



WEEKLY CROP UPDATE

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Vegetable Crops

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

The potential for corn earworm and corn borer pressure remains high in fall vegetable crops statewide. Trap catches remain high throughout the state and moths can be found laying eggs in fields so you may need to scout fields at least twice a week as well as check local trap catches (<http://ag.udel.edu/extension/IPM/traps/latestblt.html>) or call the Crop Pest Hotline in state: (800) 345-7544; out of state: (302) 831-8851).

Cabbage

Continue to sample for cabbage looper, diamondback larvae, beet armyworm, fall armyworm and Harlequin bug. Although the pyrethroids will provide control of Harlequin bugs they are not effective on diamondback or beet armyworm in our area. So be sure to scout and select controls options based on the complex of insects present in the field.

Lima Beans

Continue to scout for stink bugs, lygus bugs, beet armyworm and corn earworm. With the high corn earworm moth catches, moths can be readily found laying eggs in fields. Be sure to sample for corn earworm larvae as soon as pin pods are present. A treatment will be needed if you find one corn earworm larvae per 6 ft-of-row. At this time of year, we have also found soybean loopers in lima bean fields. If soybean loopers become a problem again this year,

remember that they are a migratory pest, difficult to control and pyrethroid resistance has been documented in states to our south. The Belt SC federal label was recently expanded to include legume vegetables and soybean looper is on the label. However, it is not included on the DDA's state registration list as of Aug 17.

Materials must be labeled both federally and in-state to be used on a crop. We will let you know when it has received a state label as well or you can check their website

<http://www.kellysolutions.com/de/pesticideindex.htm>. The Lannate LV label lists loopers on the label. Be sure check the label for rates, restrictions (including plant back restrictions) and days from last application to harvest.

Peppers

At this time of year, corn borer, corn earworm, beet armyworm and fall armyworm are all potential problems in peppers. So be sure to select the material that will control the complex of insects present in the field. Be sure to check local moth catches in your area by calling the Crop Pest Hotline (in state: (800) 345-7544; out of state: (302) 831-8851) or our webpage at <http://ag.udel.edu/extension/IPM/traps/latestblt.html>. We are also starting to see aphid populations increasing, especially in fields where pyrethroids have been used on a weekly basis. Treatments for both of these pests will need to be applied before populations explode.

Snap Beans

With the high trap catches, you will need to consider a treatment for both corn borer and corn earworm. You should also watch for beet

armyworms. Sprays are needed at the bud and pin stages on processing beans for worm control. With the diversity of worm pest that may be present in fields, be sure to scout fields and select materials that will control the complex of insects present. For the most recent trap catches in your area and to help decide on the spray interval between the pin stage and harvest for ECB control in processing snap beans, you will need to call the Crop Pest in state: (800) 345-7544; out of state: (302) 831-8851 or check our website <http://ag.udel.edu/extension/IPM/traps/latestb/t.html> and <http://ag.udel.edu/extension/IPM/thresh/snapbeanecbthresh.html>.

Spinach

As the earliest planted spinach emerges from the ground, be sure to watch for webworms and beet armyworms. Both moths are active at this time and controls need to be applied when worms are small and before they have moved deep into the hearts of the plants. We are seeing an increase beet armyworm populations being found in vegetable crops - so it will also be important to select a material that will provide beet armyworm control. As a reminder, the pyrethroids have not provided effective beet armyworm control in past years. It also appears that webworm populations may be heavier than normal (typical during hot, dry seasons) so it is important to apply controls before any webbing occurs. Remember that both insects can produce webbing on the plants. Generally, at least 2 applications are needed to achieve control of webworms and beet armyworm.

Sweet Corn

With the continued high corn earworm trap catches, be sure that a spray is applied as soon as ear shanks are visible on plants. If fall armyworms are present in the whorl, you will need multiple whorl sprays for this insect before the ear shank spray to achieve effective control and to prevent larvae from dropping into the ear zone. Once fields are silking, you will need to check both blacklight and pheromone trap catches for silk spray schedules since the spray schedules can quickly change. (<http://ag.udel.edu/extension/IPM/traps/latestb/t.html>) or call the Crop Pest Hotline in state: (800) 345-7544; out of state: (302) 831-8851). Be

sure to check all labels for days to harvest and maximum amount allowed per acre.

Late Summer and Early Fall Considerations for Vegetable Growers - Gordon Johnson, *Extension Vegetable & Fruit Specialist*; gcjohn@udel.edu

While there will still be hot days ahead, late summer and early fall bring different challenges and opportunities for vegetable growers. The following are some considerations at this time of year:

- The day length is getting shorter each day and there is less heat accumulated during the day. We have passed the latest planting dates for most summer planted - fall harvested crops to go to successful harvest. A good example is with cucumbers where a 2-3 day planting difference in early August (between August 7 and August 10 for example) will mean the difference between a successful crop and a crop that will not mature in time or that will have low yields. Remember that you are up against the first frosts with many of these crops. There is still time however for many of our frost tolerant crops. Greens, earlier maturing broccoli, spinach, and lettuce for harvest in leaf stage can all be planted through the end of the month for fall harvest.
- Extending harvest seasons is a consideration, especially for smaller growers who sell directly. Floating row covers, low tunnels, and high tunnels are all tools to use for frost protecting sensitive crops (such as a late crop of tomatoes) and for carrying cold season crops into the winter and sometimes over the winter. Older methods such as field storing root crops (think parsnips, turnips, carrots) using mulches for later digging can still be employed.
- Late summer and fall planted overwintering crops will be planted over the next 2 months. This includes plasticulture strawberries, spinach, and garlic. However, there are many other vegetable crops that can be successfully overwintered, especially vegetables in the mustard family and onion family and even some cold hardy legumes.

- Cooler nights and lower duration of high temperatures during the day helps to maintain pod set on snap bean and lima bean crops that will be harvested in September through mid-October. This year has been particularly hard on bean crops maturing in July and August.

- Irrigation management becomes less of a challenge for fall crops because evapotranspiration is reduced. Attention should be paid so as not to over-irrigate as the late season progresses to avoid disease problems.

- Late summer and early autumn brings new challenges in regards to pests. This is the time of the year when we see peaks of many insect pests (such as corn earworm), migratory insect populations that have arrived or will arrive in high numbers, and late season insects in higher numbers. With the lower temperatures and longer nights, dews are heavier, often leading to increased disease pressure and the appearance of late season diseases. Throw in a hurricane or tropical storm during this period it can be a recipe for disaster in some vegetable crops.

- This is also the time of year when growers should be planting cover crops, windbreaks, overwintering biofumigant crops, and overwintering legumes for nitrogen sources where next year's vegetables will be planted. For a review of these options see the WCU article titled [Late Summer and Fall Cover Crops for Vegetable Ground](#) in WCU [17:24](#). Good rotations are critical for vegetable crop production and planning should start now.

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

The forecast for downy continues to be moderate to low for most of Delaware and the eastern shore. Maintain fungicide programs to protect cucurbits from infection by downy mildew. This time of year it begins to move to pumpkin, winter and summer squash, cantaloupe and watermelon. For more information on the forecast see the website <http://cdm.ipmpipe.org>.

Watch for Tomato Late Blight - Bob Mulrooney, Extension Plant Pathologist; bobmul@udel.edu

Late blight has not made an appearance in Delaware so far this year. Late summer and fall is when we usually see it on home garden and truck crop tomatoes. For late tomatoes continue with Bravo and/or mancozeb as your protectant fungicide and add a late blight specific fungicide if late blight should occur in the region. See the [2010 Delaware Commercial Vegetable Production Recommendations](#) for products and rates.

Scout Lima Beans for Disease - Bob Mulrooney, Extension Plant Pathologist; bobmul@udel.edu

At this time last year downy mildew on lima beans had been seen. So far weather conditions have not been favorable for downy mildew. It looks like the weather may be changing and getting a bit cooler with more dew and possibly fog in the early morning hours. If it should start raining soon growers and crop consultants should be scouting for downy mildew. Race F of *Phytophthora phaseoli* was the only race identified in 2006, 2008 and 2009.

Preventative applications of 2 lbs fixed copper, 2 lbs Ridomil Gold/Copper, or 3- 4 pts Phostrol have provided control of downy mildew in the past. The newest formulation of fixed copper from DuPont is Kocide 3000 and it performs as well as the other formulations of copper at the rate of 1.3 lbs/A. The best controls continue to be Ridomil/Gold Copper, Phostrol or other labeled phosphonate fungicides, especially when disease pressure is high. Application at flowering or when pods are first forming is recommended if weather is favorable for disease. If disease is present Ridomil/Gold Copper and Phostrol have shown to provide some curative activity if applied when downy mildew is first seen. If downy is present in the field do not use copper fungicides alone for curative control, they will not provide control. Another product that is labeled on lima beans for white mold control is Omega but not downy mildew, but in DE this would be a 2ee use that someone like myself can recommend since the fungicide is labeled on

lima beans. I have two years data that show excellent control of downy mildew at 5.5 fl oz and 8.0 fl oz/A as a preventative application (before disease is found in the field). Ridomil Gold/Copper has a national label now so no 24c label is needed. Headline from BASF is also labeled for downy mildew as well. I have tested it and it has provided good control of downy when applied on a 10 day schedule at 6.0 fl oz /A. It does not give as good disease control as Ridomil Gold/Copper or Phostrol preventatively but the yields have been comparable. It is also labeled for anthracnose which the other products do not control.



Downy mildew caused by *Phytophthora phaseoli*



Downy mildew on raceme and petiole



Phytophthora capsici on lima bean pod.

Phytophthora capsici will infect lima bean pods as well and can look very similar. *P. capsici* or lima bean pod rot is usually found in wet low spots in the field. The fungus growth looks more granulated or “pebbly” than downy mildew, microscopic confirmation is encouraged.



R. Mulrooney

Downy mildew on the upper pod and lima bean pod rot on the lower pod. Note the granular appearance of the fungus on the lower pod and the lack of a reddish brown border on the pod infected with lima bean pod rot or *Phytophthora capsici*.

Pumpkin Spray Programs - Kate Everts, Vegetable Pathologist, University of Delaware and University of Maryland; keverts@umd.edu

I frequently am asked for a “good” spray program for pumpkins. This is always a difficult program to design because it depends on field

history (i.e. has Phytophthora crown rot occurred in the field), production practices (no-till vs. bare ground), and the grower's philosophy about control (Cadillac treatment program vs. minimal inputs). Keep the following in mind to design a good spray program:

- Know what diseases are the most common on your farm. Previous problems with black rot, Phytophthora blight, anthracnose, scab or other diseases may indicate that these diseases are likely to be problems again.
- Know if downy mildew is present on Delmarva. When downy mildew is present your spray program should include effective downy mildew materials. Downy mildew was confirmed in Wicomico County, MD Aug. 17, 2010 (see below).
- Scout 50 old leaves in your field for powdery mildew lesions. If powdery mildew is present in the field, apply materials that are targeted for it.
- Even after implementing a program, scout your fields frequently and modify your program if new disease problems occur.
- Familiarize yourself with the [Commercial Vegetable Production Recommendations section on pumpkins](#). Many fungicides are available for controlling different diseases.

Quintec is a newly registered powdery mildew fungicide. It has performed very well in my trials. Apply at 6 fl. oz. /A with chlorothalonil and alternate with other powdery mildew materials.

Downy mildew has been confirmed in Wicomico County, Maryland. Fungicide spray programs should be revised to include fungicides with good efficacy on downy mildew.

Sprays should be applied on a 7-day schedule. The most effective materials are Ranman, Presidio and Previcur Flex. Tank-mix with a protectant such as chlorothalonil--1.5-3 pt 6F/A and alternate between different modes of action (FRAC codes):

Ranman--2.1-2.75 fl. oz 400 SC/A, plus an adjuvant

or

Presidio--3.0-4.0 fl oz 4SC/A

or

Previcur Flex--1.2 pt 6F/A

Other materials for use in tank mix or alternation:

Tanos--8.0 oz 50WDG/A

or

Curzate--3.2 oz 60DF/A

Materials with different modes of action (FRAC codes) should always be alternated to reduce the chances for fungicide resistance development.

A good fungicide spray program will increase yields and improve quality. The single best way to improve handle quality is to control foliar and fruit diseases in season.

Agronomic Crops

[Agronomic Crop Insects](#) - *Joanne Whalen, Extension IPM Specialist*; jwhalen@udel.edu

Alfalfa

Be sure to watch for fall armyworm, beet armyworm, webworms and corn earworm, which can quickly defoliate alfalfa. Mixed populations of larvae can be found in fields and controls should be applied before significant defoliation occurs. Also, larvae must be small to achieve effective control.

Defoliators can be destructive in last cuttings, especially during drought conditions. When defoliators are present, early harvest may eliminate the problem. Although there are no specific thresholds, as a general guideline if the crop is more than 2 weeks from cutting and 25 to 30 percent of the terminals are damaged, treatment is suggested.

Soybean

Be sure to continue to scout carefully for earworms during the next few weeks. Local trap catches as well as traps to our south continue to have high moth activity.

Economic levels and hot spots of high levels continue to be found in fields throughout the

state but they are not present in every field. In addition they are being found in both full season and double crop fields so the only way to know if you have an economic level will be to scout. In the past, we have used the treatment threshold of 3 corn earworms per 25 sweeps in narrow fields and 5 corn earworms per 25 sweeps in wide row fields (20 inches or greater). However, these are static thresholds that were calculated for a 10-year average soybean bushel value of \$6.28. A better approach to determining a threshold 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. With the recent rains, I have been asked if it will help to reduce/and or crash populations. Although extremely small larvae may be susceptible to the rains, we have not seen any indication of disease in worms so it is too early to decide if weather will play a role in moderating populations.

As far as defoliators, grasshoppers and bean leaf beetles are starting to cause economic levels of defoliation in some full season fields so be sure to watch for these two insects as well as corn earworm. Remember, that in addition to defoliation both can feed on and/or scar pods. There are also beet armyworms present in some fields. It also appears that in some cases they may be confused with yellow striped armyworms. The following links have pictures of both larvae :

Yellow Striped Armyworm

<http://www.ent.iastate.edu/imagegal/lepidoptera/armyworm/nystripedarmyworm.html>

Beet Armyworm

http://www.utextension.utk.edu/fieldcrops/cotton/cotton_insects/images/BAW-larva-close.jpg

Kentucky Pest News - Aug 10 newsletter - has good pictures of defoliators in soybeans -

http://www.ca.uky.edu/agcollege/plantpathology/extension/KPN%20Site%20Files/kpn_10/pn_100810.html

Although population have been lower this season in our area as well as in a number of Midwestern states, you should continue to scout for soybeans aphids, especially in later planted fields. This aphid can increase if the temperature turns

cooler. Remember the threshold is 250 aphids per plant with the populations rising up until the R-5/ and in some cases R-6 stage of plant development. You should also watch for beneficial insect activity that can help control populations.

Lastly, although populations have been moderate this season, there are reports of an increase in populations of green 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 (green and/or brown stink bugs), 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.

For more information on what is occurring in Virginia, you will want to look at the Virginia Ag Pest Advisory (<http://www.sripmc.org/Virginia/>).

Soybean Rust Update - *Bob Mulrooney*,
Extension Plant Pathologist; bobmul@udel.edu

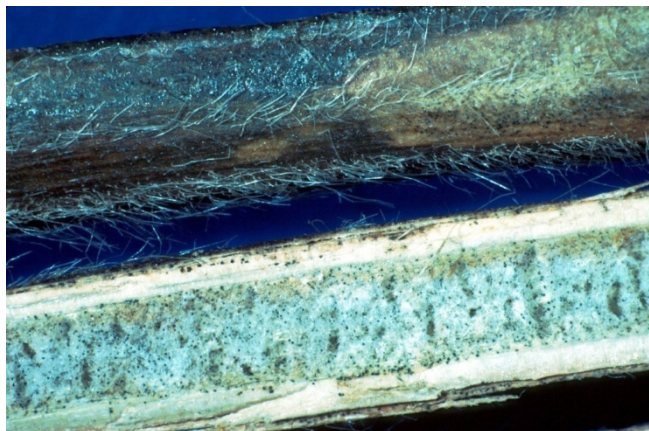
It looks like most soybean areas in the US may escape soybean rust this season. It has yet to be seen on soybeans in the South. To date it has only been observed on kudzu.

The linked pdf file shows the [30-day Soybean Rust Risk Outlook](#).

Charcoal Rot is Showing Up in Soybeans -
Bob Mulrooney, *Extension Plant Pathologist*;
bobmul@udel.edu

Charcoal rot was identified this week on a late Group III soybean variety. Charcoal rot is favored

by dry weather that follows wet weather soon after planting. Usually irregularly sized patches of infected stunted, dying plants are seen in the field, but sometimes you can see individual plants in the row infected, and dead or dying. When this happens you see scattered plants dying either singly or several in a row flanked by healthy ones. Carefully dig up plants and look at the roots and lower stem. They will often be gray and if you scrape the gray lower stem or roots you can see many small black flecks that look like the tissue was covered with powdered charcoal. Often if the plants are dead and you split the stems the pith is full of these tiny microsclerotia as well. Rotation will help to some degree as well as planting later maturing varieties. This disease will always be a threat to Group II and III soybeans planted full season, if planting in fields previously cropped to soybeans when a season is wet early and then the crop is drought stressed during pod fill like this year. Double-crop soybeans are not usually infected with charcoal rot. We will likely be seeing more of this disease as the month progresses.



Charcoal rot on split soybean stem. Note the powdered charcoal appearance of the microsclerotia imbedded in the stem tissue and scattered in the pith.

Plan Ahead to Deal with Corn Stalk Rots, Ear Rots and Toxins in Grain - *Arvydas (Arv) Grybauskas, Extension Plant Pathologist, University of Maryland; arvydas@umd.edu*

Corn harvest will begin earlier this season due to the high average temperatures increasing the speed with which growing degree-days (GDD) have accumulated. Typically in seasons

characterized by high temperatures and droughty conditions there is an increase in stalk rots and certain ear rots. Most notably two fungal ear rots that can produce toxins in the grain, *Aspergillus* and *Fusarium* ear rot, are favored by these conditions. The more dangerous of the two is *Aspergillus*. *Aspergillus* infected kernels can contain the carcinogenic toxins known as aflatoxins.

Aspergillus is a fungus that is highly tolerant of high temperatures. Because of its high temperature tolerance it is the most prevalent ear-infecting fungus during hot dry conditions. The fungus survives in soil and crop debris and is spread to silks by wind and insects. The use of certain types of BT corn have helped reduce the incidence of *Aspergillus* infection by reducing the insect-associated infections but direct infections are still possible. Stressed corn appears to be more susceptible to infection. Typically only a few kernels near the tip are infected by *Aspergillus*, but tolerance levels for aflatoxin are in parts per billion (e.g. 20 ppb for human consumption). A blacklight is commonly employed as a quick preliminary test for aflatoxin contamination. A sample of cracked or coarsely ground kernels is illuminated with a blacklight and viewed for a yellow-green fluorescence. It is important to know that the fluorescing material is not aflatoxin itself but often is an indicator of (correlated with) aflatoxin. Other material will fluoresce under blacklight like corn glumes (a.k.a. beeswings), certain weed seeds, and uninfected kernel tips, so that false positives are possible. Since the advisory limits are at ppb levels false negatives are also possible with the blacklight test. There are commercially available rapid test kits that provide better and in many cases quantitative detection, as well as commercial labs that will test for toxins.

Similarly, *Fusarium* ear and kernel rot is favored by high temperatures and droughty conditions especially when they occur near flowering. There are several species of *Fusarium* that are involved but generally are different from the primary species that cause scab in wheat. *Fusarium* ear and kernel rot is important because of a production of a class of toxins known as Fumonisin. Fumonisin are known to cause equine leukoencephalomalacia, “blind staggers”

in horses and pulmonary edema in swine, and have been linked to human cancers in other parts of the world. Different tests are required to detect Fumonisin.

Stalk rots caused by fungi leading to premature lodging are also generally favored by stressful growing seasons. In general any stress on the corn plant can lead to insufficient capacity of the plant to provide photosynthate to the developing ear. When the capacity is exceeded the plant mobilizes stored carbohydrates from the stalks to fill the demand. This leads to premature senescence of stalk tissue and predisposes the plant to colonization by any number of opportunistic stalk rotting fungi.

Regardless of the stalk rot or ear rot, there are a few things that can be done to minimize losses and improve the harvestability. First, harvest the corn at high grain moisture (25 to 27%), and make sure the combine is adjusted properly to minimize cracking. Harvesting as early as practical reduces the time that the damaging fungi have at colonizing the tissue. This reduces lodging due to stalk rots, kernel infection and toxin development. Cracked kernels are more susceptible to post-harvest colonization and toxin development. You can also use simple pre-harvest stalk testing to determine which fields are at greater risk for lodging to schedule harvest accordingly. You can pinch stalk internodes to determine a percentage that are soft and likely to lodge if left in the field, or you can use the push test. The push test is simply pushing corn stalks at arms length and determining the percentage that break. In both cases the greater the number of plants and sites scouted the better the information. A rule of thumb I like is 10 stalks in 10 sites for every 10 acres. It is also important to note that fungicides used near tassel will not have a direct effect on stalk rotting. If there was a foliar disease then fungicides reduce the stress associated with the foliar disease and this indirectly reduces stalk rotting. There is no fungicide residue available by the time stalks are predisposed to stalk rotting fungi to directly affect the colonization by these fungal organisms.

Secondly, to reduce the damage from ear rots and in particular to keep toxin development to a minimum, after harvesting corn at high moisture

with careful attention to reduce cracking, dry the corn as soon as possible (within a day or two) to 15.5% moisture or lower. The ear rotting fungi continue to grow in high moisture corn in the bin. Controlling moisture and temperature of harvested corn is the most cost-effective method of preventing spoilage.



Figure 1. Healthy stalk (left), stalk rot (right).



Figure 2. Fusarium ear rot.

The Decisions You Make Pre-Season Have the Greatest Affect on Wheat Scab and its By-Product Vomitoxin - Arvydas (Arv) Grybauskas, Extension Plant Pathologist, University of Maryland; arvydas@umd.edu

Fusarium head blight (FHB) or head scab is a serious disease of small grains that does not develop every season. As a consequence we tend to drop our guard or just operate as we always have done because it is not front and center in our minds. The last big one was now two seasons ago, and only a few growers experienced

vomitoxin (DON) levels above 1 ppm last season. Vomitoxin is the toxin produced by the fungus that could result in rejection of loads at the elevator or mill. Diseases are always the result of a combination of factors. We have a general rotational sequence of field crops that puts us at risk of scab every season. A serious outbreak of scab is highly dependent on weather conditions just prior to flowering through grain development. Weather is obviously something we cannot control but that does not mean there aren't things we can do to reduce the risk of scab and ensure a harvestable crop.

We have been conducting scab management research with funding from The Maryland Grain Producers Utilization Board, the US Wheat and Barley Scab Initiative and the University of Maryland Experiment Station, which illustrates the importance of integrating management practices. The data that follows demonstrates that:

- 1) No one tactic (ie. fungicide or resistant variety) is sufficient in a serious outbreak;
- 2) Fungicides, although vastly improved and still an important tactic, provide the smallest increment in reducing DON;
- 3) Distance to a source of inoculum (primarily infested corn stubble) has the largest effect on scab, followed by resistant varieties and fungicides.
- 4) Management of scab is best achieved by integrating practices that minimize in-field inoculum and take distance to a local source into consideration, selecting varieties with some resistance, and using fungicides when needed.

The management research was conducted using 6 wheat varieties representing the range of resistance to scab that was known and was commercially available. To keep things brief we will focus on DON levels to illustrate the effects of resistance and other management practices. Varieties were ranked on the basis of DON levels based on trials conducted over several seasons in inoculated nurseries and naturally infected State wheat trials. A percentile was then calculated so that a variety with a 0.9 percentile means it is in the 90th percentile or is in the top 10% of resistant varieties tested. A variety that had a percentile of 0.1 means it had high levels of DON

on average and is in the bottom 10% of tested varieties. Wheat trials were planted with all six varieties at the Wye and Beltsville facilities of the University of Maryland Experiment Station. All sites were turbo-tilled and each location had a planting where the previous crop was corn and another planting where the previous crop was soybean. A major difference between locations is that wheat planted into soybean stubble at the Wye was surrounded by corn, whereas at Beltsville the nearest corn stubble was about 300 ft to the south for the soybean-wheat rotation. This difference greatly affected scab development and DON levels. At the Wye wheat following soybeans had DON levels only 10% lower than wheat following corn, whereas at Beltsville DON levels were 40% lower in wheat following soybeans (Table 1). This illustrates that the most important source of spores for scab development is within the field, and that nearby sources provide background levels of spores that can still infect a crop regardless of rotation. Nevertheless, by reducing the spore load with a rotation away from corn (or wheat) even in a very disease favorable year and a highly susceptible variety, DON levels are close to 1 ppm and could be mixed with clean seed to be marketed.

Variety selection is clearly a very important tool to reduce the potential for DON levels that could make or break your season. Even varieties in the middle percentiles have a huge advantage over highly susceptible ones. Yet no variety by itself under high disease potential consistently had DON levels below 1 ppm. Fungicides provided another increment of DON reduction averaging about 40%. Yet 40% of 2 ppm is still above the stringent FDA guideline of 1ppm for human consumption. Combining resistance to DON from a variety that is in the 75th percentile or above with the recommended fungicides can get us very close to 1 ppm or at least to levels that could be mixed with clean seed to market. Combining all three tactics, rotation with resistance and fungicides when needed is the best way to keep scab and DON from destroying your crop. Rotation and variety selection is a pre-season management decision. The time is now to make the best management choices, a table on varietal rankings based on DON levels is provided to help make the choices.

Table 1. Scab Management Research 2009 - Effect of rotation, cultivar and Prosaro fungicide on DON (ppm) in wheat. Dr. A. Grybauskas and E. Reed, Univ of Maryland.

Cultivar	DON Ranking (percentile)	Previous crop CORN			Previous crop SOYBEAN		
		Untreated	Treated	Control (%)	Untreated	Treated	Control (%)
Wye		DON (ppm)			DON (ppm)		
SS 8641	0.10	16.5	11.6	29.7	13.9	7.4	46.8
P 26R15	0.38	3.9	2.8	28.2	4.1	2.5	39.0
Chesapeake	0.52	3.7	2.5	32.4	4.6	2.4	47.8
McCormick	0.77	3.0	1.2	60.0	2.0	1.1	45.0
Coker 9511	>0.8*	0.7	0.8	0.0	1.5	1.2	20.0
Bess	>0.8*	1.5	0.6	60.0	1.8	1.3	27.8
*estimated Average		4.9	3.2	42.1	4.7	2.6	37.7
Fungicide Average % Control		39.9					
Estimated Control due to rotation		9.9					
Beltsville		DON (ppm)			DON (ppm)		
SS 8641	0.10	11.8	9.3	21.2	1.7	1.2	29.4
P 26R15	0.38	5.6	3.9	30.4	0.6	0.8	0.0
Chesapeake	0.52	6.2	2.8	54.8	0.8	0.4	50.0
McCormick	0.77	4.5	2.5	44.4	0.4	0.2	50.0
Coker 9511	>0.8	2.1	1.7	19.0	0.5	0.4	20.0
Bess	>0.8	4.3	3.0	30.2	0.5	0.1	80.0
Average		5.8	3.9	33.4	0.7	0.5	45.9
Fungicide Average % Control		39.6					
Estimated Control due to rotation		87.6					

Highest risk of scab following no-till corn. Wye 2009 soybean site within 100 ft of corn stubble, therefore risk was practically unchanged. Whereas at Beltsville, source of spores (corn stubble) further from soybean site and disease reduced dramatically.

Summary of Vomitoxin (DON) Levels Due to Scab Infection and Percentile Rankings of Cultivars in Wheat Trials in Maryland.

Brand	Cultivar	Overall		Brand	Cultivar	Overall	
		DON (ppm)	Percentile ¹ (0-1)			DON (ppm)	Percentile ¹ (0-1)
Agripro	Branson	3.2	0.64	Public	AGS 2035	9.8	0.11
Agripro	Coker 9553	6.3	0.28	Public	Chesapeake	4.1	0.52
Agripro	Cooper	3.3	0.64	Public	Jamestown	2.4	0.79
Agripro	Oakes	1.8	0.88	Public	McCormick	2.6	0.77
Agripro	W-1377	4.9	0.35	Public	Merl	6.2	0.29
Agripro	W-1566	7.8	0.22	Public	Sisson	4.4	0.53
Growmark	FS 300	2.7	0.75	Public	GA-981621-5E34	9.0	0.14
Growmark	FS 621	5.3	0.39	Public	GA-991209-6E33	6.3	0.29
Growmark	FS 627	5.3	0.46	Public	GA-991336-6E9	12.7	0.06
Growmark	FS 801	3.9	0.52	Public	GA-991371-6E12	12.5	0.07
				Public	MD00W389-07-2	6.1	0.26

Brand	Cultivar	DON (ppm)	Overall Percentile ¹ (0-1)
Seedway	SW 27	5.2	0.41
Seedway	SW 48	2.5	0.79
Seedway	SW 55	4.9	0.44
Pioneer	25R39	2.8	0.73
Pioneer	25R54	2.9	0.71
Pioneer	25R62	3.5	0.60
Pioneer	26R15	5.2	0.38
Pioneer	26R56	2.5	0.77
Renwood	Renwood 3260	3.5	0.60
Renwood	Renwood 3633	4.9	0.35
Vigoro	Dominion	4.6	0.39
Vigoro	Oglethorpe	3.1	0.67
Vigoro	V9510	5.2	0.35
Vigoro	V9713	4.1	0.48
Southern States	SS 520	6.1	0.30
Southern States	SS 548	5.5	0.39
Southern States	SS 560	5.7	0.41
Southern States	SS 5205	3.6	0.59
Southern States	SS 8302	3.6	0.58
Southern States	SS 8309	2.4	0.79
Southern States	SS 8404	3.6	0.61
Southern States	SS 8641	11.2	0.10
Southern States	SS MPV57	4.3	0.47

Brand	Cultivar	DON (ppm)	Overall Percentile ¹ (0-1)
Public	MD00W53-07-1	2.2	0.82
Public	MD01W233-05-1	3.5	0.61
Public	MD01W233-06-1	2.2	0.82
Public	MD01W233-06-16	1.9	0.87
Public	MD01W233-06-8	2.4	0.80
Public	MD01W233-07-1	2.2	0.81
Public	MD99W64-05-12	6.1	0.33
Public	VA01W-205	2.6	0.77
Public	VA03W-409	4.6	0.40
Public	VA03W-434	3.6	0.58
Public	VA04W-259	6.7	0.22
Public	VA04W-90	2.6	0.76
Mid-Atlantic Seeds	MAS-1 EXP	6.1	0.39
Mid-Atlantic Seeds	MAS-2 EXP	3.1	0.68
Mid-Atlantic Seeds	MAS-3 EXP	1.9	0.89
Mid-Atlantic Seeds	MAS-4 EXP	3.0	0.70
Unisouth Genetics	USG 3209	4.8	0.49
Unisouth Genetics	USG 3360	3.1	0.68
Unisouth Genetics	USG 3409	5.4	0.36
Unisouth Genetics	USG 3555	4.6	0.50
Unisouth Genetics	USG 3592	6.6	0.27
Unisouth Genetics	USG 3665	4.9	0.41
Unisouth Genetics	USG 3725	4.9	0.40
Unisouth Genetics	USG 3770	2.2	0.83
Unisouth Genetics	USG 3860	3.4	0.62

¹The proportion of cultivars that have higher levels of DON under the same conditions, eg. 0.9 = 90th percentile where 90% of the population had higher levels of DON, or entry was in the top 10% of the population. Percentiles calculated over all available trials.

Red Text top 30% based on DON assessed over all trials.

Data from Dr. Jose Costa, U of MD; includes inoculated and misted scab nurseries 2008 & 2009, and naturally infected State Wheat trials at Queenstown and Keedysville in 2009.

Summary prepared by Dr. Arv Grybauskas, U of MD (revised 5/19/2010).

Note: Resistance to the visual blighting, bleaching of spikelets and poor grain fill is not completely correlated to resistance to DON development. Thus some low DON cultivars still suffer yield loss due to scab. For example, Pioneer 26R15 has greater resistance to symptom development than Chesapeake but Chesapeake tends to have lower DON levels.

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

Countdown to Harvest

The first load of new crop corn on the Eastern Shore was delivered on or about August 5. Reports are also trickling in concerning new crop corn deliveries now being made in the Corn Belt. The 2010 harvest is now underway. It is going to be early and near record breaking for both U.S. corn and soybeans. A Perdue grain merchant predicted this morning that the Eastern Shore will be heavily into harvest by next week. The same is true for large portions of the Corn Belt.

The extent of harvest pressure on corn and soybean prices is likely to be minimized by production concerns in other parts of the world. Russia is in the news again concerning the possibility of having to make large increases in the amount of grain imported for the 2010/2011 marketing year due to their worst drought in over 100 years. The most recent estimate for Russian grain production indicated their 2010 grain harvest to be slashed by at least one-third of normal.

USDA Export Sales Report 08/19 07:35

Pre-report estimates for weekly export sales of soybeans (combined old-crop and new-crop) ranged from 69.8 to 80.8 million bushels. The weekly report showed total export sales of 82 million bushels, with old-crop sales of 6.7 million bushels bringing year-to-date sales to 1.51 billion bushels, above USDA's demand projection of 1.47 billion bushels. Total shipments of 18.3 million bushels were below the 21.8 million bushels needed this week. This report should be viewed as bullish.

Pre-report estimates had weekly corn export sales at 51.2 to 66.9 million bushels. The weekly report showed total export sales of 107.3 million bushels, with old-crop sales of 23.4 million bushels bringing year-to-date sales to 2.06 billion bushels, above USDA's revised demand projection of 1.975 billion bushels. Total shipments of 39.6 million bushels were below the 76 million bushels needed this week. This report should be considered bullish.

Pre-report estimates for wheat ranged between 34.9 to 45.9 million bushels. The weekly report showed total export sales of 51.9 million bushels, well above the 19.3 million bushels needed this week to stay on pace with USDA's revised projection of 1.2 billion bushels. Shipments of 21.2 million bushels were below the 24.8 million bushels needed this week. This report should be viewed as bullish.

Market Strategy

Currently, Dec '10 corn futures are trading at \$4.34 per bushel; Nov '10 soybean futures at \$10.23; July '11 SRW wheat futures at \$7.16 per bushel; Dec '11 corn futures at \$4.39; and Nov '11 soybean futures at \$10.07 per bushel. These prices represent good pricing opportunities for both the 2010 harvest and for pricing a portion of the 2011 crop.

World production concerns will make it necessary to revisit sales decisions on any unsold portion of the 2010 harvest later in the season to determine whether storage is warranted.

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

General

Insecticide Updates - Joanne Whalen,
Extension IPM Specialist; jwhalen@udel.edu

Belt SC - (flubendiamide) - This federal label was recently expanded to include soybeans and legume vegetables. However, as of Aug 17 it is not included on the Delaware Department of Agriculture's state registration list. Materials must be labeled both federally and in-state to be used on a crop. We will let you know when it has received a state label as well or you can check their website:

<http://www.kellysolutions.com/de/pesticideindex.htm>

Bayer Agrees to Terminate All Uses of Aldicarb (News Release) - In a recent EPA Pesticide Update released from the EPA Office of Pesticide Programs, they indicated that EPA and Bayer CropScience have reached an agreement to end use of the pesticide aldicarb in the United States.

More information:

http://www.epa.gov/oppsrrd1/REDS/factsheets/aldicarb_fs.html

To view the dockets:

<http://www.regulations.gov>

Reducing Weed Seed Production in Harvested Fields and Non-Cropped Areas -
Mark VanGessel, Extension Weed Specialist;
mjv@udel.edu

Many annual and some perennial weeds are beginning to flower now, particularly those that emerged early in the summer. Removing now the flowering portions of the plant or seed heads will prevent most of these plants from producing mature seed. If these plants are mowed off, they are likely to regrow and eventually produce seed, but the quantity of seed produced will be dramatically reduced. Many of these fields will need at least one additional mowing to prevent seed production. However, delaying a mowing for a few weeks will allow a greater proportion of the developing seeds to mature and contribute to the seedbank. Another option is a herbicide treatment, however few herbicides will kill these large weeds. Glyphosate is one option, but be sure to match the herbicide rate with size and stage of the weeds.

Announcements

Twilight Tour with Bees

Delaware bees, crop pollination, and conservation

Monday, August 30, 2010 5:30 - 7:30 p.m.
Lister Acres (Hurd Family)
5417 Milford-Harrington Highway
Harrington, DE 19952

- Farm Tour: strawberries, melons, flower buffer strips, Heather Harmon Disque, Gordon Johnson, Emmalea Ernest, Bonnie MacCulloch
- Honey Bees: Dr. Debby Delaney, Bob Mitchell
- Pesticide Safety: Joanne Whalen and Bill Cissel
- Practicality of conservation practices and making changes, Chuck Hurd

RSVP by August 25 to:

Plant Industries

Delaware Department of Ag

Dover, DE 19901

Phone: 302-698-4577

E-mail: geri.mcclimens@state.de.us

Presented by the Delaware Department of Agriculture and University of Delaware

Pole Lima Bean Open House

Tuesday, September 21, 2010 11 a.m. – 2 p.m.

Delaware State University

Outreach and Research Center

Smyrna, DE

- Pole lima bean trial based on planting date on half acre plot
- Ethnic crop plots
- High tunnel season extension
- Organic vegetable production

Lunch will be provided.

RSVP by September 14:

Phone: 302-857-6425

Fax: 302-857-6430

E-mail : jclendaniel@desu.edu

If you have any questions or any special needs, please contact us today.

Regional Women in Ag Conference

January 25-26, 2010

Dover Downs Hotel and Casino

Dover, DE

More information is available at:

<http://ag.udel.edu/extension/kent/womeninag.htm>

or contact Laurie Wolinski at (302) 831-2538

Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of August 12 to August 18, 2010

Readings Taken from Midnight to Midnight

Rainfall:

0.54 inch: August 12

0.69 inch: August 18

Air Temperature:

Highs ranged from 91°F on August 16 to 77° F on August 18.

Lows ranged from 76° F on August 17 to 63° F on August 14.

Soil Temperature:

83.1° 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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