



WEEKLY CROP UPDATE

UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

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Vegetables

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

Melons

Continue to scout all melons for aphids, cucumber beetles, and spider mites. Economic levels of aphids can be found and in some cases these plants were infested in the greenhouse. Therefore, be sure to check plants as soon as they are set in the field. In general, cucumber beetle levels have been low. However, with the predicted warmer weather be sure to watch carefully for an increase in populations.

Peppers

Fields should be sampled for thrips and corn borers. On young plants, corn borer larvae can bore into the stems and petioles. In areas where peppers are isolated or corn is growing slowly, moths are often attracted to young pepper plants. Therefore, you should watch for corn borer moths laying eggs in all fields. As a general guideline, treatment may be needed if there is no corn in the area or you are using rye strips as windbreaks. You should also look for egg masses. At this time of year, thrips can damage peppers by vectoring tomato spotted wilt virus and by causing direct plant damage. Although there are no available thresholds, a treatment may be needed if you see populations increasing.

Potatoes

With the predicted warmer weather, be sure to watch for an increase in Colorado potato beetle adult activity and egg laying. A treatment should be considered for adults when you find 25 beetles per 50 plants and defoliation has reached the 10% level. Once larvae are detected, the threshold is 4 small larvae per plant or 1.5 large larvae per plant. If adults are the predominant stage, Assail, Leverage, Actara, Provado, or Venom should provide control. Once eggs hatch and larvae are present, the previous materials as well as Avaunt + PBO, cryolite, Rimon, or Spintor have provided control. Be sure to read all labels to select the correct rate, maximum number of applications and observe resistance management statements on the labels. We are starting to see an increase in corn borer activity and the earliest planted fields will be attractive to egg laying moths. A corn borer spray may be needed 3-5 days after an increase in trap catches or when we reach 700-degree days (base 50). Avaunt, Baythroid, Furadan, Monitor, Penncap, permethrin or Spintor are labeled for corn borer control. If you are scouting for infested terminals, the first treatment should be applied when 10% (fresh market) or 20-25% (processing) of the terminals are infested with small larvae. Furadan or Monitor will provide the best control if you are waiting until you see infested terminals.

Snap Beans

All seedling stage fields should be scouted for leafhopper and thrips activity. The thrips threshold is 5-6 per leaflet and the leafhopper

threshold is 5 per sweep. If both insects are present, the threshold for each should be reduced by 1/3. If both insects are present, Lannate, Capture (bifenthrin), Proaxis and Warrior (lambda-cyhalothrin) are labeled for both insect pests on snap beans. In addition, we have seen fields with significant bean leaf beetle. Damage appears as circular holes in leaves and in some cases significant defoliation has occurred. As a general guideline, a treatment should be considered if defoliation exceeds 20% prebloom. A pyrethroid, dimethoate or Sevin are labeled for control.

Sweet Corn

Continue to sample for cutworms and flea beetles. As a general guideline, treatments

should be applied if you find 3% cut plants or 10% leaf feeding. In order to get an accurate estimate of flea beetle populations, fields should be scouted mid-day when beetles are active. A treatment will be needed if 5% of the plants are infested with beetles. Small corn borer larvae can be found in the whorls of the earliest planted fields. A treatment should be applied if 15% of the plants are infested. The first silk sprays will be needed for corn borer and corn earworm as soon as ear shanks are visible. Be sure to check trap catches since the spray schedules can quickly change. You can call the Crop Pest Hotline for the most recent trap catches -- in state: 1-800-345-7544; out of state: 302-831-8851.

Potato Disease Advisory May 24, 2007 - Bob Mulrooney, Extension Plant Pathologist

Disease Severity Value (DSV) Accumulation as of May 23, 2007 is as follows:

Location: Broad Acres, Zimmerman Farm, Rt 9, Greenrow: May 2

Remember that 18 DSVs is the threshold to begin a spray program for late blight

Date	LATE BLIGHT			EARLY BLIGHT
	Daily DSV	Total DSV	Spray Recs	Accumulated P days*
5/2- 5/9	2	2	none	50
5/10- 5/11	2	4	none	69
5/12- 5/16	0	4	none	109
5/17	1	5	none	117
5/18 - 5/20	0	5	none	139
5/21 - 2/23	0	5	none	163

* P days- We use the predictive model WISDOM to determine the first fungicide application for prevention of early blight as well. The model predicts the first seasonal rise in the number of spores of the early blight fungus based on the accumulation of 300 physiological days (a type of degree-day unit, referred to as P-days) from green row. To date, 163 P-days have accumulated at the site. Once 300 P-days have accumulated, the first fungicide for early blight control should be applied. This usually occurs when rows are touching.

Remember that these values are for potatoes that would have about 50% emergence and made a row that you can see on or before May 2. Growers who do not want to rely only on the DSV calculations for scheduling fungicide applications should apply at least 1-2 sprays of mancozeb (Dithane, Manzate, Pencozeb, Manex II) or Bravo (chlorothalonil) before plants canopy down the row. The weather has not been favorable for DSV accumulations this past week. Cool weather and low humidity have been very favorable for potato growth.

For specific fungicide recommendations, see the 2007 Delaware Commercial Vegetable Production Recommendations Book.

White Mold on Legumes - *Kate Everts; Vegetable Pathologist, University of Delaware and University of Maryland; keverts@umd.edu*

The fungus *Sclerotinia sclerotiorum* causes disease on hundreds of plant species. Locally the diseases include white mold on snap bean, pea and lima bean. There are several fungicides that are effective for managing these diseases. In addition, a biofungicide, Contans, which is a formulation of the fungus *Coniothyrium minitans*, parasitizes the survival structures of *S. sclerotiorum*. In trials throughout the U.S. it generally works well at reducing white mold severity. Contans has been effective in our trials on lima bean white mold. If you are interested in using Contans, now is the time to plan because it should be applied two months before the disease develops. The label recommends that it be applied before or at planting time. The depth of incorporation will influence the rate (for up to 4 inches of incorporation, use 2-4 lbs Contans/A; for up to 8 inches of incorporation, use 3-6 lbs Contans/A). For example in lima beans we incorporated 2 lbs Contans/A just prior to planting and disked it in to a depth of 4 inches. Contans is OMRI labeled from Sylvan Bioproducts, Inc. (I'm not aware of other distributors). The product comes in 50 lb bags, and Sylvan plans to begin breaking it down into 10 lb bags. Because the product is living, it must be handled carefully prior to use. Contans would be a good choice to try in fields or areas such as high tunnels that are used repeatedly for a susceptible crop.

Postemergence Broadleaf Weed Control in Snap and Lima Beans - *Mark VanGessel, Extension Weed Specialist; mjv@udel.edu*

Broadleaf weed control in snap beans and lima beans can be accomplished with Sandea, Raptor, or Basagran; and Reflex is labeled only for snap bean. Do not spray before the first trifoliolate is fully expanded for all these products, except Sandea which requires at least two fully expanded trifoliate. All of these products should be applied before the beans have started

to flower. These products are not effective on most weed species over 3 inches tall. So they need to be applied early (approximately 3 to 4 weeks after planting).

Reflex, for **snap bean only**, can be tankmixed with Basagran to improve common lambsquarters control.

Raptor is labeled for lima beans in Delaware and Maryland and for snap beans in Delaware, Maryland, and Pennsylvania. The label requires the addition of Basagran at 6 to 16 fl oz/A to improve crop safety and minimize the yellowing in the young tissue. In addition, it is labeled for use with a non-ionic surfactant.

Remember, there are biotypes of pigweed and common lambsquarters in the mid-Atlantic region that are resistant to Sandea, Pursuit, and Raptor. If you are concerned about resistance, please contact me.

MELCAST for Watermelons and Cantaloupes - *Kate Everts; Vegetable Pathologist, University of Delaware and University of Maryland; keverts@umd.edu*

MELCAST for Watermelons

The weather-based forecasting program **MELCAST for watermelon** has begun for 2007. MELCAST is a weather-based spray scheduling program for anthracnose and gummy stem blight of watermelon. It was developed by plant pathologists at Purdue University and field-tested extensively here on Delmarva. If you received a report in 2006, you should have received the first 2007 report on Wednesday. If you did not receive a report and would like to, please call Jeri Cook at (410) 742-8788 and give us your name and fax number or e-mail address. In addition, MELCAST for watermelons is available on the web at <http://www.agnr.umd.edu/users/vegdis/vegdis.htm>.

To use MELCAST for watermelons, apply the first fungicide spray 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 that is applied. 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, reset the counter to 0 and start over. Please call if you have any questions on how to use MELCAST for watermelon on your crop (Kate Everts at 410-742-8789).

Because of widespread resistance to Quadris in our area, chlorothalonil (Bravo, etc.) or Pristine *plus* chlorothalonil *alternated* with chlorothalonil is recommended when spraying according to MELCAST. If a serious disease outbreak occurs in your field, return to a weekly spray schedule.

MELCAST for Cantaloupes

In addition to MELCAST for Watermelon, a version of the model is designed to help you make spray-timing decisions on cantaloupe. **MELCAST for cantaloupes** is a fungicide application program for Alternaria leaf blight. It can be used by anyone growing a powdery mildew resistant variety such as 'Athena'. To use MELCAST for cantaloupe, apply the first fungicide spray when the cantaloupe vines meet within the row. Additional sprays should be applied using MELCAST for cantaloupe. Accumulate EFI (environmental favorability index) values beginning the day after your first fungicide spray. Apply a fungicide spray when **20 EFI values** have accumulated at the weather station nearest your fields. Add 2 points for every overhead irrigation that is applied. 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.

MELCAST for cantaloupes (muskmelon) is available at <http://www.agnr.umd.edu/users/vegddisease/vegddisease.htm>. In addition you can receive the models by e-mail or fax; call Jeri Cook at (410) 742-8788 and give us your name and fax number or e-mail address.

Agronomic Crops

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

Alfalfa

Now that potato leafhopper adults can be found be sure to sample fields on a weekly basis, especially spring seedings. Be sure to check all fields for leafhopper adults and nymphs within one week of cutting. With the predicted warm weather, we could see an increase in populations as well as the first nymphs, which often cause damage very quickly. Once the damage is found, yield loss has already occurred. The treatment thresholds are 20 per 100 sweeps on alfalfa 3 inches or less in height, 50 per 100 sweeps in 4-6 inch tall alfalfa and 100 per 100 sweeps in 7-11 inch tall alfalfa.

Field Corn

Be sure to sample no-till fields for true armyworms feeding in the whorls of plants where a grass cover or volunteer small grains were burned down at planting. The treatment threshold for armyworms in corn is 25% infested plants with larvae less than one-inch long. As barley begins to dry down, you should also watch for larvae moving from small grains into corn.

Small Grains

We are starting to hear reports of economic levels of aphids in the heads of small grains so be sure to scout all fields for aphids as well as beneficial insects. The treatment threshold is 20-25 aphids per head with low beneficial insect activity. In addition, we are starting to see economic levels of sawflies and armyworms in spots throughout the state. As a general guideline, the armyworm threshold is one per foot of row in barley and two per foot of row in wheat. As a guideline, a treatment should be applied for sawflies when you find 2 larvae per 5 foot of row inner space or 0.4 larvae per foot of row. However, remember if the number of clipped heads is twice the worm count for sawflies then it is generally too late to treat for them. If armyworms and sawflies are present in the same field, the threshold for each should be reduced by one-half. Also, as small grains

mature be sure to check the label for the days between application and harvest.

Soybeans

On the earliest emerged fields, be sure to watch for bean leaf beetle adults and grasshoppers feeding on the cotyledons and first true leaves. In recent years, bean leaf beetle populations have been heavier in the Mid-Atlantic and populations appear heavier this year on the earliest planted beans. Damage appears as scooped out pits on the cotyledons and leaf feeding appears as distinctive, almost circular holes, which are scattered over the leaf. Refer to the following link for pictures of adults and damage

(<http://www.ent.iastate.edu/imagegal/coleoptera/beanlb/>). Even though the feeding by first-generation beetles on soybean leaves has seldom resulted in economic yield losses (except if virus is vectored), fields should be scouted carefully to assess the damage. In the Mid-West, this beetle vectors bean pod mottle virus. Although we have not seen this virus causing problems in Delaware, a virus survey will be conducted this year as part of the National Legume Pipe System to determine if it is present in our area. The second-generation feeding on pods in late summer could cause significant damage. This generation would also be the generation to vector virus next spring. There are numerous treatment guidelines available; however, as a general guideline a treatment may be needed if you observe a 20 - 25% stand reduction and/or 2 beetles per plant from cotyledon to the second trifoliolate stages. The Iowa State economic threshold for cotyledon stage is four beetles per plant. Once plants reach the V1 and V2 stages, their thresholds increase to 6.2 and 9.8 beetles/plant, respectively. In their area, these treatment guidelines would be reduced if virus is present or you suspected virus the previous season.

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

Soybean Rust Update

Scouting for soybean rust has intensified as more states have emerged soybean plants. Scouts are now monitoring sentinel plots from Texas to

Florida, and north to Ohio. No new detections have been reported in over 10 days. The last soybean rust was detected in a kudzu patch west of New Orleans in New Iberia, Louisiana. The dry weather continues in the Southeast so the buildup of rust will be slow for the time being, but continue to monitor new developments by checking the national soybean rust website or PIPE (Pest Information Platform for Extension and Education) <http://www.sbrusa.net/>. Almost all our sentinel plots have been planted and will be emerging soon.

Barley

Barley heads are rapidly filling and a few leaf diseases can still be seen. The spot blotch form of net blotch is very prevalent in Sussex County. Most of the varieties in the variety trial have moderate levels of spot blotch. Some flag leaves have 10-15% of the leaf area infected. Leaf rust on barley is present on susceptible varieties. Severity can really vary, but the levels of rust that I have seen should not reduce yields.



R Mulrooney

Barley leaf rust (note the raised orange pustules) and the spot blotch form of net blotch (dark spots) on leaf from mid-canopy.

Wheat

The levels of leaf diseases are low at the present time. Wheat varieties in the variety trials at Georgetown are exhibiting low levels of speckled leaf blotch caused by *Septoria tritici* on the lowest leaves on the plants. This is not the *Septoria* that causes glume blotch. If we get into rainy weather now we could see an increase of both *Septoria* diseases as well as tan spot. Late increases in disease should not reduce yields as long as the top two leaves stay green. Most wheat is flowering now and fungicides cannot be

applied to wheat after flowering. Check the labels for this information. As mentioned last week, head blight or scab should not be an issue this season again. The few bleached heads I have seen so far have been from insects clipping the stem lower on the plants.



R. Mulrooney

Speckled leaf blotch caused by *Septoria tritici* on wheat leaf. Small dark fruiting structures of the fungus can be seen with a 10X hand lens in the dead tissue.

Corn Emergence Problems - Leafing Out Underground and Corkscrewing - Gordon Johnson, Kent County Extension Agriculture Agent; gcjohn@udel.edu

I have recently been to a field with significant stand reduction due to seedling growth abnormalities. Gaps where seed did not emerge were dug up and most seedlings had leafed out underground or failed to reach the surface while mesocotyls and coleoptiles were snaked, twisted, or spiraled. In some cases the coleoptile had ruptured below ground. This syndrome is called corkscrewing and occurs occasionally in fields under certain conditions.

In normal corn emergence, the mesocotyl (the white stem from the seed) elongates upward and pushes the coleoptile (spike) to the surface where the first corn leaf then grows out. In this case, the mesocotyl did not grow straight upward, but grew in a tortuous way, spiraling or snaking. If the coleoptile does not reach the soil surface the seedling will either leaf out underground or die.

The most common cause of corkscrewing is surface crusting or compaction around the seed. When the seed germinates, if mesocotyl growth is impeded due to high soil strength (compaction) immediately above the seed, it will grow horizontally in looser soil until it reaches an area with lower soil strength. The mesocotyl will then resume trying to grow upward. Conditions such as crusts that develop due to heavy rains immediately following planting or cloddy soils will lead to this problem. Heavy sidewall or surface compaction from seed closers or press wheels on planters when planting in wet soil conditions can also be causal factors.

Another factor that has been associated with underground corkscrewing in corn is exposure of the mesocotyl or coleoptile to chilling injury. In this case, the growing cells are damaged in a way that leads to this deformed growth. Seedling exposure to high day temperatures followed by much lower night temperatures in the soil often makes this problem more severe. These cycles disrupt the movement of auxins, growth hormones that control mesocotyl cell growth and expansion.

Another potential contributing factor can be the effect of herbicides that act by inhibiting cell growth. Usually it is not the herbicide alone that does the damage. The combination of cold soils, compaction, delayed emergence, and the herbicide leads to more corkscrewing or leafing out below ground.

Seedlings that do finally make it to the soil surface will grow normally, but depending upon the delay in emergence, may be significantly behind neighboring plants, and thus result in lower plant yields.

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

Commodity Markets Headed for July 4th 'Fireworks'

May 23rd might be a little early to be speaking of fireworks, however, that appears to be the

direction that the commodity markets are headed as we near the end of spring and head into the summer growing season. We are now about five weeks away from getting USDA's Actual Planted Acres report. We are also about six weeks away from the July 4th holiday which historically marks a turning point for the corn market. The turning point may occur a tad later this year due to planting delays in parts of the U.S. this spring. The weather continues to be and will be the dominant factor for both the corn and soybean markets throughout the '07 growing season. U.S. corn acreage needs to be huge and production potential needs to be at trend line or better. U.S. soybean acreage will need to be increased for next year, thereby setting the stage for another "bidding war for acres." This "bidding war" is happening presently, to some extent, with the momentum for the "war" expected to pick up later on.

Market Strategy

Most market analysts are taking a wait 'n see attitude concerning the current situation in the market, keeping new crop sales to a minimum. One can build a case for making some sales based upon the theory "one can never go broke selling at a profit". Whichever theory that an individual grain marketer subscribes to we all have to remember one very central theme to this marketing year's pricing opportunities - it all depends upon weather developments throughout the Corn Belt from now until harvest. Will there be any takers for \$3.90 Dec '08 corn, or \$8.45 per bushel Nov '08 soybeans? Should there be? New crop Dec '07 corn futures are currently at \$3.72; Nov '07 soybean futures are at \$8.28; and July '07 wheat futures are at \$4.74 per bushel. For technical assistance on making grain marketing decisions contact Carl L. German, Extension Crops Marketing Specialist.

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 as to whether to spray first. More often than not, it is better to spray first, then cultivate. In addition, weeds not completely killed with cultivation are more difficult to control with herbicides. **Note this assumes that the herbicide is the right herbicide for the weed(s) in your field. 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 recommended to wait a minimum of 5 to 7 days between herbicide treatment and cultivation.

Lightning Safety - Ron Jester; *Extension Safety Specialist (retired)*; rcjester@udel.edu

With summer fast approaching the resources on lightning safety at the following websites are timely.

<http://www.lightningsafety.noaa.gov/>
http://www.lightningsafety.com/nlsi_pls/lst.html

General

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

Questions have come in about whether to cultivate first or spray first for weed control.

Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of May 17 to May 23, 2007

Readings Taken from Midnight to Midnight

Rainfall:

0.09 inch: May 19

0.01 inch: May 20

Air Temperature:

Highs Ranged from 78° on May 22 to 57°F on May 18.

Lows Ranged from 53°F on May 17 to 45°F on May 19.

Soil Temperature:

56°F average.

(Soil temperature taken at a 2" depth, under sod)

Additional Delaware weather data is available at <http://www.rec.udel.edu/TopLevel/Weather.htm>

*Weekly Crop Update is compiled and edited by
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