Weekly Update

Wet Weather Increases Fungal Diseases Across the Region

The current wet, cool weather pattern is favorable for the development of a host of fungal diseases, and like clockwork we are seeing them both in the field and in greenhouses/high tunnels. At the same time, the accumulation of growing degree days leading up to this week was enough to bring out many insect pests. We are seeing first flights of some corn pests throughout the area, cucumber beetle numbers are increasing, and aphid populations are high in many areas and on many crops. Read on for detailed accounts of what we are seeing, and what the recommendations are for each issue. As always, if you see something, please let us know. The quicker we can identify problems, the easier it is to find an effective control! -CLS

Late Blight Confirmed on Long Island, in PA, and in NJ

Last week we received reports of late blight on Long Island, and we have now also gotten reports from NJ, NC, and several counties in PA! Beth Gugino, a pathologist at Penn State, reports that both tomato and potato have been identified with late blight. Growers need to be sure to scout regularly, and apply protectant fungicides (Chlorothalonil or copper) - with the weather we are having it would not be surprising for late blight to be reported in other parts of NY all too soon. If you would like to receive alerts beyond what you get through the Weekly Update, you can sign up at www.USAblight.org.

Suffolk County, (Long Island) NY: US-23 (1 isolate)
Burlington County, NJ: US-23 (1 isolate)
Camden County, NC: US-24 (1 isolate)
Camden County, NC: US-23 (2 isolates)

PA samples have not yet been tested, but when results are available we will let growers know.

Dr. Fry reports that US-23 has been consistently sensitive to mefenoxam (Ridomil) in his tests. However, there appears to be some diversity in sensitivity to mefenoxam within the US-24 lineage. His lab continues to test additional isolates to get a better handle on how much diversity exists within this clonal lineage - but this takes time. -CLS, with key information from Dr. Chris Smart

Dr. Fry’s lab at Cornell has been testing the late blight samples to determine what isolates are common this year, with the following results:

"Serving the research and educational needs of vegetable and small fruit growers in Albany, Columbia, Fulton, Greene, Montgomery, Rensselaer, Saratoga, Schenectady, Schoharie, Warren, & Washington Counties"
Last week we received a report from one of our field crop educators that Armyworms had shown up in some field crop plantings. This is fairly early for us to see or hear about armyworms and of course our attention turned to sweet corn. However, the first report of damage from armyworm was not in sweet corn at all but lettuce! We received a call yesterday from a local grower who indicated something was devouring his lettuce and it did not take long to determine that armyworm was the culprit. We were finding multiple larvae feeding on several types of lettuce including leaf and bibb types. They ranged in size from a ¼ inch to nearly 2 inches. However, armyworms can attack almost any vegetable crop including sweet corn, brassicas, tomatoes, peppers etc.

Armyworms are very eager feeders and can do a lot of damage in a short time. There feeding damage tends to appear ragged, with large holes eaten in the leaves. They tend to feed on the top sides of crops during the night and on the undersides or deeper into the plant during the day. The adults are fairly large moths which are primarily nocturnal and have the ability to lay up to 2,000 eggs in their two week life. The eggs will hatch in 7 to 14 days and the larvae begin feeding immediately, going through four stages of development over several weeks. Not only is their damage a problem, but on things like lettuce, the droppings can affect marketability of the crop. Best control is achieved when the larvae are small (1st and 2nd instar). There are a number of insecticides labeled for leafy greens including these organic products: Pyganic, Dipel and Entrust (check the label for the labeled rates as formulations vary for these products). Again, these products are going to work best when applied to small larvae. There are also a number of conventional insecticides labeled for armyworm control on leafy greens including Warrior, Baythroid (both are recommended for 1st and 2nd instars), Coragen and Lannate. Ensure that you get thorough coverage of the canopy with any of these products. It may also be better to apply them late in the evening to keep insecticides wet as long as possible to ensure larvae contact and ingest them. –CDB

**Leek Moth Damages Allium Crop in Northern NY**

Leek moth is a pest of all members of the Allium family including onions, garlic, leeks, shallots and chives. It was found for the first time in the US in 2009 in Plattsburgh (Clinton County) and it has since been found in counties that border Canada: Essex, St. Lawrence and Jefferson. No official sightings have yet been made in Franklin County. So far it has caused moderate damage, a key concern is that it will shorten storage life of garlic and onions. The moth is less than a half inch long and nocturnal. The larva tunnels inside hollow onion leaves or inside folded garlic leaves. Look for windowpane damage on the hollow leaves of onion (pic 1) and gouged feeding damage with frass and debris on the youngest, flat leaves of garlic (pic 2) and leek.

It is native to Europe and is now found in Russia, Japan, Algeria and in Ontario and Quebec, Canada. It was first found in Ontario in 1993. Entomology professor, Tony Shelton, has hired a post-doc, Masa Seto, to study leek moth over the next year. We are very curious to see where this pest will spread, so if you see anything suspicious please contact Amy Ivy at adi2@cornell.edu or 518-561-7450 ext 104. For more information about leek moth in the US and to see photos of the damage it causes visit [http://web.entomology.cornell.edu/shelton/leek-moth/index.html](http://web.entomology.cornell.edu/shelton/leek-moth/index.html). –ADI
Imported Cabbage Moth adults were present in high populations this week in Orange County. That means that they will be mating, laying eggs and the larvae may be damaging your crucifer crops soon. The adult cabbageworm is an off-white butterfly with 2 or 3 black spots on its wings. Females can lay several hundred eggs, which are often found on the undersides of leaves. Eggs change from white to yellow as they reach hatching time. The larvae are green with a solid yellow stripe in the middle of its back and dashed yellow lines on its sides. The larvae is particularly well camouflaged on the crops it infests so it can be hard to see.

There are several conventional and organic options for these pests. Catching them before they do damage (but after most have hatched since eggs are impervious to controls) is the trick. Spintor/Enrtust provide good control, even for larger/older larvae. -MRC

Downy Mildew (Pseudoperonospora cubensis) was found last week on cucumbers in New Jersey (southeast of Philadelphia). Downy Mildew does not overwinter in our area but travels up from the south on wind currents. Cool and wet weather favors the disease and symptoms can appear in as little as 3 days. Lesions are characterized by angular (delineated by veins) light green spots that then turn yellow. Under humid conditions, you may be able to see sporulation on the undersides of the leaves. Sporulation will show as a purplish to grey downy mass. If the disease is left unchecked, it can devastate the crop quite quickly. If you believe you have DM, please contact us immediately and we will verify. Remember, you can also sign up for alerts through the Downy Mildew Forecasting system. You will receive a text message if DM is within the range that you have set in your alert. For more information on this system please visit the DM Forecasting website: [http://cdm.ipmpipe.org/](http://cdm.ipmpipe.org/). –MRU and CLS

White Rot was identified in a garlic field this week in Orange County and on one in Ulster County. We have not seen white rot in the Capital District as far as I know, and we’d like to keep it that way! White rot can survive in the soil for decades as sclerotia, hard black reproductive structures which germinate under favorable conditions. The only way that white rot can move into a field is through seed or soil—it does not have any airborne reproductive structures. Therefore, finding clean seed is vitally important (as with other pests and diseases) In cooler climates, Canada most notably, it is a serious disease pest. Cool weather like we are having now is perfect for disease development.

White Rot attacks onions and garlic. It may attack other alliums but I have not seen it. Symptoms above-ground are the decline and yellowing of the plant. When the plant is removed from the soil a velvety white mass can be seen on the bulb and neck. In hot, dry weather, this velvet can quickly disappear. Under the velvety mass the flesh of the onion/garlic is usually in some stage of decay.

There are no chemical controls for this disease. Best management is to avoid planting alliums where you have seen this disease and try and practice sanitation so as not to spread it around the farm. As noted, the very best practice is to not bring it on the farm in the first place. If you suspect that you have white rot please contact Crystal at 775-0018 or cls263@cornell.edu. MRU and CLS
Angular Leaf Spot found in Early Zucchini

We saw our first Angular Leaf Spot (ALS) this week in some early zucchini that were under floating row-covers. Angular leaf spot (ALS) is caused by a bacterium *Pseudomonas syringae*, which attacks cucumber and zucchini squash primarily but also is a problem for melons, some winter squash, pumpkins and gourds. Summer squash right next to the zucchini appeared unaffected so far. The damp, cloudy weather this week has not helped in the least as the bacteria is spread by splashing rain and wind. This is something of a regular occurrence the last couple years with ALS showing up very early in zucchini plantings.

The photo below is of zucchini squash grown under row cover. Initially leaf symptoms appeared as small, irregularly shaped, water-soaked lesions. The spots expand until they are limited by larger veins, giving them the angular appearance which the disease is named for. Under our current humid conditions, the water-soaked spots can be covered by a bacterial ooze, which can dry and give the leaf area near the spot a crusty appearance. This can also happen on the underside of the leaf. As the spots dry, they shrink and tear away from the healthy tissue leaving large, irregular holes and giving the leaf a ragged appearance. Squash and watermelon leaf lesions are more variable in size than cucumber lesions which are usually smaller. The squash and melon lesions can be surrounded by a yellow halo. Lesions can appear on the fruit as well, but will be more circular and are smaller than on the leaf. If left untreated, the ALS lesions will crack open, allowing secondary fungi and bacteria to invade possibly resulting in a slimy, foul-smelling fruit rot.

The *Pseudomonas* bacterium is a seedborne pathogen, but it can also overwinter in infested crop residues. The disease is widespread and is especially damaging when there are extended and frequent summer rains when daily temperatures range between 75 and 82° F. Two weeks of dry weather will really help in arresting the disease.

To manage angular leaf spot, strive to plant certified, pathogen-free seed. There are resistant cucumber varieties, but no squash or melons are resistant. A cucurbit rotation should avoid replanting in the same field for at least 2 years as the bacteria can survive for that same duration. Do not over fertilize and avoid overhead irrigation as well as handling plants while they are wet. This includes cultivation, harvesting etc. Harvest clean plantings first and any infected plantings last as this will help slow the pathogen down. Also, the hot, dry weather predicted to start this weekend will also help dry the pathogen up. Plow under or burn crop debris immediately after harvest. Apply a recommended bactericide at first sign of disease. Tank-mix copper with fungicide like mancozeb that can protect from secondary infection. Copper fungicides will help slow disease spread during particularly wet periods but can be dropped if dry weather continues for 2 weeks.

–LGM and CDB

Images of zucchini with ALS from the field this week. From left to right, you can see early symptoms on lower, older leaves, then more advanced symptoms, and finally complete leaf death. Images: Laura McDermott

Diagnose pest and disease problems using color pictures: http://vegetablemdonline.ppath.cornell.edu/
Cornell Guidelines for fruit and vegetables: http://www.nysaes.cals.cornell.edu/recommends/
Cucurbit Downy Mildew forecast: http://www.ces.ncsu.edu/depts/pp/cucurbit/
USDA Fruit and Vegetable Market News: www.marketnews.usda.gov/portal/fv
This week’s damp weather has really spurred the damage from slugs and snails in many different crops including strawberries, brussels sprouts, sweet corn and greens. We have noted damage on strawberry fruit and foliar feeding on the other crops mentioned. 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.

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 attract 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 Al/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, which may explain why the populations are so high this year. With the wet later season last year, a very healthy population exploded this season. So using chemical control products in mid-September will 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.

For information on their management: http://ipmguidelines.org/BerryCrops/content/CH05/CH05-3.asp#_Toc219869868.
This week has also really favored Botrytis Gray Mold (BGM) in greenhouses and some high tunnel tomatoes I looked at. BGM can infect leaves, stems and fruits of tomatoes. This is not a surprise due to the constant high humidity in the tunnels caused by wet weather and cloudy conditions this week. There is not much available for greenhouse/tunnel use, but Decree and Scala (plus a protectant such as copper) are labeled. A good, warm, dry spell should help reduce the problem with BGM and getting those sides rolled up to increase the ventilation will help to. Also, if you see infected tissue including fruit, remove it from the greenhouse - don’t throw it on the floor or just outside the greenhouse as it can still serve as a source of spores that can re-infect the greenhouse.

One more thing that I seem to stress every year is trying not to grow your plants in the same greenhouse with bedding plants. I know it is difficult to do when you are growing multiple crops in the same greenhouse, but if you have hanging baskets above your plants that were or are going to be planted in a high tunnel, and some of those flower petals or leaves from the hanging baskets fall into your tomato flats, that is a great opportunity for the disease to move into your tomatoes. Proper pruning to allow for the maximum air movement will also help.

It is important to note that BGM can look very much like Late Blight, especially when it sporulates on the leaves and fruit and even the lesions themselves on the leaf tips can have a late blight appearance and with all the late blight reports around us, it might even be more confusing between the two. –CDB

Every year we tend to get a report about Powdery mildew (PM) showing up on either squash or pumpkin transplants in a greenhouse right before they are ready to be set out in the field. It’s hard to say if the PM is the same one that infects plants later in the summer or if it is another species of PM that is common on various bedding plants. I know that I have seen PM on cucurbit transplants that were being grown in the same greenhouse as verbena and begonia. Usually, once the cucurbits are transplanted in the field, they can grow out of it. Here are some comments from Cornell Plant Pathologists Dr. Tom Zitter in regards to PM and its control on transplants: “On zucchini coming from surrounding ornamentals this could be Erysipe cichoracearum since it has a wider host range than the normal field infection with Podosphaera xanthii. The former is not as aggressive and if organic, then sulfurs or potassium bicarbonates (MilStop, Kaligreen) will work if you can just get a little on the underside of the leaves as well as the tops. JMS Stylet oil would also work on either of the PMs.” - CDB
Opportunity to participate in paid marketing study

By Bobby Smith, Graduate Student, Charles Dyson School of Economics, Cornell University. As we all know, farmers spend many hours picking, washing, and packing their produce in preparation for market. The produce may be distributed to many places – the supermarket, the farmers’ market, restaurants, CSA members, etc., and many farmers wonder which marketing outlet is actually the best. A simple new tool is available for small and mid-sized farms to help them evaluate the performance of different channels on their farm. The tool was developed by Matt LeRoux, Agriculture Marketing Specialist, at CCE-Tompkins County to aid farms in channel selection and to create ‘benchmarks’ for produce farmers in New York. To learn more about the Marketing Channel Assessment Tool study, see http://aem.cornell.edu/outreach/extensionpdf/2009/Cornell_AEM_eb0903.pdf

The purpose of this study is to evaluate factors such as the price, volume, time commitment, etc. for each marketing channel. We invite farmers to participate using this tool for a one week period (below is the farmer participation criteria) and to fill out a simple activity log each day documenting the time spent on harvest and market preparation. In return, we will analyze the data, to determine the best performing channels and optimum channel combination. In addition, the data will be used to create ‘benchmarks’ to guide other farmers in NY.

CRITERIA FOR PARTICIPATION

1. Farmers must participate in at least 3 different marketing channels (can be three in the same channel, for example, comparing 3 different farmers’ markets to each other).
2. No more than 12 people working on the farm (including owners & family).
3. Farms producing fruits, vegetables, &/or fresh cut flowers only.

FARMER BENEFITS

1. Informed decision making
2. Increase in profitability, enjoyment of work.
3. Decrease in labor needs, stress, risk.
4. Benchmarking against similar farms.

*We pay each participating farm $100 for completing the study.*

If you are interested in participating in this study please contact Crystal, Laura or Chuck and we will try to answer any questions you have and sign you up. Matt LeRoux will also be visiting on June 25th and 26th, and will be able to answer questions. If you want to sign up or want Matt to visit on the 25th or 26th, just let us know ASAP. This project is possible through funding from the New York Farm Viability Institute.

Sweet Corn Trap Catches

The sweet corn trap network is back up and running again! Look for weekly updates on trap counts, and insights into what the numbers mean. A few more sites will be added in the next week as the numbers become available. We may also include numbers from the south of the Capital District as appropriate.

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**Grower Classifieds**

Do you need to buy or sell something that vegetable and small fruit growers in the Capital District might be interested in? Let us know, and we will post it here in the weekly grower classifieds. Try to keep information short, just like with a newspaper classified. We will include up to 50 words and a small (2 inch by 2 inch) picture. This service will be free to all enrolled growers. The deadline for submission each week is Wednesday at 12 noon. If you have any questions, please contact Crystal at 775-0018 or at cls263@cornell.edu.

**Upcoming meetings and notices**

**Farm-to-School Grants (USDA) – Apply by June 15, 2012**
The US Department of Agriculture is providing funding for programs that seek to improve access to local foods in schools. Potential projects include programs that get local food on the menus of schools, education activities that encourage the participation of school children in farming and gardening, among others. Proposals should include evaluation plans as well as demonstrate the long term sustainability of the plan. For more information visit the USDA Grants site at [http://www.fns.usda.gov/cnd/f2s/](http://www.fns.usda.gov/cnd/f2s/).

**Farm Service Agency Announces Loan Program for Conservation Purposes**
FSA announces the availability of the Guaranteed Conservation Loan (CL) program that will provide farm owners and operators access to credit to implement conservation techniques that will conserve natural resources. CL funds can be used to implement conservation practices approved by the Natural Resources Conservation Service (NRCS), such as the installation of conservation structures (ie manure digesters on farm, wind or solar generation, manure and silage storage); establishment of forest cover; installation of water conservation measures; establishment or improvement of permanent pastures; implementation of manure management; and the adaptation of other emerging or existing conservation practices, techniques or technologies. Guaranteed CLs up to $1,214,000 are available from lenders working with FSA. For more information on the Conservation Loan program, contact your local lender, local FSA office or visit the FSA website at [http://www.fsa.usda.gov/](http://www.fsa.usda.gov/).

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*Weekly and Seasonal Weather Information*