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

Melons.
Low levels of cucumber beetles, aphids and spider mites can be found in watermelons and cantaloupes. As vines begin to run, be sure to sample carefully for spider mites. When sampling for mites, be sure to check the entire plant when plants are small or the crown area on larger plants for signs of stippling and the presence of mites. We have increased the threshold this year to 20-30% infested crowns with 1-2 mites per leaf. If populations of mites have exploded and adult mites are the predominant life stage, Capture or Danitol should be used. A second miticide application may be needed in 3-7 days depending on the population level at treatment time. Agri-Mek should be used for the second application if the predominant life stage is immature mites. In general, dimethoate has provided very poor mite control. In recent trials, Kelthane continues to provide good mite control and should be rotated with Capture, Danitol and Agri-Mek to avoid resistance. Remember Capture and Danitol are both pyrethroids and therefore should not be used in succession. If populations are heavy or numerous eggs are present at the time of treatment, at least 2-4 miticide applications will be needed. As the warm weather returns, be sure to sample melons for aphids. The treatment threshold for aphids is 20% infested plants with at least 5 aphids per leaf. Fulfill, Lannate and Thiodan are labeled on melons and will provide melon aphid control. These materials should be applied before aphids explode. Dimethoate will not control melon aphids.

Potatoes.
We are starting to see an increase in CPB egg laying and hatch. With the cooler evenings, we should not need to spray until early next week. The first ECB egg masses have been detected on potatoes. Be sure to check our website (http://www.udel.edu/IPM/traps/latestblt.html) for the most recent moth catches in your area. Trap catches remain below 5 per night in all potato growing areas. Potato leafhopper adults have also been found in potatoes. Begin to watch for potato leafhopper, especially in fields that did not receive Admire at planting. As a general guideline, controls should be applied if you find ½o one
adult per sweep and/or one nymph per every 10 leaves. A pyrethroid or Provado will provide control.

**Snap Beans.**
Begin to check your earliest planted fields for thrips and leafhoppers. At this time, populations are still light but weather conditions are favorable for rapid explosions in populations, especially as temperatures increase. The treatment thresholds are 5-6 thrips per leaflet or 5 leafhoppers per sweep. If both insects are present, the best control option would be Lannate or Capture in fresh market beans and Lannate, Capture, or Orthene in processing beans.

**Sweet Corn.**
As indicated under the field corn section (pg. 4), we have seen one no-till sweet corn field planted into a burned down rye cover that was 100% infested with 5-6 armyworms per plant. The treatment threshold in sweet corn is 15% infested plants. A pyrethroid will provide control. Be sure to watch the earliest planted fields for European Corn Borer larvae. A treatment should be applied if 15% of the plants are infested. The best timing for a treatment is just as the tassels are emerging from the whorls. In recent years, the best corn control has been achieved with Ambush, Pounce, Penncap or Warrior.

**Vegetable Diseases** - Bob Mulrooney, Extension Plant Pathologist, bobmul@udel.edu

**Potatoes.**
**Late blight Update**
The current weather pattern has not been favorable for the accumulation of Disease Severity Values (DSV). No DSV’s have accumulated to date. DSV’s are used to predict the occurrence of late blight caused by *Phytophthora infestans*. The lack of rain, low humidity, and cool temperatures are responsible. There is no biological reason to spray fungicides for foliage diseases at the present time. Once plants reach 8-12 inches, a protectant spray may be justified to have some fungicide residue present in case the current weather pattern changes.

**Dry Transplants** – Chris Gunter, Purdue University Cooperative Extension Service
**The following is a reprint of an article from “Vegetable Crops Hotline Newsletter”, Purdue University Cooperative Extension Service, May 16, 2001, No. 390.**

The past few weeks it seems that we can’t even buy a good soaking rain in Southwestern Indiana. Even though the soil is dry, plastic mulch and transplanting are still taking place. We have heard from at least one grower that they were going to transplant while using their trickle irrigation, something that they haven’t ever had to do before.

All this dry weather has lead to a few farm visits to look at recently transplanted vegetables that appear to be drying out, although the trickle irrigation is on. We have come up with a couple of explanations about what we may be seeing in these situations.

First, transplants are grown in trays in the greenhouse in a soilless mix specifically designed to maximize water availability and minimize drying out of the seedling. Placing the moist transplant root-ball into dry soil will tend to wick water away from the root-ball. Thorough watering while transplanting is a must, but be aware that in unusually dry years, more water may be required than in the past years.

A second area of concern in water supply for young plants is the placement of the trickle irrigation tape. In loose, sandy soils there is little movement of water laterally away from the drip tape emitters. Water availability decreases dramatically as you move away from the drip tape. Depending upon where the drip tape is placed under the plastic mulch at the time it was laid down, it could be 6-12 inches away from the site of the new transplant. This may mean that,
while drip tape irrigation would be fine for a mature plant with a large established root system, the transplant roots are receiving very little water even though the trickle irrigation is on.

Close monitoring of the water status of the soil around the transplant will help to eliminate drying out of the new plants. Supplemental irrigation may be necessary if plants are experiencing water stress.

Sample collection and handling are extremely important. Multiple cores, at least 15 per sample, should be collected to represent a uniform area of a field (in terms of soil type, management, etc.) no larger than about 20 acres. Be careful not to sample bands of previously applied fertilizer or injected manures! The cores should be mixed and quickly air-dried by spreading them on paper in a warm area. Samples may also be refrigerated until it is possible to dry them. Do NOT use plastic bags for PSNT samples!

Cautions: At the time of this writing, we are EXTREMELY dry, which makes sample collection a challenge. Be very careful not to collect soil samples that are less than one foot deep because that is the depth that all the research is based on!

A number of different laboratories, including the University of Delaware Soil Testing Laboratory, can analyze these samples and provide guidelines for interpreting the results. Conservation Districts in Kent and Sussex Counties offer PSNT testing at very reasonable rates. For further information, contact your local Cooperative Extension office.

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

Alfalfa.
Potato leafhoppers can now be found in alfalfa. Be sure to sample fields within one week of cutting to avoid damage. On alfalfa 3 inches or less in height, the treatment threshold is 20 per 100

ARMYWORM ALERT - See Field Corn, Small Grain and Sweet Corn Sections
sweeps, in 4-6 inch tall alfalfa the threshold is 50 per 100 sweeps and 100 per 100 sweeps in 7-11 inch tall alfalfa. Ambush, Baythroid, dimethoate, Pounce or Warrior will provide effective control.

Field Corn.
Armyworm populations are above normal this year so be sure to watch fields planted into or next to a burned down small grain cover for true armyworm larvae. Worms range in size from 1/4 to 3/4 inch long. We have seen one no-till sweet corn field planted into a burned down rye cover where an insecticide was not combined with the pre-emergence herbicide. The field was 100% infested with 5-6 worms per plant. Check our website (www.udel.edu/IPM) under Pest Alert for pictures of armyworms, plant damage and scouting information. Economic levels have also been found in conventional fields planted near rye cover crops and windbreaks. The treatment threshold for armyworms in field corn is 25% infested plants with larvae less than one-inch long. A pyrethroid will provide effective control. If Bt corn is planted in a field with a burned down small grain cover, you should see good control of small armyworms present in the field at the time of planting. In 2 years of studies with a YieldGard Bt variety, the Bt corn provided similar control to a pyrethroid tank mixed with an insecticide. However, if worms are large at the time of plant emergence or they are moving from adjacent small grain fields, you should not expect effective control. We continue to find cutworms feeding below the surface due to the dry weather. If fields are below threshold, you should wait before a treatment is applied. However, if damage is significant and the stand is being reduced below the desired population level, you can improve the effectiveness of a rescue treatment by (1.) applying insecticides in at least 20 gallons of water per acre and directing the application to the base of the plants, (2.) applying treatments as late as possible in the evening, and (3.) cultivating insecticides into the soil when practical.

Small Grains.
ARMYWORM ALERT - Economic levels of armyworms - in some cases well above threshold - have been detected in barley and wheat fields throughout the state. Sawflies can also be found, especially in areas where they are a perennial problem. Not all fields are at threshold level; however, populations are more widespread and at higher levels compared to recent years. Although armyworms tend to clip heads at the last possible moment, a combination of drought stress and a mixture in larval sizes may mean that we will see head clipping sooner than normal. If there is reduced leaf tissue lower in the canopy, worms will move to the heads, feed on developing kernels and start clipping heads sooner. Even though small grain yields may be reduced in fields due to the dry weather, you should not give up and decide it is not worth scouting your fields. If economic levels are present and there is reduced leaf area, you should not wait to treat, especially if sawflies are present in the mix. However, if plants have been irrigated and there is plenty of leaf material, you can wait to treat when you see the first signs of head clipping. In many fields, the size of worms ranges from 1/8 to 3/4 inch long. We expect to see head clipping by the end of this week or early next week in fields in lower Kent and Sussex Counties. The treatment threshold on wheat is 2 per foot of row and on barley the threshold is one per foot. Our experience indicates that armyworm will clip heads faster on barley compared to wheat so early detection and treatment is critical. On wheat, Warrior (2.56oz/A - small worms; 3.2 oz/A- large worms, especially if sawflies are present), Lannate LV (1.5 pt/A) or Parathion 8E (1/2 pt/A) will provide effective control. On barley, Lannate or Parathion can be used. Warrior is not labeled on barley. Remember Parathion can only be used by aerial applicators and has setback restrictions. In addition, EPA and the manufacturer of ethyl parathion, Cheminova, have signed an agreement to cancel all remaining uses of the organophosphate pesticide ethyl parathion. It will phase out the use on alfalfa, barley, corn, cotton, canola, sorghum, soybean, sunflower, and wheat over the next three years, ending all use of ethyl parathion in the United States by Oct. 31, 2003. For more information on true armyworm, check our website at www.udel.edu/IPM.
Soybeans.
You should start to watch any early planted no-till fields for spider mites and grasshoppers. Both pests have been detected in no-till fields. Treatment of non-crop areas for grasshoppers may help to prevent whole field infestations at a later date; however, it must be done before grasshoppers move into the main field. As a general guideline, non-crop areas should be treated if you find 20 or more grasshoppers per square yard. While sampling fields for grasshoppers, edge samples should be included in your sampling plan. The entire field should also be checked since adults and nymphs are often found throughout fields. The treatment threshold is 1 per sweep and 30% defoliation. Asana, Furadan, Lorsban and Warrior will provide control, although multiple controls may be needed.

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

Wheat.
Disease levels are extremely low due to the dry weather and low humidity. If you are thinking about irrigating wheat to save the crop, avoid irrigating during flowering unless absolutely necessary. The threat of scab would be pretty low but a possibility.

The only diseases seen to date have been powdery mildew on a susceptible, untreated variety and only on the lower leaves, and wheat spindle streak mosaic virus. For plant diseases to occur you need three things: a susceptible plant, a disease causing organism (fungus, bacteria, virus, etc.) and environmental conditions that favor infection. What is limiting disease development now is the weather.

Cultivation and Postemergence Herbicide Treatments - Mark VanGessel, Extension Weed Specialist; mjv@udel.edu

Questions have come in about whether to cultivate first or spray first for weed control. Keep a few things in mind. Weeds are easier to control when they are small, but consider which option is going to be more effective when weeds get larger. Cultivation will control the weeds between the rows but not in the row. Those weeds in the row are the ones you need to base your decision on whether to spray first. More often than not, it is better to spray first then cultivate. Also, weeds not completely killed with cultivation are more difficult to control with herbicides. (* Note: this is assuming the herbicide is an effective treatment for the weed species present.) The weeds that emerge after cultivation are going to be much smaller and have less impact on yield (if any impact at all). Setting your cultivator so it runs only 1 to 2 inches deep will slice through the weeds and not disrupt the herbicide layer from your preemergence herbicides. This in turn will limit the number of weeds that will emerge due to cultivation. It is generally recommended to wait a minimum of 5 to 7 days between herbicide treatment and cultivation.

Estimating Yield Potential for Small Grain Crops - Richard W. Taylor, Extension Agronomist; rtaylor@udel.edu

After being asked about how to decide if a small grain stand was worth keeping, I decided to try to answer this question.

Let’s start with barley. First determine the planting date to estimate yield potential. If you have the history for a given field that allows you to determine a realistic yield potential number, use that as your yield target. For very early planted barley (late September and very early October), subtract about 5 percent from the target yield. If planted from Oct. 5 to 10, use the yield target or
figure this as the maximum yield potential. For barley planted the third week of Oct., reduce your yield goal by about 15 percent and for the last week of Oct. the yield goal is reduced 21.5 percent. If planted the first week of Nov., subtract an additional 27 percent or a total of 48.5 percent. Mid-Nov. planting means an additional 6 percent reduction or 54 percent of the maximum expected yield.

The next question is stand. Although our studies did not include counts of plants per foot of row, reducing the seeding rate from 2.5 or even 3 bu/A down to 1.5 bu/A only reduced yields by about 10 to 12 percent, regardless of planting date. If planted in a timely fashion, even poor stands of barley will tiller adequately to produce close to average yields (not top yields but near average yields). Typically in a good barley stand there will be about 3 to 5 tillers (counting the main stem as one) per plant.

To estimate barley yield: in a dozen or more places across the field, take representative counts of the number of tillers per foot of row and determine the average for the field. Determine the row spacing and use the following factors based on that number (6-inch rows use 87,120; 7-inch rows use 74,674; 7.5-inch rows use 69,696; and 8-inch rows use 65,340) to calculate heads per acre. If you want, you can then count the number of potential grains per head or you can use 42 as an average number (I counted a number of heads in our variety trials and came up with this number—remember we grow six row barley so multiply the number of rows going up the panicle or head by six). Multiply the number of heads (panicles) per acre by 36 to get kernels per acre and divide this by 16,000 to get pounds per acre and this by 48 lbs/bu to get an estimate of bushels per acre.

For example, if you find ten plants/foot of row (7-inch rows; Oct. 10 planting date) with an average of two tillers per plant, you’ll get 20 tillers per foot of row times 74,674 or 1,493,480 heads per acre times 36 kernels/head equals 53,765,280 kernels/acre divided by 16,000 kernels/pound equals 3,360 lbs/A divided by 48 equals 70 bu/A. You’ll find that it is very easy to over estimate yield as small sampling errors are magnified quickly into huge yield changes. In particular, be very conservative in the number of heads per foot of row and also in the number of kernels per head. Not all the visible florets on the barley head will mature seed and when multiplied by the factor of six this can change yields quickly. Also, seeds/pound will vary greatly depending on weather conditions during grain fill and disease and insect pressure.

For wheat, yield reductions of about 22 percent occur from mid- to late-Oct. plantings to late November plantings. In a five year study, we saw only about a 9 percent yield reduction when plant populations were reduced from 20 (and even up to 40) to 10 plants per foot of row on 7.5 inch row spacing. If you are estimating the desirability of keeping a stand of wheat, until the population drops below 10 plants per foot of row, yield reductions will be slight. I expect that yield reductions progressively increase in size as plants per foot of row drop below ten.

You can use the same type of calculation as above to calculate expected wheat yields. Generally, wheat has 25 to 30 grains per head, about 2 to 4 tillers per plant (more as the plant density or number plants per foot of row decreases), 60 pounds per bushel, and 13,000 seed per pound. If you count the number of spikelets (3 per node) per head, the average usually will be between 12 and 20 but mostly only one to two kernels will form per spikelet that will lead to uncertainty in your yield estimate. Another variable is seed per pound. We’ve seen wheat range from as few as 9,000 seed per pound up to almost 20,000 seed per pound. Obviously, as drought conditions worsen, disease pressure increases, leaf feeding insect damage increases (as well as other factors), seed weight decreases and number of seed per pound increases.

It is never easy to estimate yield at heading even without taking future weather conditions into account. Your best approach may be the simplest one. Look at planting dates, fertilization practices,
adequacy of weed control, and either plants per row foot or tillers per row foot to determine if the stand has a chance of producing a reasonable yield.

If anyone else has thoughts on how to evaluate small grain stands at heading time, please send them along to me at my email address listed above.

Update on Testing Laboratories for Tall Fescue Endophyte - Richard W. Taylor, Extension Agronomist; rtaylor@udel.edu

After the article that appeared in Weekly Crop Update two weeks ago, I received an email alerting me to the fact that we have a local laboratory available for testing plants and seeds for the endophyte. The laboratory located at Maryland Department of Agriculture tests tall fescue seed for the presence of endophyte for $25 per sample and tests seedlings for $35 per sample. Each test is run on 30 seeds or seedlings. For the seedling test, it takes eight weeks for the seedlings to be grown before the test can be completed. Please note that this lab does not check for infestation in existing stands but rather tests seed lots for contamination with endophyte.

The address for sending samples is as follows: Lois T. Capshaw, Laboratory Manager, Turf and Seed Section, Maryland Department of Agriculture, 50 Harry S. Truman Parkway, Annapolis, MD 21401. The telephone and FAX numbers are 410-841-5960 and 410-841-5969 (FAX).

UPCOMING MEETINGS:

TWILIGHT CROP MANAGEMENT SESSION

When: Wednesday, May 23, 2001
Time: 6:00 PM – till(?)

Where: University of Delaware Research and Demonstration Area, ¾ mile east of Armstrong Corner, on Marl Pit Rd. (Rd. 429).

What: Come join your fellow farmers and Extension staff for an interactive and hands-on experience as we:

Wheat and Barley
• Conduct a walk-thru evaluation of varieties;
• Discuss a Hessian fly and an aphid and disease seed treatment study, as well as other insect & disease problems;

Corn & Soybeans
• Discuss management of weed, slug and insect pests;

Nutrient Management
• Discuss the use of the Pre-sidedress Nitrogen Test (PSNT) and Potash Management;
• Update you on Nutrient Management Certification;

General
• Discuss your timely questions/issues.

We’ll wrap the session up with a dessert treat and more chance to continue discussion.

Important:
DDA will award (1) private applicator re-certification credit in the agricultural plant category.

Whether or not you can join us on the 23rd, stop by at your convenience throughout the season. Handouts and maps will be available in the plastic information box mounted behind the UD sign. This meeting is free, and everyone interested in attending is welcome. For more information or special consideration in accessing this meeting, please contact our office in advance at (302) 831-COOP (2667).
HOPE TO SEE YOU ON THE 23rd!

Carl P. Davis
Extension Agent, Agriculture

2001 WYE SPRING TWILIGHT CROPS TOUR- SOMETHING DIFFERENT

TUESDAY, MAY 22
6:30PM
WYE RESEARCH AND EDUCATIONAL CENTER

The traditional Wye Small Grains Twilight Tour has been changed for 2001 to the Wye Spring Crops Tour. Coordinators Ted Haas, University of Maryland Regional Agronomy Specialist and Mark Sultenfuss, University of Maryland Wye Research Farm Manager have organized a twilight educational tour that for the first year will include research topics covering the agronomic crops of corn and soybeans as well as the traditional small grain crops- wheat and barley.

University of Maryland research specialists that will be present to discuss current research plot work and current field issues will be:

- Dr. Ron Ritter, Extension State Weed Control Specialist
- Dr. Jose Costa, State Small Grains Breeder
- Dr. Arv Grybauskas, Extension Plant Pathologist
- Dr. Galen Dively, Extension State Entomologist.

Educational topics that will highlighted for the twilight tour will focus on the following subject matter areas for the two hour program:

- Commercial and experimental winter wheat and barley varieties
- Early evaluation of corn herbicide trials and discussion of current weed control issues due to the dry spring conditions
- Small grain diseases
- Early planted soybeans (last week of April)
- Small Grain Insects – Cereal Leaf Beetle, Armyworm and Hessian Fly

This educational program will be CCA (Certified Crops Advisor) approved program.

For directions & other information, contact Ted Haas or Mark Sultenfuss at 410-827-8056.

Weather Summary

<table>
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<tr>
<th>Weather Summary</th>
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<tbody>
<tr>
<td>Week of May 10 to May 16, 2001</td>
</tr>
<tr>
<td><strong>Rainfall:</strong></td>
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<tr>
<td>None.</td>
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<tr>
<td><strong>Readings taken for the previous 24 hours at 8 a.m.</strong></td>
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<tr>
<td><strong>Air Temperature:</strong></td>
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<tr>
<td>Highs Ranged from 86°F on May 11 &amp; 12 to 62°F on May 16.</td>
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<tr>
<td>Lows Ranged from 64°F on May 12 to 41°F on May 14.</td>
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<tr>
<td><strong>Soil Temperature:</strong></td>
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<tr>
<td>71°F average for the week.</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

Compiled and Edited By:

Tracy Wootten
Extension Associate - Vegetable Crops

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