



WEEKLY CROP UPDATE

UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

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July 15, 2016

Vegetable Crops

Vegetable Crop Insects - Joanne Whalen, Extension IPM Specialist; jwhalen@udel.edu

Lima Beans

Continue to sample for mites since early detection is necessary to achieve effective control. Labeled products include bifentazate (Acramite), bifenthrin (numerous generics labeled), dimethoate, Hero (combination of bifenthrin and zeta-cypermethrin), and recently labeled Agri-Mek SC (reminder -- **this is the only labeled formulation**). Be sure to read all labels carefully for all restrictions including but not limited minimum gallonage needed by air, days between applications, pre-harvest intervals, and adjuvants requirements that must be followed to avoid illegal residues. We are starting to see an increase in stinkbug and plant bug populations. As soon as pin pods are present, be sure to watch carefully for plant bug and stinkbug adults and nymphs. As a general guideline, treatment should be considered for lygus if you find 15 adults and/or nymphs per 50 sweeps. For stink bugs, the threshold should be reduced by one half.

Melons

Continue to scout all melons for aphids, cucumber beetles, and spider mites. Although aphid populations still remain low in most fields, we are starting to see localized infestations. At this time of year, early detection is critical since populations can quickly explode. It is also the time of year to start watching for caterpillars that feed on rinds which can include beet

armyworm, yellow striped armyworm, and cabbage looper larvae. If beet armyworm is in the mix, it is important to select a material that is effective on this insect (refer to the [Commercial Vegetable Recommendations](#)) - the pyrethroids do not provide effective control. **Be sure to read all labels carefully for pollinator protection statements, rates and restrictions. Some materials are restricted to only one application as well as ground application only.**

Peppers

Depending on local corn borer trap catches, sprays should be applied on a 7 to 10-day schedule once pepper fruit is ¼ - ½ inch in diameter. Be sure to check local moth catches in your area by calling the Crop Pest Hotline (302-831-8851) or visit our website at <http://agdev.anr.udel.edu/trap/trap.php>. At this time, you will also need to consider a treatment for pepper maggot.

Snap Beans

Depending on local trap catches, sprays may be needed at the bud and pin stages on processing beans for corn borer control. As earworm trap catches increase, an earworm spray may also be needed at the pin stage. You will need to check our website for the most recent trap catches to help decide on the spray interval between the pin stage and harvest for processing snap beans. Once pin pods are present on fresh market snap beans, a 7 to 10-day schedule should be maintained for corn borer and corn earworm control.

<http://agdev.anr.udel.edu/trap/trap.php>

<http://extension.udel.edu/ag/insect-management/insect-trapping-program/ecb-and-cew-moth-catch-thresholds-for-processing-snap-beans/>

Sweet Corn

Continue to sample all fields through pre-tassel stage for whorl feeders (corn borer, corn earworm and fall armyworm). A treatment should be applied if 12-15% of the plants are infested with larvae (regardless of the species). The predominant whorl feeder being found at this time is the fall armyworm. Since fall armyworm (FAW) feed deep in the whorls, sprays should be directed into the whorls and multiple applications are often needed to achieve control. FAW can also be a problem in silk stage sweet corn, especially in outbreak years. The first silk sprays will be needed for corn earworm as soon as ear shanks are visible. Be sure to check both blacklight and pheromone trap catches since the spray schedules can quickly change. Trap catches are generally updated on Tuesday and Friday mornings on our website (<http://agdev.anr.udel.edu/trap/trap.php>) and the Crop Pest Hotline (302-831-8851). Information on scouting sweet corn and how to use the trap catch information can be found at <http://extension.udel.edu/ag/insect-management/insect-trapping-program/action-thresholds-for-silk-stage-sweet-corn/>.

Food Safety - A Critical Concern for all Fresh Produce Growers - *Gordon Johnson, Extension Vegetable & Fruit Specialist;* gcjohn@udel.edu

There is increased concern with food safety and fresh produce. The FDA, State Health Departments, and State Departments of Agriculture have made food safety a priority, especially for important produce growing regions such as Delmarva. Produce buyers are increasingly seeking to control risk by monitoring the food safety programs of growers that they buy from. In addition, new FDA regulations will require that specific food safety areas be addressed by fresh produce growers.

All fresh produce growers from small to large should implement Good Agricultural Practices (GAPs) for produce food safety on their farms.

The following are points that all produce growers need to consider to protect their markets and address food safety proactively:

- All produce farms should have a written food safety plan that spells out how food safety will be addressed. The plan should cover field and packing operations and address water applied to crops, soil amendments, wildlife, harvest sanitation, packing sanitation, and worker hygiene.
- All fresh produce growers should attend training in Good Agricultural Practices and stay current by attending update sessions or advanced training each year.
- Produce growers should be aware of the pathogens of concern and how to reduce the risk of produce contamination. For example, the southern part of Delmarva historically has had reservoir of Salmonella in the environment that needs to be addressed in food safety planning on produce farms in that area.
- Growers should evaluate risks specific to their operations and farms and address those risks before growing and packing produce.

Because Salmonella is of particular concern in our region, special emphasis should place on addressing risks from this food borne pathogen. The following are some guidelines to reduce the risk from Salmonella (as well as other food borne pathogens):

- Be familiar with your water source by developing a water quality profile (testing program; FDA standards)
- Avoid using surface water for irrigation. Salmonella has been shown to survive for long periods in sediments. If surface water must be used, treatment should be considered (chlorine or peroxyacetic acid). Additionally, use screens and locate the intake far off the bottom to minimize sediment intake with surface water by pumps. Use back flow devices when refilling ponds with well water
- Use wells that are away from possible sources of contamination (such as poultry houses, manure storage structures). New wells for irrigating fresh produce should be located with food safety in mind.

- Do not use raw manures/litters in the season fresh produce is to be grown, particularly with high-risk produce such as leafy greens, netted melons, tomatoes, cucumbers, or peppers. In general, the longer the time interval between application of raw manures/litters and growing produce the better.

- Wildlife may harbor Salmonella, there is an extensive range of animals that may carry Salmonella, and Salmonella may persist in animal feces. Because of this, wildlife intrusion should be monitored/scouted, being extra vigilant as the Delmarva region is a unique environment for diverse wildlife (such as waterfowl). Avoid harvesting produce in locations with visible animal feces or intrusion and make an effort to keep animals out of high risk produce fields.

- Keep high risk produce out of risk high fields such as those that are prone to flooding, animal intrusion, or in close proximity to livestock/high risk landscape features

- When field packing produce, practice good worker health and hygiene; use clean bins, boxes, containers, or packages; and keep bins/boxes off of the ground.

- In the packing area enforce a strict pest management program to eliminate contamination from pests such as rodents as well as animal intruders (raccoons, birds).

- Because Salmonella persists for longer periods on porous food contact surfaces, replace with non-porous ones.

- Produce conveyance (dump tanks, flumes) and cleaning and washing areas (conveyers, rollers, brushes, washers) are high risk for cross contamination and must be properly sanitized. Tank, flume, hydrocooler and wash water must be treated with approved antimicrobial sanitizer (chlorine, PAA).

- Food contact surfaces must be sanitized on a regular basis and considerations should be given to the frequency of cleaning breaks - more cleaning breaks reduces contamination risk.

Vegetable Disease Update - *Kate Everts, Vegetable Pathologist, University of Delaware and University of Maryland; keverts@umd.edu*

Downy mildew on cucumber is now present in Sussex County, Delaware and in Cumberland County, New Jersey.

Several additional **late blight** outbreaks were confirmed in Maryland over the past week. Late blight is active in Queen Anne's County, Dorchester County, and Somerset County, MD on the eastern shore. Garrett and St. Mary's counties also have late blight outbreaks. Local rains continue to make our weather favorable, despite an increase in temperatures.

The pathogen genotype that has been identified in all these outbreaks is US-23. The US-23 genotype can cause disease on both potato and tomato and is sensitive to mefenoxam (the active ingredient in Ridomil). Therefore in addition to the fungicides that are listed in the commercial recommendation guide as effective (<http://extension.udel.edu/ag/vegetable-fruit-resources/commercial-vegetable-production-recommendations/>), Ridomil products that are labeled for use on potato and tomato late blight can be used.

Powdery mildew on cucurbits (squash, cucumber, pumpkin, etc.) is now present on Delmarva. Scout your fields for the presence powdery mildew. The threshold is one lesion per 50 old leaves. Once the threshold is reached in your field, targeted fungicides for powdery mildew management should be added to spray programs. Organic producers can apply fungicides that are approved by your certifying agent such as Cueva and Regalia.



Initial powdery mildew lesions will be small and white, and often only visible on the lower leaf surface.

Potato Late Blight Update #17: July 14, 2016 - Nathan Kleczewski, Extension Specialist - Plant Pathology; nkleczew@udel.edu

Green row: April 29th, 2016

Date	Townsend		Camden		Leipsic		Kenton	
	DSV	Total DSV	DSV	Total DSV	DSV	Total DSV	DSV	Total DSV
5/26-5/30	5	20	5	24	5	26	5	26
5/30-6/2	2	22	4	28	5	31	3	29
6/2-6/6	6	28	4	32	5	36	5	34
6/6-6/9	0	28	0	32	0	36	0	34
6/9-6/15	0	28	0	32	0	36	0	34
6/15-6/24	11	39	5	37	6	42	4	38
6/24-6/30	1	40	0	37	3	45	3	41
6/30-7/5	2	42	2	39	1	46	2	43
7/5-7/8	1	43	0	39	0	46	0	43
7/8-7/11	3	46	2	41	2	48	2	45
7/11-7/14	8	54	2	43	4	52	3	48

Notes: Season severity of 18 severity values indicates the need for the first fungicide application. An accumulated severity of 7 after fungicide application identifies the need for a subsequent fungicide application.

You can personalize your late blight forecasts for specific fields, sign up for email or text alerts, and enter in management information at <http://blight.eas.cornell.edu/blight/>. Real time fungicide application timing tables for locations within Delaware can be accessed at <http://blight.eas.cornell.edu/blight/DE>

See the [2016 Commercial Vegetable Production Recommendations-Delaware](#) for recommended fungicides.

Any suspect samples can be sent to the Plant Diagnostic Clinic or dropped off at your local extension office. Dr. Nathan Kleczewski can also be contacted at nkleczew@udel.edu or 302-300-6962.

The website USABlight tracks tomato and potato late blight across the nation and can be found here: <http://usablight.org/>. Information on scouting, symptomology, and management can also be found on this website.

Fruit Crops

Spotted Wing Drosophila Trapping Update - Joanne Whalen, Extension IPM Specialist; jwhalen@udel.edu

Trap catches for Spotted Wing Drosophila (SWD) adults remain constant. Small fruit growers (especially bramble and blueberry growers) will need to maintain their spray schedules for this very damaging insect pest.

Agronomic Crops

Agronomic Crop Insects - Joanne Whalen, Extension IPM Specialist; jwhalen@udel.edu

Field Corn

As we begin to see more field corn entering the silk stage, there have been questions about silk clipping insects and management strategies. Although thresholds have not been developed in Delaware for silk clipping insects, the following

information from other areas of the country can be used to help make a management decision.

Japanese Beetles and Other Related Species:

As discussed in previous newsletters, silk clipping by these insects is related to damage before 50% pollination. The following link to a fact sheet from Purdue provides good information on scouting and decision making. There is also an IPM tip at the end from Bob Nielsen about how to determine what percent of the pollen has been released:

<http://extension.entm.purdue.edu/fieldcropsipm/insects/corn-japanese-beetles.php>

As a general rule, treatment for Japanese beetle may be needed if silks are clipped back to less than half an inch when less than 50% of the plants have been pollinated and Japanese beetles are still present and actively feeding. Pollen shed for an individual tassel generally takes 2-7 days to complete and 1-2 weeks for an entire field (information from Bob Nielson, Purdue University).

Additional information and research from states to our south indicates that they recommend treating for Japanese beetles in corn when an average of three or more beetles is found per ear during pollination. For more information on the research in Tennessee, especially as it relates to management of Japanese beetles in irrigated and drought stress corn, please see the following link:

<http://news.utcrops.com/2013/06/japanese-beetles-on-corn-silks/>.

Corn Rootworm: Although not a common issue in most areas of the state, we have seen problems in years past in an occasional irrigated continuous corn field in Sussex County as well as in areas of northern Kent and New Castle counties where continuous corn is planted. The following links provide information on management:

<http://crops.extension.iastate.edu/cropnews/2013/07/time-assess-corn-rootworm-activity-iowa>

<http://cornandsoybeandigest.com/corn/spray-adult-rootworm-beetles?page=1>

Stinkbugs: As indicated in past newsletters, most of the damage we see from stink bugs occurs before full tassel emergence. Information from Georgia indicates that corn is most sensitive to stinkbug damage during ear formation before silking. Stink bug feeding damage to small developing ears starting at V12 (vegetative tassel stage) can deform ears into a C or boomerang shape. These ears fail to develop properly and may be more susceptible to infection by diseases. Additional information from North Carolina on sampling and treatment timing can be found at sampling and treatment timing in field corn from North Carolina

<https://entomology.ces.ncsu.edu/2016/06/stink-bugs-moving-into-corn/>.

During the pollination to blister stages, stink bugs can feed through the husk and damage individual kernels. Although we do not have thresholds for our area, information developed in states to our south can be used to make a treatment decision. From the end of pollen shed to blister/milk stage, the threshold used in the south is one stink bug for every two plants (50% infested plants). Please refer to the following link for more information on stink bug management in field corn

<http://entomology.ces.ncsu.edu/2014/07/stink-bugs-in-corn/>.

Soybeans

We continue to see a mix of defoliators (grasshoppers, Japanese beetles, and green cloverworm) in full season and double crop soybeans. As a general guideline, treatment decisions for defoliators should be based on the following thresholds:

(a) Full Season Plantings - 30% defoliation pre-bloom; 15% defoliation from bloom through the end of pod fill; 35% defoliation- once fully developed seeds are present

(b) Double Crop Plantings (especially if growth is poor) - 20% defoliation pre-bloom, 10% defoliation from bloom through pod fill; 15% defoliation - once fully developed seeds are present.

Spider mites populations continue to be spotty but can be found in fields throughout the state.

Early detection and control, before populations are exploded, is necessary to achieve effective control. Although edge treatments can be effective in some cases, in other cases mites have already been transported into the field interiors on wind currents so you still need to sample the entire field for mites. We can often find economic levels starting in field interiors. As a reminder, labeled materials include bifenthrin (numerous generics labeled), Hero (a combination of zeta-cypermethrin and bifenthrin), chlorpyrifos (Lorsban and a number of generics) and recently labeled Agri-Mek SC (reminder -- **this is the only labeled formulation**). Be sure to read all labels carefully for all restrictions including but not limited minimum gallonage needed by air, days between applications, pre-harvest intervals, and adjuvants requirements that must be followed to avoid illegal residues.

Wheat Variety Trials, Disease Ratings for 2016 - Nathan Kleczewski, Extension Specialist - Plant Pathology; nkleczew@udel.edu and Victor Green; vmgreen@udel.edu

We are well into corn and soybean season, but those considering planting wheat in 2016 should already be thinking about variety selection. Variety selection is the most important part of wheat production, and selection of varieties with resistance to commonly occurring diseases is paramount. The University of Delaware conducts small grain variety trials to assess relative performance of varieties under Delaware growing conditions. This year, the site at Middletown experienced significant pressure from regional populations of powdery mildew as well as pressure from stripe rust, which entered the site and could be detected on susceptible varieties in mid-April, around flag leaf emergence.

Varieties were rated on May 25, 2016 at approximately the soft dough stage prior to the onset of senescence by using a relative, whole plot rating system, where 0 indicates a clean canopy and 5 indicates near complete disease presence on the flag leaves. Thus, 0-1 =excellent resistance; 1-2 very good resistance 2-3 = marginal resistance, 3-4 = susceptible, and 4-5 = very susceptible.

Powdery Mildew and Stripe Rust Ratings for Wheat Variety Trial at Middletown, DE -- 2016

Variety	Stripe Rust	Powdery Mildew
VAW11-106 VaTech/VCIA	0.0	1.7
Hilliard VaTech/VCIA	0.0	1.2
MBX 14-K-297 Mercer	0.0	3.5
MBX 14-S-210 Mercer	2.5	1.0
MBX11-V-258 Mercer	5.0	1.5
MBX 15-E-229 Mercer	3.2	0.7
MBX 16-A-206 ***** Mercer	1.2	3.2
MBX16-B-203 Mercer	2.5	3.7
USG 3523 USG	0.7	3.0
USG 3404 USG	0.0	1.6
USG 3316 USG	3.5	4.0
USG 3895 USG	0.0	2.2
USG 3197 USG	1.5	2.6
USG 3201 USG	0.0	2.3
9223 Dyna -Gro	0.0	3.7
9552 Dyna -Gro	0.0	3.5
9522 Dyna -Gro	0.0	2.2
Shirley Dyna -Gro	4.9	0.9
9692 Dyna -Gro	3.0	4.0
WX15742 Dyna -Gro	2.5	2.0
FS 860 Grow Mark	2.0	2.2
FS 865 Grow Mark	2.2	4.8
FSX 870 Grow Mark	3.5	1.5
FSX 871 Grow Mark	0.7	3.0
FSX 872 Grow Mark	0.0	1.7
415 Agri-Maxx	0.7	2.5
444 Agri-Maxx	0.0	2.5
446 Agri-Maxx	0.2	3.2
454 Agri-Maxx	2.7	4.5
462 Agri-Maxx	4.7	2.5
Exp 1674 Agri-Maxx	0.0	1.7
15MW315 University of MD EXP	0.2	4.0
FS 850 Grow Mark	0.7	2.5
FS854 Grow Mark	0.0	2.2
SS-8360 Southern States	0.0	3.0
SS-8340 Southern States	0.0	2.7
SS-8513 Southern States	0.5	1.7
SS-8415 Southern States	0.5	1.5
SS-8530 Southern States	3.0	1.0

Keep in mind that these trials test against regional populations of pathogens. Due to issues with our powdery mildew populations defeating

a commonly used resistance gene, you may see some varieties that are labeled as very good or excellent for powdery mildew not performing well in this trial. This regional disease data is critical in ensuring productive crops and assisting you with variety selection. We did not rate for leaf blotch complex (Tan spot, Stagonospora leaf and glume blotch) because stripe rust susceptible varieties (3 or greater on the rating scale) did not have flag leaf tissue present at rating and therefore we could not accurately rate the varieties for this disease. Other sites did not have sufficient disease to rate by the soft dough stage.

Varieties were planted into a clean bed on 10/20/15 at 1.5 million seeds/A. The first application of nitrogen (N-sul at 15 gal/a= 45 lbs.N) was applied on 3/3/16. The second application of nitrogen (50:50 mixture, 19 gallon N-sul , 11 gallon water (2.9 lbs N/gal) = 55 lbs total N) was applied on 3/17/16. At this time Powerflex herbicide was also applied at 2 oz/A. Warrior insecticide was applied to manage cereal leaf beetle on 5/5/16.

Yield and lodging data for this site and others will be made available soon. However, at the Middletown site we did see that increasing levels of rated diseases resulted in lower yields overall. For example, the average yield difference between a variety with a powdery mildew rating less than 1 and a variety with a rating greater than 4 was approximately 12%.

Palmer Amaranth Control in Soybeans -
Mark VanGessel, Extension Weed Specialist;
mjv@udel.edu

In my opinion, successful management of Palmer amaranth is more about when you treat it, rather than what you use. Timing is important, and plants visible above the soybean canopy will not be controlled. Sure you can burn those plants with herbicides, even burn off all the leaves; but that is not controlling them. Controlling Palmer amaranth means the plant is killed, not just injured. Consistently killing plants over 3 inches tall is difficult; killing those plants above the soybean canopy means you got lucky. So does that mean you shouldn't spray

fields with large Palmer amaranth plants? No, because if there are large plants, it usually means there are smaller plants that may be effectively controlled. But those fields with large Palmer amaranth plants need to be walked to pull and remove the surviving plants from the field.

Announcements

Free Webinars in July, Sponsored by the Mid-Atlantic Women in Agriculture

7/27: Farm Diversification - Ideas on alternative crops - Farm diversification opens opportunity and increases potential profitability! Adding specialty fruit and vegetable crops to your farm can increase profit margins in several ways. Like diversifying in the stock market, engaging in more than one enterprise and adding value to what you already grow will spread profit risk, not to mention “growing” interest in locally produced foods. This webinar will introduce participants to some new potential specialty crops, discuss new federal regulations to be aware of and regional research that has been done with specialty crops over the past few years.

To register:

<http://www.eventbrite.com/e/wednesday-webinars-registration-11452674257>

Webinars begin at noon EST. Duration is approximately 1 hour. For optimal performance we suggest using Internet Explorer as your web browser and connecting via Ethernet connection instead of wireless (wireless will work, but a hard line is more stable)

See website for more information and other upcoming topics: <https://extension.umd.edu/womeninag/webinars>

If you do not have access to high speed internet and would like to participate in one of the above webinars, contact Tracy Wootten at wootten@udel.edu.

A Day in the Garden with

Sussex County Master Gardeners

Saturday, July 16, 2016 10:00 a.m.-2:00 p.m.
16483 County Seat Highway, Georgetown, DE
(west of Sussex Tech)

Come see the many changes to our garden, including the new outdoor “man cave”!

Activities

- Plant Sale
- Educational Exhibits
- Monarch Waystation
- New! Dry Shade Garden
- Garden Smart Garden Easy
- Container & Raised-Bed Gardens
- Ask an Expert – Sick Plant Clinic
- Ice Cream from the UDairy Creamery

Children’s Programs

- 10:30 & 12:15 – The Misadventures of Peter Rabbit in Farmer McGregor’s Garden (free ice cream for kids under 16 with coupon from Farmer McGregor)
- Pot a plant to take home
- See touch & smell the garden

Free Mini-Workshops

- 10:15 a.m. Orchids
- 11:00 a.m. & 1:00 pm Making Bee Houses
- 11:30 a.m. Cooking from the Garden
- 12:00 noon Miniature Gardens
- 12:30 p.m. Worm Composting

Bring your camera!

For more information call 302-856-7303 or go to www.rec.udel.edu

Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of July 7 to July 13, 2016

Readings Taken from Midnight to Midnight

Rainfall:

0.56 inch: July 13

Air Temperature:

Highs ranged from 93°F on July 8 to 83°F on July 10.

Lows ranged from 75°F on July 8 to 63°F on July 12.

Soil Temperature:

82.2°F average

Additional Delaware weather data is available at http://www.deos.udel.edu/monthly_retrieval.html and <http://www.rec.udel.edu/TopLevel/Weather.htm>

Weekly Crop Update is compiled and edited by Emmalea Ernest, Associate Scientist - Vegetable Crops

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