



WEEKLY CROP UPDATE

UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

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Vegetable Crops

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

Watermelon

I found a couple of aphids on my greenhouse transplants and didn't think too much of them. I set my transplant trays outside to harden off last week and came back to them this week only to find aphids had infested several trays, causing leaf cupping. In most cases, significant parasitoid pressure was present and most aphids were already transformed into parasitoid mummies. Pyrethroids will not affect green peach aphid or melon aphids, there are numerous other products that will do the job, including neonicotinoid insecticides that also pick up cucumber beetle. Cucumber beetles were observed feeding in a field that was transplanted last week. Transplants were treated prior to setting, and beetles were affected and dying. Residual activity generally lasts between 2 and 4 weeks. If chemigating insecticide through the drip tape, figure your rate based on field footprint, not plastic footprint. For example, if a product goes out at 10 ounces/acre and a field is 10 acres, then 100 ounces of product need to be delivered. If you base the rate on the amount of actual plastic (roughly 20-30% of the field area), you could be significantly undertreating! As plants are coming out of the greenhouse, be sure to also check for the presence of two spotted spider mites. On

transplants, leaf stippling will be more evident than on older plants.

Sweet Corn

The 2019 insect trapping network has largely been deployed. Trap capture data will be uploaded to the webpage as in previous years, and most recent trapping data presented here when sweet corn is closer to tasseling. You can find trap catch data here: <https://agdev.anr.udel.edu/trap/trap.php>. We are picking up low numbers of corn earworm, most likely from overwintering pupae and at this point are more of a curiosity. Scout for black cutworm damaging seedlings (3% cut plants or 10% leaf feeding).

Low pH and Nutrient Deficiencies in Vegetables - Gordon Johnson, Extension Vegetable & Fruit Specialist; gcjohn@udel.edu

As soil pH drops, availability of magnesium and calcium declines while manganese availability increases, often to toxic levels. Below pH of 5.2, the chemistry of the soil changes and aluminum is released into the soil solution at increasing levels, further acidifying the soil. This free aluminum also is very harmful to plant roots because aluminum interferes with calcium, can bind with phosphorus, and can interfere with cell expansion at root tips, effectively stopping root tip development. Most of the active mineral nutrient uptake occurs in the region just behind the root tips. Without further root tip growth, nutrient uptake will become limited. Effective rooting volume is also reduced, thus placing the

plant under additional stress. In severe cases, plants can die. During fruit formation, there will be increased incidence of blossom end rot in tomatoes and peppers in plastic beds with low pH.

The following are minimum pHs for various vegetable crops:

Crop	Min. pH
Cucumbers, cantaloupes, squash, pumpkins	5.8
Watermelons	5.5
Tomatoes, peppers, and eggplant	5.8
Cole crops (broccoli, cabbage, cauliflower, Brussels sprouts, kale, collards)	6.0
Spinach, beets, chard	6.0
Snap beans and lima beans	5.8
Sweet corn	5.8
Peas	6.0
Potatoes (scab resistant)	5.5
Carrots	5.5
Sweet potatoes	5.5
Onions	5.8

Below these pH levels, crop performance will be affected, and yields will be reduced. Lime should be applied immediately if soil pH has dropped to these values. Target pHs for vegetable crops can be found in Table B1 in the 2019 Mid-Atlantic Commercial Vegetable Production Recommendations: <https://cdn.extension.udel.edu/wp-content/uploads/2012/03/23152426/SectionB.pdf>

In the eastern US, soil pH will drop naturally due to the 45+ inches of rainfall received. In addition, if ammonium and urea containing nitrogen fertilizers are used, they will also lower pH. Ammonium nitrogen is also released from organic nutrient sources. Ammonium will convert to nitrate in the soil, a process called nitrification, and will release hydrogen (H+) ions, thus dropping the pH. As a general rule, lime should be applied to raise the pH every 3 years. After very wet years such as 2018, pH will drop more than normal or dryer years.

Plastic Mulched Beds and pH

Each year we see problems with vegetable crops

related to low pH in plastic mulched beds. A common scenario is a field with sandy soil (loamy sand, sandy loam) that has not been limed in the last 2 years. The starting pH of beds in this situation will usually be 5.5-6.0. Granular or liquid nitrogen fertilizers applied prior to or at bed formation and nitrogen fertilizers applied through the drip irrigation system during fertigation will commonly consist of ammonium sulfate, urea, ammonium nitrate or UAN (urea-ammonium nitrate) solutions. All of these fertilizers are acidifying because the ammonium which they contain (urea releases ammonium nitrogen as it reacts with the soil). As a result, pH in the plastic mulched beds gets progressively lower throughout the growing season. Beds with a starting pH of 5.5 can drop down into the 4s. The largest drops in pH will be in the wetted area around the drip emitter and drier areas of the bed will have a higher pH.

It is also possible to have low pH under plastic in organic production systems depending on the rate and type of organic material being applied. For example, blood meal used to supply nitrogen in organic systems is very soil acidifying.

Managing plastic mulched bed pH starts with making sure that fields are limed the fall before beds are to be made. Spring applications can also be made to the area, but full lime reaction should not be expected.

If marginal pHs are encountered after plastic is laid (below 5.8), manage fertilizer programs so that large pH drops do not occur. Consideration should be given to eliminating ammonium or urea containing fertilizers and switching to calcium nitrate and potassium nitrate sources for fertigation. Both these fertilizers cause a basic reaction in soils because plant roots excrete hydroxides and carbonates as they take up the nitrate. There are few other materials that can be used to raise the soil pH through the drip system once plastic is laid. One option is potassium carbonate which is alkaline and thus will raise the pH. It is fully soluble and can be made in liquid forms. Potassium hydroxide is another fertilizer that has a basic reaction and that can go through the drip system.

Liquid lime products with ultrafine ground limestone can also go through a drip system.

Recently, a finely ground (< 0.5 micron) liquid limestone-based product (Top Flow 130; Omya, Oftringen, Switzerland) was developed for agriculture use to be injected through drip irrigation tubing. It shows some promise but does not replace liming because it only affects the area around emitters about 4 inches.

Magnesium Deficiencies in Vegetables

Revisited - Gordon Johnson, Extension Vegetable & Fruit Specialist; gcjohn@udel.edu

We have seen several cases of magnesium deficiency in vegetables already in 2019. Magnesium (Mg) is considered a secondary macro-element and is essential for plant growth. It is a component of chlorophyll, the green pigment that captures light energy in photosynthesis. The chlorophyll molecule has a porphyrin ring with a magnesium atom at the center. Therefore, deficiencies of magnesium will result in reduced chlorophyll production and yellowing of plants.

In most vegetable crops, magnesium deficiency commonly first appears as yellow or white areas between the veins of older leaves. As the deficiency progresses, the yellowed areas may turn into dead spots. Older leaves in plants may also have a purple or bronze appearance and leaf tips and margins may brown and die. The plants may be stunted and have an overall yellow appearance. Symptoms are most severe on older leaves because magnesium is a mobile element in plants and will be scavenged from older leaves and transported to new growth.

In Delaware, magnesium deficiencies are most commonly found in sandy, acid soils with a pH below 5.4. Therefore, magnesium deficiencies are commonly not field wide, but will be in areas of a field with depressed pH such as "sand hills" that have been excessively leached. Often a whole field pH will be in an acceptable range so it is critical to check the soil pH in affected areas. Tissue tests should be considered to confirm the magnesium deficiency.

Excessive levels of potassium can also induce magnesium deficiency in situations where available magnesium levels are low to moderate to begin with.



G Johnson, University of Delaware
Magnesium deficiency in sweet corn.



B Watt, University of Maine, Bugwood.org 5507226
Magnesium deficiency in tomato.

Commonly, magnesium is applied to soils with dolomitic limestone (Hi-Mag lime). Sulfate of potash and magnesia (K-Mag, Sul-Po-Mag) is a naturally mined mineral deposit that can also be applied to add magnesium to soils. Other magnesium sources include magnesium sulfate (same as Epsom Salts), magnesium oxide (basic slag), and magnesium chloride.

To correct a deficiency in growing vegetables, soluble magnesium sources should be used.

Foliar applications are effective but must be applied in a dilute solution to avoid salt injury. Spray 20 lbs of a soluble magnesium source (20 lbs of magnesium sulfate for example) in 100 gallons of water per acre (10 lbs in 50 gallons or 5 lbs in 25 gallons). Dry broadcasts of 15-25 lbs of actual magnesium per acre, irrigated in, or fertigation with similar amounts from soluble sources will also be effective. Sidedress applications may also be effective at 15-20 lbs of actual magnesium per acre. For drip irrigated vegetables, soluble magnesium fertilizers can be applied through the drip system.

Magnesium deficiencies corrected early enough in the growing season will often result in little yield loss. However, it is critical to target affected fields with corrective liming for future crops in the rotation. Variable rate liming may be considered and is recommended where there is excessive variability in pH in a field.

If pH is below 5.2 and vegetables are still small, dolomitic limestone may be broadcast over the top and cultivated in to correct pH related problems. This should be coupled with a foliar magnesium application to more quickly address the magnesium deficiency.

In vine crops, low pH may also be a causal factor for manganese toxicities and you may see both magnesium deficiency and manganese toxicity in the same field.

Foliar magnesium levels for most vegetables at mid growth should be in the 0.3 - 0.6 % range (leaves).

2019 Seedling Diseases of Watermelon and Melon on Transplants - *Kate Everts, Vegetable Pathologist, University of Maryland; keverts@umd.edu*

There has been a report of a bacterial seedling disease on muskmelon ready for transplant this week. The sample in question turned out to be angular leaf spot (ALS) caused by *Pseudomonas syringae*. Recent research from University of Florida demonstrated that populations of *P. syringae* that cause ALS are very diverse. It isn't uncommon to see this disease every few years in Maryland and Delaware. Our experience has

been that if infected plants are transplanted to the field and the weather turns hot and dry, damage due to ALS may be minimal. However, prolonged cool and wet conditions will result in losses.

If conditions favor disease development, apply the labeled rates of fixed copper plus mancozeb. (Some coppers are OMRI-approved and may be able to be used in organic systems to help suppress ALS.) Continue applications at weekly intervals. In addition, to reduce ALS spread, avoid overhead irrigation when symptoms are present and avoid working in field while foliage is wet.

Nathan Kleczewski and I wrote an article a few years ago about several greenhouse diseases that occur during transplant production. The link to that information and many images of these seedling diseases can be found at: <http://extension.udel.edu/weeklycropupdate/?p=6727>

Seed Maggot Problems in Some Fields - *Jerry Brust, IPM Vegetable Specialist, University of Maryland; jbrust@umd.edu*

This spring has been pretty good for pests of early planted seeds and bulbs—the seed corn maggot *Delia platura* (SCM) and other seed maggots such as Cabbage maggot *Delia radicum* (it prefers to feed on cole crops) and Onion maggot *Delia antiqua* (it feeds on crops in the onion family). Seed corn maggot has the earliest peak flights in the spring and has a host range of over 30 crops, which include alliums and brassicas. This maggot also is often the cause of poor stands of peas. All species overwinter in the soil as a maggot inside a brown case. In March and April small, grayish-brown flies emerge (Fig. 1), usually early March for SCM and mid-April for cabbage and onion maggot. A good indicator for the first cabbage maggot peak flight and onion maggot beginning flights is the blooming of yellow rocket or wintercress. Adult flies are most active from 10 a.m.-2 p.m. and are inactive at night, in strong winds and when temperatures are below 50 °F or above 80 °F.

Female cabbage maggot flies seek out and lay eggs on the lower portions of stems of young host seedlings or in nearby cracks in the soil. Within a few days the eggs hatch and the tiny maggots burrow down to the roots and begin feeding. SCM eggs are oviposited in soils with decaying plant material or manure. The adults are also attracted to the organic media around the roots of transplants and germinating seeds. Maggots will move into small stems and move up the plant causing a swelling of the stem just above ground level, while also causing root collapse and decay. If these stems are split you will usually find the white cylindrical larvae (Figs. 2 and 3).

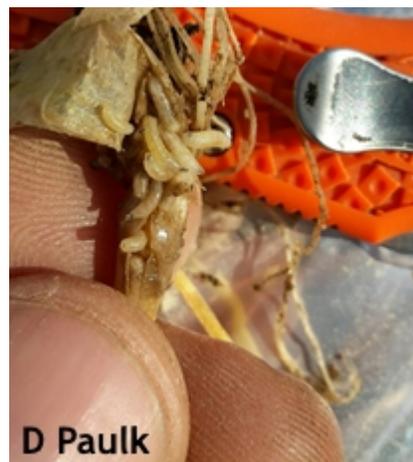
soil borne pathogens. The maggots also can burrow into the bulb or stem of transplants such as watermelon or cantaloupe as well as cole crops or garlic and onions.



Figure 1. Adult seedcorn maggot fly

Soil temperatures three inches deep in the planting hole that are at or above 70° F reduce SCM egg laying and larval survival. If soil temperatures are above 70° F at planting but fall below this level for several days in a row SCM adults will begin to oviposit eggs at the base of transplants. When wilted transplants are inspected in the field, maggots are often not found (they have already pupated), but their tell-tale damage can be seen as a hollowed-out stem or root held together by a few strands of plant material.

Seed maggots cause damage by burrowing into seeds or cotyledons and hollowing them out. Although it can take 5 maggots per snap bean seed to cause significant damage, once the seed has been opened up by the maggots the seed becomes much more susceptible to invasion from



Figures 2 and 3. Seedcorn maggots in stems of transplants

Management: The use of treated seed or in-row banding of an insecticide gives some control of SCM, however, once seed corn maggot damage is noticed, it is too late to apply control procedures. Thus, economic thresholds are not useful and all management options are preventative. Replacing the dead seedlings or transplants is the only solution after SCMs kill a plant. Wait at least 5 days if maggots are a quarter inch long; if they are smaller than that, wait 10 days to make sure they have pupated and cannot damage the new seeds or plants. Overcast wet conditions and fields with moist, heavy-textured soil usually have the worst problems. Avoid planting a crop following root crops or cole crops such as cabbage and

cauliflower or after fall tomatoes. Later-season plantings may avoid the early season infestation of SCM. For crops like onions or garlic row covers can be used as soon as transplants are put in the field. Plants can remain covered until the ground warms. Diazinon as a broadcast application before planting can be used with some vegetables, as well as post planting options using applications of Malathion or pyrethroids (be sure to check the label for each crop and see the [2019 Commercial Vegetable Production Recommendations](#) guide).

Fruit Crops

Fruit Drop in Tree Fruits - Gordon Johnson, *Extension Vegetable & Fruit Specialist*; gcjohn@udel.edu

Fruit trees commonly set more fruit than they will carry and chemical, mechanical, or hand thinning is done to reduce fruit loads, increase fruit size, and limit alternate year bearing. Natural fruit drop also occurs and is often called "May Drop" or "June Drop". This is often accompanied by some leaf drop, especially in stone fruits.

Natural fruit drop is a result of unfertilized or poorly fertilized seeds, cold injury, competition between fruits, or shading. Poor pollination may be a result of cold, rainy weather during bloom in self-fertile fruits such as peaches or poor insect pollinator activity during flowering in insect pollinated fruits such as apples. In stone fruit, some fruit that is not fertilized will remain on the plant for 25-50 days after bloom and then will drop before pit hardening starts.

Another wave of natural fruit drop occurs in late May or early June. This fruit drop is due to competition between fruit for sugars stored and produced by the tree. A tree can only carry a certain load of fruit and will naturally drop smaller and weaker fruit during this period. However, thinning should have been accomplished before this competitive fruit drop occurs. Having fruit remain on the plant until natural competitive drop will use up food reserves in the plant and reduce the size potential of remaining fruit. Fewer cells will have been produced by the fruit remaining on

the plant and therefore fruit size will not be recovered.

Another cause of fruit drop is cloudy weather during the period 5 to 7 weeks after bloom. A continuous 4-day period of cloudy days during this period will also cause fruit to drop. In addition, defoliation due to disease such as peach leaf curl, chemical injury such as copper fungicide damage, or severe storms can cause fruit drop during this critical period.

Agronomic Crops

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

Watch out for seedcorn maggot this week and next if you are working a cover crop in. Seedcorn maggot peak second generation activity is predicted. This does not mean that flies can't affect a stand after the peak date. Fields with cool soil, higher organic matter and incorporation of a green cover crop are at greater risk. This doesn't mean SCM will show up; it can be a spotty pest. They sometimes also show up if only a couple of these variables are present.

Be sure to scout corn for early season Lepidopteran pests. True armyworm larvae can be found in seedling corn. Thresholds are pretty high, 25% infested plants. Although true armyworm moth activity seems to have diminished in the area, black cutworm moths are active. It takes 300 degree days base 50 °F for eggs to hatch and larvae grow large enough to cut plants. Having said that, some large larvae have been reported in low numbers cutting seedlings. Signs of early larvae are multiple circular holes in a straight line across the leaf blade. Thresholds are 10% feeding damage or 3% cut seedlings in 1-2 leaf corn.

Although it has been warm and windy this spring and slug counts in fields that were heavily affected last year are much lower, do be on the lookout for slug activity. We found slug eggs present in some areas this week; when they hatch, juvenile slugs can cause quite a bit of feeding injury.

Early Season Moth Activity

Trap Location	True Armyworm per night	Black Cutworm per night
Willards, MD	0.3	0.7
Salisbury, MD	0	1.3
Laurel, DE	0.2	2.8
Seaford, DE	1	1
Bridgeville, DE	0	0.7
Harrington, DE	0	3.7
Smyrna, DE	0.2	11
Kenton, DE	0.3	1.7
Pearson's Corner, DE	0.1	3.1
Sudlersville, MD	0	5.1

Wheat Disease Update - Alyssa Koehler, *Extension Field Crops Pathologist*; akoehler@udel.edu

We have had quite a few rain events with more in the forecast for this weekend. The rain and warm temperatures are maintaining another high-risk year for Fusarium Head Blight. If your wheat is close to flowering or, already flowering and you are considering a fungicide application, the optimal window is anthesis until about 5 days after. Once wheat has finished flowering, if your plants were infected, FHB symptoms will be visible in 18-24 days. Next week we will discuss steps for scouting and assessment of FHB damage.

We have seen a few lesions caused by *Parastagonospora nodorum* (formerly *Stagonospora nodorum*). Symptoms include small brown lesions with a yellow halo (Figure 1). This fungus causes Septoria nodorum blotch, also be referred to as Stagonospora nodorum blotch, and it is the same causal agent of Stagonospora glume blotch. Since leaf blotch precedes glume blotch, lesions high in the canopy and on the flag leaf can indicate an elevated risk for glume blotch.



A Koehler, University of Delaware

Figure 1: Septoria nodorum blotch lesions on wheat leaves

Irrigated Soybean Seeding Rates - Jarrod O. Miller, *Extension Agronomist*, jarrod@udel.edu and Cory Whaley, *Sussex Co. Extension Ag Agent*; whaley@udel.edu

Research was conducted on irrigated soybean seeding rates at the Warrington Research Farm in 2017 and 2018. Soybeans were planted in 15" rows at rates of 80, 100, 140, and 170 thousand seeds per acre in irrigated and dryland plots. No yield advantage was observed at higher seeding rates, while the use of irrigation improved yields by an average of 7 bu/acre over both years. With no difference in yield by seeding rate, projected income was greater at the lowest seeding rate of 80k seeds.

This represents only two seasons of research on one soil type, but does indicate that Delaware soybean producers could potentially lower their seeding rates and not see a decrease in yield.

To read the full report see: https://www.researchgate.net/publication/329811290_2017-2018_Irrigated_Soybean_Seeding_Rates

Growing Degree Days (GDD) and Rainfall through May 7th - Jarrod O. Miller, Extension Agronomist, jarrod@udel.edu

Compared to last year, our soils and weather have been more conducive to planting. Our no-till fields at the station have been the best to plant in this year, while rainfall this weekend has slowed some work in fields that received conventional tillage.

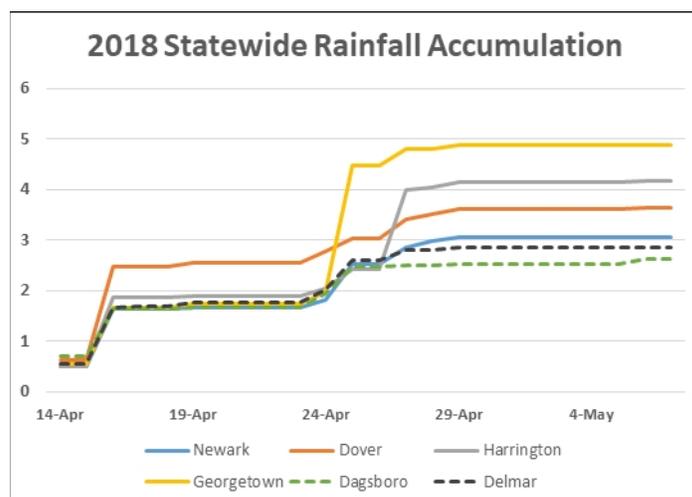
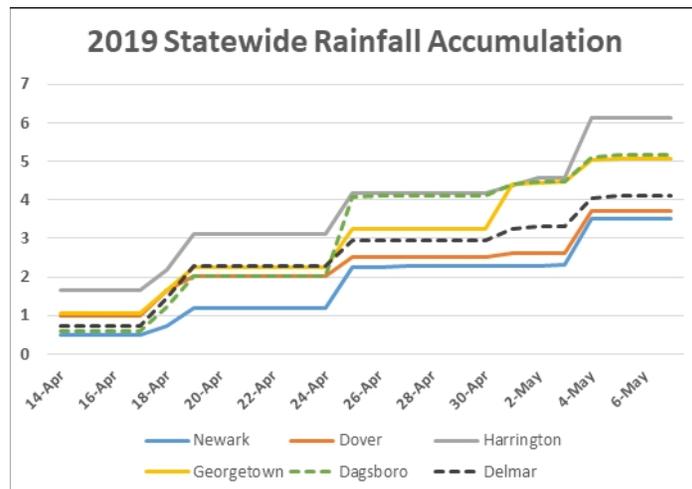
If you have been scouting your fields, there should certainly be some corn emergence across the state. It takes up to 120 GDD to see corn emergence, and fields planted by April 28th in Sussex County should all have emergence. Only New Castle County has been cool enough to slow emergence, but any field planted by last Sunday should still see corn pushing through in the next few days.

Table 1: Accumulated growing degree days based on planting dates through September 4th.

If you planted→	Apr 14	Apr 21	Apr 28
Sussex	304	214	132
Kent	285	192	117
New Castle	276	189	109

Emergence = 120 GDD, V6 = 475 GDD.

Similar to 2018, there is a variable amount of rain that has fallen across the state since April 14th. The region around Harrington has received the most, at almost 6 inches in the last few weeks, while Newark and Dover have received about 3.5 inches. In 2018, Georgetown had almost 5 inches at this point, similar to 2019. While the total amount of rainfall across the state between 2018 and 2019 is similar, the major difference is the size of the storms. In 2018 Georgetown observed an event that deposited almost 3 inches, while this year we have received several 1 inch events over several weeks, giving soils enough time to drain and dry out.



Nitrogen Fertilizer Additives - Jarrod O. Miller, Extension Agronomist, jarrod@udel.edu

Nitrogen (N) can be found in many forms in the soil, some of which can be lost as a gas or through leaching. Some commercial products have been developed to keep N in available forms that are not easily lost until the plant can take them up. These include Agrotain Ultra, Nutrisphere-N, NZone, and Instinct. In a recent study on urea granules, only Agrotain Ultra was successful in slowing the transformation of urea into ammonia, which can be lost as a gas. Both Nutrisphere-N and NZone were not successful.

Nitrification is a process that transforms N into nitrate, a plant available, but easily leached form of N. This same study also observed nitrification with urea, SuperU granules, and urea treated with Nutrisphere-N, NZone, or

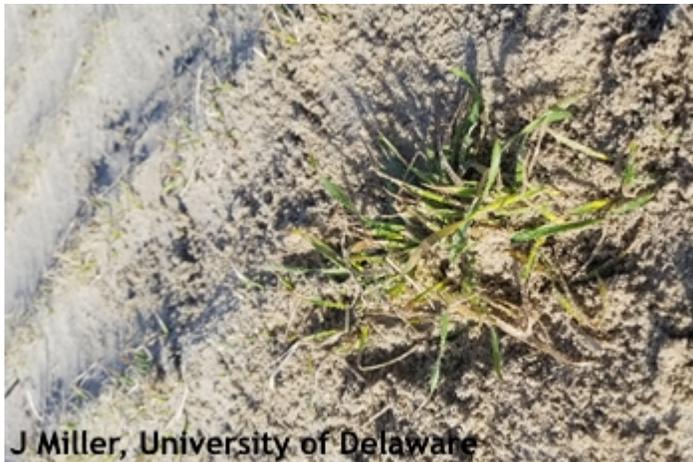
Instinct. Of these products, only Super U granules and those treated with Instinct had slower nitrification. Both Nutrisphere-N and NZone were not successful.

The study can be found in the Agronomy Journal and currently has open access to the public: <https://dl.sciencesocieties.org/publications/aj/articles/111/3/1441>

General

Guess the Pest! Week 4 & 5 Answer:
Blowing Sand Burial - David Owens, Extension Entomologist, owensd@udel.edu

Congratulations to Richard Wilkins for correctly guessing this week's GTP as wind driven sand burial. Richard will be sent a sweep net, which I suppose might be semi-useful for brushing sand off of plants, and his name and other correct participants will be entered in the end of season raffle. Wind-blown sand is another reason early season vegetable growers are fond of putting in rye strips to help shield tender transplants. I am convinced we live on some of the windiest ground in the East.



The wheat in last week's photo could be described as sandblasted, where damage occurs from windblown sand to plant tissues. However, this type of damage is more associated with corn in the Mid-West, while this wheat was suffering from sand burial. From the aerial image it is more obvious that the road and field with no cover were a source of wind erosion, allowing an accumulation of sand that didn't kill the wheat, but simply buried most of the tillers, giving the

appearance of poor plant growth. When the wheat was uncovered the plant was still (at the time) healthy.



Guess the Pest! Week 6 - 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.

This week is another potentially tricky scenario of "What's going on?", this time in peas. Herbicides were not involved in this one.



To submit your answer, please go to:
https://docs.google.com/forms/d/e/1FAIpQLSfU-PYLZnTRsol46hXmqgj8fvt5f8-JI0eEUHb3QJaNDLG_4kg/viewform



Spotted Lanternfly Hatch Out as Temperatures Rise - *Stacey Hofmann, Chief of Community Relations, Delaware Department of Agriculture; Stacey.Hofmann@delaware.gov*

The steady increase in daily temperatures has spurred spotted lanternfly nymphs to hatch out of their egg masses. While the hatching will continue for the next few weeks, this causes concern for businesses, residents, and the agriculture industry because this notorious hitchhiker will be on the move.

“From the time we enacted the emergency quarantine in March, New Castle County residents and businesses had a window of time to look for and destroy spotted lanternfly egg masses,” said Jessica Inhof, Delaware Department of Agriculture Plant Industries Administrator. “We had a good response from the public on taking action against this invasive

pest, learning what the quarantine means, and from businesses engaging in the permitting process. Now that the insect will be mobile, regulated articles moving within and out of the quarantine zone need to be inspected.”

The Delaware Department of Agriculture (DDA) quarantined eleven zip codes in New Castle County to eradicate, control, and prevent the spread of spotted lanternfly in Delaware and to surrounding states. The following zip codes in New Castle County are quarantined in their entirety: 19702, 19703, 19707, 19711, 19801, 19802, 19803, 19805, 19807, 19809, and 19810. The quarantine can expand if there is reason to believe that the pest has moved to a non-quarantined area. Spotted lanternfly nymphs and adults can fly, hop, or drop onto a vehicle - meaning this pest can easily be transported to new areas where it can create another infestation.

“We know from working with this pest that as many egg masses destroyed from the ground, there are that many, if not more, up in the tree canopy, that people cannot access,” said Stephen Hauss, DDA Environmental Scientist. “As the nymphs move down to find nutrition, these are the ones we need to work to eradicate this year.”

The spotted lanternfly is a destructive invasive plant hopper that attacks many hosts including trees, shrubs, orchards, grapes, and hops. The insect is detrimental to Delaware’s agricultural industry, forests, and residential areas. Due to quarantines in other states, interstate commerce will be impacted if the pest is transported out of the Delaware quarantine area.

Examples of regulated articles include:

- Any living life stage of the spotted lanternfly
- Landscaping, remodeling, or construction materials
- Firewood of any species
- Packing materials (e.g. wood crates, boxes)
- All plants and plant parts including all live and dead trees, perennial and annual plants, and mulch

- Outdoor household articles like RVs, lawnmowers, chairs, grills, tarps, tile, stone, deckboards, and other vehicles not stored indoors.

In order to move regulated items, the general public will need to complete a residential compliance checklist indicating they inspected and know that no living life stage of the spotted lanternfly is present on the articles. The checklist is available online at <https://de.gov/hitchhikerbug>.

Any person conducting business for a commercial business, municipalities, or a government agency that requires movement of any regulated item within or from the quarantine area must have a permit, available through the DDA spotted lanternfly website. To obtain a permit, a designated individual from an organization must receive training and pass an online test to demonstrate a working knowledge and understanding of the pest and quarantine requirements. Training of other employees, inspection of vehicle and products, and removal of living stages of spotted lanternfly must be completed. The permit demonstrates the individual understands how to identify the pest and can ensure the items transported are not carrying the insect.

For more detailed information regarding the emergency quarantine, permitting, treatment, or to report a sighting of spotted lanternfly, visit the Delaware Department of Agriculture's dedicated spotted lanternfly webpage at <https://de.gov/hitchhikerbug> or call the dedicated spotted lanternfly hotline at (302) 698-4632. When leaving a message, leave your contact information and, if reporting a sighting, please provide the location of the sighting.



Delaware Department of Agriculture
Unhatched spotted lanternfly egg mass



Delaware Department of Agriculture
Hatched spotted lanternfly egg mass



Delaware Department of Agriculture
Spotted lanternfly nymphs

Announcements

Spring Pasture Walk

Thursday, May 21, 2019 6:00 - 8:00 p.m.
Whitehead Cattle Company
1303 Dexter Corner Rd, Townsend, DE 19734

Credits: Nutrient Management (0.75) Pesticide credit(1.0)

Come and see how Whitehead Cattle Company uses pasture to effectively feed their beef herd. Learn how to identify weeds and how to control them in a pasture setting. In addition, learn about soil health and how healthy soil is the key to making farms more productive, profitable and resilient—and better prepared to meet the challenges of the 21st century. Learn how to take a hay sample and visually evaluate hay. The workshop will also feature a talk on Pesticide safety - responsible decision-making and actions to protect pesticide users, public health, plant and animal health, and the environment

The meeting is free and everyone interested in attending is welcome. If you have special needs in accessing this program, please call the office two weeks in advance.

To register or request more information, please call our office at (302)831-2506. Please call to register by Friday, May 10.

AGENDA

Welcome and Introductions

6:00-6:05
Dan Severson, University of Delaware Cooperative Extension

Tour of Pastures and Pasture Management

6:05-6:20
George and Lynda Whitehead, Whitehead Cattle Company

Weed Identification and Control in Pastures

6:20-6:50
Quintin Johnson, University of Delaware Cooperative Extension

Pesticide Safety

6:50-7:15
Dr. Kerry Richards, University of Delaware Pesticide Safety Education Program

Soil Health

7:15-7:40
Jayme Arthurs, NRCS Research Conservationist

Proper Hay Sampling and How to Visually Evaluate Hay

7:40-7:55
Dan Severson, University of Delaware Cooperative Extension

Wrap up and Evaluations

7:55-8:00
Dan Severson, University of Delaware Cooperative Extension

DSU Blueberry Field Day

Tuesday, June 18, 2019 8:30 a.m. to 2:30 p.m.
Delaware State University
Outreach & Research Center
884 Smyrna-Leipsic Road, Smyrna, DE

Topics:

- soil pH testing will be done before workshop starts
- blueberry planting and management
- post-harvest handling
- pest management

This workshop is free but please call 302-857-7796 or email Lnpaudel@desu.edu to register.

New Castle County's Marl Pit Tailgate Session

Tuesday, June 4, 2019 6:00 – 8:00 p.m.
UD Cooperative Extension Research Demonstration Area
¾ Mile east of Armstrong Corner, on Marl Pit Rd. – Road 429, Middletown

Bring a tailgate or a lawn chair

Join your fellow producers and the UD Extension team for a discussion of this year's demonstration trials and current production issues. Other topics will include nutrient management, pest management and weed management. This session will inform producers of timely topics observed and occurring in 2019. An overview of ongoing research in New Castle and state-wide will also be included.

We will wrap up with the traditional ice cream treat.

Credits: Nutrient Management (1), Pesticide (1)

The meeting is free and everyone interested in attending is welcome. Mark your calendar and call (302) 831-2506 to register by Friday, May 24. If you have special needs in accessing this program, please call the office two weeks in advance.

Welcome and Introductions

6:00-6:05

Dan Severson, University of Delaware Cooperative Extension

Overview of Small Grains Variety Trials at Marl Pit

6:05-6:10

Victor Green, University of Delaware Extension

Weed and Cover Crop Update

6:10-6:30

Mark VanGessel, University of Delaware Cooperative Extension Weed Specialist

2019 Insect Pest Outlook

6:30-6:50

David Owens, University of Delaware Extension Entomologist

*Each year brings different pest management challenges. Issues from 2018 will be reviewed, and stakeholders advised what to be on the lookout for in 2019. Current projects include cover crops, slug management research, *Dectes stem borer*, and prophylactic insecticides.*

Nutrient Management Update

6:50-7:10

Amy Shoher, University of Delaware Extension Nutrient Management Specialist

Agronomy Update

7:10-7:30

Jarrod Miller, University of Delaware Extension Agronomy Specialist

Agronomic updates over the last year include cover crop impacts on cash crop stands, tissue tests for critical nutrients, and some research into planting populations for wheat.

Plant Pathology Update

7:30-7:50

Alyssa Koehler, University of Delaware Plant Pathologist Specialist

Discussion will cover common disease symptoms, growth stages most susceptible to disease, fungicide

application methods and associated costs, as well as in season scenarios that may affect fungicide decisions.

Conclusion and Evaluations

7:50-8:00

Dan Severson, University of Delaware Cooperative Extension

Small and Mid-Size Farm Equipment Sharing Survey

Future Harvest: Chesapeake Alliance for Sustainable Agriculture is seeking input from small to mid-scale farms located on the Delmarva Peninsula to gauge interest in -- and feasibility of -- a Delmarva-based equipment sharing program!

Equipment sharing programs can provide access to tools and equipment that might otherwise be too specialized, too costly, or not needed frequently enough to justify purchase by an individual farm. Other potential benefits of tool sharing include the ability to:

- Try before you buy
- Experiment with new crops
- Improve cover crop performance
- Adopt better soil health management

Please take the survey below by Monday, May 20th to help us determine interest in and feasibility of a tool and equipment sharing program. If access to a pool of shared tools and equipment were available, would you participate? To [take the survey](#) go to:

<https://www.surveymonkey.com/r/L75C5M5>

Questions? Contact Lisa Garfield at

lisa@futureharvestcasa.org

www.futureharvestcasa.org

Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of May 2 to May 8, 2019

Readings Taken from Midnight to Midnight

Rainfall:

1.15 inch: May 2
0.04 inch: May 3
0.01 inch: May 4
0.59 inch: May 5
0.03 inch: May 6

Air Temperature:

Highs ranged from 86°F on May 2 to 60°F on May 5.

Lows ranged from 60°F on May 4 to 50°F on May 7

Soil Temperature:

68.8°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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