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

Lima Beans
Be sure to watch carefully for spider mites. Economic levels are being detected and controls are only effective if treatments are applied before populations explode. Labeled materials include bifenthrin (*not all are labeled so be sure to check the label*) and dimethoate. We are staring to see an increase in stinkbug and plant bug populations. As soon as pin pods are present, be sure to watch carefully for plant bug and stinkbug adults and nymphs. As a general guideline, treatment should be considered if you find 15 adults and/or nymphs per 50 sweeps.

Melons
Continue to scout all melons for aphids, cucumber beetles, and spider mites. We have heard a few reports of beet armyworms feeding on the rinds of watermelons. Since this insect is difficult to control, be sure to select a material that is labeled for beet armyworm (BAW) on melons such as Coragen, Intrepid, Radiant, Spintor, or Synapse. The pyrethroids will not provide effective BAW control. Be sure to check all labels for days between last application and harvest.

Peppers
As soon as the first flowers can be found, be sure to consider a corn borer treatment. Depending on local corn borer trap catches, sprays should be applied on a 7 to 10-day schedule once pepper fruit is ¼ - ½ inch in diameter. Be sure to check local moth catches in your area by calling the Crop Pest Hotline (instate: 800-345-7544; out of state: 302-831-8851) or visiting our website at http://ag.udel.edu/extension/IPM/traps/latestblt.html. You will also need to consider a treatment for pepper maggot. Be sure to 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 will not control this insect.

Potatoes
Continue to scout fields for Colorado potato beetle (CPB), aphids and leafhoppers. Controls will be needed for green peach aphids if you find 2 aphids per leaf during bloom and 4 aphids per leaf post bloom. This threshold increases to 10 per leaf at 2 weeks from vine death/kill. If melon aphids are found, the threshold should be reduced by half.

Snap Beans
As corn borer and corn earworm populations start to increase, you will need to consider treatments for both insect pests. 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 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/latest

blt.html and http://ag.udel.edu/extension/IPM/thresh/snapbeanecbthresh.html). Once pins 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
Be sure to sample all fields from the whorl through pre-tassel stage for corn borers, corn earworms and fall armyworm. We are starting to see an increase in whorl infestations of fall armyworm. A treatment should be considered when 12-15% of the plants are infested. Since fall armyworm feeds deep in the whorls, sprays should be directed into the whorls and multiple applications are often needed to achieve control. The first silk sprays will be needed for corn earworm as soon as ear shanks are visible. Be sure to check both blacklight and pheromone trap catches for silk spray schedules since the spray schedules can quickly change. 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/silkspraythresh.html). You can also call the Crop Pest Hotline (in state: 1-800-345-7544; out of state: 302-831-8851).

Cucurbit Downy Mildew Update

From: *Bob Mulrooney, Extension Plant Pathologist*; bobmul@udel.edu

So far down mildew has been found in Sussex County in the sentinel plot at the REC only on cucumber. Other detections in the region include southern NJ, MD, and Eastern Shore VA. The forecast on Wednesday indicates that there is a moderate risk of transport from eastern NC into the region on Thursday, July 16. Be sure to include a downy mildew fungicide in your spray program. **Check the website often for the latest forecast at** http://cdm.ipmpipe.org.

From: *Kate Everts, Vegetable Pathologist, University of Delaware and University of Maryland*; keverts@umd.edu

- Downy mildew on cucumber has been confirmed in Wicomico, Dorchester, Caroline, and Talbot Counties, MD and in Delaware.
- Downy mildew on zucchini squash in Prince Georges County, MD was confirmed July 10.
- Downy mildew on cantaloupe (muskmelon) was confirmed in Wicomico County, MD on July 14.

At this time targeted spray schedules for downy mildew should be applied on cucumber and cantaloupe (see the article titled Cucurbit Downy Mildew Found on the Eastern Shore of Maryland in WCU 17:17). Squash and pumpkin plantings should be scouted rigorously and treated with a protectant spray schedule (such as weekly applications of chlorothalonil). Once downy mildew is observed on the shore, switch to a targeted spray program.

Watermelons also should be scouted frequently and treated with a protectant fungicide schedule. The last (and closest) report of downy mildew on watermelon was on June 22 in Sampson County, NC. Downy mildew has not been observed on watermelon north of that location. **When** downy mildew is detected on watermelon in the Mid-Atlantic, a targeted fungicide program that includes one of the following: Presidio, Previcur Flex, Tanos, Gavel, or Curzate is warranted for watermelons.

Nitrogen Deficiency in Sweet Corn – *Gordon Johnson, Extension Ag Agent, Kent Co.*; gcjohn@udel.edu

Residual effects of wet weather in May and early June continue to be evident in vegetable crops across the state. Nitrogen deficiency is the most common nutrient related disorder being found. This was a difficult year to determine how much additional nitrogen was going to be needed at sidedressing. Leaching rains and waterlogged fields with high levels of denitrification complicated the issue as up to 60% of N applied preplant or at planting was lost, N mineralization from organic matter and manure additions was reduced, and any N that was mineralized was subject to further losses with heavy rains. In addition, in wet areas, corn roots were not functioning properly and N uptake was limited.

I recently looked at several fields of sweet corn with nitrogen deficiency that was severe enough to reduce ear number and size. Nitrogen deficiencies in sweet corn result in an overall pale color with lower leaves becoming yellow from the tips in a V pattern. In severe N deficiencies, these V shaped areas will become necrotic and entire leaves may dry up. These fields showed these classic N deficiency symptoms. A useful tool to determine the extent of N deficiencies is the chlorophyll meter which measures how "green" the plant is. In these N deficient field areas, chlorophyll meter readings were 25-50% lower than surrounding corn that was not showing any symptoms. The following are some pictures:

Nitrogen deficiency showing up as a yellowing of lower leaves in a V pattern from the tip backward

More severe N deficiency with necrotic V area on leaf and dead lower leaves

Chlorophyll meter reading on the ear leaf of a N deficient plant. The reading on this plant was more that 50% lower than plants without N deficiency symptoms in an adjacent field.

In the fields examined, the most severe problems were in very sandy areas and low spots. These are areas where the most N loss would be expected. Other field areas were not heavily affected and appeared normal with chlorophyll meter readings above 50. One grower reported that they used a Pre-Sidedress Nitrogen Test (PSNT) in areas that had received manure and values indicated that no additional N was needed. While the PSNT is a valuable tool to manage nitrogen in sweet corn, any recommendations should take into account weather at and after the time of sampling. Low PSNT values may result from heavy rains just prior to sampling (it is recommended to wait several days after heavy rains to take samples for PSNT's). High PSNT values (>21 ppm) would indicate no additional N is needed. However, heavy leaching rains, waterlogging, and cold weather still could still render the crop N deficient even with these high values.

Chlorophyll meter reading on the ear leaf of a fully green plant that was not showing N deficiency. We would expect readings in the 50s or low 60s. Values lower than 50 would indicate a N deficiency.

High Populations of Striped Cucumber Beetle and Squash Bug this Year in Cucurbit Fields

– *Jerry Brust, IPM Vegetable Specialist, University of Maryland*; jbrust@umd.edu

This has been a particularly bad year for striped cucumber beetles and squash bugs in watermelon, pumpkin and squash. Some fields have been hit particularly hard with beetles causing 10-15% plant loss due just to their feeding. The biggest problem with these pests and why control sprays have not worked well is that they are consistently hiding in the plastic hole where they are feeding on the stem (Fig. 1). Sprayers are set up usually to cover a lot of leaf canopy and do not do a very good job of putting chemical down in the plant hole. This stem feeding can be severe enough that either pest alone could cause some wilting, but with both feeding on this relatively small area of the stem they are causing considerable damage (Fig. 2). In one case, when the pumpkin plant was pulled up 3 squash bugs refused to move off of it, so intense was their feeding (Fig. 3). It is hard enough to kill squash bug adults with a good cover spray, but when only small amounts of spray are reaching them down in the plant hole they will not be controlled. Often it is possible to walk by plants and even inspect them and still see no beetles or squash bugs, as they will stay down at the base of the plant and only move when the base is exposed. In one field 1 out of every 15 plants was wilting (Fig. 4) due to squash bug and cucumber beetle feeding. These pictures are from a pumpkin field but the same problem is occurring in watermelon fields with both striped cucumber beetles and squash bugs feeding on plants down in the plant hole. If this type of feeding is occurring in your fields, insecticide applications (pyrethroids such as Asana, Warrior, bifenthrin) must be directed down at the base of the plant.

Figure 1. Cucumber beetle feeding at base of plant in plastic hole

Figure 2. Severe feeding on pumpkin stem by striped cucumber beetle and squash bugs

Figure 3. Three squash bug adults refusing to relinquish their pumpkin stem

Figure 4. Wilted plant due to striped cucumber beetle and squash bug feeding at its base

Potato Disease Advisory #19 – July 16, 2009 – *Bob Mulrooney, Extension Plant Pathologist*; bobmul@udel.edu

Disease Severity Value (DSV) Accumulation as of July 15, 2009 is as follows:
Location: Shadybrook Farms, Little Creek, DE in Kent County.
Greenrow: May 1

	LATE BLIGHT			EARLY BLIGHT
Date	**Daily DSV**	**Total DSV**	**Spray Recs**	**Accumulated P-days***
6/24	1	112	7-day interval	470
6/25-6/28	0	112	10-day interval	495
6/29	0	112	10-day interval	503
6/30	0	112	10-day interval	511
7/1	2	114	10-day interval	519
7/2	1	115	10-day interval	528
7/3-7/5	0	115	10-day interval	555
7/6-7/8	0	115	10-day interval	581
7/9-7/12	0	115	10-day interval	616
7/13-7/15	0	115	10-day interval	641

There have been no new late blight reports on potato or tomato from DE since last week. The recent clear days and low humidity are not favorable for new infections. Be sure to keep scouting, especially in those areas where fungicide coverage might not be the best or next to woods lines and places where the dew lingers in the morning, low areas, etc. The weather now is not very favorable for late blight, but continue with preventative fungicides if crop development requires more growing time.

Agronomic Crops

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

Alfalfa

Continue to scout fields on a weekly basis for leafhoppers. During extended periods of hot, dry weather, you may need to reduce treatment thresholds by a third to a half. We have also received reports of increased levels of pea aphids and thrips in some alfalfa fields. As a general guideline for pea aphid management, you should consider a treatment in alfalfa less than 10 inches tall if you find 40 aphids per stem. The treatment threshold for alfalfa 10 inches or taller in height is 75-100 per stem. Beneficial insects can help to crash aphid populations; however, as a general rule, you need one beneficial insect per every 50-100 aphids to help crash populations.

In past years, we have seen increases in thrips during hot, dry weather conditions. Reports from other areas of the country indicate that thrips feeding on developing leaf tissue can cause the leaves to distort as they emerge. Leaves may also be curled, with a cupped or puckered appearance. Since there are no thresholds for thrips in alfalfa and we have limited experience with this pest in Delaware, the following information from other areas of the country may be helpful when considering the need for thrips management: (a) high populations of bean or onion thrips may cause damage, especially in dryland conditions and (b) if a thrips treatment is contemplated, it is best to cut as soon as possible and treat the regrowth if the infestation persists. Thrips are very difficult to control in alfalfa, so excellent coverage is important and two applications may be required for satisfactory results.

Soybeans

We continue to see a number of defoliators (grasshoppers, blister beetles, Japanese beetles, bean leaf beetles, green cloverworm, etc.) present in full season and double crop beans. As fields enter the bloom to pod fill stages, remember that the threshold drops to 15% defoliation.

We are starting to see an increase in stinkbug populations in full season bean fields so be sure to watch for this insect as the earliest maturing fields begin to set pods. Economic damage 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. We are currently following the same guidelines that are being used in Virginia. Thresholds are also 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.

Spider mites continue to be found in fields throughout the state, especially along field edges. Remember, early detection is needed to achieve control. In addition to dimethoate and Lorsban, we now have Hero (zeta-cypermethrin + bifenthrin) as well as a number of stand alone bifenthrin products (*not all are labeled so be sure to check the label*) available for spider mite control in soybeans. All of these products need to be applied before mites explode. Be sure to read the labels for use rates and restrictions — there is a limit on the number of applications as well as the time between applications on all of the materials labeled for spider mite control. As a reminder, dimethoate is very susceptible to alkaline hydrolysis (chemical breakdown from high pH water) so pH of water is an important factor to consider with dimethoate applications.

Although we have only seen an increase in soybean aphid populations in a few fields in New Castle County, be sure to watch for this insect in full season beans. This aphid is favored by cooler temperatures so we could see population increases, especially if we continue to experience moderate temperatures. The treatment threshold established in the Midwest is 250 aphids per plant from R1 through R5 stage of growth. The following links from the University of Wisconsin provide good information on sampling, stages of soybean growth and

development, thresholds and treatment guidelines:
http://www.plantpath.wisc.edu/soyhealth/aglycine.htm
http://www.plantpath.wisc.edu/soyhealth/pdf/aphid_thresholds.pdf

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

Ideal Growing Conditions Taking Toll on Commodity Prices

What now sounds like a broken record has grain market analysts and traders lulled into the belief that current growing conditions may lead to even larger corn and soybean crops than estimated in the July USDA Supply and Demand Report. That report estimated the national average yields for U.S. corn, soybean, and SRW wheat production at 153.4, 42.6, and 41.9 bushels per acre, respectively. The belief that U.S. crop conditions are good 'n better in a large part of the Corn Belt has commodity prices parting company to some degree with the performance of the Dow, which is currently higher than it has been in some time, just topping 8,600. Since the first week of June, Dec '09 corn prices have declined $1.36 per bushel ($208.62 per acre); Nov '09 soybeans $1.95 per bushel ($83.07 per acre); and Dec '09 SRW wheat $1.62 per bushel ($67.87 per acre). Only time and the impact of the weather on the remainder of the growing season will tell whether pricing opportunities arise for advancing pre-harvest sales for '09 corn and soybeans.

USDA Weekly Export Sales Report - Week Ending July 9

While totals for corn, soybeans and wheat in this week's USDA export sales report fell generally within the range of pre-report guesses, corn and wheat numbers remained short of what was needed this week to stay on pace with USDA annual projections.

Pre-report estimates had weekly corn export sales at 33.5 to 45.3 million bushels combined old crop and new crop sales. The weekly report showed export sales of 27.5 million bushels in old crop corn, well above the 3.7 million bushels needed to meet USDA's revised projection of 1.8 billion bushels, while new crop sales were 18.4 million bushels. Total shipments of 38.2 million bushels were below what was needed this week. The report is viewed as neutral to bearish.

Pre-report estimates for soybeans ranged between 18.4 and 27.6 million bushels of combined old crop and new crop sales. The weekly report showed export sales of 4.9 million bushels in old crop soybeans, making total sales for the year 1.266 billion bushels, above USDA's revised projection for 1.26 bb. New crop sales were reported at 20.2 million bushels. Total shipments of 14.3 million bushels were slightly below what was needed this week. This report is viewed as bullish.

Pre-report estimates for wheat ranged between 14.7 and 18.4 million bushels. The weekly report showed export sales of 15.5 million bushels, below the 15.8 million bushels needed to stay on pace with USDA's revised export projection of 925 million bushels. Shipments of 6 million bushels were well below what was needed this week. The report is viewed as bearish.

Market Strategy

New crop corn and soybean futures prices have continued their downward slide this week. Dec '09 corn futures are currently trading at $3.32 as compared to $3.40 a week ago. Nov '09 soybean futures are currently trading at $8.97 as compared to $9.16 a week ago. Corn is expected to test support this next week, meaning that prices could move even lower. Soybean prices are expected to test resistance meaning they could move higher.

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

Announcements

Hay You Farmers!!
Breakfast Social and Informational Meeting
Wednesday, August 5, 2009 7:00 a.m.
Ches Del Diner
2120 DuPont Parkway, Middletown, DE

We know it's been a wet year... we can't do much about the weather — but we can help you understand how to manage your hay fields and how to keep a bad situation from getting worse.

Join your fellow producers and the UD Extension team to hear about this year's small grain variety trial results and an information segment on making hay. There will be time for questions and answers. Get your questions answered by asking the experts!

We will apply for DE Pesticide and Nutrient Management and CCA credits.

Please pre-register by July 28th.

This meeting is free and everyone interested in attending is welcome. To register, request more information or if you require special needs assistance for this meeting, please call our office in advance at (302) 831-2506.

See you there!
Anna Stoops, New Castle County Agricultural Extension Agent

Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of July 9 to July 15, 2009

Readings Taken from Midnight to Midnight

Rainfall:

0.01 inch: July 12
0.02 inch: July 15

Air Temperature:

Highs ranged from 87°F on July 15 to 72°F on July 10.

Lows ranged from 72°F on July 12 to 58°F on July 11.

Additional Delaware weather data is available at http://www.deos.udel.edu/agirrigation_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. For subscription information, contact her at emmalea@udel.edu or (302) 856-2585 x 587.