



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

In many locations, trap catches remain high and in a few locations we are starting to see a slight decline. Therefore, the potential for corn earworm and corn borer pressure remains high in fall vegetable crops statewide. You will need to scout fields at least twice a week as well as check local trap catches at <http://ag.udel.edu/extension/IPM/traps/latestbit.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 stinkbugs, lygus bugs, soybean loopers, beet armyworm and corn earworm. Moths can still be 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. If soybean loopers become a problem 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. It now has a state label as well. 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/latestbit.html>. We continue to see aphid populations increasing, especially in fields where pyrethroids have been used on a weekly basis. Labeled materials are only effective if 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 and soybean loopers. 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/latestbit.html> and <http://ag.udel.edu/extension/IPM/thresh/snapbeanecbthresh.html>.

There has also been a report of an increase in whitefly populations. Be sure to check the Vegetable Crop Recommendations for materials labeled for whitefly control on snap beans (<http://ag.udel.edu/extension/vegprogram/pdf/Beans.pdf>).

Spinach

Continue 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 in 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, especially under heavy pressure.

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 (before you see any silk). 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/latestbit.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.

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

Cole crops, including cabbage, broccoli, cauliflower, Brussels sprouts, collards, kale, and kohlrabi are important fall crops in the region. The following are some common disorders that affect these crops and their causes.

Tipburn of Cauliflower, Cabbage, and Brussels Sprouts

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

Boron Deficiencies

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

Hollow Stem in Broccoli and Cauliflower Not Caused by Boron Deficiency

This condition starts with gaps that develop in the tissues. These gradually enlarge to create a

hollow stem. Ordinarily, there is no discoloration of the surface of these openings at harvest but both discoloration and tissue breakdown may develop soon after harvest. Some cultivars of hybrid cauliflower and broccoli may have openings from the stem into the head. Both plant spacing and the rate of nitrogen affect the incidence of hollow stem. Hollow stem increases with wider spacings and as the rate of nitrogen increases. The incidence of hollow stem can be greatly reduced by increasing the plant population.

Cabbage Splitting

Cabbage splitting is mainly a problem with early cabbage. A problem can develop when moisture stress is followed by heavy rain. The rapid growth rate associated with rain, high temperatures and high fertility cause the splitting. Proper irrigation may help prevent splitting and there are significant differences between cultivars in their susceptibility to this problem. Splitting may also be partially avoided by deep cultivation to break some of the plant roots.

Cauliflower and Broccoli Buttoning

Buttoning is the premature formation of a head and because the head forms early in the plant's life, the leaves are not large enough to nourish the curd to a marketable size. Buttoning may occur shortly after planting in the field, when normal plants of the same age should be growing vegetatively. Losses are usually most severe when transplants have gone past the juvenile stage before setting in the field. Stress factors such as low soil nitrogen, low soil moisture, disease, insects, or micronutrient deficiencies can also cause this problem. Some cultivars, particularly early ones, are more susceptible to buttoning than others.

Lack of Heads in Broccoli and Cauliflower

During periods of extremely warm weather (days over 86°F and nights 77°F) broccoli and cauliflower can remain vegetative (does not head) since they do not receive enough cold for head formation. This can cause a problem in scheduling the marketing of even volumes of crop.

Cauliflower Blanching and Off Colors

The market demands cauliflower which is pure white or pale cream in color. Heads exposed to sunlight develop a yellow and/or red to purple pigment. Certain varieties such as Snow Crown are more susceptible to purple off-colors, especially in hot weather. Self-blanching varieties have been developed to reduce problems with curd yellowing. For open headed varieties, the usual method to exclude light is to tie the outer leaves when the curd is 8 cm in diameter. Leaves may also be broken over the curd to prevent yellowing. In hot weather blanching may take 3 to 4 days, but in cool weather, 8 to 12 days or more may be required. Cauliflower fields scheduled to mature in cool weather (September and October) that are well supplied with water and planted with "self-blanching" cultivars will not need tying. Newer orange cauliflower and green broccoflower varieties are being planted. They are less susceptible to off-colors but still can develop purpling under warm conditions.

Cauliflower Ricing

"Riciness" and "fuzziness" in heads is caused by high temperatures, exposure to direct sun, too rapid growth after the head is formed, high humidity, or high nitrogen. "Ricing" is where the flower buds develop, elongate and separate, making the curd unmarketable.

Development of Curd Bracts in Cauliflower

Curd bracts or small green leaves between the segments of the curd in cauliflower is caused by too high of temperature or drought. High temperatures cause a reversion to vegetative growth with production of bracts on the head. In a marketable cauliflower head, the individual flower buds are undeveloped and undifferentiated.

Loose Heads in Cauliflower and Premature Flowering in Broccoli

Loosely formed curds in cauliflower can be due to any stress that slows growth making them small or open. Fluctuating temperatures and moisture will also cause less compact growth. In contrast, excess vegetative growth caused by excessive nitrogen can also cause loose heads in cauliflower and broccoli. Premature flowering

and open heads in broccoli can be brought on by high temperatures.

Edema on Cole Crop Leaves

Edema is water blistering on cole crop leaves. The most common cause of edema is the presence of abundant, warm soil water and a cool, moist atmosphere. Under these conditions the roots absorb water at a rate faster than is lost through transpiration. Excess water accumulates in the leaf, some parenchyma cells enlarge and block the stomatal openings through which water vapor is normally released from the plant; thereby contributing to further water retention in the leaf. If this condition persists, the enlarged cells divide, differentiate a cork cambium, and develop elongate cork cells externally to form a periderm. The rupture of the epidermis by the enlarged inner cells and the periderm account for the raised, crusty appearance of older edema spots.

Black Petiole

Black petiole or black midrib is an internal disorder of cabbage that has been occasionally noted in recent years. As heads approach maturity, the back side of the internal leaf petioles or midribs turn dark gray or black at or near the point where the midrib attaches to the core. The affected area may be quite limited or may extend for 2 or 3 inches along the midrib. It is believed that this disorder is associated with a potassium (K)-phosphorus (P) imbalance and results when the K level in the soil is low and the P concentration high. High rates of nitrogen may contribute to the problem. Probably, as in the case with tipburn, black petiole is a complex physiological disorder in which environmental conditions play an important role in symptom expression. Variety evaluation trials have shown that there are differences in degree of susceptibility between varieties.

Floret (Bead) Yellowing in Broccoli

The florets are the most perishable part of the broccoli head; yellowing may be due to overmaturity at harvest, high storage temperatures after harvest, and/or exposure to ethylene. Any development of yellow beads ends commercial marketability. Bead yellowing due to senescence should not be confused with the yellow to light-green color of areas of florets not

exposed to light during growth, sometimes called "marginal yellowing".

Brown Floret (Bead) in Broccoli

This is a disorder in which areas of florets do not develop correctly, die and lead to brown discolored areas. This is thought to be caused by plant nutritional imbalances but also may be due to feeding damage on florets from insects such as harlequin bugs.

Additional Information About Using Omega for Lima Bean Downy Mildew Control - *Bob Mulrooney, Extension Plant Pathologist;* bobmul@udel.edu

In [last week's article](#) I went over the control measures for downy mildew on baby lima beans and recommended Omega as a new product labeled for lima beans that has excellent activity for downy mildew as well as white mold. The label is a little ambiguous about recommended application methods and it was clarified by the manufacturer that it is **to be applied by ground only, not by air**. I am in contact with the company concerning this issue, and they will be pursuing changing the label with EPA. Unfortunately nothing will happen in time for this season if downy mildew should appear later, but it can be applied by ground rigs now.

Pumpkin Spray Programs Should Include a Fungicide for Downy Mildew - *Bob Mulrooney, Extension Plant Pathologist;* bobmul@udel.edu

Pumpkin growers that still have healthy vines, and fruit that still needs sizing, should be adding a fungicide for **downy mildew** at this time, if you have not done so already. Downy mildew has not been as aggressive on pumpkin as it has been on cucumbers, but it has been diagnosed on pumpkin in the Salisbury, MD vicinity. Apply Previcur Flex, Ranman, Tanos, or Presidio plus a protectant fungicide such as chlorothalonil for downy mildew control.

Agronomic Crops

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

Alfalfa

Continue 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 25-30% of the terminals are damaged, treatment is suggested.

Soybeans

Be sure to continue to scout carefully for earworms during the next few weeks. Virginia continues to report large movements of corn earworm moths throughout much of eastern Virginia.

Economic levels of corn earworm 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. If fields were already sprayed, be sure to watch for newly hatched larvae. With the sustained flights, there could be a new hatch of small larvae. As a reminder, if small larvae are present after you have sprayed the first time, *this does not mean that the product applied failed* - it only means that there is a new hatch that needs to be treated a second time if economic levels are present.

As far as defoliators, grasshoppers and bean leaf beetles continue 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.

Since last week's report, some consultants have started to find a significant increase in stinkbugs, especially in full season fields. 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 large 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 stinkbugs), as those are the stages most capable of damaging pods. As a general guideline, current thresholds are set at 2.5 per 15 sweeps in narrow-row beans, or 3.5 per 15 sweeps in wide-row beans.

There have also been a number of questions over the last week about increases in whiteflies populations. Although we have limited experience with whiteflies in our area, as far as we know, whiteflies have not been a problem in the past even when we have seen what folks describe as "clouds of whiteflies". They are related to aphids (that is in the same order of insects) and so can cause yellowing on the leaves if populations are high enough. Damage is most likely to occur when beans are stressed. The following link provides pictures of whiteflies and some additional comments regarding whiteflies in soybeans.

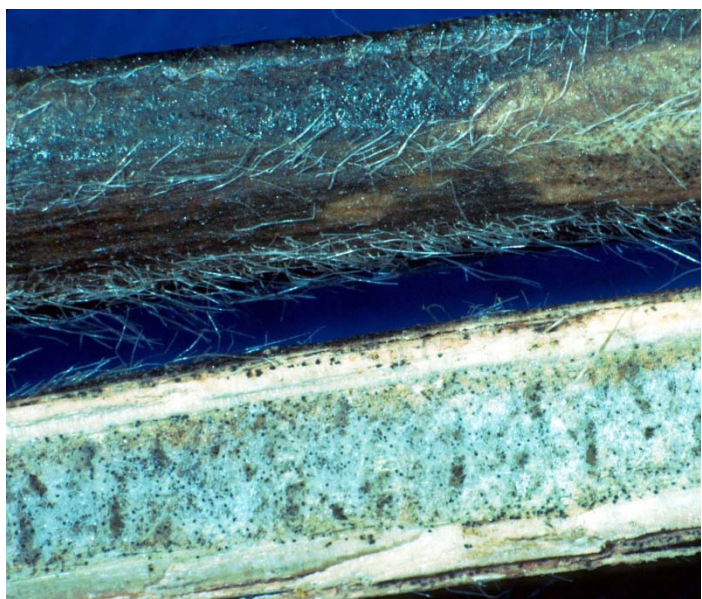
(<http://bulletin.ipm.illinois.edu/article.php?id=832>)

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/>).

More Charcoal Rot in Soybeans - Bob Mulrooney, Extension Plant Pathologist; bobmul@udel.edu

Two more **Charcoal rot** samples were identified this week. 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 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. As predicted, we will likely be seeing more of this as dead spots appear.



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

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

Selected Observations

Dec '10 corn futures are now trading at \$4.31, within striking distance of the December high

and resistance of \$4.38. Outside market forces are supportive with crude higher and the dollar lower. The weekly export sales came in above expectations. Considering we have been up in the high end of the range and export sales have been huge the past two weekly reports, the export sector is supporting the bull move. Crop maturity across the country as a whole is ahead of normal, which promotes an early harvest as long as weather holds. Eventually, expected harvest pressure is likely to take the corn market lower.

Soybean trade is 10 higher today with Nov '10 soybean futures now trading at \$10.08 per bushel, with support at \$9.97 ³/₄ and nearby resistance at \$10.17 per bushel. The higher bidding is attributed to outside market forces and spillover support from corn. The weather picture looks neutral to negative; without a weather problem it should be hard for beans to even challenge the recent highs, but we also appear to have good support below \$10 based on the action this week. The weekly export sales were reported on the high side of expectations.

Wheat trade is 13 to 20 higher with Dec '10 SRW wheat futures bidding at \$6.96 per bushel due to a combination of profit-taking by recent shorts and continued global supply concerns. Significant moisture across France, Germany, and parts of the EU has occurred this week, which has raises some concerns over quality issues. This storm system is also expected to produce widespread rains across most of the Russian wheat country, which should go a long way to improve their winter planting conditions. The psychology of the wheat market is still bullish with good buying interest in the mid \$6 range. The weekly export sales report was above expectations. As long as we continue to see good weekly sales numbers the trade must respect the demand, however, our heavy domestic balance sheet will continue to weigh in on the bearish side.

Source: DTN

Market Strategy

Major uncertainty prevails concerning the state of the economy and the resulting impact upon commodity prices. Slowing demand in the U.S. and world will likely have a negative impact

upon commodity prices. The Dow, now at 10,005.49, has continued its recent slide this week. A further decline in the Dow could become a deterrent to commodity prices.

Commodity prices remain at levels where advancing sales for corn, soybeans, and SRW wheat still makes sense. The U.S. row crop harvest will be underway in earnest soon. Considering the distinct possibility that the 2010 harvest will be record or near record is all one needs to know in order to justify completing pre-harvest sales and making harvest sales as long as it is advantageous to do so. The next USDA Supply and Demand report will be released on September 10.

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

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 19 to August 25, 2010

Readings Taken from Midnight to Midnight

Rainfall:

0.34 inch: August 22

0.01 inch: August 24

Air Temperature:

Highs ranged from 90°F on August 20 to 71°F on August 24.

Lows ranged from 73°F on August 22 to 63°F on August 25.

Soil Temperature:

80.3°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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