Mississippi Crop Situation

March 22, 2007 | Editor: Angus Catchot | Number 2

http://www.msucares.com/newsletters/pests/cis/index.html

Crop Situation: (For the week ending March 18, 2007)

Corn was 50% planted and 5% emerged. Soybeans were 4% planted. Wheat was 44% jointing and 1% heading. State average air temperature was 60 degrees (4 degrees above normal). Weekly rainfall was 0.19 inches (1.25 inches below normal).

Wheat Insects

Wheat Insects:

Calls in recent days have been dominated by questions about aphids in wheat. Aphids can be found in most wheat fields throughout the state at this time with higher population in the delta area. Most of the aphids we have been finding are the bird cherry-oat aphids with some greenbugs mixed in the population. Information out of Arkansas shows that wheat can tolerate high levels of bird cherry-oat aphids with no economic impact on yield. However, greenbugs can be of serious concern when numbers reach threshold densities because of the toxin they secrete when feeding. Also, the fact that much of the wheat acres are under drought stress could change some of the decisions we make on when to make an application. Below are the treatment thresholds for greenbugs in wheat from Arkansas. Identification of the two is fairly easy and is shown in the pictures below. Bird cherry-oat aphids are darker in color and usually have pinkish-red coloration around the abdomen while green bugs are light green in color with a faint black stripe that runs down the middle of the body. It is amazing how much help we are getting from parasitic wasp. A field in Stoneville yesterday with extremely high levels of aphids over the weekend was 99% parasitized as of yesterday (3-22-07).

Greenbug Treatment Level:

Plant Height	Number per Linear Foot of Drill
4-6 inches	50
6-10 inches	200
18-20 inches	300
30+ inches	800

Bird cherry-oat aphid

(Dr. Gordon Andrews- Delta) Aphids on wheat in the delta fall into 2 categories, those that are not greenbugs and those that are greenbugs. Those that are not greenbugs for the most part are bird cherry-oat aphid and corn leaf aphids. If you are talking about aphid populations that curl leaves and make the wheat plant sticky, you are generally talking about the non-greenbug variety of aphids. In general when I receive calls on aphids, the beneficial predators and parasites have got a foothold and many times have reduced the population to a few mummies. Mummies are the

exoskeleton of the aphid left behind after the parasite emerges from the aphid (see picture). Aphids can carry disease. One in particular is the barley yellow dwarf virus. For this reason late planting is recommended in the Mississippi delta so that much of the vegetative growth occurs during the colder winter months when aphids are not active. However, in warm spells aphids can increase and get this disease started. This disease will appear as stunted yellow patches scattered about the field and many times evidence of aphids are still in the area such as mummies, molted exoskeletons and sticky leaves. The honeydew (a liquid which contains sugars from the plant) produced by aphids is expelled on the leaves of the wheat plant.

Greenbugs

Greenbugs inject a toxin in to the wheat leaf that forms a lesion on the leaf and interferes with the plant's ability to produce the necessary sugars to fill the wheat kernels. I have only encountered one population of greenbugs that averaged one per plant. They were not sprayed and the field cut 60 bushels. Not very scientific but I would have to see more than one per plant to get excited about greenbugs. The main consideration about greenbugs is that you know how to separate greenbugs from other aphids.

Those insecticides with wheat and aphids on the label have in the past done a good job on all aphids. Dimethoate and the pyrethroids have recently been the products of choice in the delta.

Parasitized Aphids

In most years the above would be enough to say about aphids but as of this writing there are some very dry fields of wheat in the Mississippi delta. Wheat leaves die as they age the drier it is the quicker they age. At some point under dry conditions the plant will stop growing and the upper leaves will start browning at the tips and the edges of the leaves. Aphids extract plant nutrients and water from the plant. An aphid population will only help dry out the plant. If high populations persist in these dry fields and are not removed by beneficial insects, removing the aphids could help the plant survive and recover more quickly. The dry fields I have examined have very low aphid populations and showed signs that predators and parasites have remove the aphids.

Glyphosate Symptomology on Wheat

(Dr. Erick Larson)

Figure 1. Glyphosate drift injury symptomology on Individual wheat plants in a field

Figure 2. Glyphosate drift injury symptomology on wheat leaves and leaf sheath. Heads often have difficulty emerging from the boot when the leaf sheath is stunted by glyphosate injury.

Figure 3. Typical glyphosate drift injury symptomology on an individual flag leaf.

Corn Agronomics

(Dr. Erick Larson)

Early-season nitrogen application for corn: Mississippi's warm, wet spring climate generally dictates timely split-application of nitrogen fertilizer relative to crop demand (spoon-feeding), or substantial nitrogen may be lost prior to crop uptake. Corn extracts less than 10% of its seasonal nitrogen uptake before rapid vegetative growth begins, which is normally after May 1. Thus, producers can improve their nitrogen use efficiency considerably by applying only a minimal portion of nitrogen shortly after emergence, followed by the bulk of their nitrogen fertilizer just prior to this period of maximum crop demand. Thus, early fertilization can waste considerable nitrogen, particularly if wet weather prevails, before rapid corn growth begins. Nitrogen loss resulting from saturated soil occurs primarily through denitrification, particularly in heavy soils. Denitrification occurs when nitrate nitrogen is converted into nitrogen gas by microorganisms and escapes into the air. Warm soil temperatures accelerate this process. Research indicates denitrification rates range from 2-3% per day at soil temperatures from 55-65 F or more if soil temperatures are warmer. Thus, I would anticipate 10-30% of pre-plant or pre-emergence applied nitrogen may potentially be wasted, particularly when planting well before normal, as is the case this season. Therefore, our standard nitrogen recommendation is to apply no more than 1/3 of the total nitrogen near planting/crop emergence and apply the remaining nitrogen about 30 days later (corn exceeding 12 inches tall or V6 growth stage).

Application methods for nitrogen fertilizer: Utilizing an appropriate nitrogen source and application method may influence corn grain yield much more than the actual applied nitrogen rate. No-tillage research studies in Missouri and Tennessee show UAN-solution (N-sol) and urea broadcast on the soil surface reduced corn yield potential 9-23% compared to ammonium nitrate broadcast, N-sol injected, or anhydrous ammonia injected. This would reduce economic returns from $50-$184 per acre, compared to ammonium nitrate or N-sol injected, using current corn prices. Urea-containing nitrogen sources, including UAN-solution (N-sol, 32%, or 28-0-0-5) and urea (46-0-0 or 41-0-0-5), may reduce corn yield potential because they are subject to volatilization loss, when applied to the soil surface (either broadcast or dribbled in a band). Surface-applied urea sources readily volatilize when substantial crop residue or vegetation is present on the soil surface, temperatures exceed 55 degrees F, and when rates exceed 100 lbs. N per acre, until rainfall incorporates the nitrogen. Thus, volatility losses from broadcast urea nitrogen sources applied during the extended dry spell we are experiencing are likely considerable. Urease inhibitors, such as Agrotain, may be applied to granular urea or UAN-solution to reduce volatility potential by temporarily slowing the activity of the urease enzyme. However, timely rainfall or overhead irrigation is still necessary to incorporate urea-based N into the soil for plant utilization and stop volatility. Thus, corn producers should minimize or eliminate surface application of UAN-solution (N-sol) or urea in their fertility program. Wheat producers who have not applied their final split of nitrogen should likely wait for a reliable rainfall forecast or consider broadcasting ammonium nitrate.

Spraying N after corn emergence: Broadcast application of UAN-solution will essentially kill any exposed tissue of emerged corn plants. Although the growing point of young corn plants remains underground (protected) until about the V5-6 growth stage (12 inches tall), intentionally burning exposed plants is not a good idea. Severe fertilizer burn temporarily eliminates the ability for the plants to produce energy through photosynthesis. Thus, plant growth falls back upon energy reserves in the seed. If warm, dry or otherwise favorable growing conditions prevail, corn plants will likely generate new leaf tissue relatively quickly and experience little stand reduction. However, if wet, cold, unfavorable conditions persist, recovery will be very

slow and the likelihood for stand failure increases greatly, particularly if disease or insect pests infect or infest the plants during this vulnerable period.

Nitrogen placement: Close nitrogen placement in relationship to the row is certainly not necessary, or even preferred for corn production. There are several different reasons to support this recommendation. Nitrogen is relatively mobile in the soil-water solution, compared to other nutrients. Corn also has a fibrous root system, which develops substantially more lateral growth than tap-rooted crops, such as cotton. In fact, corn roots will likely extend to the row middles before plants are knee-high. Furthermore, more than 90% of nitrogen uptake will occur after corn is more than knee-high. Thus, corn growers should place sidedress knives in the row middles to avoid substantial root pruning (Figure 1). This suggestion applies to all normal (single) row widths and twin-row patterns (based upon wide rows). The outside knife on each side of the applicator should be modified to apply one-half of the intended nitrogen rate, since it will run between the same rows twice. Denitrification loss related to extended soil saturation in the bottom of the furrow (in bedded fields) will primarily apply to the first substantial rainfall event, which will disperse nitrogen through the profile. Thus, seasonal effects should be insignificant.

Figure 1. Suggested nitrogen placement with sidedress injection applicators for corn production.

New Entomology Contacts

Below is the contact information for two new Area Entomologist that recently joined MSU Extension service. Dr. Don Cook will be serving NE MS and located in Verona and Dr. Chris Daves will be serving south MS and located at Central R&E in Raymond.

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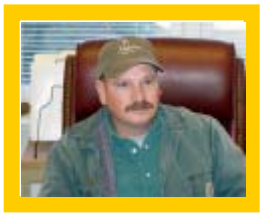

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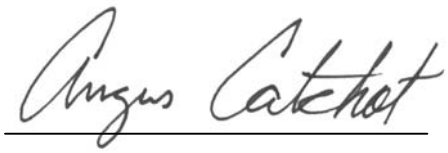
*****Cotton and Soybean Control Guides for 2007 are now in. See your local Ext. Agent to get one.*****

IF YOU WOULD LIKE TO BE TAKEN OFF OF THE LIST, UPDATE YOUR ADDRESS, OR BE ADDED TO THE EMAIL DISTRIBUTION LIST PLEASE CONTACT SHERRY MCMULLIN AT (662) 325-2085 OR EMAIL HER AT: smcmullin@entomology.msstate.edu WITH **CIS NEWSLETTER** IN THE SUBJECT LINE TO BE ADDED TO THE ELECTRONIC NEWSLETTER LIST OR MAKE ANY CHANGES.



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