Field Notes
June 20, 2006
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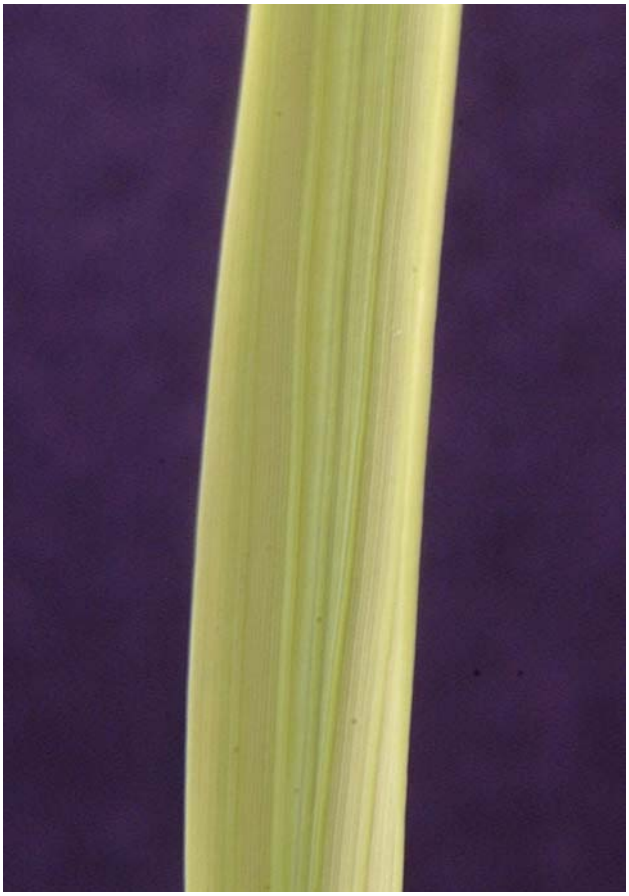
Last week I received two phone calls within a couple of hours of each other in which the caller asked the same question, “Should I apply fungicide even though it is dry and I can’t find any disease?” The simple answer is “NO”. Fungicides do not do anything other than control fungi. They will only benefit rice if disease is present. Dr. Don Groth has proven this many times in his experimental work at the station and at off-station locations. Yes, sheath blight as well as other diseases may shown up afterward, but the possible benefit to second crop does not justify the use of a fungicide in the first crop when it certainly will not benefit it.

In some of our verification fields we are either at or soon will be at what we term the “go or no go” stage for fungicide application. This is when we are forced to make a decision concerning the use of a fungicide. We simply follow Dr. Groth’s research recommendations. From panicle differentiation (PD) plus 5 days until 50% heading if we find enough disease pressure to justify an application we recommend one be made. Occasionally disease, especially sheath blight, suddenly flares up between 50% and 100% heading and we will make a recommendation, but those times are few and far between. Based on our experience many fungicide applications are going out too late to be of economic benefit.

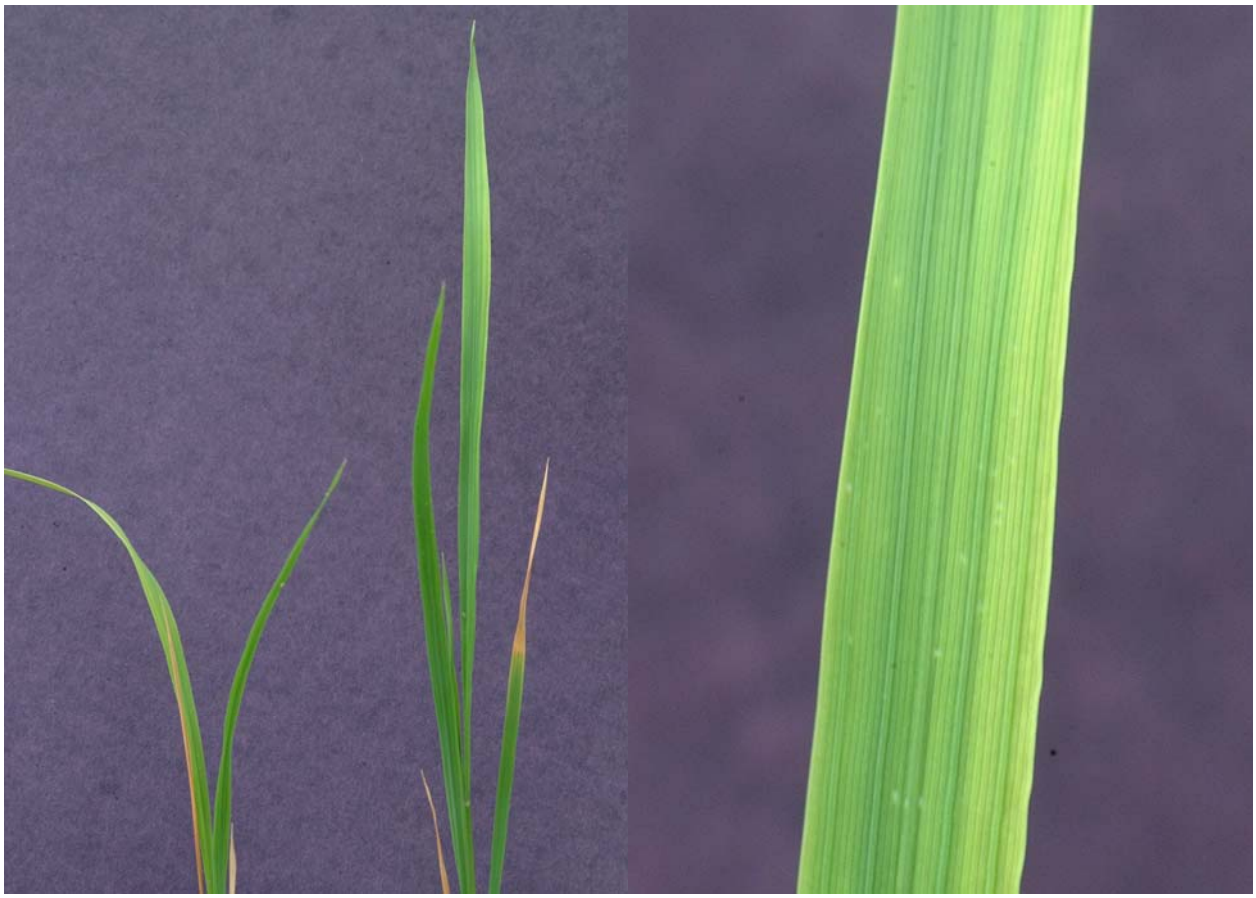
In the last issue we defined PD which is the time when we begin to seriously scout for disease. The booting stages follow PD. Early boot occurs when the sheath of the flag leaf appears above the collar of the leaf below the flag leaf (second to last leaf) on the main stem and lasts until the sheath of the flag leaf is about 2 inches out of the sheath. Middle and late boot are continuation of the extension of the flag leaf sheath above the leaf below it. All are accompanied by swelling the leaf sheath as the panicle enlarges within it. If any portion of the panicle is showing above the collar of the flag leaf that stem is headed. When half the plants in a sample reach that point that sample represents 50% heading. It is usually earlier than most think. Often we will reach into the canopy and grab a handful of plants, cut them at the water line then count those headed versus those not. It will surprise you.

The only way to know if you have disease is to scout. The group pictured above are (L-R): Jeremy Hebert (Extension Associate), Donna Lee (County Agent, East Carroll), Eddie Eskew (County Agent, Jeff Davis), myself, Keith Normand (County Agent, St. Landry), Carlos Smith (County Agent, Avoyelles) and Keith Fontenot (County Agent, Evangeline). These agents accompanied Jeremy and I on our verification run last week. At each field we spread out and walked. At the end of the walk we held a little question and answer session. Besides being an excellent educational experience it provided very thorough examination of the fields.

Over the years we have developed our own system for scouting for disease. We walk sometimes counting paces, sometimes stopping randomly and open the canopy. Any lesion discovered qualifies the stop as a positive stop. We then score the stop on a 1-10 scale depending upon number of infected stems. This is a very subjective method requiring a certain degree of mental calibration. By comparing notes we are able to obtain similar ratings. Deciding whether to use a fungicide or not is more difficult because it too is a subjective decision. In the case of very susceptible varieties like CL 161 three positive stops with a rating of 3 or more will likely trigger a recommendation especially if rice is at or near 50% heading. We also take into account the yield potential of the field as we see it, whether the field will be second cropped or not, weather conditions and other intangibles. Most of the time once a field is sprayed we can't tell if we did the right thing or not. Only when disease is severe is it easy to affirm our decision. However, when we don't spray and disease moves in we always regret not treating the field. It is a tough decision, especially this year.



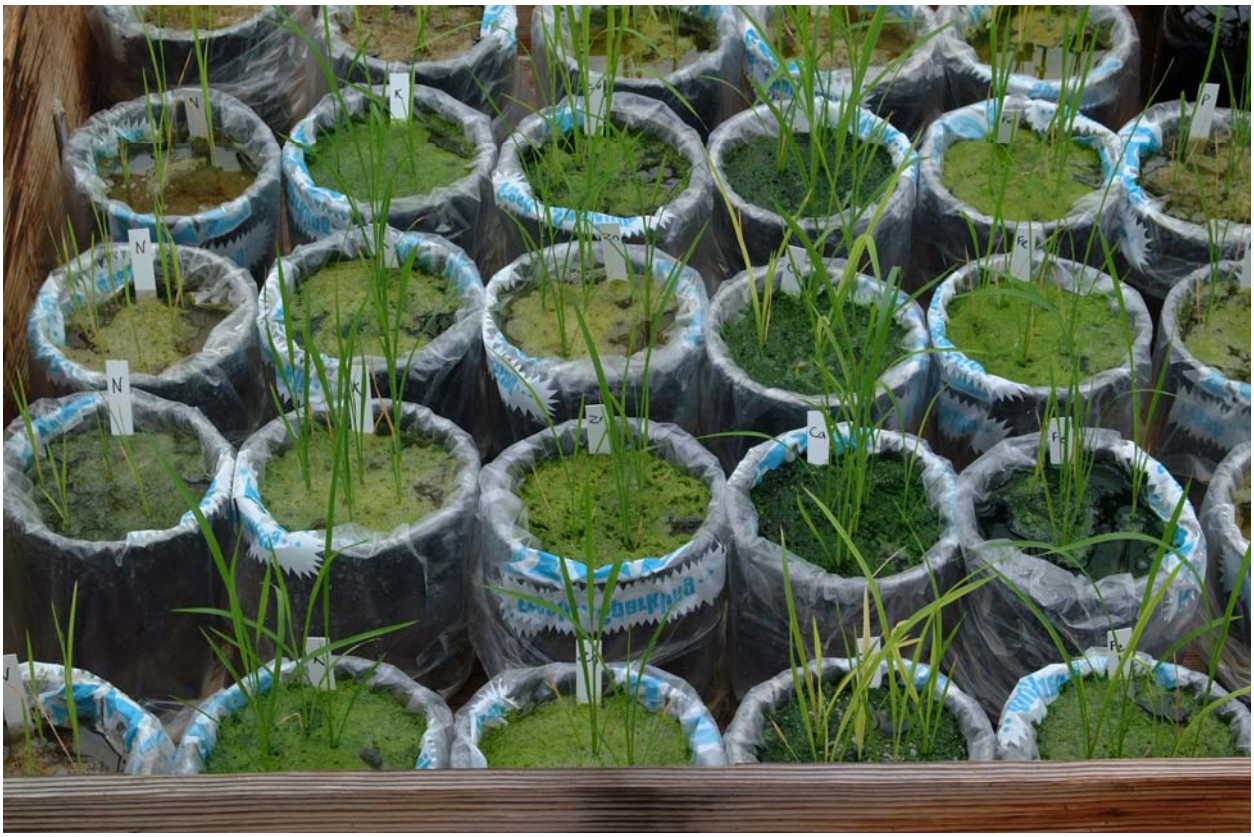
The photographs above are of a nutrient deficiency we induced in the greenhouse. We hope to have a series of plants with all of the major nutrient deficiency symptoms on display at the field day next Thursday, June 29th. If you have any problem plants or field problems of any type please bring them in for us to identify and display to the other attendees. In the left hand photograph note the chlorosis (yellowing) is worse in the youngest leaves. This indicates the element is immobile in the plant. The plant took up some of the nutrient and it was translocated to the lower leaves. When the soil supply ran out it remained in the lower leaves causing symptoms to be manifested in the upper leaves. The close-up of a section of leaf reveals uniform chlorosis. The pattern of chlorosis can be important in separating one nutrient deficiency from another. In this case the deficient nutrient is calcium. Looks like sulfur doesn't it?



In the two photographs above we see a similar pattern in that the symptoms are worse in the upper leaf. (ignore the dried basal leaf – the seedlings dried out in the greenhouse). Again this indicates a deficiency of an immobile element. The close-up of the leaf section shows a pattern of chlorosis best described as interveinal chlorosis. This is a $5 word that means the chlorosis is between the veins while the veins themselves remain greener. Without magnification the leaves would look striped. The nutrient here is magnesium.

If the seedling in the series of photographs above was compared to the seedling in the preceding photographs it would be difficult to distinguish one from the other. Again the symptoms are worse in the newest leaf indicating an immobile element. Close examination of the leaf sections discloses a different pattern from the magnesium deficiency symptom. Chlorosis here is not distinctly interveinal particularly in the last photograph. In the progression of symptoms there is subtle darkening of the veins, but much less distinct than with magnesium. This is a key difference. This nutrient is manganese.

The photograph below shows half of the series of pots in the greenhouse at the Rice Research Station where we are attempting to induce nutrient deficiency symptoms for display at the field day. A prominent feature in several of the pots is algae or scum. Note the difference in color and amount present. It may be not be possible to read the labels, but the pots with the darkest green algae are those with no calcium. Whether this is an effect of pH or the role of calcium in affecting other nutrients I do not know. The pots at the far left have no nitrogen and very little algae. The same is true of the phosphorus deficient pots (not shown). So as a secondary benefit of the nutrient deficiency demonstration we may obtain a clue to the formation or lack thereof of algae. It might also interest you to know the medium is pure sand. So where did the algae come from? Your guess is as good as mine.



Okay, what is causing the streaks in the field above? It is Cheniere drilled in heavy clay in East Carroll parish. Only nitrogen has been applied. It is not herbicide related.