



WEEKLY CROP UPDATE

UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

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Vegetables

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

Cabbage

We continue to find economic levels of beet armyworm, cabbage looper, and diamond back moth larvae and harlequin bugs. Be sure to apply treatments before larvae move deep into the hearts of plants.

Lima Beans

Continue to scout all fields for spider mites, lygus bugs, stinkbugs and corn earworm. The higher labeled rates of insecticides will be needed for stinkbug control. For corn earworm, higher rates will also be needed if population levels are high and worms are large at the time of treatment. As trap catches continue to increase, multiple treatments may be needed for earworm control.

Melons

Aphid populations continue to increase. Be sure to apply treatments before populations explode.

Peppers

In areas where corn borers are being caught in local traps, fields should be sprayed on a 7-day schedule for corn borer control. In areas where corn borer catches are above 10 per night, a 5 to 7-day schedule may be needed. Since trap catches can increase quickly at this time of year, be sure to check local moth catches in your area

at

<http://ag.udel.edu/extension/IPM/traps/latestblt.html>. With the continued high corn earworm pressure, you will also need to watch for corn earworms infesting peppers. Be sure to select a material that will control both corn borers and corn earworm as well as beet armyworm if they are present.

Snap Beans

At this time, you will need to consider treatments for both corn borer and corn earworm from the bud stage through harvest on processing snap beans. After the pin sprays, you will need to check our website for the most recent trap catches to help decide on the spray interval between the pin stage and harvest for processing snap beans (<http://ag.udel.edu/extension/IPM/traps/latestblt.html> and <http://ag.udel.edu/extension/IPM/thresh/snapbeanecbthresh.html>). The highest labeled rates of insecticides may be needed if population pressure is heavy in your area. Remember, Orthene will not provide effective earworm control. Be sure to scout fields at least twice a week for corn earworm to be sure that a tighter schedule is not needed between the pin spray and harvest. Once pins are present on fresh market snap beans, a 5 to 7-day schedule should be considered for corn borer and corn earworm control.

Spinach

Be sure to watch for both webworms and beet armyworm moths as soon as plants emerge.

Controls should be applied when worms are small and before they have moved deep into the hearts of the plants or produced webbing. Remember that both insects can produce webbing on the plants. Generally, at least 2 applications may be needed to achieve control of webworms and beet armyworm. If both species are present, Intrepid or Confirm are labeled for both species.

Sweet Corn

With the high corn earworm catches throughout the state, all fresh market silking sweet corn should be sprayed on a 2-day schedule. Be sure to check trap catches for the current spray schedule. Trap catches are generally updated on Tuesday and Friday mornings.

(<http://ag.udel.edu/extension/IPM/traps/latestblt.html>) and

(<http://ag.udel.edu/extension/IPM/thresh/silksp raythresh.html>).

You can also call the Crop Pest Hotline for current trap catches (in state: (800) 345-7544; out of state: (302) 831-8851). In addition, you will need to combine a fall armyworm material with a pyrethroid for the first 2-3 silk sprays for fall armyworm control. Be sure to check all labels for days to harvest and maximum amount allowed per acre.

Cucurbit Downy Mildew Update - Bob Mulrooney; Extension Plant Pathologist; bobmul@udel.edu

Downy mildew will probably be very active after the 2+ inches of rain in most places and 3-4 days of humid, rainy weather. It had slowed down considerably before the rain began. Keep plants protected with fungicides that are effective for downy mildew. See Issues 20 and 14 of WCU for more information on fungicides

(<http://www.rec.udel.edu/Update07/Voume15,1sue20.htm>) and

(<http://www.rec.udel.edu/Update07/Voume15,1sue14.htm>)

We have seen several very heavy infections on backyard slicing cucumber plantings. In the Newark area we have yet to see downy mildew on any cucurbit, but that will probably change very quickly over the next several days. **There is a very high risk of downy mildew spore movement and survival on**

Sunday and Monday. See the North Carolina downy mildew website for updated information on Tuesday and Thursday at <http://www.ces.ncsu.edu/depts/pp/cucurbit/>. Our neighbors in NJ reported downy mildew in cucumber in Camden and Atlantic counties last week. It has only been seen on cucumbers in New Jersey so far.



R Mulrooney

Downy mildew on the upper side of leaf – note the angular yellow spots



R Mulrooney

When you turn the leaf over, on the corresponding lower surface you will see the purple fungus growth

Tomato Fruit Disorders Recently Seen in the Mid-Atlantic Region - Jerry Brust, IPM Vegetable Specialist, University of Maryland; jbrust@umd.edu

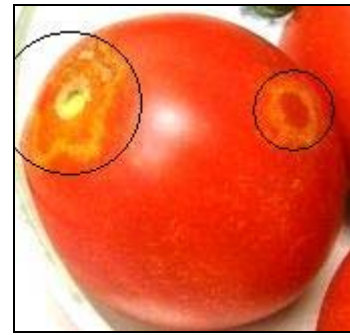
I have seen tomato fruit and have received many inquiries about ripe tomatoes that seem to be “sprinkled with gold dust” in the last few weeks. This disorder is called “gold fleck” or just “fleck” and it develops as small irregular green spots found randomly on the surface of green fruit which become yellow (gold) as the fruit ripens. Spots can vary from few to many.

There is evidence from NC that insecticide use may reduce flecking, however other work has shown fleck appearing when no thrips or sucking insects are present. Certain varieties show a predisposition to develop fleck, whatever its cause. In Florida fleck is not associated with thrips feeding even though they have thrips present in the field 8 or 9 months of the year.

Our flecking problem started about 1-2 weeks after we started having very high temperatures and has appeared all over the mid-Atlantic region. I have been monitoring thrips populations over the season and overall their populations have not increased over this same time period in tomato fields, which would indicate that fleck is a physiological disorder and not caused by thrips or other sucking insects. We see this disorder every year just around the end of July or the beginning of August when tomato plants have large fruit loads on them and are stressed from environmental factors.



Severe gold flecking



Flecking around stem end, and where two tomatoes touched

I have also seen a great deal of blossom end rot in tomatoes over the last two weeks. Blossom end rot begins with tan, water-soaked areas at or near the blossom end of fruit, which usually enlarge and turn black and leathery. This area is then prone to invasion from fungi such as *Alternaria*. This malady is caused by a localized shortage of available calcium as the fruit develops. While the problem usually occurs externally at the blossom end of the fruit it may also occur internally with no visible symptoms on the outside of the fruit.

There are several conditions that may increase the likelihood of blossom end rot. These include:

(1.) Widely fluctuating soil moisture, which can temporarily reduce calcium concentrations in expanding fruit. (Because calcium is carried through the plant in the water flow, those plant parts that are rapidly transpiring will have more than adequate levels of calcium, while fruit often receive just adequate levels of calcium. **Any moisture stress will reduce calcium uptake, and therefore concentration, in the plant.)**

(2.) Nitrogen in the form of ammonium can cause a reduction in calcium absorption and concentration in the tomato plant.

(3.) Damage to the root system can reduce uptake of calcium from the soil.

Foliar applications of calcium seldom reduce blossom end rot because the calcium taken up by the leaves is inadequately translocated to the fruit. This fruit problem can be most easily prevented with good water management and

proper fertilization. Most of the fields with the problem this year had inadequate irrigation when the plants had large fruit loads and needed the water (and the calcium).



Blossom end rot



Internal blossom end rot

Pumpkins Ready for Harvest? - *Andy Wyenandt; Specialist in Vegetable Pathology; wyenandt@rci.rutgers.edu and Art Brown; Senior Associate Dean-Agriculture & Natural Resources; Rutgers University*

The fall is almost upon us and because of the hot, dry summer many pumpkin fields will be ready for harvest much sooner than expected. For most roadside markets pumpkin season begins shortly after Labor Day and extends through the end of October. For those keeping track, that's roughly an eight-week market. The question for many is "What to do with marketable fruit in the field until it's time for sale?" As long as there is good, healthy foliage present, the best place for a pumpkin is on the

vine. Foliage helps protect fruit from potential sunscald injury and will help any late setting fruit size. However, keeping foliage around will also require additional fungicide applications. If the foliage cannot be maintained, move the mature fruit to a dry, well ventilated area. Many growers will let powdery mildew take foliage out a few weeks before pumpkins are ready to be harvested. Why? Pumpkins are a lot easier to harvest without dense foliage in the field. Growers should be aware that the major drawback to this method is that powdery mildew can reduce stem quality by causing them to turn brown and become brittle prematurely.

Once foliage is gone, pumpkins can easily be stored and cured in the field by lopping them off the vine and placing them in un-stacked windrows as long as the weather cooperates. Temperatures of 80 to 85°F with relative humidity of 80 to 85% for 10 days after lopping are ideal. After this, temperatures between 50 to 60°F with 50 to 70% relative humidity will keep respiration and potential weight loss down. Cool, wet and frosty weather will do most of the damage to ripe fruit in the field by slowing down the curing process, exposing fruit to potential fruit rot pathogens and in the case of frosts, cause fruit to melt if temperatures get too low. Knowing your market, your crop and keeping an eye on the weather will help you to have successful pumpkin harvest season.

Agronomic Crops

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

Soybeans

As the potential for late season insect control increases, be sure to check all labels for the rates, days from last application to harvest as well as other restrictions.

Corn Earworm Alert

The potential for corn earworm pressure in soybeans remains high statewide. Trap catches remain high throughout the state and economic levels of larvae - some well over the threshold - can be found in fields in lower Kent

and Sussex counties. Economic levels can be found in both double crop fields as well as full season fields, especially ones that were drought stressed. *With the continued high trap catches throughout the state, be sure to check all fields for earworms. Although open canopy blooming fields will be the most attractive to egg laying moths you should check all fields to be sure you do not miss an infestation.* As a general guideline, a treatment should be considered if you find 3 podworms per 25 sweeps in narrow row fields and 5 podworms per 25 sweeps in wide row fields (20 inches or greater). However, these static thresholds were calculated for a 10-year average soybean bushel value of \$6.28. The best approach is to access the Corn Earworm Calculator (<http://www.ipm.vt.edu/cew/>) which estimates a threshold based on the actual treatment cost and bushel value you enter.

The following is from the most recent VA Crop Pest Advisory written by Ames Herbert: (<http://www.sripmc.org/Virginia/>)

“Corn earworm moth flight still large – worms in many fields

The corn earworm moth flight has not abated much this week. Not all, but many soybean fields have been infested with worms over the last several days. Many have been treated. We are getting a lot of reports of worms surviving pyrethroid treatment. We have also seen evidence of this in our own on-farm insecticide trials. But in many cases, those few survivors are large larvae that will quit feeding and pupate within a day or two. Our advice on re-treating is to wait three days and check those fields again. Likely you will see fewer worms, as some will have pupated, and there will be no need for another spray. Any fields that have been treated in the last two weeks should be rescouted within two weeks of the last spray. With the continuing moth flight, treated fields (= killed natural enemies) will be very susceptible to new worm outbreaks. If fields that have been treated with a pyrethroid must be treated again, we strongly recommend using a non-pyrethroid. Low rates should do well. In a recent field trial, we got good results with the lowest labeled rates of Steward (4.6 oz/acre), Tracer (1.5 oz/acre), and Larvin (10 oz/acre).”

NOTE - Tracer is not labeled in Delaware and Maryland.

As far as corn earworm control in our area, we have not received any reports of larvae surviving pyrethroid treatments this season; however, we do not know what to expect in our area, especially as moths move up from the south. We do know that last season, when sprays were applied to populations consisting of predominately smaller worms and when treatments were applied when threshold levels were reached, we did achieve control. However, when applied late and/or when low rates of pyrethroids were used on mixed populations, there were some reports of large larvae surviving.

You will also need to continue to scout for soybean aphids. With the recent cooler weather, we are seeing an increase in populations, especially in New Castle County. As a general guideline, treatment is needed through the R5 stage (seed is 1/8 inch long in the pod of one of the four uppermost nodes on the main stem) of soybean development if economic levels are present. It may also be beneficial to spray through R6 stage (pods containing a green seed that fills the pod cavity at one of the four uppermost nodes on the main stem) – reports vary as to the benefit of spraying once plants reach the R6 but in some years and some situations there has been an economic return. Spraying after R6 stage has not been documented to increase yield in the Midwest. The suggested treatment threshold from the Midwest is still 250 aphids per plant with 80% of the plants infested with aphids. This number should provide a 5 to 7-day lead time for treatment to avoid economic loss.

We have started to see an increase in populations of both green and brown stinkbugs. You will need to continue to scout for stinkbugs in fields that are in the pod development and pod fill stages. Economic damage is most likely to occur during these 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. We are currently following the same guidelines that are being used in Virginia.

Thresholds are based on numbers of large nymphs and adults, as those are the stages most capable of damaging pods. As a general guideline, current thresholds are set at 1 large nymph/adult (either brown or green stink bug) per row foot if using a beat sheet, or, 2.5 per 15 sweeps in narrow-row beans, or 3.5 per 15 sweeps in wide-row beans. Since we have not done any research on stinkbug control, here is what Ames Herbert from VA indicated in his last newsletter: "Our research and others shows that brown stink bugs can be more difficult to kill with pyrethroids. If faced with a bad brown stink bug problem in soybeans, Orthene 97 at 8 oz/acre offers the best solution. For a lesser problem, a medium to high pyrethroid rate will do a lot."

Other unusual insect pests that we have seen in soybeans include whiteflies and blister beetles. In past years, we have seen whiteflies in soybeans at this time of year. It appears that they are also seeing higher numbers in the Midwest. The following is a link to an article from Marlin Rice from Iowa State (<http://www.ipm.iastate.edu/ipm/icm/2007/8-6/whiteflies.html>)

In years past, we have never seen infestations that we considered yield reducing to soybeans in our area, although there is always a first time. Since there are no thresholds for this insect pest in soybeans, let us know if you feel you are seeing economic affects so we can assess the damage.

As far as blister beetles, they can cause significant defoliation so you will need to use the defoliation thresholds to make a treatment decision. Remember the defoliation threshold drops to 15% during the bloom to pod fill stages. You should also look at WCU Volume 15, Issue 19 (<http://www.rec.udel.edu/Update07/Voume15,Issue19.htm>) or Gordon Johnson's Kent County Blog site (posting date July 28) for pictures and information on Blister Beetle (<http://www.kentagextension.blogspot.com/>).

Agronomic Crop Diseases - *Bob Mulrooney*; *Extension Plant Pathologist*; bobmul@udel.edu

Soybean Rust Update

On August 22nd, soybean rust was confirmed on samples collected from commercial soybean fields in Washington and Marengo counties in AL. Disease incidence was relatively low at both sites. On August 21st, soybean rust was reported in three counties in Alabama and one county in Georgia. The sites in Alabama included a soybean sentinel plot in Escambia County, a commercial soybean field in Monroe County and a kudzu patch in Covington County. Rust was also confirmed in Tift County, Georgia near the town of Chula on a private agricultural research farm. In 2007, rust has now been reported in 25 counties in Texas (24 soybeans), 10 counties in Alabama (six soybean), four counties in Arkansas (all soybean), 12 counties in Florida (four soybean), six counties in Georgia (two soybean), 14 parishes in Louisiana (13 soybean), five counties in Mississippi (four soybean), and five counties in Oklahoma (all soybean). There is no risk for movement of rust north up the East Coast at the present time.

Disease levels are low and Septoria brown spot continues to be the predominant disease found at the present time. Group III soybean sentinel plots are mostly at R5. Keep abreast of soybean rust developments by checking the IPM PIPE website www.sbrusa.net

Fall Planting and Cover Crop

Considerations - *Gordon Johnson*, *Kent County Extension Agriculture Agent*; gcjohn@udel.edu and *Richard Taylor*, *Extension Agronomy Specialist*; rtaylor@udel.edu

The recent rains have provided needed soil moisture. With significant crop-destruct acreage (corn and soybean), early corn harvest, drought stricken corn harvested for silage, and damaged forage fields (hay and pasture), decisions need to be made concerning late summer and fall plantings.

Wheat prices are encouraging looking towards the coming year. Even with the negative basis and issues surrounding quality, the price of

wheat could be \$4.75 per bushel or better next harvest season. July 08 wheat on the CBOT is currently at \$5.90. A 70 bushel wheat crop at \$4.75 a bushel will produce a gross income of \$332.50. Generally, the risks with wheat versus barley or oats are less, barring a wet harvest season. If you are deciding whether or not to plant wheat (for grain) on more acres this fall, you first should consider how it will affect crop rotations and your marketing plans.

On the plus side, you can credit nitrogen (N) following a droughted corn crop so your fall fertilization should be based on soil test P and K values for the wheat and double-crop soybeans. In contrast, you should not credit N following a droughted soybean crop. There is always a tendency with open ground to plant wheat early; however, you need to wait until the Hessian fly-free date. This date varies from the northern part of the state to the southern areas. For New Castle County, do not plant until after October 3 and in Kent County the date is October 8 while in Sussex County the date is October 10. For highest yields, plant wheat by the end of October. Use varieties that have high yield, high test weights, and good disease resistance in local and regional trials.

Barley acreage has always been high in Kent County because soybean yields have been higher if following barley and because of double-crop processing vegetables such as lima beans and the presence of local buyers. The main issue to consider is avoiding very early plantings in the third and fourth week in September if growing barley for grain. Often, early-planted barley will be attractive to aphids which can also transmit barley yellow dwarf virus. Planting too early can lead to excessive top growth that creates problems with matting and smothering with winter ice and snow loads.

There should be ample time to plant cover crops early on a lot of acres this year. This will open up many more options. Winter small grains (barley, wheat, rye, triticale, and winter oats) all perform well as cover crops. Rye is the most winter hardy and research tends to show better N scavenging by rye than the other cover crops. However, the choice of cover crop usually is an

economic decision - what seed is least expensive and available.

A spring oat crop is often used by vegetable farmers as a fall cover crop. It has the advantage of winter killing (in most years) so is less of a problem for tillage and planting when growing early spring vegetables such as peas, spinach and cabbage. Annual ryegrass used to be used on more acreage as a cover crop than it has recently. It has the advantage of requiring much lower seeding rates, a consideration when seeding by airplane but the potential of annual ryegrass to become a weedy pest or to dry the soil out too quickly in the spring has reduced its use. Rapeseed has been used by some farmers because of its potential as a natural control for nematodes when incorporated in the spring although to be most effective rapeseed needs to be planted before September 10. Recently, research on the use of oats and forage radish has shown benefits for reducing soil compaction and improving soil quality overall.

There will be more opportunity to use winter annual legumes: hairy vetch, crimson clover, or field peas (Austrian winter peas). This practice will be particularly useful for corn ground going back into corn next year, crop destruct or early harvested soybean acres going into corn next year, or for land going into late-spring planted vegetables. These legume crops will provide from 60-120 lbs. of N for the subsequent crop when killed in the spring. They have been used successfully to grow no-till crops of vegetables the following year including tomatoes, peppers, and pumpkins. If planted early enough, they can provide good soil mulching, weed control, as well as N.

Recommended planting rates for cover crops:

Rye and Triticale 100 lbs/acre

Wheat 100 lbs/acre

Barley 140 lbs/acre

Oats 100 lbs/acre

Rapeseed 8 lbs/acre

Annual ryegrass 20 lbs/acre

Crimson clover 20 lbs/acre

Hairy vetch 25 lbs/acre

Austrian winter peas 60 lbs/acre

Mixtures of cover crops such as rye and vetch or barley and crimson clover have worked very well. Reduce the rate of components when doing mixtures.

Early planted emergency forage options should also be considered for livestock producers as forage supplies will be limited and expensive if bought in. Rye, oats, or ryegrass planted after the ground dries from the recent rains will provide significant fall forage. Forage brassicas such as radish, kale, and turnips are another option, especially for pasturage but are best seeded with an accompanying annual grass such as oats. In hay or pasture fields that have been thinned or damaged by the drought, consider no-tilling in some crops to increase fall and spring tonnage. Triticale has worked no-tilled into alfalfa stands, rye is another possibility. Annual ryegrass no-tilled into a thin hayfield can help produce additional forage in the fall and spring.

Grain Marketing Highlights - *Carl German, Extension Crops Marketing Specialist;*
clgerman@udel.edu

What's Driving The Commodities Market?

Recent weather conditions throughout the Midwest are presenting mixed signals to commodity traders. It is generally wet in the already rained upon portions of the Corn Belt while remaining dry in the Central Belt. The markets will now look toward taking sides as to whether we can expect to beat or just run shy of USDA's August yield estimates for '07 U.S. corn and soybean production of 152.8 and 41.5 bushels per acre, respectively. Perhaps the '07 John Deere/Pro Farmer U.S. Crop Tour can give traders a hint at which direction row crop production may be headed. A gut feeling is that '07 U.S. crop production will be within a bushel or two of the August estimate for both corn and soybeans.

Aside from weather, we have the matter of commodity speculators - also known as funds. A week ago, there appeared to be a major move by the funds to pull out of the commodities market. This week speculator interest in commodity trading across the board has seen an

increase. However, there may be a word of caution regarding the increase in open interest experienced this week in corn and soybean trading. The increase is due to short covering.

Marketing Strategies

Word from the floor this morning is to "sell the beans, sell the wheat, store the corn". The reasoning behind this recommendation is reflected in the carry in the market. A carry is reflected in the soybean market beginning with the November '07 futures contract through the July '08 contract. Additionally, a large carryin is projected for the '07/'08 marketing year (575 million bushels) with projections for a smaller carryout at the end of the year (220 million bushels). A carry is also reflected in the corn market from the December '07 contract through the July '08 contract. A large carryin is also projected for U.S. '07/'08 marketing year corn (1.137 billion bushels) with an even larger carryout at the end of the year (1.516 billion bushels). The wheat market is somewhat easier to ascertain. A carry is currently not reflected for soft red winter wheat past the Dec '07 futures contract. After that point the market becomes inverted through the July '08 contract, meaning the forward storage month contracts are priced less than the nearby futures contracts.

Currently, Dec '07 corn futures are trading at \$3.67; Dec '08 corn futures at \$4.03; Nov '07 soybean futures at \$8.63; Nov '08 soybean futures at \$8.78; Dec '07 soft red winter wheat at \$7.40; and July '08 wheat at \$5.92 per bushel. For technical assistance on making grain sales decisions contact Carl L. German, Extension Crops Marketing Specialist.

Announcements

For Current Agricultural Information from the UD Kent Co. Extension Office Visit the Internet Site

www.kentagextension.blogspot.com

Current Topics:

- What recovery can we expect in soybeans
- More marestalk in soybeans this year
- What soybean yields can you expect
- Know your winter annual weeds
- Alfalfa planting time coming up
- High risk for downy mildew in cucurbits
- Insects get diseases too
- Cautions on seeding small grains early – plus for forage, minus for grain
- Grass stand evaluations following severe stress conditions
- Fall planting and cover crop considerations
- Drought breaker?
- Change in weather – benefits
- Energy saving tips for poultry growers
- Current feeding value/price estimates of various forages
- Use the corn earworm calculator for thresholds in soybeans
- Produce growers – check out these websites and initiatives
- The potential for local organic sales
- Current growing degree days for irrigation consideration
- Specialty trait soybeans
- Podworm alert in soybeans
- Fertilizing pasture and hayfields following a drought
- Fall forage fertilization
- Root knot nematode on corn?
- Wild turkeys crossing

Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of August 16 to August 22, 2007

Readings Taken from Midnight to Midnight

Rainfall:

0.04 inch: August 16
0.04 inch: August 17
0.59 inch: August 18
0.02 inch: August 19
0.58 inch: August 20
0.45 inch: August 21
0.01 inch: August 22

Air Temperature:

Highs Ranged from 91°F on August 16 and August 17 to 71°F on August 22.

Lows Ranged from 71°F on August 16, August 17, and August 18 to 57°F on August 19.

Soil Temperature:

84°F average.

(Soil temperature taken at a 2" depth, under sod)

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

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

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