Soybean Rust Update

Kudzu is starting to grow throughout the South now and the reports so far are good, in that there are no new rust infections on the plants that are being examined. Sentinel plots are being planted at the present time in Florida, Georgia, Louisiana, Alabama, and Mississippi. The weather in the South is mild and dry.

The USDA Soybean Rust Mapping Website found at http://www.sbrusa.net/ will keep you current of news about soybean rust. A new addition is that the national map now includes Mexico. Connections are being made with Mexican agricultural officials to provide information on soybean rust, since it was confirmed last winter that soybean rust was present in two states in Mexico last fall.

Vegetables

Watermelon Seedling Diseases in the Greenhouse - Kate Everts; Vegetable Pathologist, University of Delaware and University of Maryland; keverts@umd.edu

The fungal diseases gummy stem blight, Alternaria leaf blight, and anthracnose can be introduced into the greenhouse on watermelon seed. To minimize the occurrence of these diseases, the greenhouse should be disinfected before planting (benches, walls, walkways, etc.). The seed source should have tested negative for the pathogen with a minimum assay number of 1,000 seeds. Use clean transplant trays, disinfect trays if they will be reused, and use new soil. Destroy any volunteer seedlings and keep the area in and around the greenhouse weed free. Avoid overhead watering if at all possible, or water in the middle of the day so that the plants dry thoroughly before evening. Keep relative humidity as low as possible through proper watering and good air circulation in the greenhouse.
As the seedlings develop, inspect them carefully. Infected seedlings will have small brown lesions on the leaves and water-soaked lesions on the stem. Diseases that are transmitted on seed often are randomly located throughout the greenhouse. Initial infections will occur as ‘foci’ or clusters of diseased plants.

Gummy stem blight infected transplants occur as clusters in an area around the initial infected seedling (foci).

If the seedlings appear diseased, destroy the flats where any seedlings show symptoms. Remove adjoining flats to a separate area for observation. Monitor these seedlings daily and destroy those that develop symptoms. Do not ship any trays containing plants with disease symptoms. After symptomatic and adjoining trays are discarded, spray remaining trays with a labeled fungicide and continue until plants are shipped.

Bacterial fruit blotch (BFB) of watermelon is caused by a bacterium that also may be seedborne. Initial symptoms of BFB are water-soaked areas on the lower surface of the cotyledons. Lesions turn necrotic often with yellow halos, which are frequently delimited by veins, and subsequently the seedlings collapse and die.

Angular leaf spot, which also is a bacterial disease, occurred in Delmarva’s greenhouses several years ago. Symptoms are small, dark brown irregular lesions on cotyledons or leaves. ALB is favored by cool wet weather. Usually conditions after transplanting to the field do not favor ALB disease development.

Fusarium wilt also can be seedborne. I have not seen Fusarium wilt infected transplants in local commercial greenhouses. However, over the past several seasons, Fusarium wilt has occurred in greenhouses in Indiana, likely resulting from infested seed. Symptoms are wilted seedlings that may remain green or be chlorotic. No lesions are observed along the stem or petiole but the vascular system is discolored and tan, pink or brown. This disease is of special concern because new strains or races can be introduced into an area on seedlings grown from infested seed.

**Labels for Sweet Corn** - Mark VanGessel, Extension Weed Specialist; mjv@udel.edu

Sweet corn has been added to the labels of Lumax and Lexar for preemergence use. Use rates are the same for field corn. Lumax and Lexar can carryover to vegetables so be sure to check your rotations before using them, particularly in you intend to plant a second vegetable crop after harvesting the sweet corn.
Agronomic Crops

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

Wheat
The first disease of the season on wheat is usually powdery mildew. In general powdery mildew has not been a problem for several years. Once wheat reaches jointing (Growth Stage 6) it should be scouted regularly for powdery mildew. As always planting the best yielding, resistant varieties is the best control strategy, but if mildew threatens to rob yields later, fungicide control is the best control measure. Tilt, Propimax EC and Stratego are suggested for control when and if fungicides are needed. It is common for powdery mildew to infect the lowest leaves and remain there for some time. The critical time to scout for powdery mildew is GS 8-10 (when the last leaf just appears until head emergence) to determine if fungicides are needed.

Soybean Cyst Nematode
It is still not too late to check for soybean cyst nematode. Soil test bags with the submission form can be purchased at the Extension offices. If you have a fax machine and need results quickly, test results can be sent via FAX if you provide the number on the Nematode Assay Information Sheet. This information sheet can be found on the web as well at the Plant Clinic Website http://ag.udel.edu/extension/pdc/index.htm

Reminders on Acetochlor Use Restrictions - Mark VanGessel, Extension Weed Specialist; mjv@udel.edu

Acetochlor is a preemergence herbicide for corn that controls annual grasses and some broadleaf weeds. It is in the following products: Harness, Harness Extra, Degree, Degree Extra, Topnotch, Fultime, and Keystone. There are restrictions that are important in our area. The restrictions pertain to groundwater quality. The restrictions are based on depth of groundwater within one month of planting and the combination of soil type and organic matter. Do not apply acetochlor if the groundwater depth is within 30 feet and you have sands with less than 3% organic matter, loamy sands with less than 2% organic matter, or sandy loam with less than 1% organic matter.

Dicamba Formulations for Horseweed Control - Mark VanGessel, Extension Weed Specialist; mjv@udel.edu

There has been some confusion about use of Clarity and/or Banvel for weed control prior to planting soybeans. Both Clarity and Banvel contain only dicamba as the active ingredient and both are labeled prior to planting soybeans. Both require a period of time between application and planting. Banvel restriction is 30 days regardless of rate. The Clarity label requires a cumulative amount of rain or irrigation of 1 inch (meaning the rain does not have to fall all at one time) followed by 14 days before planting if less than 8 oz of product is used (longer interval is required if more than 8 oz/A is used). University of Delaware research has shown 6 oz of Banvel or Dicamba at this time of year is adequate for horseweed control.

New Formulations of Gramoxone - Mark VanGessel, Extension Weed Specialist; mjv@udel.edu

Gramoxone Max is being replaced by Gramoxone Inteon. The Inteon formulation is less concentrated than the Max, so you will be using more than you were previously. Both formulations require surfactants. See the chart below:

<table>
<thead>
<tr>
<th>Weed size (inches)</th>
<th>Gramoxone Max rate (pts)</th>
<th>Gramoxone Inteon rate (pts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 3</td>
<td>1.3 to 1.7</td>
<td>2.0 to 2.5</td>
</tr>
<tr>
<td>3 to 6</td>
<td>1.7 to 2.0</td>
<td>2.5 to 3.0</td>
</tr>
<tr>
<td>6</td>
<td>2.0 to 2.7</td>
<td>3.0 to 4.0</td>
</tr>
</tbody>
</table>
Preemergence Herbicide Rates in Corn  - Mark VanGessel, Extension Weed Specialist; mjv@udel.edu

I have been asked about comparable rates of various premixed soil-applied herbicides for corn. That is very difficult to come up with. All of these pre-mixes have varying ratios of atrazine and chloroacetamide herbicides. Chloroacetamide herbicides are the grass herbicides such as metolachlor (Dual) or acetochlor (Harness), or dimethenamid-p (Outlook). Some of the basic manufacturers in our area encourage the use of their products at rates above what is recommended on the label to ensure consistent performance. I have told people when they ask about comparable rates, that you have to look at the label and see what the companies themselves recommend for a given soil type and organic matter content. The soils in our region (high percentage of sand and low organic matter) are not well suited to hold enough herbicide for full-season weed control. Unless we have ideal conditions that allow for early activation of the herbicide and excellent growing conditions for vigorous corn growth immediately after planting, the soil-applied herbicides are not likely to provide season-long weed control and will need some postemergence herbicides to keep the fields clean until harvest.

There have been changes in formulation and ratios of products for many pre-packaged herbicides over the past few years. As a result, check the label for your product of choice since often the new formulations recommend lower use rates than what was previously labeled. Below is a chart on rates of the most common pre-packaged mixtures used in the area, general use rate, and the amount of products they are providing:

<table>
<thead>
<tr>
<th>Herbicide</th>
<th>Rates</th>
<th>Atrazine</th>
<th>Chloroacetamide (grass herbicide)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bicep II Magnum</td>
<td>1.6 qts</td>
<td>1.24 qt</td>
<td>1.0 pt Dual II Magnum</td>
</tr>
<tr>
<td>Fultime</td>
<td>3.0 qts</td>
<td>1.2 qt</td>
<td>2.25 qt Topnotch</td>
</tr>
<tr>
<td>Guardsman Max</td>
<td>2.0 qts</td>
<td>1.3 qt</td>
<td>14.5 oz Outlook</td>
</tr>
<tr>
<td>Keystone</td>
<td>2.6 qts</td>
<td>1.5 qt</td>
<td>2.4 qt Topnotch</td>
</tr>
<tr>
<td>Harness Xtra 5.6L</td>
<td>1.7 qts</td>
<td>1.1 qt</td>
<td>0.76 qt Harness</td>
</tr>
<tr>
<td>Lumax</td>
<td>2.5 qts</td>
<td>0.625 qt</td>
<td>1.76 pt Dual II Magnum AND 5.4 oz Callisto</td>
</tr>
<tr>
<td>Lexar</td>
<td>3.0 qts</td>
<td>1.3 qt</td>
<td>1.3 pt Dual II Magnum AND 5.4 oz Callisto</td>
</tr>
</tbody>
</table>

1 The atrazine formulation in Keystone is not available in other products.
2 Not a true comparison since Topnotch is a capsule suspension formulation and the acetochlor in Keystone is a suspo-emulsion formulation.
3 Callisto is not a chloroacetamide

Potash, Salt and Turf Potassium Deficiency  - Richard Taylor, Extension Agronomist; rtaylor@udel.edu

An interesting question about turf and potash came up this past week. A field that according to a traditional (field-wide) soil test was adequate in potash (K) began showing small areas of turf that were yellowing and showing every indication of K deficiency. Tissue tests and trouble-shooting soil tests confirmed low available K in the affected areas in the field. A CCA advised the turf manager/producer to fertilize the areas with about 120 lb K\textsubscript{2}O/acre (200 lb 0-0-60/acre) and then irrigate the fertilizer into the soil. However, the manager was concerned that the muriate of potash would burn the turf grass unduly, even though the grass is 10 or more weeks away from harvest. Someone selling a product suggested that the manager buy a more turf-friendly formulation of potash (at a substantially higher price, of course).

The concern was with the salt index (SI) of muriate of potash (KCl) which is higher than that for potassium sulfate and some other potassium sources. Many folks relate salt index to burn potential, and although there can be a relationship it is not an absolute one. The SI for
a fertilizer is a measure of the salt concentration that the fertilizer induces in the soil solution. Salt index does not predict the exact amount of a fertilizer material or formulation that could produce crop injury on a particular soil, but rather helps us compare fluid formulations regarding their potential salt effects or compare materials for possible seed injury when placed as starter fertilizer near the seed. In this case, where the dry fertilizer material is broadcast over the turf and then watered into the soil there will be little risk of injury to the crop. If the KCl were dissolved in water and then sprayed on the turf, the SI would indicate more risk of injury than for potassium sulfate which has a SI of 46.1 compared with 116.3 for KCl. The key here is the application of the dry product followed by irrigation to move the product into the soil so there will be little if any risk of injury to the leaf tissue.

So, after having read up on SI and checked with researchers and friends in the turf industry, I’m certain that the recommended rate of K fertilization (120 lbs/acre) will not be a problem on the turf as long as it is applied evenly and irrigated into the soil after application. With 8 to 12 weeks left before the turf is harvested, the manager should watch the areas closely to be sure the K level remains adequate especially if the spring weather pattern requires much irrigation to be applied. This is best done by monitoring the soil test K levels to ensure they remain high enough for the turf to obtain enough K. The experts suggest that if the manager/producer is still hesitant in using KCl, he should shop around for potassium sulfate (K₂SO₄) or potassium magnesium sulfate (K-Po-Mag, or K Mag) and not spend excessive amounts of money on the latest, greatest, and expensive K source, often designed specifically for foliar application. This latter choice may work fast but does little to solve the underlying problem of too little soil K.

You should understand that during the rapid K uptake phase by grasses, there may be only a half day supply of K in the soil solution (soil water) and that as the plant extracts K from the soil solution, the soil works to replace the available K by releasing exchangeable K from the cation exchange sites. Foliar applications do little to help the soil provide K from the cation exchange sites, thus must be applied frequently to keep the grass or turf healthy. Soil K applications improve both soil solution or available K status and soil exchangeable K status and, therefore, work long-term to maintain healthy grass.

For forage producers (hay and grazing), the risk of leaf burn is seldom a concern unless very large quantities of KCl are applied all in one application. Whenever soil testing recommends high amounts of KCl be applied, the recommendation is that it be split into at least two applications when applied as a topdress application. The concern is mostly for when drought conditions precede or follow the heavy application since it usually is not transient leaf burn, but instead the effect of adding salt to soil and increasing the water stress on the plant that causes problems. Forage producers should continue following the recommendations from soil testing, knowing that SI has been calculated into the recommendations.

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**Estimating Residual N for Sidedress Time**

*Richard Taylor, Extension Agronomist; rtaylor@udel.edu*

While driving by several fields in cover crops this week, I noticed an indication that the crops had captured a significant amount of nitrogen (N) during the past winter. It was doubly interesting since rows from the previous crop (peppers with black plastic and fertigation) were quite evident (see photo).

This situation brought to mind how to credit the coming crop with the N captured by cover crops. Although it is not the easiest thing to do, it can be done with a fair amount of accuracy even by a grower. To determine the amount of residual N captured by a cover crop, you need an estimate of the amount of dry matter yield the crop has produced at the time a tissue sample is taken and the amount of N in that tissue sample. A couple of handfuls of the tissue can be sent off to a testing laboratory and in short order they will provide you with the percentage N in the tissue. This N percentage is then multiplied by
the amount of dry matter of the cover crop in the field at the time the tissue sample was taken and then that number divided by 100 will give you the pounds of N per acre.

For example, if the lab reports that the tissue had 2.2% N on a dry matter basis and you calculated that there was 2400 lb dry matter (DM) per acre in the field at sampling time then

\[ 2,400 \times 2.2 = 5,280 \div 100 = 52.8 \text{ lb N/A captured and held in the cover crop.} \]

Now comes the more difficult and time consuming portion, estimating dry matter per acre. You will need to take a sharp pair of shears or scissors, a large paper bag, and either a yard stick or a square made to represent one square foot of area (on the inside portion). Next walk randomly across the field and stop in 20 to 25 random locations. At each location, harvest all tissue from an area of one square foot (12 by 12 inches) or from the length of row to represent one square foot (for a 6 inch row spacing take 2 feet of row, for a 7 inch row spacing take 20.6 inches of row, for a 7.5 inch row spacing take 19.2 inches of row, and for an 8 inch row take 18 inches of row). Cut the plants about 0.5 to 1 inch above the soil surface, knock off all clinging soil, and place the material in a bag. Keep track of the number of samples (number of square feet harvested). When you have enough samples to represent the field, place them on a cloth or newspaper in the sun but out of the wind to dry (so none of the material will be blown away and be lost). Let the material dry for several days until completely dry. Next, weigh the material to the nearest ounce or gram and divide by the number of square feet harvested and convert the number to pounds (16 oz/lb and 454 grams/lb) per square foot. An acre has 43,560 square feet; multiply the number of lbs per square feet by this number to get pounds per acre. Once dried and weighed, take a sample and send to a laboratory to have the nitrogen percentage determined.

A more accurate method is to dry the sample in a warm oven until the leaves dry to a constant weight but be careful to not burn the material or get it too hot. An alternative is to dry it with sunlight and then use a microwave to finish drying the sample. You will need to take care not to burn the sample even in a microwave by placing about ¼ cup of water in the microwave during the drying procedure. Place the water and bag of material in the microwave and microwave at high for 2 or 3 minutes. Weigh the material before and after the microwave treatment and see if it has lost weight. Continue microwaving until it has stopped losing weight. This will be your final dry weight. The Spring 2006 Delaware Dairy Report (Vol. 6, Issue 1) available from your county agricultural agent gives some details on microwave drying silage samples that will be helpful.

Although a lot of work, this method should give you an estimate of how much N your cover crop can contribute towards your sidedress N requirement. The N in the cover crop will not be available to support early corn growth so do not use it to adjust starter fertilizer application rates. The N from cover crops will become available as the plant material is mineralized and decomposes but that will require moisture and time so much of it will not be available until the corn begins its rapid growth and uptake phase in June. In no-till situations, the amount available will be less than the total you calculate since not all the crop residue will decompose this growing season but in conventional tillage or systems where much of the cover residue is incorporated into the soil, most of the N from your calculations will become available for crop growth this year.

With the dry weather however, you should be careful to place starter fertilizer two inches to
the side and two inches below the seed. In the past, some folks have used liquid fertilizer in the furrow with the seed either with or without banded starter. Unless you are applying irrigation this early to keep the soil moisture levels high, I would be very hesitant to use in-furrow fertilizer with soil conditions as dry as they are in many locations.

Grain Marketing Highlights: The Good, The Bad, and The Ugly - Carl German, Extension Crops Marketing Specialist; clgerman@udel.edu

U.S. Corn
So far we have had our first glance at the production forecast for the ’06 row crop season for U.S. corn, soybeans, and wheat. However, at this stage, the production forecasts are just that, a forecast. Generally, forecasts have about one chance in five of actually occurring (about a 20% chance). Therefore, it isn’t safe to assume that we can hang our hat on the production forecasts that have been made up to this point in time. In the months ahead, you will be reading and I will be writing as to how the corn production forecast isn’t likely to become known until July and soybean production won’t be known until at least August. Nevertheless, the commodity markets trade everyday on expectations of what the cropping season may bring. For the moment, this is likely to continue the volatility that we’re experiencing of late right into those more predictable time periods. U. S. corn production can range anywhere from 9.940 billion bushels to 11.6 billion bushels. In one case ending stocks for the ’06/’07 marketing year would drop to slightly over 500 million bushels and the average farm price for corn would increase to over $3.00 per bushel. In the more bearish scenario, ending stocks for U.S. corn would exceed 2 billion bushels and the average price for corn would drop below $2.00 per bushel.

U.S. Soybeans
Soybeans are said to be an entirely different story. U.S. soybean production can range anywhere from 3.33 billion bushels to 3.90 billion bushels. Depending upon which scenario develops, ending stocks can range from 340 million bushels up to 1.02 billion bushels. U.S. average soybean prices can range from $6.00 to $4.00 per bushel, more or less, for the ’06/’07 marketing year.

U.S. Wheat
U.S. wheat production will be known come July. Hard red winter wheat, grown in the Southern Plains, is expected to be down in production and soft red winter wheat grown in the Corn Belt and locally is expected to be normal. For that reason, Kansas City Board of Trade winter wheat prices are currently 91 cents per bushel higher than soft red winter wheat prices at the Chicago Board of Trade.

Market Strategy
Due to production uncertainties and the fact that previous sales have been recommended up to one-third of intended ’06 corn and soybean production, no additional sales are recommended at this time, unless one needs to bring new crop sales up to that level. For wheat, bring sales up to approximately 50 % of intended production if not previously done. Dec ’06 corn is currently trading at $2.68 per bushel, Nov ’06 soybeans at $5.94 per bushel, and July ’06 wheat at $3.73 per bushel. For technical assistance on making grain marketing decisions contact Carl German.

Announcements

Strawberry Twilight Meeting
Tuesday May 16, 2006  6:00 – 8:00 p.m.
Wye Research and Education Center

Featured speakers this year are:
Dr. Bill Turechek, USDA Fruit Pathologist
Dr. Jerry Brust, UM Entomologist
Mr. Michael Embrey, UM Apiary Specialist

There will be a tour of high tunnel production and field plots, followed by light refreshments.

For more information contact Michael Newell at (410) 827-7388.
# Weather Summary

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

## Week of April 6 to April 12, 2006

Readings Taken from Midnight to Midnight

<table>
<thead>
<tr>
<th>Rainfall:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0.15 inch: April 8</td>
<td></td>
</tr>
<tr>
<td>0.01 inch: April 9</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Air Temperature:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Highs Ranged from 78°F on April 7 to 56°F on April 9.</td>
<td></td>
</tr>
<tr>
<td>Lows Ranged from 47°F on April 12 to 30°F on April 10.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Soil Temperature:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>55°F average.</td>
<td></td>
</tr>
</tbody>
</table>

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

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

Weekly Crop Update is compiled and edited by Emmalea Ernest, Extension Associate - Vegetable Crops

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