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

Cabbage.
Economic levels of diamond back (DBM) and cabbage looper (CL) larvae can be found in fall cabbage. In most cases, diamond back larvae are found deep in the hearts of plants. A treatment is recommended if 5% of the plants are infested. Spintor, Proclaim (3 oz/acre), or a Bt will provide control of both species. Spintor should be used at the 3 oz/acre rate for DBM control and the higher labeled rate (4-6 oz) for cabbage looper control. If diamond back populations are light and cabbage looper is the predominant species, Confirm (8 oz/acre) will provide good cabbage looper control.

Cucurbits.
Cucumber beetle and squash bug populations continue to increase in squash, pumpkins and later planted watermelons. In addition to leaf damage, they both can cause damage to the rinds of cucurbit fruit. A treatment should be applied if populations are increasing and before rind damage occurs. A treatment should be applied for squash bugs if you find just one egg mass per plant or when nymphs are first detected. Sevin or a pyrethroid generally provide effective cucumber beetle control. Multiple applications of the highest labeled rate of a pyrethroid are generally needed for squash bug control.

Peppers.
At the present time, all peppers that have fruit ½ inch in size or larger should be sprayed on a 5-7 day schedule for corn borer, pepper maggot control and corn earworm. Since corn earworm pressure has increased, Lannate or a pyrethroid should be used at this time. A continuous pyrethroid program should not be used to avoid aphid explosions.

Lima Beans.
Fields with blossoms and pods should be sampled for earworm, lygus and stinkbugs. Green cloverworms can also be found in many fields; however, populations have been declining as a result of diseases. A treatment should be applied if you find one corn earworm per 6 foot of row or 15 tarnished plant bugs and/or stinkbugs per 50 sweeps. Lannate or Capture will provide effective control.

Snap Beans.
Processing snap beans should be sprayed at the bud stages with acephate for corn borer control and with acephate plus Capture or Asana at the pin stage for corn earworm and corn borer control. In areas where corn borer pressure is above 10 per night, the bud spray should be applied just prior to bud to avoid larvae from moving into the stems before pins are present. In Kent County, sprays are needed on a 4-day schedule from the pin stage until harvest. In Sussex County, sprays should be applied on a 5-day schedule from the pin stage...
until harvest. Fresh market snap beans should be sprayed on a 5-7 day schedule as soon as pin pods are present. Trap catches can be found at [http://www.udel.edu/IPM/latestblt.html](http://www.udel.edu/IPM/latestblt.html)

**Spinach.**
As soon as plants emerge, begin scouting small plants for webworms and beet armyworm larvae. Controls should be applied when worms are small and before they have moved deep into the hearts of the plants. Since Lannate cannot be applied before plants are 3-inches in diameter, Ambush, Pounce, Confirm (6-8 oz/acre) or Spintor (4-8 oz/acre) should be used. Generally, at least 2 applications are needed to achieve control of webworms and beet armyworm.

**Sweet Corn.**
All fresh market silking sweet corn should be sprayed on a 2-3 day schedule. Earworm populations continue to increase, especially in pheromone traps. The first silk spray is often the most critical – this spray should be applied as soon as ear shanks are visible. At this time, you should be using a high rate of a pyrethroid or a combination of a high rate of a pyrethroid plus Lannate if aphid or fall armyworm populations are high. Do not use Lannate alone. Trap catches can be found at [http://www.udel.edu/IPM/latestblt.html](http://www.udel.edu/IPM/latestblt.html)

**Vegetable Diseases - Bob Mulrooney, Extension Vegetable Pathologist, University of Delaware; bobmul@udel.edu**

**Lima Beans.**
Downy mildew was diagnosed on susceptible ‘Jackson Wonder’ last week. Be on the lookout for downy mildew. Kocide 2000, Champ DP, and Champ Flowable are now labeled for downy mildew control. There will not be a Section 18 for Quadris this season. We need more research on its efficacy and use patterns. Research is under way to evaluate these and other fungicides for downy mildew control and we will let you know how this year’s test turns out.

There was a little confusion about the days to harvest for Topsin M for white mold control. There is a revised registration that allows Topsin M to be applied on succulent beans (snap and lima) up to 14 days before harvest. This applies to all states except CA. What was printed in Crop Update previously was correct. This change did not make the 2000 edition of the Commercial Vegetable Production Recommendations EB 137. I have a copy of this revised label if anyone needs it.

**Tomatoes.**
Be on the lookout for buckeye rot caused by *Phytophthora nicotianae*. This is primarily a disease of processing tomatoes that are ground grown, not trellised. Large brown water soaked spots with concentric rings that resemble a buckeye fruit are seen on the fruit. Once seen it’s too late for control. Ridomil or UltraFlourish needs to be applied to the soil surface under the vines 4-8 weeks before harvest.

**Spinach.**
Plant resistant varieties ‘Vancouver’ or ‘Fidalgo’ to prevent white rust. Apply Ridomil Gold or UltraFlourish as a soil surface application shortly after seeding for control of damping-off and white rust.

**Pumpkin and Winter Squash**
To prevent powdery mildew and downy mildew apply Ridomil Gold/Bravo plus Nova or Flouranil plus Nova alternated with Quadris every 7-10 days. New Jersey recommends adding a copper fungicide such as Kocide or Champ when large fruit are present to prevent Phytophthora fruit rot. I am seeing more Phytophthora fruit rots this year on cucurbits due to the wet season.
**Vegetable Diseases** - Kate Everts, Extension Vegetable Pathologist, University of Delaware and University of Maryland; everts@udel.edu

**Melcast for Watermelons**

EFI Values (Environmental Favorability Index)

Do not use MELCAST if there is a disease outbreak in your field, it is a preventative program. Any questions please call Phil Shields at (410) 742-8788 or e-mail: ps136@umail.umd.edu

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The first fungicide spray should be applied when the watermelon vines meet within the row. Additional sprays should be applied using MELCAST. Accumulate EFI (environmental favorability index) values beginning the day after your first fungicide spray. Apply a fungicide spray when 30 EFI values have accumulated by the weather station nearest your fields. Add 2 points for every overhead irrigation. After a fungicide spray, reset your counter to 0 and start over. If a spray has not been applied in 14 days, apply a fungicide and reset the counter to 0 and start over. The first and last day listed above can be partial days so use the larger EFI value of this report and other reports for any specific day.

If, for some reason, a serious disease outbreak occurs in your field, return to a weekly spray schedule.

More detailed information concerning MELCAST and sample data sheets are available on the web at http://www.agnr.umd.edu/users/vegdisease/vegdisease.htm or http://www.udel.edu/IPM/

**Field Crops**

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

**Soybeans.**

Continue to check fields for grasshoppers and green cloverworm. As plants begin to bloom, the defoliation threshold is 15%. The recent weather has been very favorable for diseases in cloverworms and in most cases populations appear to be declining. Once fields start to bloom, you should begin checking for corn earworm larvae. **We continue to see an increase in egg laying,** the number of larvae found in double cropped soybeans and pod-feeding on full season beans. We have not encountered economic levels yet; however, we usually see our highest populations during the last 2 weeks in August and early September. In later planted wheat fields, you should also look for defoliation from earworms. The defoliation threshold is 30% prebloom. And 15% once fields start to bloom. **IF YOU HAVE NOT STARTED TO SCOUT FIELDS, YOU SHOULD START NOW SO YOU ARE PREPARED TO TAKE ACTION AS SOON AS POPULATIONS REACH ECONOMIC LEVELS.** The treatment threshold for pod feeding is 3 per 25 sweeps in narrow fields and 5...
per 25 sweeps in wide row fields (20-inches are greater). In many cases, soybeans are extremely tall and sweeping is difficult. In those cases, a drop (shake) cloth may provide the best estimate of the population. The drop cloth should be placed between 2 rows and then the plants are shaken over the cloth in 6 foot of row. A treatment is needed if you find 1-2 larvae per foot of row. When possible, treatment should be delayed until at least 1/3 of the worms are at least 3/8-inch long. In addition, watch for diseased worms since the same diseases that attack green cloverworm can also help to reduce earworm population. A pyrethroid or Larvin will provide control.

Field Crop Diseases - Bob Mulrooney, Extension Plant Pathologist; bobmul@udel.edu

Corn.
Southern corn leaf blight and gray leafspot continue to be the most common leafspots at the present time. Be on the lookout for stalk and ear rots. This wet season may turn out to be very favorable for Fusarium and Diplodia stalk and ear rots. Since both fungi that cause these diseases survive in corn residue, no-till and lack of rotation may contribute to the occurrence of these diseases. Some hybrids appear to be more susceptible, so choose good hybrids for your area. If more than 2-3% of the ears are infected it may be time to rotate away from no-till corn in those fields.

Hay and Pasture Twilight On-Farm Workshop
Establishing a Hay Field or Pasture Right the First Time

Date: Wednesday, August 30, 2000
Time: 5:30- 7:30 p.m.
Place: Home of Susan Truehart Garey, 1699 Little Mastens Corner Road, Harrington
Directions: From Rt. 13, turn West onto Hopkins Cemetery Road (just north of Harrington), go 2 miles then turn right heading North on Little Mastens Corner Road. Property is on the left just before Jarrell Road (sign will be posted).
Registration: Phone (302) 697-4000 by August 29 to let us know if you are coming.

Do you want to put in a new hayfield? Start a new pasture? Renovate an old pasture? Or change species in a pasture? If so, this workshop is for you.

All Kent County residents with land they wish to put into hay or pasture, or just seeking to get more information on the subject, are invited to attend a Hay and Pasture Twilight On-Farm Workshop on Establishing a Hay Field or Pasture Right the First Time. This workshop will be held on the property of Susan Truehart Garey, our Extension Livestock Specialist, 1699 Little Mastens Corner Road, just North of Harrington, DE.

Topics will include selection of appropriate hay or pasture species, preparations before establishing a hay or pasture field (soil testing, liming, fertilization, weed control), planting methods, specific establishment considerations and equipment needed to establish a pasture or hayfield. No-till planting and conventional planting will be demonstrated in Susan’s field.

Anyone interested is welcome to attend. To register, contact the Kent County Extension Office at (302) 697-4000 by August 29. For additional information or special needed in accessing this program, contact Gordon Johnson at (302) 697-4000. It is the policy of the Delaware Cooperative Extension System that no person should be subjected to discrimination on the grounds of race, color, sex, disability, age or national origin.

Hope to see you there.
Early Lodging In Soybeans: Does It Reduce Yield? - Richard W. Taylor, Extension Agronomist; rtaylor@udel.edu

The answer to this question depends on several factors. First is the severity of the lodging. Lodging that consists of leaning at less than a 30° angle often does not result in a significant shading of the leaf canopy. Lodging at greater angles can result in shading of the leaf canopy. This is mitigated by whether the beans are growing in a high population and favorable growth environment. In this case, many lower leaves may have been shed before the lodging occurred so even moderated lodging may not be impacting the amount of light reaching soybean leaves. Severe lodging (greater than a 45° angle) at this time of the growing season can reduce yields.

A second factor is when lodging occurs. Lodging early in the season, before seed-fill is nearly complete, will have a greater impact on yield than late-season lodging. Lodging after seed-fill does not affect yield potential per se but can have a negative impact on harvestable yield as well as slow the harvest process and increase harvest cost.

A third, but less understood group of factors involves a combination of row spacing, plant population, plant architecture, plant height, and other related factors. For example, I would expect lodging on tall beans, such as we see in a year like this or in irrigated beans, to have a greater canopy shading effect than on shorter beans. Beans with many lower branches will be impacted more than beans with few or no branches.

When you combine all of this, the bottom line answer is that in most cases, but not in all, early season lodging will reduce yield potential. The obvious next question of how much is very difficult to answer. In a growing season like the one we are experiencing this year, whether you will be able to even notice a yield reduction may be questionable.

Podding Differences Among Soybean Groups - Richard W. Taylor, Extension Agronomist; rtaylor@udel.edu

I’ve had several questions recently on why group IV beans are so heavily podded but group V beans are not. There is an explanation for this that relates to the biology of the crop.

Soybean is a short day plant. Breeders have grouped varieties of soybeans into thirteen maturity groups (000, 00, 0, I, ... IX). This segregation is caused by how flowering date is determined in the species. Soybeans respond to what we call day length although the actual mechanism involves the length of the night. As nights get longer (and days shorter) after June 21, then lengthening period of darkness triggers a chemical response in soybeans that leads to flower bud development and its reproductive cycle. You may have observed this effect in an indirect way by noting that beans grown under a streetlight or other light source are often delayed in reaching maturity and sometimes do not produce pods but remain green right up to a killing frost. The light interrupts the dark period needed by beans to turn reproductive so they remain green and vegetative until the cold weather kills them.

Maturity group III varieties need a shorter night to begin flower development than do group IV beans and group IV beans need shorter nights than group V beans. This means that when a group V variety begins to bloom, a group III or IV variety can be at beginning seed (R5) or fully podded (R4), respectively. Keep in mind though that even within a group there is a range in maturity. Some early group IV varieties can have full-sized pods and developing seeds (R5) while a late group IV variety may still be at early pod (R3).

What happens with double-crop beans? Up to now, I’ve been talking about single-crop or full-season beans. With double-crop beans, we sometimes plant so late that the same variety planted in a single-crop system can already be
blooming. For most double-crop beans, the night length is long enough to trigger flowering by the time the bean has only a couple of leaves emerged or for late plantings the bean might only be emerging from the soil. Flowering does not begin (even if the night is long enough to induce flowering) until the beans have three to four fully developed trifoliate leaves. Therefore, for double-cropped beans, a minimum plant size or number of leaves as well as long nights is required before the beans flower. If this week you were to visit the double-crop variety performance trials at Middletown or Georgetown that are conducted by the University of Delaware Cooperative Extension System, you would observe group III, IV, and V varieties beginning to bloom at about the same time.

Bottom line, don’t worry if your group V beans don’t have as many pods set now as your group III or IV beans. The group V’s in some cases have just started blooming and, even in the early V’s where a few pods have been set, the variety still will be blooming for a while longer.

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

Record High 2000 Crop Prospects
On August 11th USDA projected big numbers for both U.S. production and carryover supplies. The nation’s corn crop forecast at 10.369 billion bushels is a new all time record high, with a national average yield estimate of 141.9 billion bushels. Corn carryover is now projected at 2.389 billion bushels, the highest since 1987 when the carryover was 4.89 billion. In 1992 the carryover for corn was 2.113 billion bushels.

U.S. soybean production was forecast at 2,989 billion bushels as compared to 2.643 for last year. The U.S. soybean yield is forecast at a record 40.7 bushels per acre. Carryover for U.S. soybeans, although reduced slightly from the July estimate, is now estimated at 465 million bushels as compared to 280 million bushels last year. The largest U.S. soybean carryout recorded occurred in 1985 at 536 million bushels.

News will be forthcoming regarding whether the current crop production forecast numbers can be expected to increase or decrease. Currently, there doesn't appear to be any clear depiction of which direction to expect the estimates to move in, other than a private analyst Midwest crop tour that is pointing toward some areas in the corn belt where production stress and yield loss is a problem.

Regardless of future production forecasts, there aren’t likely to be any major swings in the projected numbers. Our attention now needs to be directed to the problem at hand and that is to find storage for the large 2000 corn and soybean harvest. Due to payment limitations for the Loan Deficiency Payment (LDP) program, either on-farm or commercial approved warehouse storage will be required for many to fully benefit from the 2000 LDP program. The question of whether we have sufficient approved warehouse storage in Delaware needs to be addressed? If there isn’t enough commercial approved warehouse storage then we need to determine what can be done to rectify this situation. As of this writing, there is no approved commercial warehouse storage in New Castle and/or Kent counties.

Upcoming Events…

Soybean Twilight Field Day
Date: August 22, 2000
Time: 5:00 p.m.
Location: The grove at the University of Delaware Research and Education Center Farm
Registration: Phone (302) 856-7303 by August 18 to let us know if you are coming.
For More Information: Contact Mabel Hough at 302-856-7303 (phone), 302-856-1845 (fax) or
hough@udel.edu. We look forward to seeing you on the 22nd.

**Hay and Pasture Twilight On-Farm Workshop**

**Establishing a Hay Field or Pasture Right the First Time**

**Date:** Wednesday, August 30, 2000  
**Time:** 5:30- 7:30 p.m.  
**Place:** Home of Susan Truehart Garey, 1699 Little Mastens Corner Road, Harrington  
**Registration:** Phone (302) 697-4000 by August 29 to let us know if you are coming.  
**For More Information:** Contact Gordon Johnson at 302-697-4000 or gcjohn@udel.edu.

**Pesticide Applicator Trainings**

**Date:** September 5 & 6  
**Training:** 8:15 a.m. to 4:00 p.m. DAY 1  
8:15 a.m. – Noon DAY 2  
**Exam:** 1:00 p.m. DAY 2  
**Location:** Training for both dates will be held at the University of Delaware Kent County Cooperative Extension Office  
**For More Information:** Contact Susan Whitney at 302-831-8886 or swhitney@udel.edu.

**Pumpkin Twilight Meeting**

**Date:** September 21, 2000  
**Time:** 4:30 p.m. Plots available for viewing  
5:30 p.m. Comments from the Pumpkin Team  
**Location:** University of Maryland’s Wye Research & Education Center, Queenstown, Maryland  
**For More Information:** Contact Bob Rouse at 410-827-8056 or rr36@umail.umd.edu

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**Weather Summary**

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<td><strong>Air Temperature:</strong></td>
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<td><strong>Lows Ranged from 67°F on August 11 to 60°F on August 15.</strong></td>
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<td><strong>Soil Temperature:</strong></td>
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<td>(Soil temperature taken at a 2 inch depth, under sod)</td>
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Web Address for the U of D Research & Education Center:  
http://www.rec.udel.edu

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**Compiled and Edited By:**

**Tracy Wootten**  
Extension Associate - Vegetable Crops

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