



WEEKLY CROP UPDATE

UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

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Vegetable Crops

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

Cole Crops

As soon as plants are set in the field, be sure to sample for cabbage looper and diamondback larvae. A treatment will be needed before larvae move into the hearts of the plants. You should also watch for the first Harlequin bugs in cole crops. In general, most of the "worm" materials are not effective on Harlequin bugs. The pyrethroids have provided control in years past.

Lima Beans

As soon as pin pods are present, be sure to watch carefully for plant bug and stinkbug adults and nymphs. Also be sure to begin sampling the earliest planted fields for corn earworm. A treatment will be needed for corn earworm if you find one corn earworm larvae per 6 foot-of-row.

Peppers

Depending on local trap catches, sprays should be applied on a 7 to 10-day schedule once pepper fruit is $\frac{1}{4}$ - $\frac{1}{2}$ 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>. You will also need to consider a treatment for pepper maggot. Be sure to also watch carefully for beet armyworm larvae since they can quickly defoliate plants. In addition, be sure to use a

material that provides beet armyworm control - the pyrethroids have not provided control of this insect in past years.

Snap Beans

You will need to consider a treatment for corn borer and corn earworm populations in processing and fresh market snap beans. Sprays are 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 (<http://agdev.anr.udel.edu/trap/trap.php>) or call the Crop Pest Hotline (302-831-8851) for the most recent trap catches to help decide on the spray interval between the pin stage and harvest for processing snap beans.

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

Sweet Corn

Continue to sample all fields through pre-tassel stage for whorl feeders. A treatment should be applied if 12-15% of the plants are infested with larvae (regardless of the species). The predominant whorl feeder continues to be 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 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/>. You should also continue to watch for aphids and apply sprays before populations explode. Be sure to refer to the [Commercial Vegetable Production Recommendations](#) for materials labeled on sweet corn for aphid control.

Sulfur, Calcium, and Boron for Cole Crops - *Gordon Johnson, Extension Vegetable & Fruit Specialist; gcjohn@udel.edu*

Apart from recommended NPK fertility programs, growers of cabbage, broccoli, cauliflower, Brussels sprouts, kale, and collards need to pay attention to sulfur, calcium, and boron in their cole crop fertility programs.

In vegetable crops, sulfur removal is generally in the 10-20 lb/A range. Mustard family crops (cole crops, mustards, turnips and radishes) remove between 30 and 40 lbs/A of sulfur.

Most of the sulfur in the upper part of the soil is held in organic matter. Upon mineralization, sulfur is found in the soil as the sulfate ion (SO_4^{2-}) which has two negative charges. The sulfate ion is subject to leaching, especially in sandy textured soils (loamy sands, sandy loams). It does accumulate in the subsoil but may not be available for shallow rooted vegetables.

Sulfur can be added by using sulfate containing fertilizers such as ammonium sulfate, potassium sulfate, and K-mag (sulfate of potassium and magnesium). It is also a component of gypsum (calcium sulfate). In liquid solutions, ammonium thiosulfate is often used as the sulfur source. Sulfur is also found in manures and composts.

For example, broiler litter has about 12-15 lbs of sulfur per ton.

Calcium deficiency is most commonly seen as tipburn of cauliflower, cabbage, and Brussels sprouts. This problem can cause severe economic losses. Tipburn is a breakdown of plant tissue inside the head of cabbage, individual sprouts in Brussels sprouts, and on the inner wrapper leaves of cauliflower. It is a physiological disorder which is associated with an inadequate supply of calcium in the affected leaves, causing a collapse of the tissue and death of the cells. Calcium deficiency may occur where the soil calcium is low or where there is an imbalance of nutrients in the soil along with certain weather and soil nutrient conditions, such as high humidity, low soil moisture, high potash or high nitrogen, all of which can reduce calcium availability. Secondary rot caused by bacteria can follow tipburn and heads of cauliflower can be severely affected. Some cabbage and cauliflower cultivars are relatively free of tipburn problems.

Cabbage varieties with good resistance to tipburn include Artost, Blue Vantage, Bobcat, Cecile, Emblem, Green Cup, Megaton, Padok, Platinum Dynasty, Quick Start, Royal Vantage, Solid Blue 780, Superstar, Thunderhead, and Vantage Point. Check with your seed supplier for tipburn ratings for other varieties.

Controlling tipburn starts with managing liming so that soil pH is above 6.0. Avoid using only ammonium forms of nitrogen, and ensure an adequate and even supply of water. Adjust planting date so that head maturation occurs during cooler temperatures. Plant a cultivar that is less susceptible to the disorder. In general, calcium foliar sprays have not been shown to be effective for controlling tipburn incidence.

Cole crops have a high boron requirement. Symptoms of boron deficiency vary with the cole crop. Cabbage heads may simply be small and yellow. Most cole crops develop cracked and corky stems, petioles and midribs. The stems of broccoli, cabbage and cauliflower can be hollow and are sometimes discolored. Cauliflower curds become brown and leaves may roll and curl. It is important to note that cole crops are also sensitive to boron toxicity if boron is over-

applied. Toxicity symptoms appear as scorching on the margins of older leaves.

It is recommended in broccoli and kale to apply 1.5-3 pounds of boron (B) per acre in mixed fertilizer prior to planting. In Brussels sprouts, cabbage, collards and cauliflower, boron and molybdenum are recommended. Apply 1.5-3 pounds of boron (B) per acre and 0.2 pound molybdenum (Mo) applied as 0.5 pound sodium molybdate per acre with broadcast fertilizer. Boron may also be applied as a foliar treatment to cole crops if soil applications were not made. The recommended rate is 0.2-0.3 lb/acre of actual boron (1.0 to 1.5 lbs of Solubor 20.5%) in sufficient water (30 or more gallons) for coverage. Apply foliar boron prior to heading of cole crops.

Bacterial Spot and Canker Bad This Year in Tomato Fields - Jerry Brust, IPM Vegetable Specialist, University of Maryland; jbrust@umd.edu

There are several bacterial diseases that are turning up in many Maryland tomato fields this year. The wet weather we had in June (2-4X as much rain as normal) resulted in the spread of some of our worst bacterial diseases: bacterial spot *Xanthomonas campestris* pv. *vesicatoria*, bacterial canker *Clavibacter michiganensis* pv. *michiganensis* and less common bacterial speck *Pseudomonas syringae* pv. *tomato*. Most tomato fields I have looked at in the last 3-4 weeks seem to have at least some if not a considerable amount of bacterial spot disease in them that has moved from leaves (Fig. 1) onto the pedicels and flowers (Fig. 2). Infection of the flower or pedicel with bacterial spot is serious, causing early blossom drop. From the pedicel the next stop for the bacteria, after a heavy thundershower, will be the fruit. The other commonly encountered bacterial disease is bacterial canker. This disease is a real yield killer and is difficult to manage once it gets into a field. Unfortunately 2015 seems to be an especially bad year for the disease, as was last year. A concern I have that this bacterial problem seems to be getting worse each year we have had an extended wet period. There are two main types of infections from this bacterial

disease. A systemic infection of plants where leaflets of the oldest leaves curl, yellow, turn brown and collapse and plants usually grow poorly and wilt (Fig. 3). In addition dark streaks may develop on stems and branches break off easily. Secondary infections most commonly consist of the leaf margins turning yellow and then brown and almost black (Fig. 3). Bacterial canker symptoms on fruit appear as yellow to brown spots surrounded by a white halo -- "bird's eye spot".

I have seen these bacterial disease problems (especially canker) continue on farms that seemed to have followed all the recommended management practices for control of bacterial spot and canker (i.e. rotate fields out of solanaceous crops for 2-3 years, clean and sanitize stakes and farm equipment and use certified seed). Now the question becomes, What else needs to be done to stop/slow the spread of these diseases on a farm? One thing many growers have told me, although not in all cases, is that their seed is no longer heat treated. I am not saying this must be the source of the bacterial diseases, I do not know the source of the diseases for the different farms, but clean seed is certainly one component of an integrated management program for bacterial diseases that needs to be considered. The other potential sources of the bacterial infections besides the seed that need special attention include making sure there are no tomato volunteers or Solanaceous weeds like night shade left in rotated fields during the 'non-crop' years. These alternative hosts can still become infected and propagate the bacterial diseases each season. Making sure any field equipment and stakes have been cleaned and sanitized very well is also important. I have noticed that growers that integrate Actigard into their spray programs appear to have fewer problems with bacterial diseases than growers who use the same spray programs without Actigard (although it may be that these growers just have different overall management programs for bacterial diseases). All of these management practices will help reduce the incidence of the bacterial diseases. It also may be that there are other overlooked, but important sources of these bacterial diseases that will need to be examined more closely in the coming seasons.



Figure 1. Bacterial spot on a tomato leaflet

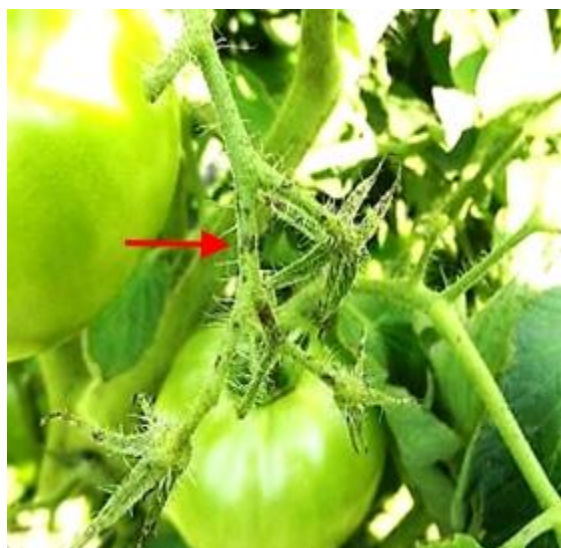


Figure 2. Bacterial spot on tomato pedicels and flowers, which will cause blossom drop



Figure 3. Bacterial canker on tomato in late July

Bad Year for Stink Bugs - Jerry Brust, IPM Vegetable Specialist, University of Maryland; jbrust@umd.edu

In the last 3-4 weeks I have been seeing fairly substantial amounts of stink bug damage in tomatoes throughout much of Maryland with the worst being in the southern part of the state. This stink bug damage has not been caused by the brown marmorated stink bug; all the damage I have seen has been from our native brown (*Euschistus servus*) and green stink bugs (*Chinavia hilaris* or *Acrosternum hilare*). These two stink bugs are seen every year, or at least their damage is, in tomatoes and peppers (Fig. 1). They feed by inserting their mouthparts into the fruit and withdrawing the liquid contents of cells, when nymphs feed on fruit they leave behind 'star-burst' patterns in the skin of the fruit (Fig. 2). This feeding leaves behind empty cells that are filled with air and appear as white slightly sunken areas known as 'cloudy spot'

under the skin of green tomato or pepper fruit and as yellow sunken areas in red fruit. Peel away this outer skin and a spongy white area is found underneath (Fig. 3). This damage usually makes the fruit unmarketable. If you search for the pests you often have a hard time finding them as they will become frozen and drop from the plant onto the ground at the first sign of disturbance. The adults can be seen at times in the early morning feeding, but as the day becomes hotter they tend to move into the center of the plant. Stink bugs also feed extensively at night, which is another reason they are difficult to scout for. At times the nymphs can be found in the interior of the tomato or pepper plant where they feed on foliage and fruit. Often the only thing that alerts you to their presence is the damaged fruit, and by then it is too late. Normally we see a small amount of damage to the fruit along the field edges, especially if these edges border woods. But for the last two years we have seen much more extensive feeding damage throughout tomato and, to a lesser extent, pepper fields.

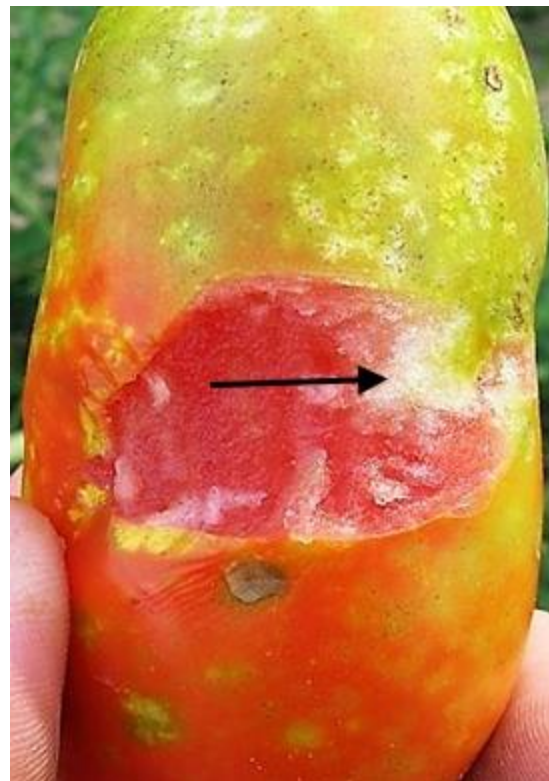


Figure 3. Outer epidermal layer removed showing white spongy cells underneath



Figure 1. Stink bug feeding damage to tomatoes

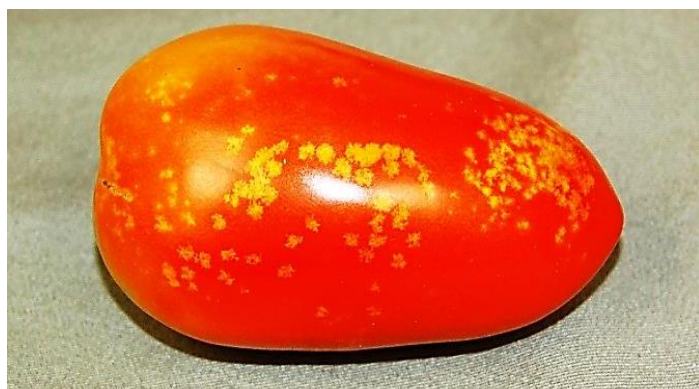


Figure 2. Feeding damage by stink bug nymphs causing star-burst patterns

I wish there were some simple straight forward recommendations I could give to growers as to how to manage these pests, but there are none. Try as we might no one has come up with a good sampling program for stink bugs. While we have come up with traps for the brown marmorated stink bug that have been somewhat useful, there are no effective traps for monitoring our more common stink bug species. That means we have to rely more on scouting for them, which has proved to be ineffective. Growers should look for any cloudy-spot damage in their fields starting on the edges nearest any woods. If feeding damage is found and there is a history of stink bug damage then a spray directed into the center of the plant at a high gallons per acre rate (100gal/a at least) is needed. Pyrethroids are generally recommended, but some growers have found they do not give satisfactory control (I think this is more do to not directing the nozzles correctly and by not using enough water/acre). Using neonics such as Scorpion or Venom and combo products such as Endigo, Leverage, Durivo, etc. are alternative control strategies that have proven efficacious for stink bug management.

Agronomic Crops

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

Alfalfa and Grass Hay Crops

Continue to watch for defoliators in grass hay crops and alfalfa. Significant damage can occur in grass hay fields from true armyworm and fall armyworm. It is important to catch populations before significant damage has occurred and when larvae are small. In addition to checking labels for rates, be sure to check for all restrictions including, but not limited to, comments on control under high populations and size of larvae; days to harvest and forage/silage restrictions. No thresholds are available; however, controls should be applied before significant defoliation occurs.

Soybeans

We continue to find defoliators (Japanese beetles, grasshoppers, green cloverworm, soybean loopers, fall armyworm and yellow striped armyworm) in both full season and double crop soybeans. In some fields, we have seen a significant increase in green cloverworm and soybean looper populations. As a general guideline, treatment decisions for defoliators should be based on the following defoliation thresholds:

(a) Full Season Plantings - 30% defoliation pre-bloom; 15% defoliation from bloom through the end of pod fill; 35% - 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.

As far as soybean loopers, this insect is a migratory pest and in past years we have seen it cause significant defoliation in outbreak years. It is often a problem in dry years. Since resistance to pyrethroids has been documented in states to our south, a non-pyrethroid option will need to be selected if they become a problem. We also have other looper species in our fields so proper identification is important. The following link

from Virginia includes pictures to help with identification

<http://blogs.ext.vt.edu/ag-pest-advisory/soybean-loopers-are-infesting-soybeans-in-north-carolina/>

We are also seeing an increase in native stink bug populations, especially in fields that have reached the R-5 stage (beginning seed - seed is 1/8 inch long (3 mm) long in the pod at one of the four uppermost nodes on the main stem). Brown marmorated stink bug populations remain low and are only being found along field edges that border woods in New Castle and Kent Counties. Economic damage from stink bugs is most likely to occur during the pod development and pod fill stages. You will need to sample for both adults and nymphs when making a treatment decision. Available thresholds are based on beans that are in the pod development and fill stages. As a general guideline, we are using a new threshold in the Mid-Atlantic Region -- 5 stink bugs per 15 sweeps. This is the threshold for soybeans produced for grain. If you are producing soybeans for seed, the threshold is still 2.5 per 15 sweeps.

We continue to find low levels of small corn earworm larvae, mainly in double crop fields. Moth catches in both black light traps and pheromone traps continue to increase so it is important to watch for corn earworm in fields throughout the state. When populations are high, corn earworm larvae also feed on soybean leaves, so you should include them in the mix when scouting for defoliators. Once pods are present, a treatment decision should be made for corn earworm using the Corn Earworm Calculator - developed in VA and NC (<http://www.ipm.vt.edu/cew/>) - since it will provide the best decision making information based on the actual treatment cost and bushel value you enter.

Time to Think About Winter Grazing - Richard Taylor, Extension Agronomy Specialist; rtaylor@udel.edu

Although it still feels like the middle of summer, now is the time to start thinking about those

costly hay bills that occur over the winter months. One way to avoid these bills is to make use of a forage practice called fall accumulated forage. This practice can be used if you have pastures dominated by orchardgrass or perennial ryegrass for extending late-fall grazing, but the most versatile grass, and one that allows you to graze well into the winter months, is tall fescue. If a manager wants to fall graze pastures that are dominated by orchardgrass or ryegrass, grazing should be stopped at this point and 50 to 70 lbs of nitrogen (N) per acre should be applied. Grazing can begin in mid-October and should be completed by early to mid-December, depending on when winter temperatures arrive. The problem with these species is that they do not hold their quality very well after freezing temperatures arrive. To get the most from the fall accumulated forage, managers should employ rotational strip grazing (RSG) or management intensive grazing (MIG) in which the pastures are fenced off with temporary electric fence and only a day or two worth of grazing is offered to the animals at a time. MIG or RSG will reduce fouling of the forage by excreta and reduce the waste from trampling while helping to ensure the maximum intake possible.

There are some characteristics of tall fescue that come into play for winter accumulated fescue grazing. Currently, there are essentially four types of tall fescue in the marketplace or in pastures. The four types are: older, endophyte-infected Ky-31 tall fescue, endophyte-free tall fescue; novel or friendly endophyte tall fescue varieties such as MaxQ; and the new soft-leafed novel endophyte tall fescue varieties. New novel endophyte tall fescues are gradually coming into the market and will be available for future pasture plantings.

Those fields planted to tall fescue many years ago are most likely the older variety, Kentucky 31 tall fescue. Many of these older fields of Ky-31 tall fescue are infected with an endophyte fungus that produces alkaloids, anti-quality compounds that help the plant survive various stresses such as heat and drought better than fescue plants without the fungus. An endophyte fungus actually lives inside of the plant and grows between the cells of the fescue plant rather than inside the fescue cells. The fungus

does not exist in the soil or outside the plant and is transmitted via the seeds of tall fescue. The alkaloids that the fungus produces also help the plant by affecting the grazing animals making it less likely the fescue plant will be heavily grazed and thus the plant will recover from grazing faster and have a competitive advantage over other grasses in the pasture. Having the competitive advantage is great for the fescue plants but the problems caused in the grazing animal (reduced weight gain, fescue foot, impeded blood circulation and poor temperature control in the extremities, and other conditions) are not advantageous to the livestock owner. When this type of tall fescue dominates a pasture, using the fall accumulated fescue technique will not significantly reduce the amount of alkaloid that the animals will be exposed to and so there will likely be impacts from the endophyte, including lower weight gains, even during winter.

If the pasture consists of mixed grasses with a predominance of long-established tall fescue but the manager has tested for the toxic endophyte and found the incidence level to be low, the pasture of an older variety of tall fescue can be used for fall-accumulation without the worry that the small level of endophyte present will cause a problem. In general, the level of toxic alkaloid in the forage goes down over the winter. The reduction helps some, but is not enough in the case of a high incidence rate to prevent problems as found in highly infected Ky-31 fields.

The next type is the endophyte-free tall fescue varieties. These can readily be used for fall-accumulated grazing without worry about possible alkaloids. The only concern the manager has with this type of fall fescue variety is that they do not survive as well as the fescue varieties infected with the toxic endophyte or with the novel, friendly endophyte. These endophyte-free varieties can be used, but should be managed more carefully to help prevent winter injury and stand loss.

The remaining types are the novel or friendly endophyte varieties. These varieties of tall fescue benefit from having an endophyte fungus associated with them but the fungus does not produce the toxic alkaloid that reduces animal

performance and animal intake. These varieties are ideal for use in a fall-accumulated forage system since toxic levels of alkaloid are not present and since tall fescue has some fantastic characteristics that make it ideal for winter grazing. Accumulated tall fescue reacts to freezing temperatures by releasing sugars that encourages grazing animals to the point that they will dig through snow to find the forage. Not only does palatability improve during the colder months but the forage quality of the fescue declines very slowly during this time period. Fescue differs from orchardgrass, ryegrass, and the other cool-season and warm-season perennial grasses in that it maintains forage quality into the winter months.

If you're considering using tall fescue for a fall accumulated forage system to reduce the need for feeding hay over the winter months, then choose the fields of fescue you want to use for winter grazing and cease any grazing now. You should quickly apply 50 to 70 lbs of N/acre to the fields and allow regrowth to occur. In mid to late October apply another application of N fertilizer (note that this differs from the discussion of orchardgrass and ryegrass above which only are fertilized once and will enter the grazing system by the end of October since their quality will begin to decline). The tall fescue pastures will be ready for MIG or RSG in early December and may have accumulated from 3,000 to 5,000 lbs of forage per acre that if managed carefully can stretch the grazing season into late January or even mid-February. The additional grazing time will help lower your hay bills as well as provide a healthier environment for your animals.

Happy Grazing!

Double Crop Soybeans - Manganese or Nitrogen? - *Richard Taylor, Extension Agronomy Specialist; rtaylor@udel.edu*

Looking at the double-crop soybeans in some areas of Sussex County, I noticed that there are pockets of yellowed beans in many fields, especially in those areas that have received many of the recent rainfall events. I thought it might be worthwhile to review the difference

between manganese (Mn) and nitrogen (N) deficiency.

The N deficiency is caused by saturated soil conditions that cause the soybeans to slough off their nodules leading to N deficiency. We often see Mn deficiency in small patches in a field, usually where lime applications have overlapped or where the soil is lighter than the general field so that even a correct lime application rate causes high soil pH -- inducing Mn deficiency in the area.

Wet spots or drowned-out areas in a soybean field often are also small patches in the field which can lead to confusion as to whether it's N or Mn deficiency you see. The difference is in the type and location of symptoms. Manganese deficiency shows up first on the newest leaves and is characterized by what is called interveinal chlorosis where the veins remain green but the tissue between the veins turns a very pale green or, more likely, yellow or white. If the deficiency starts early in the growth cycle of the plant and remains untreated, much of the plant will show the symptoms. If the plant grows for a long period of time before a foliar Mn application occurs, the lower affected leaves might not receive enough of the foliar spray to green back up, although the newer upper leaves will turn green again.

Plants impacted by wet soil conditions causing the Bradyrhizobia nodules to fall off the root system will show classic N deficiency symptoms in which the lower leaves will turn yellow and the yellowing will progress up the plant if N is not supplied. Since anaerobic soil conditions, especially during hot summer conditions, can cause the roots to die, the progression up the plant can be very rapid. Also, since low wet spots in fields are often small, irregular areas, the yellowing symptom can easily be mistaken for spotty Mn deficiency. Although close inspection of the affected areas allows you to distinguish between the two conditions, you can easily mistake one problem for the other if driving by in a vehicle or if viewing the areas from a long distance away.

So before you waste your fertilizer dollars, it's worth the time to walk through your fields and check out those yellow areas to see if they are

caused by Mn deficiency or are showing N deficiency due to localized saturated soil conditions.

Announcements

Poultry Grower's Disease Control Workshop: Keeping Disease Off of the Poultry Farm

Wednesday, September 30, 2015

If you missed the first workshop on June 11th, the same program will be presented on September 30 at the following times and locations:

10:00 a.m. – 12:00 noon
VFW Worcester Post 93
2017 Bypass Rd., Pocomoke City, MD

2:00 p.m. – 4:00 p.m.
Bridgeville Fire Hall
311 Market St., Bridgeville, DE

6:00 p.m. – 8:00 p.m.
Ruthsburg Community Club
105 Damsontown Rd., Queen Anne, MD

TOPICS INCLUDE:

Avian Influenza Outbreaks in Commercial Poultry in the U.S.

Dr. David Shapiro, *Veterinarian, Perdue Farms*

Practical Biosecurity Best Management Practices for Broiler Growers

Dr. Jon Moyle, *Extension Specialist, University of Maryland Extension*

Ms. Jenny Rhodes, *Ag Extension Educator, University of Maryland Extension*

Mr. Bill Brown, *Poultry Extension Agent, University of Delaware Cooperative Extension*

Avian Flu Response and Control Plan on Delmarva

Dr. Don Ritter, *Veterinarian, Mountaire Farms*

REGISTRATION DEADLINE is September 25, 2015

Please register online by visiting: <http://ag.udel.edu/rec/>. When registering, please be sure to choose the location of the workshop you would like to attend.

For more information, please contact Lisa Collins at lcollins@udel.edu or call (302) 856-2585 x702

This event is hosted by University of Delaware Cooperative Extension and University of Maryland Extension, in cooperation with Delmarva Poultry Industry, Inc., Delaware Department of Agriculture and Maryland Department of Agriculture.

Pasture Walk

Wednesday, September 16, 2015 6:00-8:00 p.m.
University of Delaware Webb Farm
508 S Chapel St, Newark, DE 19713.

This pasture walk is specifically focused on grazing season extension for beef cattle and sheep through the use of brassicas, BMR Pearl Millet and other short term high dry matter yielding grazing crops.

1.25 NM credits will be offered.

To register call (302)831-2506 by Sept 11.

2015 Delaware Cooperative Extension Horticulture Short Courses

Pruning

Wednesday, September 16, 4:00-6:00 p.m.
Kent County Extension Office, 69 Transportation Circle, Dover

Cost: \$15

How do I prune a tree/shrub? When and why should I prune? This workshop will provide individuals the tools for proper pruning methods that will benefit the plant and satisfy your customer.

Instructors: Dot Abbott, Richard Pratt, and Tracy Wootten

Register with Jan Unflat (302) 730-4000 or jmunflat@udel.edu.

Landscape 101 Series

Cost: \$10/session

Register with Carrie Murphy (302) 831-2506 or cjmurphy@udel.edu for any of the courses below.

Turf Maintenance

Wednesday, September 2, 4:30-5:30 p.m.
University of Delaware Botanic Gardens

Revisit methods for maintenance of fall turf. Topics discussed will include establishment or reseeding, aeration, fertilization and insect management options.

Credits: 1 Pest., 0.75 Nut. Mgmt., 1 CNP

Instructor: Brian Kunkel

Plant Identification – Herbaceous Plants

Wednesday, September 9, 4:30-5:30 PM
University of Delaware Botanic Gardens

Learn to identify some of the great herbaceous plants used in the landscape. We will cover the common disease and insect pests of each and strategies for incorporating into the landscape. Meet at UDBG Perennial Garden.

Credits: 1 Pest., 1 CNP

Instructors: Valann Budischak and Sue Barton

Soils

Wednesday, September 16, 4:30-5:30 PM, University of Delaware Botanic Gardens

Soil improvement is an ongoing process – discover options available to you. This session will cover the basics of soil health. Meet at the entrance to Fischer Greenhouse.

Credits: 1 Nut. Mgmt., 1 CNP

Instructors: Carrie Murphy and Tracy Wootten

Plant Identification- Woody Shrubs

Wednesday, October 7, 4:30 – 5:30 PM, University of Delaware Botanic Gardens

Learn to identify some of the woody shrubs used in the landscape. We will cover the common disease and insect pests of each and strategies for incorporating into the landscape. Meet at UDBG kiosk in the Charles Dunham Garden.

Credits: 1 Pest., 1 CNP

Instructors: Valann Budischak and Sue Barton

Weed Identification/Maintenance

Wednesday, October 21, 4:30 – 5:30 PM, University of Delaware Botanic Gardens

Examine some common weeds found in turf and flower beds during the fall and we will discuss management options.

Credits: 1 Pest., 1 CNP,

Instructor: Brian Kunkel

Plant Identification- Shade Trees

Wednesday, November 4, 4:30 – 5:30 PM, University of Delaware Botanic Gardens

Learn to identify some of the major shade trees used in the landscape. We will cover the common disease and insect pests of each and strategies for incorporating into the landscape. Meet at UDBG kiosk in the Charles Dunham Garden.

Credits: 1 Pest., 1 CNP

Instructors: Valann Budischak and Sue Barton

Weather Summary	
Carvel Research and Education Center Georgetown, DE	
Week of August 6 to August 12, 2015	
Readings Taken from Midnight to Midnight	
Rainfall:	
0.04 inch:	August 7
0.02 inch:	August 10
1.17 inch:	August 11
0.06 inch:	August 12
Air Temperature:	
Highs ranged from 85°F on August 11 to 75°F on August 7.	
Lows ranged from 69°F on August 7 to 60°F on August 9.	
Soil Temperature:	
77.2°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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