



WEEKLY CROP UPDATE

UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

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Vegetables

Cucurbit Downy Mildew - Ed Kee; Extension Vegetable Specialist; kee@udel.edu; Bob Mulrooney; Extension Plant Pathologist; bobmul@udel.edu; and Kate Everts; Vegetable Pathologist, University of Delaware and University of Maryland; keverts@umd.edu

Downy Mildew Alert on Cucurbits

Downy mildew is now widespread in eastern North Carolina. Before this outbreak, the only field confirmations were in Florida and southern Texas. There was an infected greenhouse in Ontario, Canada, which resulted in limited disease spread to Ohio and possibly Michigan. Despite the presence of cucumbers in Georgia and South Carolina, the fungus seems to have jumped those states, or infection in those states has gone unreported.

We are recommending that cucumber fields that have fruit less than $\frac{3}{4}$ inch long be sprayed preventatively for downy mildew. Growers need to be vigilant by scouting for early infections and watching the website reports from North Carolina State at

<http://www.ces.ncsu.edu/depts/pp/cucurbit/>.

The latest forecast states "Special note...though growers in the Delmarva peninsula region are considered as low risk, they should pay attention over the next few days". It is not known how long the eastern areas of North Carolina have been infected and producing spores that have blown our way over the last week. The forecast

does not take previous days into account. Our experience since the epidemic year of 2004 indicates that with the earliest possible detection, we can get ahead of the disease and stay ahead with aggressive spray programs. Pickles that have fruit larger than $\frac{3}{4}$ inches long may be close enough to harvest that any spores that arrive soon would not be able to damage the crop and would not require a protective spray at this time. Previcur Flex and chlorothalonil, followed by Tanos and mancozeb seven to ten days later remains the core of the program.

Fungicide programs should contain either:

- Previcur Flex 1.2 pt plus Bravo 2 pts or Ranman plus an organosilicone adjuvant such as Silwet 2 oz/A alternated with Tanos 8 oz plus 1.5-2.0 lbs Manzate or Dithane DF or
- (2) Tanos 8 oz plus Bravo 2 pts alternated with Ranman 2.75 oz plus 2 oz Silwet.

Other fungicide programs that have shown promise in replicated university trials include:

- (3) Tanos 8 oz plus 3 pts Bravo alternated with 3 pts Bravo
- (4) Tanos 8 oz plus Manzate 1.5-2.0 lbs alternated with Curzate 3.2 oz plus 2 pts Bravo.

One of the most dependable programs over the last few years has been the Previcur Flex 1.2 pts plus Bravo Weather Stik 2 pts alternated with Tanos 8 oz plus 1.5-2.0 lbs Manzate Pro-Stick or Dithane DF.

A conservative (less expensive) approach to consider might be to apply 2.0 lbs of an EBDC fungicide (Manzate or Dithane) or Gavel at 2 lbs preventatively until the disease is confirmed in the area then switch to Previcur or Ranman alternation with Tanos.

Each spray costs approximately \$25 per acre. With 6,000 acres of pickling cucumbers in the region this is \$150,000 per spray; or for a grower with 300 acres of pickles, it's \$7,500 per spray. Multiply the cost by two or three sprays per planting and the economics pressurize the profitability of the crop. However, one could argue that with an outbreak of downy mildew, there is a risk of total crop loss. This,

fortunately, has not been the case with the early detection during the last three years. However, we have learned from research that preventative sprays are the best and therefore, when downy mildew is very close by, sprays should be applied.

This approach of vigilance, scouting, and watching the website works here because of the great cooperation between consultants, scouts, the industry and the growers. If and when downy mildew is confirmed on Delmarva, the word spreads quickly and the industry reacts quickly. Consequently, real money is saved by detection early in the season.

Potato Disease Advisory June 29, 2007 - Bob Mulrooney, Extension Plant Pathologist

Disease Severity Value (DSV) Accumulation as of June 28, 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*
6/8- 6/11	0	10	10 days	324
6/12-6/13	2	12	10 days	341
6/14- 6/18	0	12	10 days	383
6/19- 6/20	2	14	10 days	400
6/21- 6/25	0	14	10 days	443
6/25- 6/26	1	15	10 days	449
6/26- 6/27	0	15	10 days	454
6/27 -6/28	1	16	10 days	460

* 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, 454 P-days have accumulated at the site.

Early blight and black dot. Many fields are flowering or have flowered and this is a good time to consider switching to an application or two of Gem, Headline or Quadris (Amistar) for early blight susceptible varieties. This can also be helpful for late season varieties including russets if stress makes plants susceptible to black dot later. Make one or two applications at the end of flowering and repeat 14 days later. Apply mancozeb or chlorothalonil 7 days later between the two applications.

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

Bacterial Leaf Spot on Pepper - *Kate Everts; Vegetable Pathologist, University of Delaware and University of Maryland; keverts@umd.edu*

Bacterial leaf spot (BLS) is a common problem in peppers. Initial lesions are small brown or black spots that have a yellow "halo". Lesions will expand and be irregular and infected leaves often will fall off the plant. Under the right conditions the lesions look "glossy". There are several pre-plant practices that will minimize damage from this disease. For information on cultivar resistance, seed disinfection, minimum rotation and transplant production see Delaware Extension Bulletin 137 or Maryland Extension Bulletin 236.

If BLS is present in your field there are several practices that will minimize (but not eliminate) losses. In fields where disease is not widespread, rogue infected plants. Protect pepper plants and reduce the spread of BLS with applications of fixed copper at 1 lb active ingredient/A *plus either* Tanos at 8-10 oz 50WDG/acre *or* maneb at 1.5 lb 75DF/A. Begin applications shortly after transplanting and apply on a 7 to 10 day schedule.

Two practices also may minimize losses to BLS during the growing season. First, avoid field operations when the foliage is wet because the bacterium is easily spread in water. Second, maintain a high level of fertility to help the plants replace leaves lost due to disease. However, do not over-fertilize, because fruit set and yield may be reduced.

Deformed and Poorly Ripening Tomato Fruit - *Jerry Brust, IPM Vegetable Specialist, University of Maryland; jbrust@umd.edu*

Several growers have complained that their second set of tomatoes is catfaced or is deformed and ripening poorly. Their first set of tomatoes looked good, but the second set is having problems in scattered areas throughout the field. The problem is most probably due to stressful growing conditions and the cool (even cold) night temperatures we had about 40 days ago. Tomato fruit take approximately 45 days

from flower to harvest and usually do not develop or pollinate properly when temperatures fall below 52°F. Back in the second and third weeks of May we had 10 nights of temperatures below 52°F in many areas on the peninsula. In Salisbury we went down to 39°F on one night in late May. Day temperatures during some of this time were in the upper 80s or low 90s so the fluctuation between day and night temperatures was extreme during several 24 hour periods. These large fluctuations in temperature and the lack of rain we have had can cause stressful growing conditions for the plant as the fruit develops. Some varieties will be more sensitive to these fluctuations than others. Nothing can be done for these misshapen fruits as the damage was done either before the flowers appeared on the plant or soon after pollination.



"Zippering" symptom on fruit caused by pollination problems or stressful growing conditions



"Catfacing" caused by air temperatures below 52°F before flower appeared on plant

Where Are All the Cucumber Beetles? -

Jerry Brust, IPM Vegetable Specialist, University of Maryland; jbrust@umd.edu

I have been amazed this year as I walk cantaloupe, watermelon and squash fields how few cucumber beetles there are. It may have something to do with the winter we had of unusually warm temperatures into January and then the very cold temperatures in February and March. The dry weather we have been having this year also may have something to do with the low populations. If you also have seen few beetles hopefully you have cut back or cut out your foliar sprays for cucumber beetle control. Plants are generally so big now that it would take many beetles per plant to infect the plant with bacterial wilt. Fruit should be watched to make sure beetles, if they do come in late, are not feeding on the rind. A low population this summer does not, unfortunately, translate into low populations for next year.

Agronomic Crops

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

Soybean Rust Update

Soybean rust was confirmed on soybean leaves from a soybean sentinel plot in Baldwin County Alabama on June 27. This is the first report of soybean rust on soybeans in Alabama in 2007. Soybean rust was reported in three new locations June 21. One was in Cameron County, Texas in a commercial field. The other two were in Louisiana in soybean sentinel plots located in Avoyelles and Rapides Parishes. These parishes are in the central portion of the state approximately 80 miles north of the positive kudzu sites in the coastal parishes of Iberia and St. Mary. Frequent scattered showers around the Gulf coast have produced conditions very favorable for soybean rust development. Other areas north of the Gulf are in drought conditions and rust is not being found. There is not much soybean rust activity in the Southeast which is good news for the East coast. There are very few spores to be moved with this current Bermuda

high. Locally the soybean sentinel plots are being visited weekly and Septoria brown spot is the only disease that we have seen and the recent hot dry weather is limiting its occurrence to the lowest leaves.

Corn

We have had several more cases of bacterial stalk rot on field corn. All the sites were irrigated with pond water or impounded water from ditches. There are no control measures and the losses to date have been small, fortunately. The combination of rapid corn growth, high temperatures, and susceptible hybrids has caused this uncommon disease this season. Photos of bacterial stalk rot symptoms were printed in the June 8, 2007 issue of Weekly Crop Update.

(<http://www.rec.udel.edu/Update07/Voume15,Issue11.htm>)

Corn Fungicides for Plant Health - *Bob Mulrooney; Extension Plant Pathologist; bobmul@udel.edu*

Most field corn will be tasseling soon and this brings up the issue of applying strobilurin fungicides such as Quadris and Headline in the absence of disease for plant health benefits. Many growers have done this or may be experimenting with it. From the labeling and experience in this area, generally a single application is made at tassel emergence through tasseling for the best effect. The real question is whether the corn will respond with a yield increase to pay for the treatment. For many growers that is a question only they can answer for themselves. Experimental work has shown that corn does respond in many cases but not all the time. We conducted three separate trials in 2004 and saw a slight reduction in disease in one test (overall disease levels were low) but no significant yield increases. There is so much that determines yield and profitability that it is not a sure thing. Irrigated corn with high inputs may respond if diseases become a limiting factor later in the season. Hybrid selection may play a role, as well as many other factors such as stress, fertility, plant population, etc. The lowest rate that I have seen used in this area is 6

oz/A for Headline and 6.2 oz for Quadris (lowest labeled rates for corn) and I would not expect to see a response at lower rates unless someone can show you that information. The rate range that has been tried has been 6- 9 oz. The bottom line is to try it and see if it improves your bottom line.

We have not had weather conditions that have been favorable for corn diseases Fungicides applied now would help later if the hybrid were susceptible to whatever might show up later. The disease control issues aside, there are the physiological effects that have been documented for the strobilurins on corn and they include reduced respiration, reduced ethylene production and increased nitrate reductase production. Reducing respiration lets the plant keep more of the manufactured sugars for grain fill rather than burning them up during respiration when the plant take in oxygen and produces carbon dioxide, usually at night. Reducing ethylene delays maturity so the plants stay green longer which has the potential to increase ear fill by keeping the plant green longer= photosynthesis goes longer. Nitrate reductase increase means that the roots have the potential to convert more nitrate to nitrite which the plant can absorb if it is limiting. These are pretty simplified explanations to pretty complex biochemical processes that affect corn and other plants. All three physiological responses added to the potential disease control benefits can result in the yield increases, stay green and standability that have been seen with applications of strobilurins. It may be worth a try in strips on your own farm. Do your own test but in a manner that lets you compare treated and non-treated corn. It is also important to realize that if you tried it once and got a response, you may not get the same level of response the next time.

It is also important to note that the best response is coming from the strobilurin fungicides. Prepacked blends of strobilurins with other fungicides such as Quilt and Stratego, have a lower rate of the strobilurin component and thus have been less likely to produce a response in the absence of a disease. Quilt has 4 oz of Quadris so additional 2-5 oz of Quadris has been suggested to increase the strobilurin rate.

If the fungicides are applied strictly for disease control the rates are a little different depending on the diseases that are controlled. Quadris is labeled at 6.2- 9.2 oz/A for common rust control and the other diseases are labeled at 9.2 to 15.4 fl oz/A. Headline is labeled at 6-9 oz for common rust, southern rust and gray leafspot control. For control of the other diseases the rate is 9-12 fl oz/A for northern and southern corn leaf blight, anthracnose, and a few others. In most seasons we have not needed fungicides for field corn foliar diseases unless the hybrid had little resistance to a particular leaf disease which resulted in stalk rot and lodged corn.

Grain Marketing Highlights - *Carl German, Extension Crops Marketing Specialist;*
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Weekly Export Sales Continue to Outpace USDA Projections

U.S. corn exports were reported at 30 million bushels for the week ending June 21, 2007. This was well above the 12.2 million bushels needed this week to stay on pace with USDA's projection of 2.15 billion bushels for the '06/'07 marketing year.

U.S. soybean exports, reported at 8.81 million bushels, have already brought the total annual sales above USDA's projected 1.08 billion bushel projection for the current marketing year with ten weeks left to go.

U.S. wheat exports were reported at 22.9 million bushels, well above the 16.1 million bushels needed to stay on pace with USDA' projected 1 billion bushel total wheat exports for the '07/'08 marketing year.

Overall the report should be viewed as bullish.

General Comments

USDA's June Acreage & Stocks in All Positions report will be released at 7:30 CT, Friday, June 29th. Noted grain analysts throughout the country are divided on whether they think the acreage numbers for corn, soybeans, and wheat will increase or decrease. Regardless of the outcome

the June reports are not likely to cause much more than a blip, a higher and/or lower open, in the commodity trading pits. An analysis of the June report will be released to the e-grain marketing discussion group on Friday morning. Currently, Dec '07 corn futures are at \$3.62; Nov '07 soybean futures at \$8.37; and July '07 wheat futures at \$6.06 per bushel.

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

Weather Summary	
Carvel Research and Education Center Georgetown, DE	
Week of June 21 to June 27, 2007	
Readings Taken from Midnight to Midnight	
Rainfall:	
0.32 inch:	June 25
0.78 inch:	June 27
Air Temperature:	
Highs Ranged from 93°F on June 27 to 79°F on June 23.	
Lows Ranged from 71°F on June 27 to 51°F on June 23.	
Soil Temperature:	
81°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 Emmalea Ernest, Extension Associate - Vegetable Crops

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