Soybean Rust Update

Soybean rust was found June 14 on kudzu in Colquitt, GA, Miller County in the SW corner of Georgia. This site was previously found to have rust during the winter months. This is the latest report of rust from down south. The latest storm, Alberto, has produced rain and humidity that might provide conditions for rust infection and spread. The amount of infection is still low as best we know. Still no soybean rust on soybeans.

Delaware sentinel plots are progressing from growth stage V2-V5 and full scale scouting including the additional 20 sites will begin soon. All the sentinel plots have been checked routinely and are free of rust, obviously.

Continue to check the National site (PIPE) at http://www.sbrusa.net for the newest forecast and information.

Vegetables

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

NOTE - Trap catches are generally being updated twice a week on our IPM website at http://ag.udel.edu/extension/IPM/traps/latestbtl.html. However, if trap catches do not appear recent be sure to call the Crop Pest Hotline (generally updated Monday and Thursday PM) for the most recent trap catches at (800) 345-7544 (in-state) or (302) 831-8851 (out of state).

Cucumbers
In addition to cucumber beetles, we are starting to see a few aphids in cucumbers. A treatment should be applied for aphids if 10 to 20 percent of the plants are infested with aphids with 5 or more aphids per leaf. With the predicted hot weather this weekend, be sure to continue to scout carefully for both insects.

Melons
With the predicted hot weather, be sure to scout carefully for aphids, cucumber beetles and spider mites. In some fields, spider mite populations are just below threshold levels. If spider mite populations are high at the time of treatment, 2 sprays spaced 5 days apart may be needed. Acramite (only one application per season), Agri-Mek, Capture (bifenthrin), Danitol, Oberon and Kelthane are labeled on melons for mite control. Be sure to read all labels for
restrictions, rates and maximum allowable amounts.

**Peppers**
As soon as the first flowers can be found, be sure to consider a corn borer treatment. Depending on local corn borer trap catches, sprays should be applied on a 7-10 day schedule once pepper fruit is ¼ - ½ inch in diameter. You should also continue to check fields for aphids. A treatment may be needed prior to fruit set, if you find 1-2 aphids per leaf for at least 2 consecutive weeks and beneficial activity is low.

**Potatoes**
Continue to sample fields for Colorado potato beetle, corn borers and leafhoppers.

**Snap Beans**
Continue to scout all seedling stage fields for leafhopper and thrips activity. Once corn borer catches reach 2 per night, fresh market and processing snap beans in the bud to pin stages should be sprayed for corn borer. Sprays will be needed at the bud and pin stages on processing beans. Once pins are present on fresh market snap beans and corn borer trap catches are above 2 per night, a 7-10 day schedule should be maintained for corn borer control. Since trap catches can change quickly, be sure to check our website for the most recent trap catches and information on how to make a treatment decision in processing snap beans using trap catches (http://ag.udel.edu/extension/IPM/traps/latestblt.html and http://ag.udel.edu/extension/IPM/thresh/snaphanecbthresh.html).

**Sweet Corn**
Continue to sample all whorl stage corn for corn borers. A treatment should be applied if 15% of the plants are infested. The first silk sprays will be needed for corn earworm as soon as ear shanks are visible. Be sure to check trap catches for the current spray schedule since trap catches change quickly. Trap catches are generally updated on Tuesday and Friday mornings (http://ag.udel.edu/extension/IPM/traps/latestblt.html and http://ag.udel.edu/extension/IPM/thresh/silkspaythresh.html).

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

This is a news release from USDA APHIS dated 6/13/06.

**Potato Cyst Nematode Traced to Single Idaho Field**
Scientists looking for evidence of potato cyst nematode (PCN) in Idaho today confirmed the presence of the pest in one eastern Idaho field.

The cysts were discovered in soil samples collected by the U.S. Department of Agriculture’s Animal and Plant Health Inspection Service (APHIS) and the Idaho State Department of Agriculture (ISDA). The soil was collected as part of the investigation into the April 19, detection of the pest, which was found in routine samples taken at a potato grading station in Idaho. The nematode does not pose any threat to human health, but can reduce the yield of potatoes and other crops. There is no sign that the quality of tubers grown in Idaho has been affected.

The soil samples that tested positive for PCN were collected from a 45-acre field located in northern Bingham County, south of Idaho Falls. Production in the area is for fresh market and processed potatoes, not seed potatoes. The field is not within an Idaho Seed Potato Crop Management area, where safeguards assuring quality are monitored. As part of the investigation, more than 2,500 samples representing numerous fields associated with the grading station were tested. All other samples collected as part of the investigation have tested negative for PCN. Additionally, more than 3,000 Idaho soil samples taken since last fall as part of the Cooperative Agricultural Pest Survey (CAPS) have been negative for PCN. Based on these survey results, the PCN infestation appears to be isolated, but additional surveillance will continue.

APHIS and ISDA are implementing a regulatory program at the positive site designed to prevent the pest’s spread to other fields. The program will restrict the movement of plants and soil, and require sanitation procedures for equipment used on the regulated field. Aggressive delimiting surveys are being conducted in areas
associated with the PCN-positive field. Associated areas include those areas with geographic nearness, common usage of tillage equipment, common seed sources, common irrigation water or other means.

Spring Progress - Ed Kee, Extension Vegetable Specialist; kee@udel.edu

Despite the cool, dry spring, vegetable crops for the most part look good. Rains over the weekend have totaled from 1 to 3 inches (although a few isolated places received 4 to 6 inches). Pea yields and quality have been excellent. The cool weather helped with flowering and pod set, which, coupled with good irrigation, pushed yields to higher levels. Harvest is probably 20% finished and we hope yields and quality continue to be good. Pea aphids have not been a major issue.

Green bean, lima bean, and speckled bean planting is well underway. Dual and Pursuit have been the herbicide standard in lima beans for 20 years now. It has been reliable and effective, but herbicide carry-over restrictions associated with Pursuit to subsequent crops is always a concern. Sandea is now labeled and offers enhanced control of nutsedge and other broadleaf weeds. Carry-over considerations with Sandea are important, but Sandea may offer some flexibility in these situations. Sandea is generally more expensive, but again, may offer some resolution of specific weed or residue problems.

Pursuit is not labeled on green beans in Delaware or Maryland. Growers typically have used Dual, Command, or Treflan in some combination or another. Reflex has been very effective as a post-emergence broadleaf material. Again, Sandea may offer some options on green beans.

While there have been some incidents of herbicide drift touching corners of watermelon or cantaloupe fields, in general the growth and development of the transplants this spring has been trouble-free and good. This is weather related, but also growers producing their own transplants are coming out with good, sturdy plants with well-developed root systems.

Pickle Downy Mildew - Ed Kee, Extension Vegetable Specialist; kee@udel.edu

Downy mildew has been confirmed in Florida; Decatur, Georgia, and eastern Michigan. The eastern Michigan event was on slicing cucumbers. At this point, Delmarva pickle producers need to be vigilant, but not panicking. Continue to consult the N.C. State website, http://www.ces.ncsu.edu/dept/pp/cucurbit/.

Tracking the progression and reported outbreaks will be important to avoid wasting sprays if not needed, and to achieve timely control prior to infection if the organism moves north towards Delaware and the Eastern Shore.

If the organism reaches a neighboring state, begin control programs. Defining a neighboring state depends on the level of risk a person is willing to accept. For us and our geographic location, prevailing winds, etc., I would suggest that if it is confirmed in North Carolina, we should begin to consider fungicide applications. Of course, if it leapfrogs up to an adjacent state, we should spray immediately.

Based on last year’s commercial experience, the research results in Delaware, North Carolina, and Michigan, and other experiences, a control program should be based on Previcur Flex (1.2 pts./A) and Bravo (2 pts./A) alternated with Tanos (8 oz./A) and Mancozeb. Ground applications are recommended and preferred. It is critical to get the gallonage (as much as possible) and the pressure to obtain good coverage.

Schedules should be on a 7 to 10 day schedule, depending on environmental conditions. Hot, dry weather works against the downy mildew organism. As Dr. Claude Thomas said, “You can’t chase this disease.” In other words, preventative sprays are key to successful control. All of this makes checking the N.C. State website imperative.
Finally, last season we were confronted with irresponsible recommendations and claims regarding certain fungicides. The manufacturers made some sales, but the farmers were left with devastated crops. The fungicides recommended above are the core of the program. We are testing some new materials for efficacy and will share those results as the season progresses.

Potato Disease Advisory #11 - June 15, 2006, Bob Mulrooney, Extension Plant Pathologist

Late blight Advisory

Disease Severity Value (DSV) Accumulation as of June 14, 2006 is as follows:
Location: Byfield Farms field east of Magnolia, DE. Greenrow: April 23, flower buds present May 24.

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

<table>
<thead>
<tr>
<th>Date</th>
<th>LATE BLIGHT</th>
<th>EARLY BLIGHT</th>
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<tr>
<td></td>
<td>Daily DSV</td>
<td>Total DSV</td>
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<td>5/25-26</td>
<td>1</td>
<td>7</td>
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<tr>
<td>5/28-29</td>
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<tr>
<td>6/12-6/14</td>
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The threshold of 18 DSVs has been reached. Conditions are more favorable for late blight and sprays should be applied if you have not already done so. Obviously if you have been spraying for early blight continue with your schedule. Once 400 P-days has been reached early blight spraying for susceptible varieties becomes more important. Fungicide rates should be at the high end of the rate range at this time of the season.

Early blight and black dot. Many fields are flowering or approaching flowering 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. 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.

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. 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 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. 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.

**Leaf Burn in Melons - Mark VanGessel, Extension Weed Specialist; mjv@udel.edu**

There has been much talk about leaf burning on watermelon and cantaloupes when hooded sprayers are used. Most of this injury is temporary since most of the products used in row middles are not translocated in the plants. Sandea is the one product that stands out as a translocated herbicide, but it does not cause leaf burn. Using hooded sprayers with low pressure (20 psi); slower speeds (3 to 5 mph); and keeping the curtains in good condition and running them on the ground will reduce drift that causes much of the burn. Also, applications to wet or moist soil surfaces increase the amount of leaf burn. Finally, cantaloupes are more prone to leaf burn than watermelons.

**Agronomic Crops**

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

Alfalfa

We are starting to see a significant increase in potato leafhopper populations - both adults and nymphs. Remember, once yellowing has occurred you have already experienced yield loss. Damage can happen quickly, especially when plants are small. Although cutting can help to control populations, fields should still be scouted within a week of cutting for leafhoppers. 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.

**Soybeans**

Continue to scout all seedling stage soybeans for bean leaf beetles and grasshoppers. In addition, you should also begin sampling for spider mites.

**Harvest Aids for Small Grain - Mark VanGessel, Extension Weed Specialist; mjv@udel.edu**

A number of glyphosate products such as Roundup and Touchdown are labeled as harvest aids in winter wheat and barley. Check the label for other formulations of glyphosate. Applications must be made after the hard-dough stage and at least 7 days prior to harvest.

**Careful of Surfactant Use in this Weather - Mark VanGessel, Extension Weed Specialist; mjv@udel.edu**

How the weather has changed. Two weeks ago I was writing about surfactants for droughty conditions. Now, with the cool weather and ample moisture, plants have very thin cuticles which may result in increased injury with postemergence herbicides. Nitrogen additives are most likely to cause crop injury with this weather. Also, consider using non-ionic surfactant rather than crop oils to reduce the risk of injury. University of Delaware data supports use of non-ionic surfactants over crop oil concentrates (when both are listed as options) because non-ionic surfactants provide similar levels of weed control as crop oils, with less risk of injury.

**Hot Weather and Volatility with Dicamba and 2,4-D - Mark VanGessel, Extension Weed Specialist; mjv@udel.edu**

It is not recommended to spray dicamba or 2,4-D when the temperature is expected to be 85 degrees or hotter; or spray late in the day when temperatures drop below 85. A number of pre-
mixes have dicamba (active ingredient in Banvel and Clarity) including, Distinct, Celebrity Plus, Marksman, and NorthStar so the temperature consideration applies to them as well. Shotgun is a pre-package mixture of 2,4-D and atrazine.

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

U.S. Corn, Soybean, and Wheat Exports Reported to be Huge
The Weekly Export Sales Report for corn and soybeans, released this morning for the week ending June 8th, was reported to be well above expectations. Pre-report expectations for corn export sales were from 800,000 to 1,050,000 metric tons (31.5 to 41.3 million bushels). The weekly report showed export sales of 1,464,700 metric tons (57.7 mb). This is well above the 13.3 mb needed this week to stay on pace with USDA's projection of 2.025 billion bushels and should be viewed as bullish.

Pre-report estimates for soybeans ranged between 100,000 mt and 300,000 mt (3.7 to 11 mb). Soybean export sales were reported at 383,500 mt (14.1 mb) for the week, well above the 68,000 mt (2.5 mb) needed this week to stay on pace with USDA's 900 mb projection. This too should be viewed as bullish.

Pre-report estimates for wheat ranged between 250,000 mt and 450,000 mt (9.2 to 16.5 mb). The weekly report showed sales of 461,200 mt (16.9 mb) and should be considered bullish.

Market Strategy
Overall the grain and oilseed markets may be viewed as a mixed bag this week. Corn and soybean markets are trending sideways, with the daily highs and lows getting lower. Some of the reasoning behind the recent price bidding is that supplies for the ’05/’06 marketing year are more than adequate, therefore, the fundamentals will not support sustained price rallies brought on by noncommercial fund buying, assuming normal yields or better in the U.S. for the ’06 growing season. Energy and metal prices have slackened, proving what happens to commodity prices when the fundamentals will not support higher prices. U.S. corn and soybean prices will come down further in the event that normal yields or better are produced. However, it is now June 15th and the U.S. corn and soybean crops have a long way to go before we can know whether we’ll end up with normal or better crop production. The Acreage and U.S. Quarterly Grain Stocks report to be released on June 30th will provide the next wave in the Chicago markets. We will then turn our attention to the release of USDA's July Supply/Demand revisions. In the meantime, the weather now becomes the dominant factor in determining whether forward pricing opportunities for new crop corn and soybeans are presented.

General

Soil pH and Crop Performance Revisited - Gordon Johnson, Extension Agriculture Agent, UD, Kent County; gcjohn@udel.edu

Each year we troubleshoot many problems in Delaware crop fields and soil pH is often at the root of these problems. Dead spots, stunted areas, yellowed crops and poorly performing parts of fields may be due to improper pH. Already in 2006 we have attributed poor vegetable and field crop performance in a number of fields to low pH (below 5).

As a definition, pH is a measure of the hydrogen ion activity, a basic chemical property of solutions. The pH number that you see is a negative logarithmic scale. This means that for each decrease in pH unit, there is a 10 fold increase in the hydrogen activity. A pH of 7 is neutral, below seven is acid, and above 7 is alkaline. With the chemistry lesson over, from a practical aspect, pH affects many chemical and biological processes in the soil. Soil pH impacts mineral nutrient availability, release or tie up of toxic substances, root growth (and as a result, overall plant growth), microorganism activity, mineralization of organic matter, and the activity and breakdown of organic molecules such as herbicides and insecticides.
In Delaware, for most crop plants and soils, a soil pH in the range of 6.0-6.5 should be targeted. Of course, there are exceptions. For example, alfalfa needs a higher pH (6.5-7.0) and blueberries need a lower pH (4.5-5.0).

With this important role, it is critical that soil pH be monitored and adjusted on a regular basis using liming materials. In fields with variable soils, this means that separate samples should be taken where there are different soil types, where soils have been managed differently in the past (different tillage practices, for example), where different crops have been grown, or where different fertilizer and liming programs have been used. Special attention should be paid to take separate samples from areas such as sandy knolls, clay bottoms, ditch spoils, cleared woodland, and where soil has been disturbed (construction zones, areas where roads were in the past, old homesteads and places where buildings once stood, past feedlots and pastures, manure pile locations, etc.). Liming should be adjusted to account for these differences. Variable rate liming is suggested where large differences in pH are found in crop fields or where there are specific spots with low pH.

The most common problems encountered in crops related to pH are: 1) stunted or dead areas where the pH is below 5.2 and 2) chlorotic (yellowed) crops at pH levels above 6.3. At low pH levels (below 5.2) we commonly find deficiencies of magnesium and calcium, root growth stopped due to toxic levels of aluminum, and toxicities of other metals such as manganese. At high pH levels (above 6.3) we commonly see deficiencies of manganese; less commonly zinc and copper. In greenhouses using organic media, and in turf on sandy soils, iron deficiencies are also common at high pH levels. Sensitivity to high pH and manganese deficiency are crop dependent. Soybeans, barley, and wheat are most commonly affected. Corn, grasses, and alfalfa are less sensitive but still can be affected.

While soils on Delmarva are naturally acid and soil pH will naturally drop over time, large or rapid drops in pH may be related to excessive leaching rains or irrigation, poor drainage, or heavy use of ammonium or urea-based nitrogen fertilizers. High pH soils are most commonly due to over-liming.

For additional information on pH, Dr. Richard Taylor has several detailed articles on the subjects of how soils become acid and how to manage manganese deficiencies at high pH levels in past issues of the Weekly Crop Update (see the July 2 and July 9, 2004 issues for example). Archives of the WCU are at: http://ag.udel.edu/extension/wcu/index.htm

Cautions with Alternative Liming Materials
- Gordon Johnson, Extension Agriculture Agent, UD, Kent County; gcjohn@udel.edu

Each year we receive questions on different materials being sold or given away as liming products. This has included waste lime, byproducts from industrial processes and manufacturing, lime-stabilized biosolids, wet limes, and waste materials from construction. Indeed, many of these materials may be effective in moderating soil pH, but it is critical to understand what is in these products or wastes, the chemistry of how they will react in the soil, and how they compare with standard agricultural liming materials.

Materials based on limestone such as waste limes and wet limes need to be directly compared to standard pulverized agricultural lime. To make valid comparisons you will need to obtain laboratory analyses of the materials, commonly done in state regulatory laboratories (the Delaware Department of Agriculture will provide this service). A typical analysis will report the following: moisture percentage, calcium and magnesium percentages; total neutralizing value (also known as calcium carbonate equivalent), fineness reported as percentages passing through different sieves (20, 60, 100 mesh for example), and effective neutralizing value which is based on a combination of fineness and total neutralizing value. The finer the lime, the greater the effective neutralizing value. Wet limes will have more moisture and will spread in a different manner. You need to compare how much of the alternative material will need to be
spread to equal the neutralizing ability of dry pulverized lime and adjust so true costs can also be compared. In addition, consider whether or not the material is based on high magnesium (dolomitic) or high calcium (calcitic) limestone.

Lime stabilized biosolids and other lime stabilized wastes also need to be compared to standard pulverized lime. Ask what type of lime and how much was used in the stabilization and get the analysis of the final product (stabilized biosolid). They should provide you with a calcium carbonate equivalent so that comparisons can be made. Most commonly quicklime (calcium oxide) or hydrated lime is used in the stabilization (other alkaline materials have also been used and are replacing lime in some treatment plants). Quicklime and hydrated lime have higher neutralizing values that pulverized lime. However, some of the lime is reacted in the stabilization process. The actual liming value will then need to be adjusted (again a calcium carbonate equivalent should be provided by the source treatment plant). In addition, when applying biosolids, a nutrient management plan will need to be in effect to account for the other nutrients provided by the biosolids.

There are many industrial and manufacturing by-products that can be used as liming materials. These commonly have a base element (calcium, magnesium, sodium) in oxide, hydroxide, or carbonate form. Comparisons need to be made based on the basic element provided and the neutralizing ability of the material. One recent analysis we received was waste from an antacid manufacturer. It was high in moisture (40%), had 3 and 6 % calcium and magnesium respectively, had significant amounts of aluminum and iron, had a calcium carbonate equivalent of 42% and had an effective neutralizing value of 29%. While this material could be used to lime crop fields, you would need over 2.5 tons to equal a ton of pulverized lime. In addition, it is much higher in magnesium than “high mag” lime and only should be used on fields where magnesium fertilization is needed. This material would raise magnesium levels significantly in the soil.

Other products or wastes are sometimes touted as liming materials but really are not. Gypsum and crushed wallboard would be examples. These are calcium sulfate. While the calcium may fill exchange sites on soil colloids, the sulfate ion will not effectively neutralize the hydrogen that is released. Therefore, gypsum generally does not change soil pH to any degree.

Poultry manure is sometimes mentioned as having liming value. There are several basic minerals that are excreted in poultry manure, somewhat dependent on the quantity of minerals that are being fed to the birds. There is therefore no exact value for how much liming value that the manure will provide. The best measure of this will be to run frequent pH tests on fields that receive poultry litter.

Weather Summary

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

Week of June 8 to June 14, 2006
Readings Taken from Midnight to Midnight

Rainfall:
0.07 inch on June 9
0.18 inch on June 12
0.29 inch on June 14

Air Temperature:
Highs Ranged from 81°F on June 8 to 67°F on June 14.
Lows Ranged from 62°F on June 9 to 51°F on June 11.

Soil Temperature:
69°F average.
(Soil temperature taken at a 2 inch depth, under sod)

The Weekly Crop Update is available online at http://www.rec.udel.edu/TopLevel/Publicat.htm

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