



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*

Asparagus

With the warm temperatures this past week, we have seen a significant increase in asparagus beetle populations in fields throughout the state. As indicated last week, it is important to check for eggs as well as adult beetles feeding on spears. As a general guideline, a treatment is recommended if 2% of the spears are infested with eggs. Since adults will also feed on the spears, a treatment is recommended if 5% of the plants are infested with adults. For a picture of asparagus beetle eggs, adults and larvae please refer to the following link:

<http://www.extension.umn.edu/distribution/horticulture/M1199.html>

Melons

As soon as plants are set in the field begin scouting for aphids, cucumber beetles and spider mites. When sampling for aphids, be sure to watch for beneficial insects as well, since they can help to crash aphid populations. As a general guideline, a treatment should be applied for aphids when 20% of the plants are infested, with at least 5 aphids per leaf but before populations explode.

Potatoes

As soon as plants emerge be sure to sample fields for Colorado potato beetle adults,

especially if an at-planting material was not used. A treatment should not be needed for adults until you find 25 beetles per 50 plants and defoliation has reached the 10% level.

Bacterial Fruit Blotch Detected on GA

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

I just received word from Dr. David Langston in Georgia that bacterial fruit blotch (BFB) was confirmed on seedlings destined for shipment to other watermelon producing areas. Some plants may have been shipped before the outbreak was identified. At this time we do not know if any seedlings were shipped to Maryland or Delaware. However, increased scouting of transplants is warranted. Because BFB is seed-transmitted, locally grown transplants should also be examined.

BFB of watermelon is caused by the bacterium *Acidovorax avenae* subsp. *citrulli*. The disease is damaging because it causes large olive green to brown water-soaked lesions on fruit (Figure 1), making them unmarketable. Symptoms of BFB on seedlings are water-soaked areas of the lower surface of the cotyledons and inconspicuous lesions on leaves (Figure 2). BFB lesions will become necrotic often with yellow halos. Lesions are frequently delimited by veins. Infected seedlings collapse and die.

Conditions in greenhouse transplant houses are highly favorable for the development of BFB symptoms and the spread of disease. If BFB is suspected, please send plants to a diagnostic lab (University of Maryland or University of Delaware) for identification. In the meantime, destroy all trays with symptomatic plants. Remove adjoining trays to a separate - isolated - area for observation. Monitor these isolated seedlings daily and destroy trays where symptoms develop. After symptomatic plants and adjoining trays are discarded, spray the remaining trays with a labeled fungicide and continue applications until the plants are shipped or transplanted to the field.



Figure 1. Olive green water-soaked lesion on watermelon fruit. (Image courtesy David B. Langston, University of Georgia, Bugwood.org)



Figure 2. An inconspicuous lesion of bacterial fruit blotch on a watermelon transplant.

Late April Late Blight Status - *Kate Everts, Vegetable Pathologist, University of Delaware and University of Maryland; keverts@umd.edu*

Currently there are a few reports of late blight (caused by *Phytophthora infestans*) from elsewhere in the United States. In Connecticut late blight was confirmed on tomatoes grown from farmer-saved seed, and on potatoes grown from organic seed pieces (cultivar 'Australian Crescent'). In Wisconsin, late blight has also been confirmed on potatoes seed. Again, these confirmations are not local; however, increased scrutiny of tomato and potato for symptoms is warranted.

Symptoms on tomato leaves are lesions that initially appear as light green or grey water soaked areas that expand. Sporulation is white to grey on the under surface of the leaf. Infected leaves die. Petioles and stem lesions are dark brown and irregular.



Figure 1. Symptoms of late blight on a tomato leaf and stem (Courtesy of E. Gugino, The Pennsylvania State University).

Transplant Disorders - *Gordon Johnson, Extension Vegetable & Fruit Specialist; gcjohn@udel.edu*

This is the time of the year when county agents are called to look at disorders in transplants being grown in greenhouses and when samples routinely come into our offices for diagnosis.

There are many diseases of vegetable transplants that can start in the greenhouse - fungal, bacterial, and viral. Diseases should be considered first when looking at transplants.

Insects such as thrips, aphids, and whiteflies also can be a problem in greenhouses and should also be considered as causes of injury. They can cause direct damage and can be vectors of virus diseases.

However, many vegetable transplant disorders are not caused by pests. Some of the most common are:

Excessive Stretch and Leggy Plants

This is most commonly due to too high of temperature differential in growing houses (wide differences between day and night temperatures), excessive fertilization (especially with ammonium N fertilizers), and excessive watering.

Irregular Growth

This can have many causes including differences in seeding depth, differences in tray filling, differences in watering, differences in location in the greenhouse, irregular heating in the greenhouse (hot and cold spots), and differences in media to name a few.

Salt Injury

Plant desiccation and injury due to high salts occurs commonly when fertilizer rates are too high or when dumping occurs from slow release fertilizers at high temperatures.

Leaf Scorching -

This can be due to salt injury also, but can occur when plants that are overcrowded are then spaced and exposed to full light or when very tender plants are put out to harden off in windy conditions.

Nutrient Deficiencies

Iron deficiencies are common if media pH rises above 6.3. Calcium and magnesium deficiencies are common if media pH drops below 5.2. Nitrogen deficiencies from under-fertilization are also common and also where initial nutrient charge in the media runs out.

Stunting

Poor plant growth or stunting most commonly is due to lack of nutrients in the media (media is missing initial nutrient charge). It also can be due to excessively cold greenhouse temperatures.

Ethylene Injury

Crops grown in greenhouses with propane or gas-fired unit heaters that are malfunctioning can be susceptible to ethylene injury. Ethylene (C₂H₄) is an odorless, colorless gas that acts as a plant hormone. Symptoms range from misshapen leaves and flowers, thickened stems, stunted growth, flower or leaf abortion to stem curling and wilting.

Fruit Crops

High Temperatures Can Affect Strawberry Yields -Gordon Johnson, *Extension Vegetable & Fruit Specialist*; gcjohn@udel.edu

Harvest of high tunnel plasticulture strawberries is well underway in the region and field harvest is beginning on plastic. Matted row strawberry harvest is still a few weeks off in most areas.

We have had several days in the mid 80s recently and this should remind growers that while the danger from frost should be over, effects of high temperatures can also greatly reduce strawberry productivity.

When daytime high temperatures reach a certain critical level, strawberries reproductive development will be affected. Flowering will be reduced or will stop altogether. The critical high temperature where flowering is affected and overall impact on flowering will vary with variety. Of the common strawberries being grown on plastic mulch in the annual system, 'Camarosa' is the most sensitive and will stop flowering and grow vegetatively when temperatures are above 86°F. 'Chandler' will handle somewhat higher temperatures. In matted row strawberry culture, it has been shown that strawberry size in 'Earliglow' is greatly reduced once temperatures reach the high 80s.

Growers wanting to maintain fruiting in years where May temperatures reach the high 80s or 90s should consider irrigating with overhead sprinklers during the day to cool plants (direct cooling and evaporative cooling). Use low volume sprinklers and set them to come on when air temperatures are above 85°F and come off when temperatures drop back below this level.

Agronomic Crops

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

Field Corn

We just received word from EPA that they did approve Delaware's Section 18 emergency use request for Avipel® Hopper Box (dry) Corn Seed Treatment for the protection of field corn seed from consumption by black bird and crows. The effective dates of the Section 18 are April 20, 2011 - April 18, 2012. You can access the label on line at <http://www.arkionls.com/>. Producers are required to have a copy of the label in their possession to use the product. It is anticipated that product will be in the area this week for use by producers.

Wheat

This week we have had a number of calls about stink bugs and their impact on wheat. Some feel numbers are higher than normal and others think it is a typical year. In general, only a few brown marmorated stink bugs (*Halyomorpha halys*) have been found with the predominant species being native brown stink bug (*Euschistus servus*). In years past, we have seen brown stink bugs in wheat. After talking with entomologists in the region, we all feel that more work needs to be done to see if there is an impact from the boot through dough stages. Unfortunately, little is known about the impact of stink bugs on wheat on our area. In VA and North Carolina they feel they are seeing more each spring -- mostly native browns but they also feel that wheat could become an early host for brown marmorated (BMSB). Our colleagues at the University of Maryland (Cerruti Hook and Galen Dively) currently have replicated plots established and will be looking at the impact of BMSB on wheat, so we will know a lot more after the 2011 season. There is information on the internet from states to our south (Mississippi and Arkansas); however, at this point we do not know if that information applies to our area and much of the work was done in the 1980s. One of the concerns we have had is the ability of both species to move from wheat into corn and soybeans fields and this is one of the projects we in Delaware will be working on in 2011.

For those who may not be as familiar with identification of the brown marmorated stink bug, the following link provides very good pictures of adults, eggs and nymphs. (<http://njaes.rutgers.edu/stinkbug/identify.asp>)

Small Grain Disease Update - Bob Mulrooney, *Extension Plant Pathologist*; bobmul@udel.edu

Wheat is developing rapidly with the recent increase in temperature. Be sure to keep scouting for the presence of diseases, especially **powdery mildew**, at this time. It is important to keep the uppermost two leaves as free of diseases as possible to protect yields. At the most, you can wait until you see 5- 10% of the upper two leaves infected before applying a fungicide. Tilt, Stratego, Twinline, and Quilt can be applied as late as heads emerged but not yet flowering.

If scab should be a concern this year it may be best to use only a triazole fungicide at heading through flowering to avoid mycotoxin issues if scab infection occurs. There is evidence that if fungicides containing strobilurins (Quilt, Twinline, Stratego) or strobilurins alone are applied during heading up to flowering, they can increase mycotoxin production if scab occurs during flowering. If a fungicide is needed as late as flowering for powdery mildew, Septoria leaf blotch, tan spot, or other disease and conditions are favorable for scab development consider applying ProSaro, Caramba, or Follicur for scab suppression and control of the other diseases just mentioned. For a table that rates the efficacy of fungicides for use on wheat diseases see the following link to the Kansas State fact sheet with the NCERA-184 ratings. This is a group of wheat pathologists from across the country that collaborates on wheat disease control. <http://www.ksre.ksu.edu/library/plant2/ep130.pdf>

Head Scab Risk Assessment Tool

Scab is still the one wheat disease that can cause major economic losses if weather conditions are favorable prior to and during flowering. The tools that we have to manage scab are limited, but the use of rotation, resistant varieties and fungicides can help

reduce the losses from scab should it appear. One of the tools that we have to help predict its occurrence and aid in making fungicide application decisions is the Head Scab Risk Assessment Tool that is found on the wheat scab website <http://www.wheatcab.psu.edu/>. The site provides information on how to use the tool and its limits.

Water is Needed to “Activate” Soil-Applied Herbicides - Mark VanGessel, Extension Weed Specialist; mjv@udel.edu

Herbicides applied to the soil surface require rainfall or irrigation to move them into the soil where the plants will absorb them; or to be mechanically incorporated (field cultivator). Some areas have not received much rainfall since the herbicides were applied. Some products, like atrazine or mesotrione, may be taken up by the roots and provide some control. But Dual, Harness, and Prowl all need to be absorbed by emerging shoots, so they will not control weeds once they emerge. If you have irrigation and your corn herbicides have been applied but you have not received rain, you should consider irrigating to activate those herbicides.

Protecting Corn Yield With Postemergence Programs - Mark VanGessel, Extension Weed Specialist; mjv@udel.edu

Modified from an article by Bob Hartzler, Iowa State University.

Farmers have an array of products that allow weeds to be effectively controlled postemergence. These new technologies include herbicide resistant hybrids, such as Roundup Ready and Liberty Link corn, and several newer herbicides (Callisto, Status, etc.) While postemergence herbicides (2,4-D, Banvel) have been used successfully for more than 30 years to control weeds in corn, the new products offer greater flexibility in application timing, reduced

risk of crop injury, and a broader spectrum of weed control. However, an understanding of weed/corn competition is needed to use these products most efficiently.

Most summer annual weeds (giant foxtail, pigweeds, common lambsquarters, etc.) begin to emerge near the time of corn planting, but significant numbers of weeds continue to emerge into late June and July. A temptation for many farmers relying on postemergence herbicides is to delay application until the crop canopy is large enough to shade out late-emerging weeds. Delaying application of postemergence herbicides may result in cleaner fields at the end of the growing season, but this approach may have serious economic consequences. A regional project investigated the effectiveness of using only glyphosate for weed control in Roundup Ready corn (Gower et al. 2003). Glyphosate was applied at several times during the growing season based on the size of the dominant weeds in the field. A total of 35 experiments were conducted in nine states, including Delaware. Most sites had high weed densities. In these studies, weed control continually improved as applications were delayed. For example, a single application when weeds were 12" tall resulted in 95% control, whereas spraying 2" weeds resulted in only 73% control. The reduced weed control was due to weeds that emerged after application, rather than an inability of glyphosate to kill the larger weeds. Looking only at weed control would suggest that delaying herbicide applications is an effective strategy to enhance weed control.

However, corn subjected to weed competition from emergence to postemergence application began to suffer yield losses when herbicide application was made to 4" weeds. Applying the herbicide when weeds were 4" tall resulted in a 3% yield loss, and each delay approximately doubled the yield loss. The reduction in corn yields due to competition prior to the postemergence application illustrates the risk of delaying treatment in hopes of minimizing problems with late emerging weeds.

Table 1. The effect of application timing on weed control and corn yields. Adapted from Gower et al. 2003. Weed Technol. 17:821-828.

Application timing (Weed Size)	Weed control	Corn yield loss ¹ (Early-season competition only)	Corn yield loss ² (Early- and late season competition)
	Percent		
2"	73	0	7
4"	83	3	6
6"	90	6	7
9"	93	14	11
12"	95	22	21

¹ Weeds emerging after herbicide application controlled with hand weeding.

² Weeds emerging after herbicide application allowed to compete with corn.

Reference: Gower, Loux, Cardina, Harrison, Sprankle, Probst, Bauman, Bugg, Curran, Currie, Harvey, Johnson, Kells, Owen, Regehr, Slack, Spaur, Sprague, VanGessel and Young. 2003. Effect of postemergence glyphosate application timing on weed control and grain yield in glyphosate-resistant corn: Results of a 2-year multistate study. Weed Technol. 17:821-828.

An efficient approach is an early application of glyphosate to protect the corn yield and in addition, include a herbicide with glyphosate that will provide residual control. Herbicides to consider include: atrazine, Callisto, Hornet, Resolve, Sandea, or Steadfast. Herbicide selection needs to be based on weeds present in the field. Be sure to consider corn height restrictions as well.

Residual Herbicides for Soybean - Mark VanGessel, *Extension Weed Specialist*; mjv@udel.edu

It is important to include effective broad spectrum residual herbicides at the time of burndown application or at plant (for conventional tillage soybeans). Including a residual herbicide is the first step, using the correct herbicide is the next decision, and the most difficult is the correct rate. The following link includes a table of some of the better soil applied herbicides and the corresponding rates. For no-till soybeans, I prefer to use a pre-package mixture that contains both an ALS-inhibiting herbicide (Group 2) and a PPO-inhibiting herbicide (Group 14). The ALS product will help with burndown control and provides more consistent control in trashy fields. The PPO also may help with burndown, but generally provides a broader spectrum of control than ALS herbicides alone. The two most common Group 2 herbicides for soybeans are chlorimuron (Classic, Canopy, Envive, and others) and cloransulam (FirstRate, Sonic, Authority First, Gangster, and others). In order for the ALS inhibiting herbicide to provide more consistent burndown control and provide adequate length of residual control

the chlorimuron and cloransulam rates should be 0.02 to 0.027 lbs active ingredient per acre; which translates to 1.25 to 1.7 oz of Classic or 0.4 to 0.5 oz of FirstRate. A lot of the literature from the companies does not recommend these rates because they are not considering applications at least 14 days prior to planting, or they are not accounting for the residual herbicide to help with burndown. A table to compare various pre-packaged mixtures and comparable rates of chlorimuron and cloransulam can be found at http://agdev.anr.udel.edu/weeklycropupdate/wp-content/uploads/2011/04/Soybean-Residual-Comparisons_11.pdf.

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

USDA Export Sales Report 4/28
Pre-report estimates for weekly export sales of soybeans ranged from 9.2 to 22 million bushels. The weekly report showed total export sales (old and new crop) of 7.3 million bushels, with old crop sales of 5.3 million bushels. This was above

the 4.3 million bushels needed to stay on pace with USDA's demand projection of 1.59 billion bushels. Total shipments reported at 9.9 million bushels were below the 13.6 million bushels needed this week. The report is considered bearish.

Pre-report estimates for weekly corn export sales were from 23.6 to 47.2 million bushels. Old and new crop export sales were reported at 17.2 million bushels, with old crop sales accounting for 13.7 million bushels. This is below the 18 million bushels needed this week to stay on pace with USDA's demand projection of 1.95 billion bushels. Total shipments of 35.7 million bushels were below the 43.4 million bushels needed this week. The report is considered bearish.

Pre-report estimates for weekly wheat export sales ranged between 7.3 and 20.2 million bushels. Combined sales of old crop and new crop were reported at 15.6 million bushels, with old crop sales representing 9.7 million bushels of the total. This is above the 1.7 million bushels needed this week to keep pace with USDA's demand projection of 1.275 billion bushels. Shipments of 30.4 million bushels were below the 42.3 million bushels needed this week. This report is considered bearish.

IGC Widens 2011-12 Grain Deficit Projection Despite Output Rise

The International Grains Council more than tripled its estimate for a world shortfall in grain supplies next season even though it upped its forecast for world production. Global grain production in 2011-12 is forecast to rise 4.5% to 1.808 billion metric tons due to a recovery in output from the European Union and Argentina. World corn output is expected to rise almost 5% on the year in 2011-12 to a record 847 million tons, while wheat production is pegged at 672 million tons--22 million tons higher than the current season. Despite the growth in world output, the IGC said it expects consumption to outpace demand by 10 million tons, more than three times as much as its previous forecast of 3 million tons.

Even though consumption growth is expected to fall to 1.5% as industrial use of grain slows, stocks are expected to hit a four-year low of 334 million tons, equivalent to 18.4% of demand,

compared with 23% two seasons ago. "With consumption of grains forecast to remain higher than production, a further downturn in world carryover stocks is likely," the IGC said.

Corn markets are particularly tight, with total supplies expected to fall by 0.8% this year, the first year-on-year decline since 2002-03. Inventories are expected to fall even further next season, with carryover stocks expected to decline 8 million tons from this season's low levels to 111 million tons. The reduction in stocks comes despite a forecast slowdown in corn demand next year. "Potentially tight supplies and firm market prices are expected to limit corn consumption growth to 1.3%," the IGC said.

Market Strategy

U.S. corn planting was reported to be 9% complete on April 24 compared to 46% last year and the five year average of 23%. Spring wheat plantings were reported to be 6% complete compared to 39% last year and the five year average of 25%. Winter wheat condition was reported as 35% good to excellent as compared to 69% last year and 36% last week. The 2011 U.S. planting pace, described as slow up to this point, will likely now become considered as delayed. This could eventually result in some of the acres intended for corn to be planted to soybeans. It could also result in reducing the possibility of producing a trend line U.S. corn yield. U.S. corn production would then have even less room for margin of error during the growing season.

The U.S. dollar index continues to show weakness with the nearby now trading at 73.120, reflecting about an 8 point drop since January 2011. The delayed planting pace and the weaker dollar should result in additional non-commercial buying of commodities which would be expected to bolster prices from current levels, with one caveat, the trade will be keeping an eye out for any sign of demand destruction. Currently, Dec '11 corn futures are trading at \$6.55; Nov '11 soybeans at \$13.75; and July '11 SRW wheat at \$7.87 per bushel.

For technical assistance on making grain marketing decisions contact Carl L. German, Extension Crops Marketing Specialist.

Announcements

Annie's Project Reunion: Lunch & Learn

Friday, May 20, 2011 11:00 a.m. – 3:00 p.m.

Todd Performing Arts Center
Chesapeake College, Route 50 & Route 213
Wye Mills, Maryland

It has been four years since Annie's Project began in Maryland. Since then, over 250 women in Maryland and Delaware have completed the course. Annie's Project focuses on the many aspects of farm management and is designed to empower women in overall farm decision making and to build local networks throughout the state. The target audience is farmwomen with a passion for business, agriculture and involvement in the farm operation.

The program will include a luncheon and numerous breakout sessions covering farm management topics as well as a chance to meet farmwomen from Maryland and Delaware and to catch up with Annie's Project classmates. The Keynote speaker will be Annie's Project Founder, Ruth Hambleton.

Cost: \$25 (includes the meal and materials)

Register online at www.anniesproject.umd.edu or by mailing the registration form <http://agdev.anr.udel.edu/weeklycropupdate/wp-content/uploads/2011/04/AnniesProject.pdf>

Please feel free to contact Shannon Dill sdill@umd.edu, (410) 822-1244, Jenny Rhodes jrhodes@umd.edu, (410) 758-0166 or Tracy Wootten, wootten@udel.edu, (302) 856-7303 if you have any questions.

We hope you will join us for a great day!

Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of April 21 to April 27, 2011

Readings Taken from Midnight to Midnight

Rainfall:

0.09 inch: April 22

0.07 inch: April 23

Air Temperature:

Highs ranged from 84°F on April 24 and April 25 to 50°F on April 22.

Lows ranged from 42°F on April 22 to 67°F on April 26.

Soil Temperature:

63.0°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, Extension Associate - Vegetable Crops

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