Cornell University Cooperative Extension

Eastern NY Commercial Horticulture Program

Vol. 1, Issue 7
May 16, 2013

Weekly Vegetable Update

ENYCH Program Educators:

Vegetables
Chuck Bornt
Cell: 518-859-6213
Email: cdb13@cornell.edu

Amy Ivy
Phone: 518-561-7450
Email: adi2@cornell.edu

Teresa Rusinek
Phone: 845-340-3990 x315
Email: tr28@cornell.edu

Crystal Stewart
Cell: 518-775-0018
Email: cls263@cornell.edu

Maire Ullrich
Phone: 845-344-1234
Email: mru2@cornell.edu

Fruit
Laura McDermott
Cell: 518-791-5038
Email: lgm4@cornell.edu
Berries

James O'Connell
Phone: 845-691-7117
Email: jmo98@cornell.edu
Berries & Grapes

Michael Fargione
Phone: 845-691-7117
Email: mjf22@cornell.edu
Tree Fruit

Kevin Iungerman
Phone: 518-885-8995
Email: kai3@cornell.edu
Tree Fruit & Grapes

Layout:
Carrie Anne Doyle

Content Editor:
Crystal Stewart

Regional Updates:

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

Most of our region was touched by frost last Monday and Tuesday nights to varying degrees; reports are incomplete as of press time. We had just a sprinkling of rain last Friday -Saturday, not the slow soak we were hoping for. New seedings still have erratic germination as our weather conditions continued to roller coaster this week. Growers who have irrigation are putting it to good use to get their early crops get established.

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

The heat of last week had many common annual broadleaf weeds germinating in the field. A few might be set back by the frost but many won't. Sweet corn may be set back a little bit, but most corn seems to have still had the growing point below ground and should bounce back fine. We found thrips in Columbia county, and heard that they were found in Ulster county as well. See the article inside for more thrips information. Questions on scouting? Contact us.

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

Frost & freezes were spotty throughout the area. Growers who prepared the crops for the low temperatures seemed to have fared well.

Onion maggot (OM) first flight should have occurred and we should be seeing and expecting damage to appear over the next 1-2 weeks. No longer are sprays for adults recommended because it is no longer deemed effective especially in the light of at-planting chemicals. Take note of any field and/or treatment that suffered more than 5% damage from OM because you may want to rotate out of onions or alter planting chemicals for 2014. A reminder that if soil is too dry or too wet it can impact maggot control efficacy. It was quite dry for a couple of weeks- not "activating" the soil chemicals and then last week the heavy rainfall may have moved the chemicals below the basal plate area.

Image: Teresa teaches growers about pH testing in the greenhouse.

Serving the educational and research needs of the commercial small fruit, vegetable and tree fruit industries in Albany, Clinton, Columbia, Dutchess, Essex, Fulton, Greene, Montgomery, Orange, Rensselaer, Saratoga, Schoharie, Schenectady, Sullivan, Ulster, Warren and Washington Counties

Scout Early Plantings for Onion Thrips

We found onion thrips (*Thrips tabaci*) on transplants in the greenhouse and in the field in the last week in the southern portion of our region. It is my suspicion that the transplants came to NY already infested. It is quite early to be able to find native thrips in onions. This is particularly disconcerting as thrips can transmit Iris Yellow-Spot Virus (IYSV) which can decrease production in plants. This underscores the need to closely inspect any transplant that you purchase for pests before you expose them to other transplants or your seeded crop.

On the plus side, the cold temperatures of Monday and Tuesday nights will likely take a toll on populations and will most certainly slow growth and reproduction.

The Where and What of Onion Thrips

Thrips don't like to be out in public where they can be seen so you have to go looking for them. They will be hiding in the neck of the onion, usually on/around the newest leaf emerging. They are quite small, especially the immatures, so you will likely need a magnifying lens to see them. They run pretty fast out of the light so as you part the leaves to inspect, be ready!

Thrips damage is caused by feeding with rasping mouth parts. They scrape the onion cell open then consume the contents of the cell. This leaves the cells devoid of chlorophyll and leaves behind a frosty white area. High levels of thrips will cause several, of not all, leaves to take on a white/ hazed appearance.

Thrips damage decreases the productivity of the plant by decreasing the leaf surface able to photosynthesize. Feeding also opens wounds that have been linked to increased levels of bacterial infections in mature bulbs. However, a direct link has not been made since fields with high levels of thrips are not absolutely going to have more bacterial rot than those which did not.

Thresholds & Applications

Thresholds for thrips are based on how many insects it takes to cause economic damage, and on the effectiveness of the chemicals available for control. The table at right, developed by Tony Shelton and Brian Nault, lists the thresholds by chemical. The less effective the chemical is on thrips, the lower the population threshold for application is. Organic control options are listed on the next page under a separate heading.

2013 Action Thresholds for Thrips on Onions	
Products	Action Threshold
Radiant SC	3 thrips per leaf
Agri-Mek SC	1 thrips per leaf
Movento	1 thrips per leaf
Lannate LV	1 thrips per leaf

Transplanted onions*		
Application #	**Product**	**Action threshold/ Timing of spray to consider**
1	Movento	1 thrips larva per leaf
2	Movento	7 to 10 days after 1st Movento spray if needed
3	Agri-Mek SC	1 thrips larvae per leaf
4	Agri-Mek SC	7 days after 1st Agri-Mek spray
5	Radiant SC	3 thrips larvae per leaf
6	Radiant SC	3 thrips larvae per leaf

*Note: If after using Movento and Agri-Mek (first four sprays) there are at least 4 weeks remaining before onions are pulled, consider inserting two applications of Lannate between the Agri-Mek and Radiant sprays (see direct seeded onions below). Conversely, if after using Movento there are only 2 to 3 weeks remaining before onions are pulled, eliminate the Agri-Mek sprays and go to Radiant.

They have also generated a spray "schedule", or sequence, in an effort to reduce problems from insecticide resistance. There are different schedules for seeded and transplant

Continued on next page

Direct-seeded onions*		
Application #	**Product**	**Action threshold/ Timing of spray to consider**
1	Movento	1 thrips larvae per leaf
2	Movento	7 to 10 days after 1st Movento spray if needed
3	Agri-Mek	1 thrips larva per leaf
4	Agri-Mek	7 days after 1st Agri-Mek spray
5	Lannate*	1 thrips larvae per leaf
6	Lannate*	7 days after 1st Lannate spray
7	Radiant	3 thrips larvae per leaf
8	Radiant	3 thrips larvae per leaf

*Note: If control of thrips using Movento and Agri-Mek (first four sprays) has provided control up to 2 or 3 weeks before onions will be pulled, eliminate the Lannate applications and go to Radiant.

(Continued from page 2)

onions. Research at Cornell showed that applications made using at least 40 gpa, 40 psi and twin-flat fan nozzles achieved excellent coverage and also should minimize drift.

Organic control options:

Entrust is available for suppression of thrips. Because it is not considered extremely effective, targeting thrips when they are closer to the one per leaf threshold is recommended. A 2001 trial on onion thrips in cabbage also found Mycotrol (*Beauvaria bassiana*) to be effective, though it takes time to work. Again, targeting thrips while they are still at low levels is recommended. *-MRU and CLS, Sources Brian Nault & Anthony Shelton, Cornell Department of Entomology.*

For more information on thrips management in onions go to
http://counties.cce.cornell.edu/orange/2013_ONION_THRIPS_INSECTICIDES.pdf

To Remove or Not to Remove Row Cover

The unsettled weather of spring can make it difficult for a grower to decide when to remove row cover. Row covers provide many benefits such as protection from frost, insects, wind and pounding rains. The time of removal of the row cover is a key management decision. Removal too early reduces the warming benefit during cool spring temperatures. Removal too late can interfere with pollination, particularly with vine crops. Weed control under row cover can also be an issue if mulch is not used.

Small wire hoops underneath a floating row cover to prevent wind abrasion. *Courtesy Univ. of Florida IFAS Extension*

Be careful of temperatures! Temperatures under row cover can quickly reach up to 20 degrees higher depending on the grade of the material. Extremely high temperatures under row covers can reduce production of crops like tomatoes, peppers, and broccoli.

Also keep in mind that unsupported floating row covers can, rub on plants, damaging leaves, stems or flowers and should not be used on single stemmed crops such as peppers tomatoes, eggplants or even squash, as stems can be broken on windy days. *-TR*

The following article on temperature fluctuations and use of row cover is written by Prof. Steve Reiners of Cornell University Dept. of Horticulture.

Growers that have crops under row cover are concerned about temperatures that may kill the plants. Most of the published temperature guidelines list maximum temperatures at which either vegetative growth becomes limited or reproductive capabilities are threatened, i.e. flowers or fruit fall off. Temperatures at which vegetable plants may die varies and depends not only on the vegetable type but also on other factors such as whether irrigation is being provided or for how long the high temperature occurs. Also, a transplant will be under much greater stress than a plant that is direct seeded. The table at left lists temperatures at which severe stress will occur, possibly death, especially if soil moisture is low.

Crop	Maximum (°F)
Sweet Corn	120
Watermelon	115
Cucumber	115
Pumpkin	115
Squash	115
Eggplant	110
Hot Pepper	110
Sweet pepper	105
Tomato	105
Broccoli	95

These temperatures refer only to potential crop death. Temperatures 15 to 20°F lower than those listed in the table will result in the loss of flowers and fruit and will negate the positive effects of early warming under row covers.

How do you know when is the best time to remove row covers? Check the weather and see if cooler than average temperatures are forecast. A good rule of thumb that I like to use is to remove clear plastic covers about the time you can safely plant those crops without any protection. So if tomatoes would normally be planted in late May, take them off at that point. If using floating row covers, they could be left on up to a week longer as high temperatures are lower under these compared to clear plastic.

NYS Food Banks Reimburse Farmers for Cost of Harvesting Donated Produce

New York's fruit and vegetable farmers can be reimbursed for the harvesting costs of produce that is donated to a food bank in the state.

Farmers may be reimbursed for their labor costs in harvesting and packing produce, as well as packaging materials, when produce is donated to food banks. A new initiative, Glean NY, hopes to increase the donation of food from the farm, including produce that might not otherwise have been harvested, produce culled from packing lines and storage, and more.

Glean NY is a partnership of New York State's eight regional food banks, Cornell University, Cornell Cooperative Extension, New York Farm Bureau, and farmers.

Occasionally, farms have produce that cannot be sold due to cosmetic blemishes, lack of market, or similar conditions. Food-safe produce can be donated to food banks. Donations do not have to be washed, sorted, graded, or packaged as for retail.

In many cases, the food banks' trucks can pickup produce at the farm. In some regions, food banks have produce crates that can be dropped off at the farm; otherwise farm crates can be returned to the farm.

New York State's food banks provide food for over 3 million people annually. Food is distributed through more than 5,000 local food pantries, soup kitchens, shelters, and other programs.

New York farmers donated more than 8.5 million pounds of produce, meat, milk, eggs, and other items to food banks in 2012, according to the American Farm Bureau Harvest for All project.

To make a donation, or for more information, call your regional food bank, or call the Food Bank Association of New York State at (518) 433-4505.

On the web: www.gleanny.org

Frost in May

We all know that frost can strike in May but that doesn't stop us from trying to push the season. In my region of northern NY we can count on May frosts but the rest of our eastern NY region should be ready, too. This week's widespread frost was a prime example.

Rowcover provides only a few degrees of frost protection. Its main advantage is in blocking the wind on young transplants. A second layer of rowcover provides better frost protection but remove that second layer during the day to let more light through.

If you notice twisted, distorted asparagus spears later this week, that is frost damage, too. Remove those spears and the next that emerge will be fine. Broccoli and cabbage will survive a frost but the plants may bolt if exposed to temperatures below 40 degrees after transplanting. This response varies with the age of the transplants, the varieties, and the length of time the temperature stayed near 40 so there are plenty of variables. But if you notice bolting in a few weeks, this cold spell may have been the cause. *-ADI*

These squash transplants near Albany were sheltered in a barn with a layer of rowcover but still had some frost damage Monday night. Luckily only some leaves were injured so they should recover nicely. *Photo by A. Ivy.*

Calibrating Backpack Sprayers and Calculating Small Spray Amounts

Calculating Small Spray Amounts:

Growers with diverse crops and small plantings often need to apply pesticides to beds or plots of several hundred square feet. It can be difficult to figure out how to mix up spray for such a small area. Some labels give rates for backpack sprayers (ie amount per gallon of water), but most only provide rates per acre (ie amount per land area treated). Rates may have to be calculated by converting from the rate per acre (ie, per 43,560 sq ft) to rates for a few hundred square feet. To do this, measure the area you want to spray in square feet, then divide by 43,560. This will tell you how much of an acre you are looking to treat. For example, if you are treating a 3 foot wide, 250 foot row, you are treating 750 square feet. 750 divided by 43,560 is 0.017 acres. You can then multiply the amount of active ingredient needed by 0.017 to figure out the amount of AI you will be applying to your area.

If measuring a liquid, you may need to go from fluid ounces to milliliters because you might be measuring out a very small amount. One fluid ounce equals 29.6 milliliters (ml). An inexpensive measuring device for ml can be found in the children's medicine section of drug stores. If you can't find it, just ask the pharmacist for a syringe to measure out milliliters of product.

To complete the example, let's say you needed to apply Entrust to your 250 foot row of broccoli transplants at a rate of 2.5 oz/A. You know your 250 foot, 3 foot wide row is 0.017 acres, which means you need to apply 0.017 x 2.5 oz = .043 oz. Multiply this by 29.6 ml, and you get 1.27ml. This is still a small amount, but it is measurable with a small syringe.

Backpack Sprayer Calibration

In addition to properly reducing pesticide amounts and then measuring them out, it is also critical to properly calibrate your sprayer by determining how much water you use to cover a given area. All the good math in the world won't help you if you are actually applying twice (or half!) the amount you think you are.

When calibrating and using your sprayer, be consistent. The amount of spray you apply to an area will depend on four variables: your walking speed, the pressure you select, your spray swath width, and the nozzle tip you've chosen. If you change any one of these, you change the amount of spray you apply.

Walking speed. This constant walking speed should be one that you can comfortably maintain over the entire time you intend to spray. It also must be the same speed at which you calibrate the sprayer. If you double your walking speed while maintaining pressure and swath width, you'll apply half as much spray. You would then require twice as much pesticide per gallon (that is, a greater concentration) to apply the same amount of pesticide per acre.

Pressure. If you change the pressure while you spray, you change output. Increased pressure results in higher output; the exact relationship depends on your nozzle type.

Nozzle tip selection. The proper tip will depend on the situation. Tips are available that cover a wide range of output volumes, spray widths, and pressures. Most backpack sprayers come with a single flat fan nozzle, but a cone tip may be more appropriate for coving foliage.

Swath width/nozzle height. Tips are designed for use within certain heights and pressures. Within these ranges, some tips deliver narrow bands; others, like flooding tips, provide swath widths up to 7 feet. The wider each swath width, the less time the operator spends walking up and down fields. The height at which you hold the spray tip above the target influences the swath width. Spraying as close to the target as is practical minimizes drift and operator contact.

Calibrating the sprayer: You need to know how much fluid is delivered by the sprayer over a given distance at a constant speed. To determine this, fill the sprayer with a known quantity of water. One gallon works well. Walk a field, applying the water at the pressure, speed and coverage that you would when actually spraying. Once you run out of water, stop and measure how many feet you were able to walk. Use the width of the bed times the distance to determine how much water is applied per square foot (Gallons per square ft = gallons used/square feet sprayed).

You will use the delivery information when calculating how much water to place in the sprayer. Now, figure out how many square feet of area will be sprayed in your field. You may need to convert this number to acres to calculate the amount of product needed. Use this equation: Acres to be sprayed = number of square ft to spray / 43,560 ft2 per acre.

Calculate how much pesticide to use. Multiply the rate per acre for the crop and pest (from the label) times the proportion of an acre to be sprayed. Use this equation: Amount of pesticide needed = amount per acre X proportion of acre to be sprayed. Next, calculate the amount of water needed to deliver the pesticide to the square feet of crop. Gallons of water needed = gal./square foot (the first number you found) X number of sq ft to be sprayed.

Finally, mix the required amount of pesticide in the required amount of water. It is best to add half the water, add the pesticide, agitate, then add the remaining water. Spray, using the walking speed, pressure, nozzle and boom setup or wand motion that you used for calibrating. *–CLS, adapted from Measuring insecticide or fungicide for backpack sprayers, by Ruth Hazzard, University of Massachusets Extension Vegetable Program*

Meetings and Notices

Berry Sprayer Optimization and Calibration Workshops

Proper sprayer calibration and optimization will be a major part of an effective SWD management program. Learn more about sprayers large and small and how you can improve spray distribution, monitor output and improve efficacy, which will be imperative this year.

Learn how to calibrate air blast, boom and small hand-held or backpack sprayers. We'll demonstrate the utility of water sensitive paper and discuss alternate row spraying and nozzle selection. There will be time for questions and discussion.

2 DEC Pesticide Re-certification credits available.

Mead's Orchard, 15 Scism Rd, Tivoli, NY 12583 Wed 5/22/13 2-4pm

Winney's Farm, 113 Winney Rd., Schuylerville, NY 12871 Tues 5/28/13 2-4pm

Valley View Farm, 228 Route 9N, Ticonderoga, NY 12883 Thurs 5/30/13 10am-12pm

Please let us know you're coming!

Call with name, phone number and # attending

Jim O'Connell 845-943-9814 or Laura McDermott 518-791-5038.

Weekly and Seasonal Weather Information

	Growing Degree Information Base 50^{O} F			Rainfall Accumulations		
Site	**2013 Weekly Total** 5/08—5/15	**2013 Season Total** 3/1 - 5/15	**2012 Total** 3/1—5/15	**2013 Weekly Rainfall** 5/08—5/15 (inches)	**2013 Season Rainfall** 3/1—5/15 (inches)	**2012 Total Rainfall** 3/1—5/15 (inches)
Albany	**52.6**	**181.4**	**283.5**	**0.87**	**5.63**	**8.66**
Castleton	**53.3**	**181.7**	**288.9**	**0.87**	**1.26**	**8.46**
Chazy	**57.4**	**191.0**	**242.1**	**0.48**	**3.43**	**6.50**
Clifton Park	**50.5**	**168.8**	**257.7**	**0.50**	**5.21**	**9.64**
Clintondale	**53.1**	**193.7**	**237.0**	**NA**	**NA**	**6.11**
Glens Falls	**48.0**	**158.1**	**185.5**	**0.49**	**6.10**	**6.90**
Granville	**50.0**	**NA**	**214.5**	**0.51**	**5.90**	**10.07**
Guilderland	**48.5**	**145.5**	**253.5**	**0.13**	**0.66**	**4.99**
Highland	**55.3**	**208.5**	**339.0**	**0.98**	**3.14**	**6.00**
Lake Placid	**29.1**	**56.6**	**NA**	**0.98**	**4.57**	**NA**
Montgomery	**48.4**	**160.4**	**298.5**	**0.73**	**4.81**	**NA**
Monticello	**36.3**	**110.8**	**216.5**	**0.00**	**0.00**	**0.71**
Redhook	**48.1**	**162.5**	**300.5**	**0.54**	**3.70**	**5.91**

Cornell Cooperative Extension and the staff assume no liability for the effectiveness of results of any chemicals for pesticide use No endorsement of any products is made or implied. Every effort has been made to provide correct, complete, and current pesticide recommendations. Nevertheless, changes in pesticide regulations occur constantly and human errors are still possible. These recommendations are not substitutes for pesticide labeling. Please read the label before applying any pesticide. Where trade names are used, no discrimination is intended and no endorsement is implied by Cornell Cooperative Extension. ***Cornell Cooperative Extension provides equal program and employment opportunities.***