. The threshold rises to 30% infestation in the early vegetative to cupping stage and then drops to 5% through harvest.

Bts (Dipel, Xentari, etc.) are all very effective against ICW and can also be used for DBM at low populations. To control large CL and heavier populations of DBM, high rates of pyrethroids (Baythroid, Brigade, Mustang Max, Pounce and other permethrin formulations, Danitol, Hero, Asana and Warrior) may be needed. Note that pyrethroids are weakest on DBM and their use is sometimes associated with a buildup of aphids. Avaunt, Radiant, Coragen, Exirel, Verimark (soil app only), Voliam Xpress, Proclaim and Belt are also very effective against all the main worm pests and are recommended for high populations of DBM and large CL (see Table).



Figure 4. Brown scarring caused by worm pest feeding in the heart of cabbage leaves. Photo: C. Hoepting, CVP



Figure 5. Top view of leaf with large cabbage looper or imported cabbage worm feeding causing ragged holes (yellow circle) and window-paning feeding (red circle) caused by small cabbage looper or diamondback moth larvae. Photo: C. Hoepting

Relative Efficacy of Insecticides for Control of Worm Pests in Cole Crops

Following is a list of insecticides labeled for use on various cole crops with tentative efficacy ratings for control of imported cabbage worm (ICW), small and large cabbage looper (CL) and diamondback moth (DBM), which was put together by Cornell researchers in Long Island. Growers and other researchers may have somewhat different opinions and results vary according to rates, application method and frequency, location, etc. so selection of controls should not be made solely based on this chart. Not all materials are labeled for all crops or areas. On some labels, rates vary according to worm pest. Check labels! For most cole crops, addition of a spreader-sticker is advised.


Relative efficacy of products for worm control in cole crops

Material, Formulation and Rate	ICW	Sm CL	Lg CL	DBM ³
Diamides (Group 28) :				
Coragen (3.5 – 5 fl oz)	xxx	xxx	xxx	xxx
Exirel (7-13.5 fl oz) – <i>new!</i>	xxx	xxx	xxx	xxx
Voliam Xpress ⁹ (5-9 fl oz)	xxx	xxx	xxx	xxx
Verimark (5-10 fl oz) – <i>new!</i> (soil applied only)	xxx	xxx	xxx	xxx
Belt SC (2-2.4 fl oz)	xxx	xxx	xxx	xx
Spinosyns (Group 5):				
Radiant SC (5-10 fl oz)	xxx	xxx	xxx	xx
Entrust SC (1.5 – 4 fl oz)	xxx	xxx	xx	xx
Indoxacarb (Group 22):				
Avaunt 30WG ⁶ (0.15 – 0.22 lb)	xxx	xxx	xxx	xxx
Avermectin (Group 6):				
Proclaim 5G (2.4 – 4.8 oz)	xxx	xxx	xx ²	xxx
Pyrethroids (Group 3A):				
Warrior II with Zeon Technology (1.28 – 1.92 fl oz)	xxx	xxx	xx	x
Endigo ZC (4 – 4.5 fl oz) ⁸	xxx	xxx	xx	x
Danitol 2.4 EC (10.6 – 16 fl oz)	xxx	xxx	xx	x
Brigade/Capture 2EC (2.1 – 6.4 fl oz)	xxx	xx	xx	x ²
Pounce/Ambush (0.05 – 0.2 lb ai)	xxx	xx	x	x
Baythroid 2 (1.6 – 2.4 fl oz)	xxx	xx	x ²	x
Perm-Up 3.2 EC (2-4 fl oz)	xxx	xx ²	x ²	-
Mustang Maxx (2.24 - 4 fl oz)	xxx	xx ²	x ²	-
Asana XL 0.66EC (5.8 – 9.6 fl oz)	xxx	x ²	x ²	-
Hero (4-10.3 oz)	? ⁷	?	?	?
Bts (Group 11):				
<i>Bt kurstaki</i> (see labels) (Biobit, Javelin, DiPel, Condor, Crymax)	xxx	xx ²	x ²	x ²
<i>Bt aizawai</i> (see labels) (Xentari, Agree, Ketch)	xxx	x	x	xx ⁴
OPs (Group 1B):				
Orthene 97 (1.0 lb)	xxx	xx	xx	x
Carbamates (Group 1A):				
Lannate LV 2.4L (1.5 – 3 pt)	xxx	x ²	x ²	x ²
Larvin 3.2F (16 – 40 fl oz)	xxx	x ²	x ²	x ²
Sevin 80 Solupak (1.25-2.5 fl oz)	x	-	-	x

xxx = most effective (usually good control expected); x = least effective (fair or poor control); - not labeled or not effective. Not all formulations listed. Rates in amount of formulated product unless otherwise indicated.

¹ 4.5 – 6 oz for CL; ² Higher rates needed; ³ Where insecticide resistance is not a problem better control of DBM with some materials may be expected; ⁴ *Bt aizawai* may provide better control of DBM where populations are resistant to *Bt kurstaki*; ⁵ Some incidental control;

⁶ Avaunt is not labeled for use on Long Island. ⁷ Has not been trialed in University studies.

⁸ A premix of Warrior + Actara/Cruiser. ⁹ A premix of Coragen + Warrior. 

CROP INSIGHTS

Rains have been a welcome change of pace, but the added moisture means favorable conditions for many vegetable diseases. White mold, Phytophthora, Alternaria, and bacteria diseases have been appearing in the region on various crop hosts. Hopefully some of this rain will knock down some of our insect issues including spider mites. Leafhoppers and tarnished plant bugs are still causing lots of feeding damage.

CUCURBITS

Downy mildew continues to spread in western NY, we have reports that it has also been found in Orleans county, continue to stay on top of spray programs, the weather prediction model puts the entire state of New York under a high risk for cucurbits. Powdery mildew is still very active, many first plantings have now been turned under.

DRY BEANS

Growers have asked about the risk from Sclerotinia white mold (WM) this year. It takes ten continuous days of good moisture in the top inch of soil for the WM apothecia, which produce the spores, to form. The spores infect blossoms and the WM spreads from there. Fungicide spray timing is at the very beginning of blossoming. WM can also directly infect stems, leaves and pods if they are touching the soil. Fungicides can't reduce that kind of infection.

Small to medium, yellow, bristly larvae of the Mexican bean beetle (MBB) were seen feeding on the undersides of leaves in an organic bean field last week, but may be seen in conventional fields that haven't been sprayed with an insecticide for potato leafhoppers (PLH). MBBs can do significant damage in spots, resulting in skeletonized leaves, but don't usually infest an entire field. MBB larvae do most of their feeding as they grow from the medium to large stages. *From Dan Gilrein, CCE Suffolk County, LI Fruit and Veg Update, 8/11:* Treatment is suggested if more than 1 MBB/2 plants is seen, OR if defoliation exceeds 20% pre-bloom, or 10% at podding with MBBs present. Foliar treatments include Assail, pyrethroids, Dimethoate or Lannate. In organic production use azadirachtin products for larvae.

Western bean cutworm (WBC) moth catches are down. Continue scouting dry bean pods for WBC larval feeding damage, especially in areas with a history of damaged pods or beans. Check all the pods on several plants in several spots in the field. WBC infestations are not uniform across a field. If pod damage is seen in 20-30 min. of scouting a field then one insecticide spray is recommended, a pyrethroid for conventional beans, or Entrust for organic beans.

ONIONS

Last week's and yesterday's rainfall should help out the onion crop; mostly the fields that are still standing it will help them to make bulb size. Onion thrips remain well under control this week with both Radiant and Exirel. Stemphylium leaf blight (SLB) increased in intensity again this week, with more fields showing black and purplish/reddish lesions, some lesions occurring on green leaf tissue, and a couple of fields have the beginning stages of excessive leaf dieback. Overall, it does appear that fungicide programs featuring fungicides with FRAC groups 3 & 7 have held up very well, especially considering the stress of this hot and dry growing season. Iris yellow spot (IYSV) is now occurring between 40% and 95% incidence per field in Elba muck – see article. **Thanks to all who participated in Muck Donut Hour this season, both in Elba and Wayne Co., another great season of discussions about everything onions!**

PEPPERS

Both bacteria spot and Phytophthora blight (*P. capsici*) have been found in the region. *P. capsici* will attack roots, stems, leaves, and fruit. Stem lesions have been found at the soil line causing the tissue to become discolored and collapse. A systemic wilting symptom can be observed in infected plants across a field. Fortunately, the short-lived spores of *P. capsici* cannot be spread by the wind between or within fields. The spores can be moved through water long distances and may also be splashed to aerial parts or between plants during heavy or wind-blown rain. If possible, rogue infected plants and dispose of culled fruit to reduce spread of spores in water within an infested field. A preventative fungicide schedule is needed for effective control. This program should alternate between fungicide groups for resistance management.



Bacteria spot and classic Phytophthora lesions on pepper. Photo: G. Seigworth, CVP

POTATOES

Join us **Thurs, August 25, 5:00 – 8:30 pm in Wayne County for the Fresh Market Potato Variety and Disease & Insect Management Meeting.** We'll meet at the Cornell variety trial at Williams Farms on Decker Rd. For details, directions, and preregistration information for dinner, go to: <http://cvp.cce.cornell.edu/event.php?id=592> or see Upcoming Events in this issue of *VegEdge*.

Many growers are vine-killing, or anticipate vine-killing as soon as their potatoes reach the desired size. Recent rains, though late, spotty and meager in most cases, will help. Spider mites have been reported locally on field edges near farm lanes and in hot spots. Their feeding causes yellowing of leaves and high populations result in very fine webs on leaf undersides. The varieties Marcy and NY 140 have a history of mite infestations. *From Dan Gilrein, CCE Suffolk County, Long Island Fruit & Vegetable Update, 8/11:* In fields where the season's coming to an end, is it economically advantageous to treat for mites? If the field is still very green and you need more time for the tubers to reach marketable size, then yes. One application of Abba, Acramite or Portal should do a good job of knocking populations down. (Note: High label rates are needed if populations are high. Mites live on the underside of leaves and thorough coverage is necessary for good control. Also, miticides are much more effective against larval mites than against adult mites, which are larger and have two reddish spots on their backs, thus control should start early. Evaluate control a week after the application. ed. C. MacNeil, CVP) A second application may be necessary where levels are high, but the situation should be assessed (mite levels, vine health, tuber size and overall economics) before the decision is made to make that second application. In fields where the vines are going down and tuber size is adequate, there will be no economic gain treating for mites at this time.

continued on next page

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.

Harvesting during hot weather significantly increases the risk of Pythium leak infection. Take care during harvest to minimize tuber bruising to limit entrance points for 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 temperature should be at or above tuber temperature to avoid water, potentially with bacteria, from 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 completely dry. Holding in a refrigerated storage can further dry tubers. Don't bring in any air warmer than the tubers, however, or bring the cooled potatoes out into warmer air, to avoid condensation and disease development.

POTATOES - FRESH MARKET

Red Norland and Yukon Gold potatoes are losing their vines due to heat stress triggering maturity response – this leading to smaller tubers will most likely result in reduced yields.

TOMATOES

We continue to find early blight and bacteria diseases on tomato around the region. These diseases along with spider mites have reduced foliage leading to sunscald issues.

Plastic Mulch – Does Color Matter?

Jodi Callwood and Darcy Telenko, CCE Cornell Vegetable Program

Plastic mulches are used to preserve soil moisture, increases soil temperature, and reduce weed growth. Colored plastics are a relatively new phenomenon, research at various institutes are currently being conducted to determine the true effects of various colored plastics on different crops. In some trials, different plastics can increase the foliage of certain plants based on wavelength reflection. Although there is not conclusive research to definitively declare one plastic superior to another, studies have revealed several advantages to growing certain crops on certain colored plastics.

Black Plastic. Popularly used, widely available, and inexpensive, black plastic has excellent weed suppression due to light absorption. Soil underneath black plastic warms up faster and stays warmer than exposed soil, Penn State research has shown soil under black plastic can be 5°F warmer two inches down and 3°F four inches down under the plastic. Warmer soils allow for earlier planting, which can result in earlier fruit.



Black plastic has excellent weed suppression and the soil under the plastic warms, allowing for earlier planting.

Photo: Darcy Telenko, CVP

Red Plastic. Researchers at Cornell and Clemson Universities have found that crops such as tomatoes, peppers, melons, onions, potatoes, strawberries and eggplants grow stronger stems, had greater leaf surface area, and ripen earlier when grown on red plastic as compared to black plastic. Red plastic reflects red light waves that are then absorbed by the tomato plant, increasing foliage and fruit.



Red plastic mulch reflects red light waves that are absorbed by the tomato plant, increasing foliage and fruit.

Photo: Angela Parr, CVP

Green Plastic. Researches at Penn State and the University of New Hampshire found that green plastic encouraged the ripening of the fruit. Cucurbits and melons tend to favor additional heat resulting in faster growth. The green film allows for enough wavelengths to penetrate to warm the soil and suppress weeds, while providing increased heat above the plastic to



Green plastic allows enough wavelengths to penetrate to warm the soil and suppress weeds, while providing increased heat above the plastic to encourage crops (such as squash) that appreciate the extra heat.

Photo: Darcy Telenko, CVP

encourage crops that appreciate the extra heat.

White on Black Plastic. Plastic that is white on one side and black on the other side aims to keep soil temperatures on the cooler side and is ideal for crops that favor these cooler soil temperatures. White plastic retains soil moisture, suppresses weeds, and keeps the soil around the roots cool. Great for lettuce, cauliflower, and broccoli, white on black plastic provides a cooling white surface facing upward while the black surface prevents weed growth and maintains soil temperature.

Blue Plastic. Compared to black plastic melons, summer squash, and cucumbers produce higher yields on blue plastic according to Penn State researchers.

Silver Plastic. According to the Kearney Agricultural Center at the University of California Kearney Silver plastic has reflective properties that reduces aphid, whitefly activity, and cucumber beetle activity. Researchers at Penn State found that pepper and squash crops have higher yields as compared to black plastic.



Research by Cornell found that silver reflective mulch in onion reduced thrips populations by disrupting their visual cues. Additionally, as an alternative to black plastic, reflective silver mulch can reduce bacterial bulb decay; we suspect that the higher soil temperatures of black plastic are more favorable for development of bacterial diseases.

Photo: Judson Reid, CVP

Sources: <http://homeguides.sfgate.com/pros-cons-black-plastic-used-vegetable-gardening-74830.html>

<http://www.growerssolution.com/PROD/red-plastic-mulch-1-mil-embossed/srmred>

<http://www.growerssolution.com/PROD/green-plastic-mulch-1-mil-embossed/greenmulch>

<http://www.growerssolution.com/PROD/white-on-black-plastic-mulch-1-mil-embossed/srmwhite> ●

Late Blight Risk Increasing

Carol MacNeil and John Gibbons, CCE Cornell Vegetable Program

The late blight (LB) risk will be increasing with the forecast of rain and/or long periods of high relative humidity in the region. Many weather station sites have not reached the 30 blight unit (BU) spray threshold. However the BU threshold and/or the -15 fungicide (loss) units (FU) threshold either have been reached (as of 8/17), or are forecast to be reached within a day for all stations except Bergen and Elba. They will reach one of the thresholds by the following day. (Those thresholds assume that chlorothalonil, or a fungicide with similar effectiveness/residual, was used a week ago.) The Ceres, Gainesville and Wellsville stations are well past the 30 BU threshold, indicating that a 5 day spray interval, or longer residual fungicide would have been needed this past week to protect against LB infection. Those who use the LB Decision Support System (DSS)/BlightPro receive alerts in advance when a spray will be needed. For more information contact Carol MacNeil at crm6@cornell.edu or 585-313-8796.

Late Blight Risk Chart, 8/16/16¹

Location ¹	Blight Units ² 8/10-8/16	Blight Units ³ 8/17-8/19	Location ¹	Blight Units ² 8/10-8/16	Blight Units ³ 8/17-8/19
Appleton	22	8	Lodi	26	21
Baldwinsville	30	18	Lyndonville	15	19
Bergen	11	12	Medina	19	18
Buffalo	15	19	Niagara Falls	15	17
Ceres	47	20	Penn Yan	30	17
Elba	0	12	Rochester	19	17
Fairville	14	12	Sodus	20	13
Farmington	24	12	Versailles	26	20
Gainesville	44	20	Wellsville	42	19
Geneva	25	12	Williamson	24	14
Kendall	13	8	Wolcott	12	13

¹ Assuming: last fungicide spray 1 week ago; residual like chlorothalonil; susceptible variety

² Past week's Simcast Blight Units (BU) (Threshold = 30 BUs)

³ Three day predicted Simcast Blight Units

WI has confirmed LB in tomatoes and potatoes this past week, identified as US-23, the common strain recently, and generally effective against LB if applications begin when there's a low level of infection. ●

Iris Yellow Spot Virus of Onion Hot in a Hot/Dry Year

Christy Hoepting, CCE Cornell Vegetable Program

Iris yellow spot virus (IYSV) is a relatively new disease of onion, first detected in New York in 2006. It is vectored by onion thrips. It occurs annually in the major onion growing regions of New York with some years being worse than others. Unfortunately, this year seems to be one of them! Typically, IYSV increases as thrips pressure and plant stress increase. In NY, main and late season direct seeded onions, especially those under stress or exposed to high onion thrips pressure, are at highest risk for yield reduction from IYSV. And, highest levels of IYSV typically occur along field edges where these conditions occur.

This year in Elba, plants exhibiting IYSV first appeared in mid-July, at low levels scattered throughout onion fields, and not just concentrated along the edges. This week, we recorded 40% to 95% incidence of IYSV in the fields that are part of our onion scouting program,



Figure 1. Iris yellow spot virus causing excessive leaf dieback in a field of direct seeded onion.
Photo: C. Hoepting, CVP

including in yellow and red varieties, direct seeded and transplanted fields and in fields with varying degrees of IYSV. Also, this year, we saw plants infected with IYSV having excessive leaf dieback (Fig. 1) and some even died prematurely/standing up. Now, plants infected with IYSV are becoming infected with *Stemphylium* leaf blight (Fig. 2).



Figure 2. *Stemphylium* leaf blight infecting Iris yellow spot virus lesion (yellow arrow). Photo: C. Hoepting, CVP

IYSV can take a bite out of onion yield. In Cornell studies (Nault *et al.*), bulbs of plants that were infected with IYSV two weeks prior to harvest did not continue to put on size compared to plants that were not infected. At harvest, the healthy bulbs weighed 0.1 lb more than the IYSV-infected bulbs. This translates into a reduction in yield of 75 to 250 cwt per acre if 30% to 100%, respectively, of the plants are infected with IYSV in a field with a plant population of 250,000. Best control of thrips and minimizing plant stress have always been our recommendations for managing IYSV. Also important are to remove volunteer onions in non-rotated fields by late May to early June, and to locate cull piles as far away as possible from onion fields, or to destroy culls. Hopefully, this was just a bad year for IYSV due to the heat and drought....

On onion leaves, IYSV lesions are tricky to identify. In general, they are white and elongated, oriented along the long axis of the leaf with multiple lesions often off-set from each other (Fig. 3a,b). Symptoms are most likely to first occur on the middle-aged leaves (Fig 3a). Although, sometimes the lesions can have greenish blurred borders or even appear as a green island surrounded by a diamond-shaped white border (Fig. 3c,d).



Figure 3. Symptoms of Iris yellow spot of onion (IYSV) first appear on middle-aged leaves (a) as white elongated lesions, often oriented along the long axis of the leaf with multiple lesions often slightly off-set from each other (b). Although, sometimes the lesions can have greenish blurred borders (c) or even appear as a green island surrounded by a diamond-shaped white border (d). Photos: C. Hoepting, CVP

UPCOMING EVENTS *view all Cornell Vegetable Program upcoming events at cvp.cce.cornell.edu*

Finger Lakes Soil Health Discussion Group Meeting

August 18, 2016 | 5:00 PM - 8:15 PM

Hemdale Farms, 2800 Orleans Rd, Seneca Castle, NY 14547



Why Hemdale Farms switched to zone tillage, and how they've been successful doing it for field crops and vegetables will be described. Equipment will be available for viewing. The many niches available for cover crop planting, and the benefits of different cover crops will be covered by Thomas Bjorkman, Cornell. There will be ample time for open group discussion on reduced tillage, cover crops, and all aspects of improving soil health. This event is FREE! DEC credits will be available. Preregistration by NOON on August 15 required. Contact Carol MacNeil at crm6@cornell.edu or 585-313-8796. A light supper will be provided.

Fresh Market Potato Varieties, Disease & Insect Management Twilight Meeting

August 25, 2016 | 5:00 PM - 8:15 PM

Williams Farms potato field, Decker Rd, Marion, NY 14505



Growers will have a chance to review the fresh market varieties and Cornell breeding lines, including four European/Canadian varieties, in Walter DeJong's, Cornell on-farm trial. There will be an update on the new, very serious seed-borne bacterial disease, blackleg Dickeya, including how to identify it, and how to reduce the risk of getting it next year, as well as updates on late blight, potato insect management and the development of a quick test for determining nematode levels in soils before planting.

1.5 DEC recertification credits will be available in categories 1a, 10, 21, and 23. Dinner provided at 7:30 PM. Cost: FREE if enrolled in the Cornell Vegetable Program; \$10 for all others. Pre-register by contacting Carol MacNeil, crm6@cornell.edu or 585-313-8796 by August 22 so that we have a count for dinner. *We appreciate the support of Ag BioTech, Bayer CropScience, CPS Marion, Gowan, and Syngenta.*

Bejo Seeds Open House and Demonstration Trials 2016

August 30-31, 2016 | 10:00 AM - 6:00 PM, refreshments plus light lunch served on Tuesday, August 30, RSVP 315-789-4155

Bejo Seeds Research and Demonstration Farm, 4188 Pre-Emption Rd, Geneva, NY 14456

View a wide variety of quality vegetable crops at Bejo's Research & Demo Farm. For [more info](#), visit www.bejoseeds.com.

Sustainable and Organic Vegetable Pest Management Field Day

August 31, 2016 | 3:00 PM - 9:00 PM

CVP Research Site, Cornell Lake Erie Research and Extension Laboratory, 6592 W Main Rd, Portland, NY 14769



Extension Vegetable Specialists, Cornell faculty and the NYS Vegetable IPM Coordinator will be leading research site tours and answering questions on sustainable and organic pest management options for fresh market vegetable growers. Topics: Weed management in sweet corn, pumpkin, winter squash and root crops with a cultivation demo by KULT-Kress; Disease management in organic cucumber and tomato production; Vegetable disease control update; Insect management and specialty crop vegetable variety demonstration; Improving fertility management in vegetable crops; Updates on ongoing research projects in the region.

Cost: \$25 CVP enrollees/\$35 all others, includes steak dinner and handouts. Pre-registration required by August 25, 2016. Call 716-652-5400 or [register online](#). Walk-ins welcome to join the program \$35 at the door, but will not receive dinner ticket unless pre-registered by August 25. DEC and CCA credits will be available for portions of the day. For more info, visit <http://cvp.cce.cornell.edu/event.php?id=565>. *We appreciate the support of BioWorks, KULT-Kress, Siegers Seed, and Valent for sponsoring this event.*

2016 NYS Dry Bean Field Meeting

September 8, 2016 | 5:00 PM - 8:00 PM

NYS Agricultural Experiment Station, Gates Road farm, Veg Research Farm



Join us to view the Cornell Dry Bean Variety Trial, including 42 varieties/numbered lines of black, light and dark red kidney, cranberry and white kidney beans compared for yield, maturity, plant type and quality. Cornell lines bred for adaptability to NYS weather, pod height and white mold resistance are also included. There will also be updates on white mold and dry bean management research, and the status of the Western bean cutworm infestation in dry beans.

0.75 DEC recertification credits in categories 1a, 10, 21, and 23, and CCA credits will be available. Cost: \$10 Cornell Vegetable Program enrollees; \$15 all others, if pre-registered by Tuesday, September 6, includes supper. \$5 more at the door and supper cannot be guaranteed. Contact Carol MacNeil to pre-register by calling 585-313-8796 or pay online at <http://cvp.cce.cornell.edu/event.php?id=603>. *We appreciate the generous support of Gowan and New York Bean for sponsoring this event!*

2016 Vegetable Pest and Cultural Management Field Meeting - Chautauqua County

September 13, 2016 | 6:00 PM - 8:00 PM

Emanuel J Byler's farm, Dutch Hill Rd, Warren, PA 16365



This course will demonstrate pest management in fresh market vegetables in both field and greenhouse (high tunnel) vegetables; primarily for those growing for wholesale auction. A hands-on demonstration of weed, insect and disease identification in vegetables based on field observations at the farm. Cost: FREE! 1.75 DEC recertification credits in categories 1A, 10, 23, and 24 will be available.

Weather Charts

John Gibbons, CCE Cornell Vegetable Program

Weekly Weather Summary: 8/9 – 8/15/16

Location	Rainfall (inch)		Temp (°F)	
	Week	Month	Max	Min
Albion	1.01	1.03	94	58
Appleton, North	1.49	1.49	91	54
Baldwinsville	1.60	2.01	93	55
Buffalo*	0.56	0.56	92	65
Butler	1.37	1.71	93	55
Ceres	1.73	2.27	88	49
Elba	0.48	0.83	87	51
Farmington	0.77	0.77	93	53
Gainesville	NA	NA	86	51
Geneva	0.53	0.58	94	57
Lodi	0.94	2.02	95	59
Niagara Falls*	0.46	0.65	92	63
Penn Yan*	1.22	1.51	93	59
Rochester*	0.57	0.71	95	58
Romulus	1.72	2.40	94	60
Silver Creek	1.98	2.04	90	67
Sodus	NA	NA	93	49
Versailles	0.75	1.36	90	59
Williamson	0.16	0.19	91	52

Accumulated Growing Degree Days (AGDD) Base 50°F: April 1 – August 15, 2016

Location	2016	2015	2014
Albion	1974	1818	1663
Appleton, North	1734	1567	1467
Baldwinsville	1936	1824	1804
Buffalo	2013	1864	1719
Butler	1917	1831	1758
Ceres	1574	1603	1489
Elba	1474	1393	1347
Farmington	1824	1736	1654
Gainesville	1491	1438	1312
Geneva	1879	1775	1699
Lodi	2059	1937	1853
Niagara Falls	2143	1736	1647
Penn Yan	1997	1886	1805
Rochester	2038	1923	1807
Romulus	1878	1815	1742
Silver Creek	1837	1713	1638
Sodus	1731	1622	1600
Versailles	1779	1709	1603
Williamson	1748	1659	1595

* Airport stations

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

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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.



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