



WEEKLY CROP UPDATE

UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

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Vegetable Crops

Vegetable Crop Insect Scouting - David Owens, Extension Entomologist;
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Sweet Corn

Cooler evening temperatures this week have helped reduce moth catches in our traps considerably. However, there is still quite a bit of variability out there, and fresh-silking sweet corn is the by farm more attractive to moths. The decreased temperatures also mean that a maximum 3-day spray schedule should be pretty safe. It takes earworm eggs 3 days to hatch when temperatures are below 82 degrees.

This is the last week in which traps will be maintained. Many thanks to Richard Monaco, Jon Baker, Joseph Deidesheimer, and Harry Thompson for faithfully servicing the traps this season. Many thanks also to our cooperators for allowing us to place traps and siphon electricity for the blacklights. Besides aiding sweet corn producers at the trap location and their nearby locale, the trapping network has also helped guide field crop producers, alerting them to the unusually high moth activity in the early and main part of the season. We also used the trap network to time our vial testing. If you would like to see additional insect species included in our regular trapping program or would like to receive direct updates when traps are serviced, please send me a message at owensd@udel.edu.

Moth counts from Thursday are as follows:

Trap Location	BLT - CEW	Pheromone CEW
	3 nights total catch	
Dover	3	37
Harrington	1	15
Milford	8	23
Rising Sun	4	51
Wyoming	3	47
Bridgeville	1	25
Concord	1	21
Georgetown	1	37
Greenwood	2	
Laurel	4	42
Seaford	2	18
Trap Pond	6	3
Lewes	5	48

Watermelons

This season, we examined rye strips in early May and watermelon fields soon after they were transplanted for spider mite activity. When sampling the rye strips, 3 row feet of vegetation around the edges and in the interior of the field were clipped, bagged, and examined for spider mite presence. We did not find spider mites when we sampled. Of the fields we routinely sampled after transplant, fields that had spider mites present in the interior in the month of June most likely came in with the transplants. These fields also had some of the highest mite activity during July and early August. Now that field operations in our early fields are winding down, some folks are starting to think about cleaning the field up for its next crop. We should

also be thinking about cleaning up transplant houses and keeping them clean. Spider mites will use vegetation and winter annual weeds that are beginning to germinate as reproductive hosts and overwintering sites. Mites will begin to physiologically prepare for winter soon, after the autumnal equinox. Overwintering mites are harder to kill with pesticides and can survive longer periods without food. Cleaning up transplant houses and preventing weeds from growing in or immediately around them will go a long way towards keeping next year's mites in check.

Lima Beans

Continue scouting for corn earworm and soybean looper. Pyrethroids alone have been inconsistent with earworms, and soybean loopers are resistant to them.

Lima Beans Affected by Heat in 2019 -

Gordon Johnson, Extension Vegetable & Fruit Specialist; gcjohn@udel.edu and Emmalea Ernest, Associate Scientist; emmalea@udel.edu

We are seeing heat effects on pod set in lima beans again in 2019. Affected plantings had heavy flower drop in late July and early August and set pods later, delaying harvest by as much as a week. In some fields a split set is also present because favorable conditions for pod set were interrupted by high night temperatures (above 75°F). Pod drop may also be caused by feeding from piercing/sucking insects (i.e. stink bugs) which damage developing seeds. This type of insect feeding can also cause misshapen pods and irregular, dimpled, or misshapen seed. Larger pods, beyond the pin pod stage, are generally not aborted because of heat stress but may be aborted due to drought stress or insect feeding.

Research by Emmalea Ernest has shown that pollen production is reduced under high night temperature conditions in the baby lima, Fordhook and large seeded pole lima bean varieties that we currently grow. Among the genetically diverse varieties that have been tested, those which produce more pollen under heat stress produce a higher yield under heat stress. In large seeded types, such as Fordhook,

the style and stigma become deformed when exposed to high night temperatures and pollination is also reduced because of this effect of heat. The aim of current lima bean breeding activities at the University of Delaware is to select for pollen production and normal flower development, and thereby better yield, under high temperatures.

Good Time to Check for Root Knot

Nematode in Vegetables - *Jerry Brust, IPM Vegetable Specialist, University of Maryland; jbrust@umd.edu*

As this growing season winds down and for the next few weeks it is a good time to examine vegetable roots for root knot nematode (RKN). I would be suspicious of having RKN if my vegetables seemed to need more water than normal, or wilted during the heat of the day and recovered later, or plants had nutrient deficiency symptoms rarely seen in your fields and the addition of fertilizers did not seem to alleviate the deficiency symptoms. Other symptoms to be suspicious of include plants in some areas appearing stunted with either lower yields or poorer fruit quality. If these vegetable problems were noticed in spots in the field that seemed to follow down a row year after year, there is a chance you have RKN and you should check your vegetable roots for galls.

When you are done harvesting your field dig — do not pull up — plants that are having problems and some of the plants that border these problematic plants. If the ground is moist when you dig it makes the whole process much easier. Wash the roots with water or dip plant roots into a barrow of water and gently swish the roots around. Inspect the roots of the plants for the tell-tale symptoms of RKN, i.e., the galls on the fine and larger roots of a plant (Fig. 1b). The tomato roots in Figure 1b are severely infected with root knot nematode and you may not have this severe of an infestation. What you'll need to look for are a few knots, galls on the finer roots of the plant (Fig. 2).

Root-knot nematodes start out as eggs that develop into J1 or first-stage juveniles, when J1s molt they become J2 nematodes. The J2 stage is

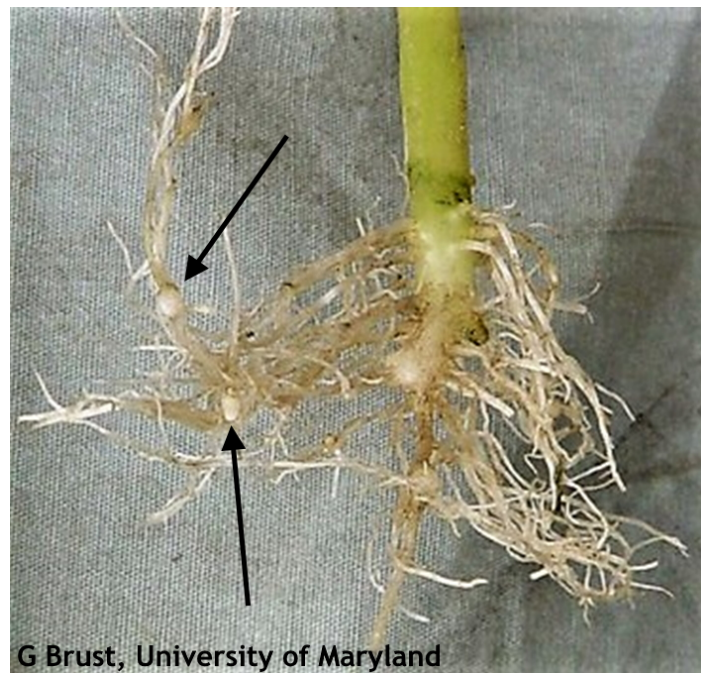
mobile and is the only stage that can start infections. They attack the root tips and enter roots behind the root cap where they initiate a feeding site by injecting secretions that cause the cells to greatly enlarge. The male RKNs eventually leave the roots, but the females stay in the root and lay their eggs in a jelly-like mass that reaches into the soil.



Figure 1. Tomato roots without (a) and with RKN infestation (b)

Soil fumigants or nematicides can be effective in reducing RKN damage to vegetable roots, but they will not eliminate the pest from the soil and populations will still be high at the end of the season, but roots will be protected long

enough for a crop to be produced. More information on fumigants and nematicides can be found in the 2019 Mid-Atlantic Commercial Vegetable Production Recommendations guide.



G Brust, University of Maryland

Figure 2. Two RKN galls on the roots of a cucumber plant

There are other options that can be used to reduce RKN populations. One of these options is using certain cover crops that can decrease RKN severity and crop damage. Rapeseed (relative of canola) is one of these cover crops. It is planted in late September early October in Maryland at 800,000-900,000 seeds per acre and let to grow throughout the fall, winter and early spring. It is tilled under in mid-March through mid-April. Rapeseed crops have a high sulfur requirement, so be sure you have adequate levels of sulfur in your soils for this cover crop. The key is getting a good solid stand of the cover crop so that weeds do not grow along with the crop as many weed species can act as hosts for RKN.

In the summer a good cover crop to use is sorghum-sudangrass, which can be planted following an early season vegetable crop such as cucumber, pea or snap bean. Planting seed at 200,000 seeds/a or 20 lbs/a in mid to late July produces enough biomass to reduce RKN populations. For best control, the sorghum-sudangrass crop should be chopped while green into smaller pieces and incorporated into the soil

by mid-October. Well incorporated sorghum-sudangrass can be as effective as fumigation. Adding poultry litter or poultry litter compost into the sorghum-sudangrass biomass produces the most effective reduction in nematodes.

Agronomic Crops

Agronomic Crop Insect Scouting - David Owens, Extension Entomologist;
owensd@udel.edu

Soybean

Our latest planted fields may still have active corn earworm (aka podworm) present, but for the most part, they are moving out of the system. That does not mean we can let down our guard. Soybean loopers are active, although their populations seem to be quite a bit lower this year than they were last year. Fields that were treated for earworms may have reduced beneficial insect activity. Also, late planted fields are at greater risk for late season stink bug infestation. Stink bugs developing in full season beans will move to more succulent, younger bean fields. Sweep thresholds are 5 bugs in 15 sweeps. The same is true for bean leaf beetle. Thresholds for bean leaf beetle are a bit trickier. Beetles need to be present in a field in fairly large numbers, and pod scarring approaching 10 - 15% before triggering a spray. All three late season pests, loopers, bugs, and beetles, will cause little injury to beans once they reach the R6.5 stage. While scouting for these pests, also pay attention to signs of Dectes stem borer. Fields with significant infestations should be prioritized for harvest as soon as possible to decrease risk of lodging losses. Please see this week's Guess The Pest answer for more.

Sorghum

White sugarcane aphid, *Melanaphis sacchari*, has been detected in Delaware. This aphid made a host switch from sugarcane to sorghum and Johnson grass somewhere in Mexico or Texas in 2013. Since then, it has become one of the most important pests of sorghum in southern states. Here is a good fact sheet on aphid sampling and treatment decision making: <https://cdn-ext.agnet.tamu.edu/wp-content/uploads/2016/03/sugarcane-aphid-guide-images.pdf>. The aphids found in Delaware

were isolated hot spots, widely separated in the field and natural enemies were working them over. The easiest aphid calling card to spot is honeydew, mostly present in the lower to mid-canopy. Aphids feed on phloem sap which is rich in sugars and low in amino acids. They filter and excrete the sugars which drop onto lower leaves, making them look slick. Sooty mold will grow on the honeydew, decreasing photosynthesis in the leaf tissue underneath.



Aphid honeydew on the top of a mid-canopy leaf. Note the black sheen on the leaf.



The offending aphid colony on the underside of the leaf above the one with honeydew. Circled are two syrphid maggots feeding on the aphids.

Another problem with these aphids in southern states, where they build up to phenomenally large numbers, is that they will migrate to the heads as the plant begins dying back or senescing. The honeydew and aphid bodies have been known to physically gum up combines. Below is an image of the honeydew excreted from a colony and the second image is of the offending colony, along with two syrphid maggots chowing down on this aphid colony. Other natural enemies present include lacewing larvae with their sickle-shaped jaws, lady beetle adults and larvae, and parasitoid wasps. Honeybees and adult flies can also be spotted feeding on the honeydew excretions.

Weed Control for Early Harvested Fields Going in to Small Grains - Mark VanGessel, *Extension Weed Specialist*; mjv@udel.edu

I have been asked about options for corn fields that are being harvested early, will be sprayed with glyphosate for perennial weed control, and then will be planted to wheat. Growers are looking for options to keep these fields “clean” from the glyphosate application until wheat planting. There are not many options, with only Sharpen, Finesse, or Valor labeled for this use. Note Valor is not labeled for winter barley.

Sharpen has a short-period of residual control and fairly narrow spectrum of control.

Finesse has a fairly broad spectrum of control.

- Needs rainfall to activate it
- There are populations of common chickweed and Italian ryegrass that are resistant to it
- Will carryover to vegetables and requires STS-soybeans to be planted after small grain harvest.

Valor has a broad spectrum of control for wheat.

- It does not have the rotational restrictions of Finesse

- Label states wheat needs to be planted at least one-inch deep
- Label requires it needs to apply at least 7-days ahead of no-till planting. In our trials, the interval should be at least 14-days. But in the current situation where it will be 3 to 4 weeks before planting, there is much higher level of crop safety.

- If you are considering conventional tillage, Valor has a 30-day before wheat planting
- Vertical tillage will disrupt the Valor herbicide layer and will reduce weed control.

General

Guess the Pest! Week 21 (Oh My When Did It Become September?!?) Answer: Dectes Stem Borer - David Owens, *Extension Entomologist*, owensd@udel.edu

Congratulations to Matt Morris for correctly answering last week’s Guess The Pest Challenge. Matt has earned a sweep net which will come in handy in soybean fields and diffusing awkward encounters with strangers, because deep down inside, everyone thinks sweep nets are cool.

Dectes stem borer adults emerge from their overwintering cell in last year’s soybean, ragweed, cocklebur, and/or sunflower between June and early August and lay eggs in leaflet petioles. As soon as the egg hatches, larvae burrow into the petiole and start moving to the central stem. When they enter the stem, the petiole will sometimes wilt (Figure 1). Gently tugging at a wilted petiole will reveal a red tunnel entrance in the center of the petiole scar (Figure 2). Gently splitting open the petiole stem will reveal tunneling, and splitting open the plant stem below the petiole will often reveal the Dectes larva (Figure 3).



Figure 1. Wilted petiole caused by Dectes stem borer



D Owens, University of Delaware
Figure 2. Tunnel at the center of the petiole scar



D Owens, University of Delaware
Figure 3. Dectes larva in tunnel

I say often, because sometimes the larva disappears, most likely falling out of the plant and dying on the ground surface. Other times they will start to work on the main stem and then go back up the petiole. And sometimes you may have more than one larva in a plant. This is why they girdle plants. The root can only support one overwintering larva, so the first one down seals the stem off to any that try to follow it, cuts the plant, and leaves following Dectes out in the cold to die in the winter. Larvae are

also cannibalistic if they meet each other in the plant. Right now, larvae can be found in the main stem, few have gone down to the soil line in soybean. Plant senescence and stem drying is their cue to begin overwintering preparation.

Once inside a plant, Dectes will not be affected by insecticides. Our only management tactics are cultural: timely harvest, crop rotation, and fall disking or plowing which can reduce winter survivorship.

Guess the Pest! Week 22 - David Owens, Extension Entomologist, owensd@udel.edu

Test your pest management knowledge by clicking on the GUESS THE PEST logo and submitting your best guess. For the 2019 season, we will have an "end of season" raffle for a \$100.00 gift card. Each week, one lucky winner will also be selected for a prize and have their name entered not once but five times into the end of season raffle. A lucky winner will also receive a heavy duty sweep net.

While examining field corn maturity, you notice some lodging. Below are photos of the field and the base of the plants. What is this a sign of?





To submit your answer, please go to:
https://docs.google.com/forms/d/e/1FAIpQLSfUPYLZnTRsol46hXmqgj8fvt5f8-JI0eEUHb3QJaNDLG_4kg/viewform



Announcements

Cut Flowers 2: Advanced Annuals, Post-Harvest Handling & Season Extension

Saturday, September 28, 2019 1:00–4:00 p.m.

Masterpiece Flower Farm

7945 Old Ocean City Road, Whaleyville, MD 21872

Join us at Masterpiece Flower Farm and learn how to grow advanced annuals such as Dahlias, Ranunculus, and Lisianthus. Special focus will be given to post-harvest handling practices. We will also discuss tips

for season extension. All experience levels are welcome. (Rain Date: September 29th, same time, same place.)

This workshop will be led by farmer/owner Crystal Giesey, who is deeply committed to growing flowers sustainably and organically. Thanks to Crystal and to the organizers Future Harvest CASA and the University of Delaware.

<https://www.eventbrite.com/e/cut-flowers-2-advanced-annuals-post-harvest-handling-season-extension-tickets-64194508503>

Small Ruminant Field Day: Nutrition for Productive and Efficient Sheep and Goat Farms

Saturday, September 14, 2019

8:45 a.m.-3:00 p.m.

DSU's Hickory Hill Farm

2065 Seven Hickories Rd, Dover, DE 19904

TOPICS

- Basic nutrition for raising production sheep and goats
- Pregnancy and kidding nutrition
- Raising animals on pasture

HANDS ON DEMONSTRATIONS

- Pearson Square
- Grinding and Mixing Feed Ration
- Body Condition Scoring
- Evaluating Hay

KEY PRESENTERS

Susan Schoenian

Sheep and Goat Specialist, University of Maryland Extension

Amanda Grev

Extension Specialist, Pasture Management for Livestock Operation, University of Maryland Extension

Cost is \$15 per person! Lunch is included.

Last day to register is September 7, 2019. Register online at: <https://www.eventbrite.com/e/small-ruminant-field-day-tickets-68734886897>

For more information, to register, or for assistance due to disabilities contact:

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Mr. Daniel Severson
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210 S. College Ave
Newark, DE 19716
302-831-8860 | severson@udel.edu

Invasive Pond Plants Workshop

September 26th 5:00 p.m.
DSU Outreach and Research Center
884 Smyrna Leipsic Rd., Smyrna, DE 19977

Invasive pond plants are non-native species that spread very quickly. They threaten the diversity of other native plant species and also have a negative effect on the natural balance of local bodies of water. This presentation will give some examples of some invasive species to keep an eye out for as well as some management strategies for dealing with invasive pond plants. The presenter will be Mr. Brian O'Neill from Weeds Inc.

Aquatic Pesticide Applicator Credits: 2

This workshop is free. For more information, or for assistance due to disabilities, contact: Megan Pleasanton, Extension Educator: 302.857.6438 or mpleasanton@desu.edu

Designer Ditches Workshop

October 22 1:00 p.m.
St. Jones Reserve Coastal Training Center
818 Kitts Hummock Rd., Dover, DE 19901

Ditches can quickly move floodwaters away from our properties and roadways. This workshop will give examples on how we can help reduce erosion, and help increase the absorption of excess nitrogen and phosphorus from leaching into our waterways. Planting the right plants in our ditch areas can reduce pollution, help water soak into the ground to replenish ground water, provide habitat for birds, butterflies, and pollinators, promote diversity by planting natives, and beautify our yards.

This workshop is free. For more information, or for assistance due to disabilities, contact: Megan Pleasanton, Extension Educator: 302.857.6438 or mpleasanton@desu.edu

2019 Mid-Atlantic Crop Management School

November 19 - 21, 2019
Princess Royale in Ocean City, MD

The Mid-Atlantic Crop Management School will be held at the Princess Royale in Ocean City, MD from November 19 - 21, 2019. The school offers a 2 ½ day format with a variety of breakout sessions. Individuals needing training in soil and water, nutrient management, crop management and pest management can create their own schedule by choosing from 5 program options offered each hour. Emphasis is placed on new and advanced information with group discussion and interaction encouraged. Online registration will close at 11:59 p.m. EST on Monday, November 11, 2019. Registration Fees are \$285 by Sunday, September 15, \$295 from September 16 through October 31, and \$335 from November 1 through November 11. We look forward to seeing you there.

Registration and program details are online at:
<https://app.certain.com/profile/form/index.cfm?PKformID=0x3034320abcd>

Building Wood Duck Boxes

January 30, 2020 5:00 p.m.
DSU Outreach and Research Center
884 Smyrna Leipsic Rd., Smyrna, DE 19977

Build them and they will come. Justyn R. Foth, Ph.D., Environmental Scientist and Waterfowl, Turkey, and Upland Gamebird Biologist for DNREC, will give a brief presentation about the importance of wood ducks and why we should promote the species. You will be able to build and prepare a wood duck box and take it home with you free of charge.

This workshop is free. For more information, or for assistance due to disabilities, contact: Megan Pleasanton, Extension Educator: 302.857.6438 or mpleasanton@desu.edu

Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of August 29 to September 4, 2019

Readings Taken from Midnight to Midnight

Rainfall:

No rainfall recorded

Air Temperature:

Highs ranged from 89°F on September 2 to 80°F on September 1.

Lows ranged from 67°F on September 4 to 58°F on August 30.

Soil Temperature:

76.4°F average

Additional Delaware weather data is available at
<http://www.deos.udel.edu/>

*Weekly Crop Update is compiled and edited by
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Crops*

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