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### **PREPARING FOR ASIAN SOYBEAN RUST IN 2006** (*Kemerait, Sconyers, and Jost*)

#### **Soybean Rust Survives the Winter of 2005-2006.**

Although soybean rust hit Georgia in 2005, the damage for most of our soybean producers was relatively small. Damage and losses were not greater because a) the disease was slow to arrive and to spread during the season and b) growers were kept well-informed on the spread of the disease so that timely fungicide applications could be made. Still, yields in some field trials were cut by 33% where the crop was not protected by a fungicide.

Until recently, our belief has been that it is unlikely that the Asian soybean rust would overwinter in Georgia. Though the rust spores can survive freezing temperatures, at least for a while, the spores can only survive for 6-8 weeks without a living host. As kudzu freezes back in Georgia each year, we have been fairly confident that the disease would have to be reintroduced to the state from somewhere else each year.

By late February 2005, soybean rust had been found on kudzu in central Florida; however it wasn't until the end of April 2005 that rust was first found on "volunteer" soybeans in Georgia. *The 2006 season has gotten off to a much quicker start.*

Once again, soybean rust has survived in the winter on the Florida peninsula; however it has also survived at locations near the Florida-Georgia border as well. (For example, soybean rust has been found in Quincy and in Jacksonville, Florida.) Soybean rust has been documented in January, February, and March in Georgia and Alabama. It appears that the relatively mild winter of 2005-2006 and the ability of kudzu to escape frost injury in protected crevices has allowed not

only the weed, but also the rust disease to bridge the 2005 crop season and the fast approaching re-growth of kudzu in 2006.

From our searches across southern Georgia this winter, it is clear that nearly all of the kudzu has died back. Where we found green kudzu in late January and early February, it appeared to have either survived the winter in places sheltered from frost or was recent growth as the result of the very warm temperatures this winter. We have not found any “green” kudzu north of Grady, Seminole, and Thomas Counties, though we assume that it does exist. Most, if not all, of the new-growth kudzu was killed-back by frost and low temperatures during the week of 12 February. Still, infected kudzu found in protected areas was not damaged by the temperatures that dipped as low as 23°F.

As of March 3, 2006 soybean rust has been found in Grady, Thomas, Brooks, and Miller Counties. In Alabama soybean rust has recently documented in Abbeville and Dothan. On 17 February 2006, infected kudzu at the Grady County and Thomas County sites was completely removed and taken back to Tifton where the spores are being studied at the UGA Plant Disease Diagnostic Lab. On 27 February 2006, infected kudzu found in Brooks County was destroyed. In all probability, there are other locations in southern Georgia where kudzu infected with soybean rust continues to survive quietly and out of sight. We do not believe that the destruction of the infected kudzu reduced the threat to our soybean producers in 2006, but it did avoid the possible controversy that would result from allowing them to survive. **At this point, growers should assume that low levels of soybean rust are active across southern Georgia.**



*Photos of infected kudzu in Brooks County*

According to Dr. Sconyers, “It appears that nearly all the kudzu observed in the rural areas was exposed to the weather and was, for the most, part dead due to winter dieback. It also appears that kudzu in the cities seems to be greening much quicker”.

### **Planning for the 2006 Soybean Season**

Given our experiences from 2005 and the results of scouting for rust in 2006, soybean growers in Georgia should consider the following points for the upcoming season.

1. Soybean rust will very likely affect all of our soybean producers in 2006.
2. Given the present location of the disease on kudzu in northern Florida, Alabama, and Georgia, we predict that the disease will affect the soybean crop in Georgia earlier in 2006 than in 2005.
3. We also predict that there will be larger numbers of spores infecting the crop this season; thus the disease will likely arrive earlier and with greater severity.
4. Growers should consult their county agents for the latest soybean rust finds in the 2006 Sentinel Plot Monitoring Program.
5. **We advise all soybean growers to budget the cost of two fungicide applications in their pre-season planning at a TOTAL cost of \$25-30/acre.** In the final analysis, growers may not need a second fungicide application; however it is best to assume that both will be needed.
6. Early reproductive growth, e.g. R1/first bloom, **may** turn out to be the appropriate time to make the first fungicide application. However, we are recommending that a grower **WAIT** to apply a fungicide for management of soybean rust until a) the crop is at or very near reproductive growth **AND** b) rust has been found in appropriate sentinel plots in the state.
7. It is very clear from our trials last year that **YOUR FIRST FUNGICIDE APPLICATION IS CRITICAL TO MANAGING RUST.** If you are late, you will lose yield. Beginning a fungicide program when you can see rust in the field is too late. Because of this, we recommend the following:
  - a. Be sure to be on-time with the first spray.
  - b. Be sure to use an effective fungicide. If you are confident rust is not yet in the field, you can use a strobilurin, triazole, or strobilurin-triazole mix. If you suspect or recognize that rust is already in the field, your best options are a triazole or triazole-strobilurin mix.
  - c. Note: It is our belief that the better triazole fungicides include tebuconazole, tetraconazole, and myclobutanil. We believe that propiconazole is considerably less effective.

#### **AGRONOMIC CONSIDERATIONS CONCERNING RUST IN 2006** (*Jost and Kemerait*)

##### Maturity Groups and Planting Dates

There is a renewed interest in planting early maturity group soybeans (Group IV in the south, and even Group IIs and IIIs in the north). This is due in part to two factors. One, early maturity group beans performed well in 2005. Two, there is the possibility of avoiding a fungicide application for rust with early maturity group beans.

The performance of Early Soybean Production System (ESPS) has everything in the world to do with weather. Last year the weather was perfect for this type of system. We enjoyed ample rainfall through early August and then rainfall basically stopped for 4 to 6 weeks. As earlier maturity groups are planted this is the type of weather that is necessary. We must receive ample rainfall during the early summer while these beans are filling out, and the rain has to cease when they begin to mature. While this weather pattern is great for the ESPS, it is also the primary reason why our statewide yields fell to 26 bu/A, this weather pattern is worst case scenario for later maturity groups. Bottom line, the wrong weather patterns can ruin any maturity group!

Planting an earlier maturity group early in the spring may help to prevent a late season fungicide application for rust. However, I strongly encourage that this type of production system be irrigated. Dry conditions in late-August and early-September are also important (cannot control that). Another consideration is insect pressure. In essence the ESPS is a stink bug trap crop. These insects MUST be managed!

This ESPS can work, but you must be aware of the risks.

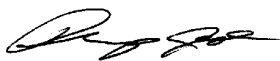
#### Row Spacing

While the majority of research conducted last year dealt with fungicides and application timing, one study did evaluate row spacing. Results from this trial indicated that there was no difference in rust infestation or severity on soybeans planted in 7 or 38-inch rows. Please note this is one years worth of observations. The situation with rust this year is already different than that in 2005. In general, we rarely observe differences in yield between drilled and wide row soybeans when planted in May. The advantage to narrow rows, if observed, usually occurs when planting extremely early or late. My advice... Do what has worked for you in the past.

If rust develops as expected this year, the key consideration will be to get fungicides out on time and as low into the canopy as possible.

**RESEARCH ON SOYBEAN RUST** (*Jost*) Many of the trials conducted last year are being reviewed and formatted for distribution in the 2005 Soybean Research Extension Report. This is an online publication posted on the UGA Soybean Web Page. These data should be available in the coming weeks.

Edited by: **Philip H. Jost**, Extension Agronomist-Cotton & Soybeans



Contributions by:

**Philip H. Jost**, Extension Agronomist-Cotton & Soybeans

**Bob Kemerait**, Extension Plant Pathologist

**Layla Sconyers**, Research Post-Doc, Plant Pathology

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