



Weekly Vegetable Update

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Regional Updates:

North Country—Clinton, Essex, northern Warren and Washington counties

Most areas of the North Country have had 6-8 inches in the last 2 weeks. There is standing water in low areas of fields, some young plants and seedlings have been washed out, the rivers are brown with eroded soil. We did have a welcome day of sun but then the rain came back.

Growers are risking compacting their soil by walking, driving or planting in it when it's too wet but the pressure to get the last of the seeds and seedlings planted is great. Those with tunnels are really seeing the advantage of keeping rain and wind off their plants this year.

Capital District—Albany, Fulton, Montgomery, Rensselaer, Saratoga, Schenectady, Schoharie, southern Warren and Washington counties

Field work has dramatically slowed with the wet weather. Even greenhouses and hightunnels are showing more disease, particularly botrytis. Along with late blight (LB) and P-cap, this weather also favors the movement of downy mildew (DM). So far it's only as far north as N. Carolina. We aren't recommending any sprays for LB and DM yet.

Mid-Hudson Valley—Columbia, Dutchess, Greene, Orange, Sullivan and Ulster counties

Transplanted vegetables look much better this past week. The ones that made it through the less than ideal conditions two weeks ago have put on considerable new growth. Rain has been excessive over the past week and crops in poorly drained fields show stress. Phytophthora has already been noted in low spots in a field of peppers. Tiny larvae ~ 1 mm of ECB have been seen in the whorl of early sweet corn. Some growers have already put on a spray in their earliest corn planting. 6 ECB moths caught in Ulster trap this week, 8 were caught over the week before.

Notes for the whole region:

This weather is very favorable to our water molds—specifically **late blight** (*Phytophthora infestans*) on tomatoes and potatoes and *Phytophthora capsicisi* (**P-cap**) on peppers and cucurbits. So far the closest late blight confirmation has come from a greenhouse in West Virginia, so we aren't recommending a preventative spray schedule yet, but we are scouting and monitoring updates from the south and west. When late blight makes it to NY, we will announce it on the front page of the newsletter.

If you have P-cap on your farm, keep an eye on susceptible crops. Take care not to move equipment from infested fields to non-infested fields without cleaning it, since the pathogen will move readily with soil. Want to learn more? Check out the P-cap webinars on our website: <http://cdvsfp.cce.cornell.edu/submission.php?id=101&crumb=pests|pests> and <http://cyp.cce.cornell.edu/submission.php?id=100>.

Tomato and Potato Update

This crazy weather pattern is not helping growers get tomato transplants that very much need to be in the ground planted and those that were planted are not looking all that great—some much needed warmth and dry weather will serve them well. Unfortunately the extended forecast does not look like there is going to be much improvement. In the meantime continue to scout for diseases and insects, especially Late Blight and Colorado Potato Beetles (don't forget to keep an eye on your eggplants). The good news is no diseases have been reported locally but late blight was confirmed on hydroponic tomatoes in West Virginia last week. The source of inoculum is still unknown. If you have not applied a protectant such as Bravo or copper to your tomatoes and potatoes, it would be highly recommended as soon as you can get back out into your fields as the late blight forecast tools we use are indicating very highly favorable disease conditions. And just because there hasn't been any reported locally doesn't mean there isn't inoculum from a cull pile or volunteer potatoes somewhere with the disease. The most common symptoms on tomato and potato foliage are nickel-sized olive-green to brown spots, with fuzzy white fungal growth on the underside when conditions have been humid such as early morning or after rain. Brown to blackish lesions develop on upper stems and leaf petioles. If you suspect late blight in your tomatoes or potatoes please contact your local specialist (found on the front cover of this newsletter) for diagnosis. – CDB



Rimon 0.83EC Special Local Need (SLN) Label Approved For Use On Potatoes In NY

We have just received word that NYSDEC has approved a Special Local Need label (EPA SLN NO. NY- 130005) for use of Rimon insecticide on potatoes in all NYS, just in time for the spring generation. Rimon is classified as restricted-use in NY. The product has been very effective for control of Colorado potato beetle in Long Island trials when targeting the smallest (1st and 2nd instar) larvae. Expect significantly less control if delayed to later stages. Based on LIHREC trials Dale Moyer suggests the 12 oz/A rate (and no less than 9 oz/A), followed by a second application after 7 days. Best results will be against the first generation. Note application restrictions on the SLN label, including maximum 3 applications and 24 oz/A per year, the pollinator advisory, a 300' buffer strip to water, restriction to ground application only, and need to **avoid drift to grapes**. Rimon is also approved for use on apples under a separate SLN; no other uses are approved in NYS. Dealers should have copies of the SLN and growers must also have a copy in their possession when applying Rimon to potatoes.

Source: Long Island Fruit and Vegetable Update, No. 10, June 6, 2013. Author: Daniel Gilrein, Entomologist, Cornell Cooperative Extension, Suffolk County)

Slugs and Snails Attacking Various Crops

By Laura McDermott, ENYCH, with edits by CDB

This week's damp weather will really favor damage from slugs and snails in many different crops including strawberries, Brussels sprouts, sweet corn and greens. Both slugs and snails are most active at night and during cool, wet weather and populations are highest in areas that are mulched – making June bearing strawberry fields ideal conditions for these creatures. They also can be found underneath black plastic mulch, near the plant holes. Both slugs and snails can leave silver to whitish slime trails which can be visible on damaged plant parts and plastic mulches. Sometimes the “slime trail” is the diagnostic tool used to identify what happened to the crop.

Cultural management: There are no scouting thresholds as numbers seem to go from 1 to 1 million almost overnight. There are also no known resistant cultivars. Overhead irrigation creates the conditions that these mollusks love, so using overhead sprinklers only when absolutely necessary is a good protocol. Try to irrigate in the morning so that foliage will have a chance to dry before night falls. If you're using plastic, this is more reason to use the drip irrigation system.

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Take Care in Tying Tomatoes

Trellising or staking tomatoes is a great way to manage the plants for optimum product and ease of harvest, and is essential to maximize space and air circulation in a tunnel. But remember that the stems will grow in width as well as in length. Be sure your fastening system leaves room for those fast growing tomato stems to expand freely.

Photo A shows a cord tied too tight. It must be carefully cut out to avoid girdling the stem. Most growers find tying individual knots too time consuming but if that's your preference at least use a figure 8 method (Photo B) to provide enough room for the stem to grow. Photo C shows a trellis clip that pinches the supporting twine to hold it in place but leaves room for the stem to expand. - ADI



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Chemical control: There are two products that are labeled for use on slugs and the same ones are also appropriate for snails. **Deadline Bullets** are a metaldehyde bait which is both a slug attractant and a poison. There are a lot of vegetables and small fruit on this label, but double check the label to make sure that the crop you want to use this material on is labeled. The rate is 20-40 pounds per acre and can be either broadcast or banded between the rows. However, if edible portions of the crop are visible, it can only be banded between the rows (see label for specific instructions). Evening applications are preferred as that is when the slugs are beginning to feed. This product should not be applied to dry soil, rather apply after irrigation or a rain event. Irrigation should not be applied for 48 hours after banding. You can also apply the bait in a band around the perimeter of the field. Do not exceed 4.5 lbs of AI/A (129 lbs of product/A) per growing season. Caution should be exercised if your U-Pick operation gets a lot of children and/or animals.

An organic product is iron phosphate, **Sluggo AG**. Spread bait around perimeter of field and then between the furrows near the base of plants. If the area is heavily watered, use the highest labeled rate. Reapply as the bait is consumed or at least every 2 weeks. Like the metaldehyde product, the soil must be wet for best activity. This product has been quite effective for organic berry growers. Slugs and snails lay eggs in early fall, so using chemical control products in mid-September might help curb next year's population. Sluggo has also been reported to be effective on sow bugs as well.

For more on slugs/snails check out the fact sheets here:

<http://www.fruit.cornell.edu/Berries/genipm.html>

<http://www.ahdb.org.uk/slugcontrol/HDC%20Factsheet%20-%20Slug%20control%20in%20field%20vegetables%2005%20Aug%202010.pdf>



Sweet Corn Pest Report

By Peter Jentsch, Senior Extension Associate, Hudson Valley Laboratory, Department of Entomology

Scouting for lepidopteran larva should begin this week for armyworm, cutworm and European corn borer as larva feeding becomes more evident and economic injury has been detected in the field.

Armyworm: No armyworm have been reported in the mid-Hudson Valley this season. However, Hudson Valley growers experienced outbreaks of the common armyworm, *Mythimna unipuncta* in 2012 with severe economic injury in early planted sweet corn on farms in Dutchess County. In fields planted later than mid-April much lower levels of infestation were present. The armyworm is notorious for moving en masse from one field to the next and due diligence is required to maintain control of this insect if it appears this season.



Heavily infested sweet corn damage from the common army worm (right); dead larva at the base of plants (left)

European corn borer: We observed our first trap captures of the adult European corn borer on the 13th of May in New Paltz. Populations continue to climb with high trap captures of the E Strain this week. We are approaching first brood moth population peak for the latter part of next week as indicated by historical trap capture data. Scouting can begin in fields that are in the whorl stage. Female ECB moths have been laying egg masses on the underside of the corn leaves and larval feeding should be evident in fields that are nearing the tassel stage. It is likely that corn with ECB injury will have higher damage levels along the perimeter.

Typical examples of ECB feeding are a series of straight line pinholes as well as “window pane” damage on the emerging leaves from the whorl. Window pane damage occurs when the young ECB larvae feed on the upper epidermal layer of the leaf leaving a clear lower level epidermal layer.

Research has demonstrated that applying insecticides for first brood ECB before the tassel emergence does not significantly increase control. In the whorl stage the ECB larvae are protected within the leaves of the whorl. It is recommended to wait until tassel emergence before applying insecticide. When the tassels begin to emerge the ECB larvae are exposed and begin to look for a more protected environment..

The threshold for insecticide application at the tassel emergence stage is 15% infested plants. –Edited by CDB and CLS



ECB pinhole damage



ECB "window pane" damage

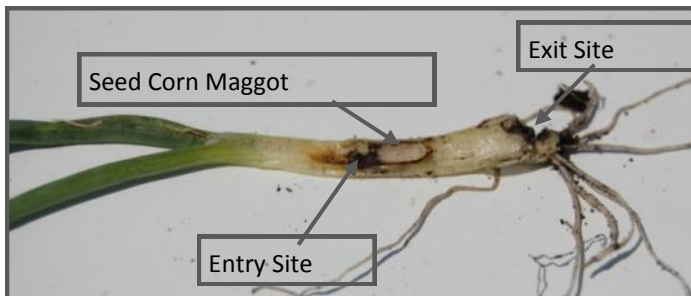
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Onion Maggots vs. Seed Corn Maggot...and...Mites

Maggots

The maggot feeding damage continues to mount and several fields this season have seen greater-than-normal damage. On closer inspection, some of that damage is due to Seed Corn Maggots. Seed Corn Maggots are larger than onion maggots and less translucent. They are much more likely to create entry hole in the neck of the onion (still underground at this point) than in or near the basal plate like onion maggots will. Many of the samples seen were infested with both seed corn and onion maggot larvae.

I feel that dry soil conditions at planting lead to partial insecticide failure and have resulted in 30%-50% losses in some areas or whole fields. Both seeded onions and, somewhat surprisingly, transplants have been affected.



Onion seedling with Seed Corn Maggot. *Image by MRU*

Mite Damage

Evidence of mite damage to onions and garlic is also mounting. Mites have been seen in conjunction with maggots (both types) and alone. In one field inspected (at the 5-leaf stage) they did not create the usual "spot" of damage but seemed to weaken and eventually kill approximately 10% of all the plants in the field. In this case there were smaller, 2 leaf onions barely clinging to life, scattered amongst the larger, healthy onions. It would seem as though the entire field had a low level of mite

infestation and the slightly slower-growing seedlings were susceptible when the majority grew fast enough to be minimally impacted. In garlic, mites also appear to target the weaker or damaged plants and are completely absent in healthy plants.

There is not a lot of definitive information about bulb mites in onions. However, information from other crops shows the mite is extremely tolerant of many soil conditions. The mite prefers fresh organic tissue but can survive on other organic material including dead plants, manure and other organic sources like cull piles, volunteers and woodlands. They handle weather extremes very well. In drought and extreme cold conditions, they just move deeper in the soil and they can survive being submerged for several weeks at a time. Mites move around by attaching themselves to crawling or flying animals and of course can hitch a ride on your equipment. Mite populations can increase quickly. The female can live up to 40 days and produce 700 eggs.

Although mites probably exist at some level in most soils, it is believed that economic damage occurs when there is a disruption such as reduction of natural enemies, or a sudden infusion of organic matter in the form of green mulch allows the resident population to increase to damaging levels. Currently there are no pesticides registered for use on the onion bulb mite. Rotation is likely not effective due to the wide range of hosts and the mite probably exists to some level in most soils. Healthy, vigorous plants grown in their optimal conditions are the best defense. *-MRU and Ray Range, edited by CLS*



Transplant Stress

The weather this spring has certainly been stressful for both growers and plants. Dry to wet, cold to hot, and windy weather all adversely affect how those little plants thrive once you've pulled them out of an ideal greenhouse environment into the often harsh conditions of the field. Transplant shock or stress is a setback in growth and it can happen for a variety of reasons, some which you as the grower may or may not be able to control.

Symptoms of stress can be severe wilting, drying of leaves and stems, and in extreme cases full plant collapse and

death. Plant species vary in their ability to reestablish growth after transplanting. The best adapted include: tomato, lettuce, cabbage, Brussels sprouts and broccoli. Celery, onion, pepper, eggplant and cauliflower are considered intermediate but are often successfully transplanted. Legumes and sweet corn have slow root re-development, but can be transplanted successfully if root disturbance is kept minimal. Transplanting taproot crops such as turnips, beets or carrots generally causes root deformation.

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Tips on how to reduce transplant shock/stress:

- Use bigger cell trays to lessen competition. Smaller cells produce transplants with a smaller root system which is more vulnerable to damage.
- Plants grown in individual cells prevent root entanglement with neighboring plants.
- Grow seedlings to optimal age for transplanting. Transplanting at early seedling stage reduces transplant shock, but roots must be developed enough to avoid damage during removal from cells. Very old transplants may have initiated reproductive growth rather than vegetative growth. Root bound plants take longer to re-establish.
- Avoid shoot or root pruning or drying, as damage to roots will reduce establishment especially in melons, cucumbers and squash.
- Using a starter solution at or just before transplanting can reduce transplant shock (see last week's newsletter for more on starter solutions)
- Harden off plants- "hardening" refers to any treatment that results in a firming or hardening of plant tissue. Hardening results in an increased level of carbohydrates
- Reduction of temperatures, fertilizer (particularly nitrogen) and moisture or exposure to outdoor conditions for 7 to at most 10 days prior to transplanting will help plants to acclimate to outdoor conditions. Caution: Overly hardened plants are slow to get started.
- Watch weather forecasts and avoid transplanting during unfavorable weather conditions. Watch for frosts, wind, and very hot temperatures especially if planting on black plastic which can cause injury to lower leaves and the stem, enough to cause the death of the plant. (See article on heat necrosis in this issue)
- Inadequate water at transplanting can lead to losses.
- Use of row cover can help minimize wind, insect and frost damage (but be careful of overheating transplants on warm days).
- Plant so that soil covers the root ball so that it is not exposed to drying. In the case of watermelons and cantaloupes, make sure that soil does not surround the stem.
- Deep planting in cold wet soils will result in additional stress. -TR

Heat Necrosis in Transplants on Black Plastic Mulch

By Gordon Johnson, Extension Agriculture Agent,
University of Delaware, Kent County

Black plastic can heat up to well over 110° F on hot days in the late spring and summer. Vegetable transplants are exposed to these high soil temperatures at the soil line around the transplant hole. The stem tissue just at or above the level of the plastic will be killed at these high temperatures and the transplants will then collapse and die. Small transplants do not have the ability to dissipate heat around the stem as roots are not yet grown out into the soil and water uptake is limited. Another factor in heat necrosis is that there is little or no shading of the mulch with the leaves of small transplants.

There are a number of practices that can reduce heat necrosis in later planted vegetable transplants:

- Avoid using tender transplants that have not been hardened off.
- Use larger transplants with greater stem diameters and more leaves to shade.
- Make a larger planting hole, cutting or burning out the plastic.
- When transplanting into the plastic, make sure the stems of transplants do not touch the plastic once set.



This is injury on the stems of newly transplanted pepper seedlings, which is caused by stems laying against edges of black plastic mulch on hot, sunny days.

- Water sufficiently in the hole to reduce heat load.
- Plant in the evening once the plastic has cooled down or in the very early morning. Avoid transplanting on very hot days or when extended hot, sunny weather is forecast.

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- Switch to white or aluminized plastic mulch for later plantings. This will reduce the heat loading significantly.
- In smaller plantings you may paint the planting zone on the black plastic mulch white with latex paint and

then plant through this white strip once dry. You can also mulch around the planting holes with wet straw to reduce heat loading.

- Use overhead irrigation after planting to keep the plastic cooler.

All Those Little Beetles

Article from The Illinois Fruit and Vegetable News, Volume 19, Number 6. Author: Rick Weinzierl, Professor and Extension Entomologist, Department of Crop Sciences, University of Illinois

Among the many small beetles in gardens and fields around Illinois in the spring are the bean leaf beetle, striped cucumber beetle, and spotted cucumber beetle. Later in the summer they're joined by the adults of the western rootworm and northern corn rootworm. Although these beetles are somewhat similar in appearance, distinguishing among them is important. The cucumber beetles are vectors of the pathogen that causes bacterial wilt of cucumbers and muskmelons; the others are not. Bean leaf beetles are more likely to cause serious damage to beans than the other species (although spotted cucumber beetle will feed on bean foliage and pods). Here are the key characters that help in identifying these species.



Left to right: bean leaf beetles, spotted cucumber beetle, striped cucumber beetle.

Bean leaf beetles vary in color and marking, some with black spots or bars on the elytra (shell-like forewings), and some without these marks. All are marked with a black wedge immediately behind the prothorax. **Spotted cucumber beetles** resemble bean leaf beetles but always have 12 distinct spots on the wings. The front, center spots are distinct and do not form a triangle as they do on the bean leaf beetle. **Striped cucumber beetles** have distinct black stripes along the inner and outer edges of the wings, and the stripes run all the way to the ends of the wings. The underside of the abdomen is black. All of these insects overwinter as adults and move into fields and gardens in April through May, as soon as temperatures warm up and their food plants become available. They lay eggs at the base of their host plants, and larvae develop below ground, feeding on the roots. One or two summer generations of adults of these species emerge and feed, mate, and lay eggs; adults of the latter of these summer generations overwinter.

Western corn rootworm beetles resemble striped cucumber beetles because of the stripes on their wings. The edges of these stripes tend blur or fade on the western corn rootworm, and they do not extend all the way to ends of the wings. The underside of the abdomen of the western corn rootworm is yellowish. **Northern corn rootworm** beetles have no stripes and no spots ... they're uniformly yellowish green. These two species overwinter as eggs in the soil. Larvae that hatch in the spring feed on the roots of corn, then eventually pupate and emerge as adults, usually beginning in July. Western and northern corn rootworm adults undergo just one generation per year. The adults present in later summer and fall mate, and females lay eggs in the soil; those eggs overwinter to start the cycle again the next spring.



Western (left) and northern (right) corn rootworm beetles.

Meetings and Notices

Attention Christmas Tree and Nursery Growers/Landscapers:

Christmas Tree Farmers Association of New York Summer Meeting, Thursday - Saturday, July 18 - 20, 2013

Hosted by Bell's Christmas Trees, 647 Mettakahonts Rd., Accord, NY 12404
And Maplehorst Farm Nursery, 151 Rapp Rd., Monticello, NY 12701

We are very excited that the summer meeting of the NY Christmas Tree Farmers Association is going to be held in the Hudson Valley! Here is a link to the program: <http://www.christmastreesny.org/documents/CTFANYSummerProgram2013.pdf>. Meetings such as this are a great way to learn about new innovations, visit with vendors, take in educational workshops on diseases and pests, and to network. Cost of registration for non-members per day is \$75, or \$100 for both days.

Registration questions? Please contact: Mary Jeanne or Pam in the CTFANY office at 607-535-9790

NYS DEC Pesticide Applicator Credits available

Weekly and Seasonal Weather Information

Site	Growing Degree Information Base 50 ^O F			Rainfall Accumulations		
	2013 Weekly Total 6/05—6/11	2013 Season Total 3/1 - 6/11	2012 Total 3/1—6/11	2013 Weekly Rainfall 6/05—6/11 (inches)	2013 Season Rainfall 3/1—6/11 (inches)	2012 Total Rainfall 3/1—6/11 (inches)
Albany	82.6	536.4	703.5	3.28	14.71	11.67
Castleton	81.7	522.7	715.9	3.03	10.99	11.82
Chazy	58.3	476.1	750.4	3.26	12.44	8.78
Clifton Park	73.3	496.9	660.8	2.87	116.52	12.83
Clintondale	94.2	599.1	464.5	NA	NA	10.00
Glens Falls	68.6	457.3	553.0	3.02	13.22	10.23
Granville	69.5	NA	509.0	2.07	13.99	12.93
Guilderland	76.0	481.0	616.0	0.92	3.21	5.10
Highland	92.0	607.9	781.3	3.53	8.94	10.15
Lake Placid	32.7	270.3	NA	3.46	14.51	NA
Montgomery	92.2	542.1	644.5	3.59	10.53	NA
Monticello	63.0	401.8	497.0	0.14	0.14	0.73
Redhook	84.7	535.6	695.5	2.78	8.70	9.43

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