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MANAGEMENT OF CORN DISEASES

Bob Kemerait

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Field corn in Georgia is affected by two rust diseases- southern rust (*Puccinia polysora*) and common rust (*Puccinia sorghii*). Common rust, as the name implies, is likely to occur in every field of field corn this season and is identified by burnt-orange (similar to “Auburn” orange) pustules that occur on the top and the bottom of the corn leaves. The disease is typically found on the older, lower, leaves first. Southern rust is identified by pustules, often a bit more difficult to detect than common rust pustules, that are found primarily on the TOP of the leaf, but also on the sheaths covering the ears as well as the disease progresses. The color of the southern rust pustules is more like “Tennessee” orange with quite a bit more yellow color than common rust.

Under the microscope, spores of common rust are basically circular in shape; spores of southern rust are elliptical.

Common rust is not known to cause yield losses in field corn; results from our fungicide studies indicate that southern rust can cause significant yield losses in susceptible varieties.

Southern rust was identified in Georgia during the last week of June. Samples submitted from Clay and Turner counties were positive for southern rust and this disease was also reported by consultants from other counties in southern Georgia. Southern rust can negatively affect yield in a field by a) reducing grain fill and b) weakening stalks which can increase lodging prior to harvest.

Southern rust can be effectively managed and yield potential preserved when growers make a timely fungicide application, or in severe cases, a pair of applications. Fungicides such as Headline, Quadris, Stratego, and Quilt should all be effective to manage southern rust. Including propiconazole (Tilt) as a tank-mix with Headline or as a pre-mix already present in Quilt and Stratego, adds some curative activity if low amounts of southern rust are already present in the field. Note: according to the labels, neither Tilt nor fungicides containing Tilt can be applied later than the silking growth stage.

Timing of application

Some growers have begun to apply fungicides to their corn crop as early as first-tassel. Although such an early application ensures that the fungicide is in place prior to arrival of southern rust, it is also likely well before the disease occurs. For example, some growers who

applied a fungicide at first-tassel this season will need to make a second application simply because the rust arrived much later in the season.

Southern corn rust can result in significant yield losses in corn and a susceptible variety should be protected with a fungicide before disease is established in a field. **Many growers ask, “At what growth stage is my corn crop safe from rust?”** Currently we have little specific data to answer this question; however the general recommendations from Dr. Kemerait and Dr. Dewey Lee are that a corn crop is likely to benefit from protection from southern rust until the ears reach the R4 “dough” growth stage. Southern rust is less likely to adversely affect the corn crop if it occurs after the corn has reached the dough stage.

NEW CATERPILLAR SPECIES FOUND ATTACKING CORN IN GEORGIA

David Buntin, Grain Crop Entomologist

July 2008

A new caterpillar species has recently been found attacking the ears of corn in Georgia. The moth species *Moodna bisinuella*, is known as the chocolate milkworm. It is a small moth in the small family as the sorghum webworm and similar species. The insect was introduced into North Carolina from Mexico in 1984 on selections of gamma grass. It is not clear if populations in Georgia are from this introduction or a more recent introduction. The insect has been reported attacking corn in Louisiana since 2004. Dr. Zinxhi Ni, USDA Entomologist, has found larva in corn ears at Tifton last week. He provided two photos that I have included.

Larvae are dark brown with few distinguishing markings. They reach a full size of 1.5 cm long. Milkworms somewhat resemble small fall armyworms but are darker and do not have the black dots, stripes and other distinguishing marking. Milkworm larvae feed on the kernels in the ear usually during dough and dent stages. Several larvae can occur in the same ear. During the summer a generation takes about 1 month, and the insect overwinters in the larval stage in corn stubble. The insect also will attack grain sorghum and some other grasses. At this time there are no effective control methods for infestations in corn. We do not have good information on damage thresholds and on the extent of infestations and damage in Georgia. If you find this insect in your area, please send me an e-mail (gbuntin@uga.edu) so we can get an idea of the distribution of this new, potentially damaging pest of corn.



STINK BUGS IN CORN

David Buntin, Grain Crop Entomologist

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We have had a lot of calls and questions about stink bugs in corn over the last several weeks. Corn is most sensitive to stink bug injury during ear elongation before pollen shed. The treatment threshold at this stage is 1 bug per 4 plants (25% infested plants). Once pollination occurs, feeding though the hulk causes damage is to individual kernels. Kernels are susceptible to damage up until the milk stage (R3) and possibly early dough stage (R4). The threshold at this time is 1 bug per 2 plants (50% infested plants). Most corn in the southern part of the state is past the most susceptible stage for stink bug injury. Methyl parathion can be used before and after pollen shed but not during pollen shed. Otherwise use a pyrethroid such as bifenthrin (Capture, Brigade, Fanfare Bifenthrin and similar products) or beta-cyfluthrin (Baythroid XL). If mostly brown stink bugs are present use a higher rate, 5.2 fl oz for bifenthrin or the 2.8 fl oz rate for Baythroid XL.

CORN CONDITIONS IN GEORGIA AND THE U.S.

Dewey Lee, Extension Agronomist – Small Grains

July 2008

- Georgia acreage is estimated at 370,000 acres, down from last years' 510,000 acres. Yield per acre is estimated to be slightly lower than last year due to dry, hot temperatures during the majority of the crop's pollination period.
- Much of Georgia's crop has gone through the silk and early milk stage without much disease pressure. Much of the dryland production will be abandoned due to droughty conditions.
- Prices last week rose to a high of over \$8.00 per bushel but declined due to a more favorable USDA report on Monday to about \$7.00 per bushel. Even though water cost are significant, at these prices (current cash about \$6.80), it is important not to miss an irrigation in corn as it will pay very good dividends. For scheduling irrigation, refer to the current *Guide to Corn Production in Georgia*.

Here are the facts about the current U.S. corn acreage and condition:

- At 87.3 million acres, planted corn acreage is the second highest since 1946, behind last year's total of 93.6 million acres. This is a 1.3 million acre increase from the USDA's March 31 projection. Although this represents a seven percent reduction in corn acreage from 2007's high, this is still the second largest corn acreage since 1946.
- USDA made a special effort to re-interview farmers in the flood impacted areas to analyze planting intentions. Based on these surveys, acreage harvested for grain is predicted to decline to 90.4 percent down from the recent trend 92.4 percent. The reduced acres harvested combined with a higher acreage planted results in projected acres

harvested of 78.9 million. This number is slightly higher than USDA's previous harvested acreage projections of 78.8 million.

- USDA's first estimate of production and yield based on actual crop estimates will be released Aug. 12. Presently, with an estimated yield of 148.9 bushels per acre, total corn 2008 supply (production and carry-in) would be 13.2 billion bushels, meeting all currently estimated demands and providing a carry-out that is more than 5 percent of supply.
- Further, USDA reported that corn stocks in all positions on June 1, 2008 totaled 4.03 billion bushels, up 14 percent from June 1, 2007. Of the total stocks, 1.97 billion bushels are stored on farms, up 8 percent from a year earlier. Off-farm stocks, at 2.06 billion bushels, are up 21 percent from a year ago.
- Our thoughts and prayers continue to go out to growers and others who are severely impacted by this year's floods.

ULTRA-LATE PLANTED GRAIN SORGHUM

Dewey Lee, Extension Agronomist – Small Grains

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Usually growers have interest in growing a sorghum crop if dry weather has prevented late soybeans from being planted during a normal (May/June) time. Most grain sorghum hybrids sold in Georgia can mature if planted prior to mid-July. In the southwestern counties of Georgia, successful planting can occur till early August. Later plantings generally do not provide enough time for sorghum to fully mature/ripen.

Listed below are good management strategies to consider:

1. Use low to moderate seeding rates (45K - 55K dryland and 85K to 100K irrigated).
2. Use row widths of 15 to 30 inches. Narrow row widths aid weed control. If possible, use Concept treated seed so you can use metalachlor for early season grass control. Follow with a 3 leaf to 5 leaf application of atrazine plus oil. Avoid fields with heavy Texas panicum infestations.
3. Watch closely for early season insects such as chinch bugs, lesser cornstalk borer, etc. Control when necessary. Use an at-plant insecticide to reduce the stand losses that occur from late season insect pressure. During the flowering stage, scout closely for webworms, earworms and the sorghum midge. Spray when thresholds are exceeded.
4. Soil test for phosphorus and potassium applications. Use 80 lbs N per acre. This will be sufficient. Poultry litter is an excellent source of NPK for grain sorghum.
5. Choose a hybrid that the company indicates has good disease resistance. Diseases such as anthracnose or fusarium head blight can be devastating.
6. Remember there are no hybrids with the Bt or glyphosate technology therefore choose on disease resistance and yield.