



WEEKLY CROP UPDATE

UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

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Soybean Rust Update

Rust was found July 6th on kudzu in Gadsden County, Florida, just south of Seminole County, Georgia. It was reported that the spot was heavily infected.

Keep up to date on the effect of the two storms, Tropical Storm Cindy and Hurricane Dennis, by visiting the USDA site <http://www.sbrusa.net/> and clicking the SBR Forecast box. As of July 6th, they were predicting possible movement of spores as far north as Virginia. As of this writing it was too early to predict the effect of Hurricane Dennis. The sites in the south are still at a low level of infection, so the number of spores to move is low. For the remainder of this week, the most vulnerable region for disease development continues to be below a line stretching from southern South Carolina through central Georgia, Alabama to southeastern Mississippi.

Reminder to check our website and others for soybean rust fungicides and updates <http://ag.udel.edu/extension/Information/pdc/soybeanrustResources.htm>

See the Agronomic Crops section for several other related SBR topics.

Bob Mulrooney

Vegetables

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

Melons

Although we can find a few fields with aphids and cucumber beetles, spider mites continue to be the most prevalent arthropod pest in melons at this time. The threshold for mites is 20-30% infested crowns with 1-2 mites per leaf. With most products, the best control will be achieved on a building - not an exploded population. In order to avoid the development of resistance, be sure to rotate materials.

Peppers

In areas where corn borers are being caught in local traps and pepper fruit is ¼ or more in diameter fields should be sprayed on a 7-day schedule for corn borer control. Be sure to check local moth catches in your area at <http://www.udel.edu/IPM/traps/latestblt.html>. You will also need to consider a treatment for pepper maggot.

Potatoes

Continue to scout fields for Colorado potato beetle (CPB), leafhoppers and aphids. As a general guideline, controls should be applied for leafhoppers if you find ½ to one adult per sweep or one nymph per every 10 leaves. We continue to find green peach aphids. Controls will be needed if you find 2 aphids per leaf during bloom and 4 aphids per leaf post bloom. This

threshold increases to 10 per leaf at 2 weeks from vine death/kill. If melon aphids are found, the threshold should be reduced by one half. Actara (3 oz/A - higher rate and aphids added to label this year), Assail (new label this spring for potatoes), Fulfill, Lannate, Monitor (green peach and potato aphid only), Provado and Vydate are labeled for aphid control in potatoes. If Fulfill is used, a penetrating surfactant should be used to achieve good coverage and achieve optimum control.

Snap Beans

Continue to scout all seedling stage fields for leafhopper and thrips activity. Sprays are needed at the bud and pin stages on processing beans. Acephate can be used at the bud and pin stages on processing beans but remember it has a 14-day wait until harvest. Additional sprays may be needed after the pin spray on processing beans. Since trap catches can change quickly, be sure to check our website for the most recent trap catches and information on how to use this information to make a treatment decision in processing snap beans (<http://www.udel.edu/IPM/traps/latestblt.html> and <http://www.udel.edu/IPM/thresh/snapbeanecbthresh.html>). Once pins are present on fresh market snap beans and corn borers are being caught in local traps, a 7-10 day schedule should be maintained for corn borer control.

Sweet Corn

In most locations, fresh market silking sweet corn should be sprayed on a 4-day schedule, except in the Dover, Laurel and Rising Sun area where sprays are needed on a 3-day schedule. Be sure to check trap catches for the current spray schedule since trap catches quickly change. Trap catches are generally updated on Monday and Thursday nights. <http://www.udel.edu/IPM/traps/latestblt.html>; <http://www.udel.edu/IPM/thresh/silkspraythresh.html>. You can also call the Crop Pest Hotline for current trap catches (in state: 1-800-345-7544; out of state: 1-302-831-8851). We continue to find fall armyworm larvae in whorl to pre-tassel stage sweet corn. A treatment should be considered when 12-15% of the plants are infested. Since fall armyworm feed deep in the whorls, sprays should be directed into the

whorls and multiple applications are often needed to achieve control.



Downy Mildew on Pickles Has Arrived - Bob Mulrooney, Extension Plant Pathologist; bobmul@udel.edu

Downy mildew, caused by the fungus *Pseudoperonospora cubensis*, was positively identified July 5th on plants sampled on the 4th from DE and MD. On July 6th, Ed Kee and others have identified a number of additional fields in Dover, Milford, Bridgeville, and Seaford. It is in the early stages, but was seen on small plants as well as large ones. The early detection and rapid response hopefully will provide more control than last year.

In 2004, downy mildew destroyed an estimated 50% of Delaware's cucumber crop. This disease is very destructive and progresses rapidly under favorable conditions. Fungicides are much more effective when applied well before symptoms are visible. Initiating a downy mildew control program after symptoms have been detected is likely to fail.

Cucumber growers are encouraged to begin a preventative fungicide spray program if they have not already done so. Results from the 2004 fungicide performance trial in North Carolina are available at http://www.ces.ncsu.edu/depts/pp/cucurbit/Thornton04-09_cucumber.pdf

The most effective spray programs in this trial included the fungicides Tanos, Previcur Flex, and Gavel, tank mixed or alternated with Curzate, mancozeb (Manzate, Dithane, Penncozeb) and/or chlorothalonil (Bravo, Equus, Echo).

Growers here are reacting quickly and are spraying the Previcur Flex + Bravo combination. They expect to spray again with Tanos + Manzate or the Curzate + Bravo combination.

In designing a fungicide program, growers should also observe pre-harvest intervals and practice resistance management by alternating products belonging to different fungicide groups.

| Fungicide | Days to Harvest | Fungicide Resistance Group |
|--------------------|-----------------|----------------------------|
| Previcur Flex 6F | 2 | 28 |
| Tanos 50WG | 3 | 11+27 |
| Gavel 75DF | 5 | 22+M |
| Curzate 60DF | 3 | 27 |
| Manzate or Dithane | 5 | M |
| Bravo 6SC | 0 | M |



Downy Mildew on Watermelon, Muskmelon, and Pumpkin - *Kate Everts, Extension Plant Pathologist, University of Maryland and University of Delaware; everts@udel.edu*

We have positively identified downy mildew from many cucumber fields in Maryland and Delaware. However, we have not yet seen it in other cucurbits such as watermelon, muskmelon and pumpkin. This has led to confusion on how to treat these other (non-cucumber) cucurbit crops. While there are different pathotypes of the downy mildew organism that affect one cucurbit but not another, we do not know what pathotype we are currently dealing with. Growers should assume that all cucurbits are at risk. In other words, it would be wise to add a fungicide that is effective on downy mildew to current spray programs for watermelon, muskmelon, squash and pumpkin.

There are several fungicides that performed well in trials on downy mildew in the fall of 2004. The best treatments in a North Carolina trial were

- 1) Gavel at 2 lb/A alternated with Bravo Weather Stik at 2 pt/A,
- 2) Previcur Flex at 1.2 pt/A + Bravo Weather Stik at 2 pt/A
- 3) Tanos at 8 oz/A + Manzate at 2 lb/A alternated with Curzate at 3.2 oz/A + Bravo Weather Stik at 2 pt/A

The treatment Ridomil Gold Bravo alternated with Cabrio did not perform well in the North Carolina trial even though this combination had performed well prior to 2004. In fact the yield in plots treated with Ridomil Gold Bravo

alternated with Cabrio was reduced by more than 90% compared to the best treatment. Pristine, alternated with Bravo, which also had performed well prior to 2004, did not perform well in the North Carolina trial. Note that Gavel and Mancozeb cannot be used (are not labeled) on pumpkin or winter squash. While the early arrival of downy mildew is of great concern, application of an effective fungicide and a return to more seasonable weather (i.e. the onset of hot dry weather) will help reduce disease development.

Agronomic Crops

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

Alfalfa

Continue to sample fields for leafhopper adults and nymphs. 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. Remember, leafhoppers can quickly damage regrowth, so be sure to routinely sample fields.

Soybeans

Continue to sample fields for grasshoppers, thrips and potato leafhoppers. We are also starting to see an increase in mite populations and economic numbers can be found in a few fields. A treatment is recommended if you find 20-30 mites per leaflet or 10% of plants with 1/3 or more leaf area damaged. Although edge treatments can work in the right situation, it will be important to scout the entire field before deciding if an edge treatment is enough. At this point, the only materials available for mite control in soybeans are dimethoate and Lorsban. If dimethoate is used, the addition of a penetrating surfactant like LI-700 or Penetrator plus, or a material like Hyperactive has helped to improve control, especially in drought stressed fields.

Be sure to begin scouting fields for soybean aphids. Extremely low levels of aphids have been found in full season fields in New Castle and Kent Counties. You will need to look at the

entire plant when sampling for aphids. The action threshold - developed in the Midwest - is an average of 250 aphids per plant on plants sampled throughout the field. Spraying at or beyond R6 has not been documented to increase yield. To determine if an aphid population is actively increasing, check over several visits. Conditions that favor aphid population growth are cool temperatures, plant stress, particularly drought stress, and a lack of aphid predators. A number of insecticides are labeled including Asana, Baythroid (label states suppression), Mustang MAX, Lorsban and Warrior. Experience from the Midwest has indicated that dimethoate has not provided adequate control.



Soybean Diseases - Bob Mulrooney; *Extension Plant Pathologist*; bobmul@udel.edu

Septoria Brown Spot

The recent wet weather in parts of the state has been favorable for the continued development of Septoria brown spot. When present it is found in the lower canopy. The small spots can look similar to symptoms of soybean rust. At the present time there is no reason to suspect any of this to be soybean rust, but the soybean rust survey staff have been looking and finding brown spot where rains have favored it.

Downy Mildew

Downy mildew, caused by the fungus, *Peronospora manshurica*, was also seen on a sample submitted from Sussex County. These were small plants and no canopy formed. Small yellow spots 3-5 mm (1/4 in.) in diameter were present on the upper leaf surface. It was too early to see the small tufts of fungus on the corresponding lower leaf surface without high magnification. It is very unusual to see downy mildew this early. It may be an indication of the amount of rainfall and high humidity we have had so far in some locations in Sussex.

Soybean Rust

Soybean growers may be considering spraying soybeans in the early reproductive stages (R3-R4) with Headline or Quadris in an attempt to cash in on the real, but very unpredictable, plant health benefit that are seen when

soybeans are sprayed with these strobilurin fungicides. Our test conducted last season in DE used the 6.2 fl. oz/A rate of Quadris and 6.0 fl. oz/A of Headline and resulted in a significant yield increase of 3.3 and 4.0 bu/A respectively.

The question has come up about applying these fungicides if rust is not present for the plant health benefits. My warning to our growers (which is echoed by Don Hershman in Kentucky to his growers) is that these fungicides will provide 21-28 days protection against soybean rust. So if they are applied at the R3-R4 growth stage and rust shows up 21-28 days out from that, a second application might be needed. It may be too early to know if soybean yields and prices can pay for two applications at this time. Growers need to consider this when deciding to spray or not to spray if rust is delayed beyond the R3-R4 growth stages. We may know better what could happen in Delaware after these two storms go through and see what develops in the South in the next several weeks.

Don also warned Kentucky growers that: "Of those considering spraying a fungicide in the near future, many are thinking about spraying Headline SBR, which is a co-pack of Headline and Folicur. From a plant health standpoint, growers should be aware that the recommended use rate for Headline SBR results in less Headline being applied than has been associated with plant health gains. The significant point is that it is unproven and unknown if and how the lower rate of Headline will impact plant health. Note: Triazoles have no potential for providing a plant health benefit unless a disease is being controlled."



Applying Fungicides Through Irrigation Systems - Bob Mulrooney; *Extension Plant Pathologist*; bobmul@udel.edu

Some growers have been asking about applying Quadris, Quilt or Headline through their irrigation systems for disease control in field corn. I have checked around and this is what I learned from different sources.

All three labels allow for application through irrigation systems and have good information on how to do it and the precautions to prevent water source contamination, drift issues, etc. Be sure to read the labels. Avoid drift of Quadris or Quilt to apple trees (see label for more specifics).

The most critical point seems to be that the fungicide has to be applied in 0.5 inch of water/A (13,577 gal/A) or less. Less is better, more like 0.2 inch. More water than this reduces the efficacy of the products. You do not want the fungicide on the ground. Coverage is usually very good so no adjuvants are needed.

The important thing is to get the product on the ear leaf and above, so if your system has drops, reverse them to cover the top of the plants.

Any nozzling system that would produce good coverage of the plants as in a conventional spray application would be suggested. These fungicides do not move down the plant systemically so you have to get the ear leaf and the leaves above treated.

As far as rates go, the minimum for Quadris or Headline would be 6 fl. oz/A.

If you can apply that low amount of water and have the right pump and the equipment to do it, it can be done successfully. Growers should note that this is not the same as fertigation. Fertigation application rates would be too high for effective fungicide performance from what I can determine. Unless you have experience and the right equipment it might be better to apply these fungicides conventionally either by air or ground. BASF reports that growers in Nebraska and Kansas have been successful in making applications through the irrigation systems on a number of crops. Potato growers out West have also been doing it for years. The chemical company technical reps will have good information for growers as well.



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

Commodity Prices Tumble on News of Hurricane Dennis

News from the National Weather Service this morning concerning Hurricane Dennis has the commodity markets reeling in overnight trade, and commodity prices are expected to plunge when markets open this morning. The reason given is that traders are banking on the storm tracking into the Gulf and following a path northward up the Mississippi River. If that scenario develops, much needed rain would occur in some of the driest sections of the Corn Belt. Considering trader reaction, it is safe to assume that the '05 U.S. corn and soybean crop production potential would be greatly enhanced, provided the soaking rains track into the Midwestern Corn Belt. Therefore, we are likely to see a declining market until the storm works through, the path is determined, and rainfall accumulations are tallied. USDA, for the first time this cropping season, lowered the ratings in the good to excellent category for U.S. corn and soybeans. Dry weather, spotty rains, and drought conditions in parts of the country have poised these markets to move to the next leg up. Depending upon what path Hurricane Dennis takes, we may see the weekly crop condition ratings returning to normal next week? For now, commodity traders are banking on this storm bringing much needed rain to the drier sections of the Corn Belt.

Crop Tour Results

The week of June 24th to June 30th was spent in Illinois observing some of the corn and soybean fields in that area. Overall the crop looks good. Some corn fields were observed to be too dry, while many of the corn fields in that area were entering the tassel stage. Rains in this part of the country have been spotty up to this point in the growing season. If Hurricane Dennis brings on the crop making rains, my guess would be that the U.S. crop will turn out to be normal or better. Of course, these observations are based upon a very small sample. We still have several more weeks of the 'weather market' to endure. What looks like lost pricing opportunities now could very well reoccur. It all depends on the weather!

Announcements

Twilight Pickle Growers Meeting

Tuesday July 12, 2005 6:00 – 8:00 p.m.

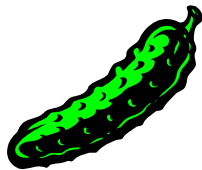
Russ Stevens' Farm

Waddells Corner Rd. (Rt. 331), Hurlock, MD

Pickle producers, processors, seedsmen and consultants are invited to come view our Pickle Variety Trial at Russ Stevens' Farm in Hurlock, MD. The trial includes eleven varieties and was planted on May 31.

Extension Plant Pathologists Bob Mulrooney (UD) and Kate Everts (UMD & UD) will be present to discuss cucumber disease control strategies, as well as other plant disease issues on any other crops.

Light refreshments will be served. No registration is necessary. For more information or directions call Ed Kee or Emmalea Ernest at (302) 856-7303.



Weather Summary

<http://www.rec.udel.edu/TopLevel/Weather.htm>

Week of June 30 to July 6, 2005

Readings Taken from Midnight to Midnight

Rainfall:

0.01 inches: July 5

0.38 inches: July 6

Air Temperature:

Highs Ranged from 87°F on July 1 and July 5 to 79°F on July 3.

Lows Ranged from 71°F on July 6 to 62°F on July 4.

Soil Temperature:

83°F average.

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

Web Address for the U of D Research & Education Center: <http://www.rec.udel.edu>

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Potato Disease Advisory #16 - July 7, 2005, Bob Mulrooney, Extension Plant Pathologist

Late Blight Advisory (18 DSV's Exceeded)

Disease Severity Value (DSV) Accumulation as of July 6, 2005 is as follows:

Location: Joe Jackewicz Farm, Magnolia, DE. Greenrow: May 4, 2005

| Date | Daily DSV | Total DSV | Spray Recommendation |
|------------|-----------|-----------|----------------------|
| 6/2- 6/4 | 11 | 28 | - |
| 6/4 | 2 | 30 | 5- day |
| 6/5 | 2 | 32 | 5-day |
| 6/6 | 2 | 34 | 5-day |
| 6/8 | 1 | 35 | 5-day |
| 6/9 | 2 | 37 | 5-day |
| 6/10 | 2 | 39 | 5-day |
| 6/11- 6/26 | 0 | 39 | 10-day |
| 6/26-6/28 | 9 | 48 | 7 -day |
| 6/28-6/29 | 3 | 51 | 7-day |
| 6/29-6/30 | 3 | 54 | 7-day |
| 6/30-7/1 | 2 | 56 | 7-day |
| 7/1-7/2 | 2 | 58 | 7-day |
| 7/2-7/4 | 0 | 58 | 7-day |
| 7/5-7/5 | 2 | 60 | 7-day |
| 7/5-7/6 | 3 | 63 | 7-day |

P-day value is now 475, which is used to predict early blight and the need for protective fungicides. Early blight sprays are recommended.

Note: Late blight was found in one field in NJ last week as previously reported. It was an isolated occurrence at a very low level of infection, so growers need to be vigilant and continue with protectant spray programs of Bravo or mancozeb. On a happier note the report from the field detection in NJ indicates that the fungicide application was very effective there was no spread and the infection was drying up. There were no other reports of late blight on potato or tomato from the area. For us in DE, I still would recommend a Bravo or mancozeb (Manzate, Dithane, Penncozeb) protectant application at the maximum rates.

With the two storms in the forecast, fungicide applications for foliar diseases need to be up to date.