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Cooperative Extension Service

College of Agricultural and Environmental Sciences



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SOYBEAN RUST IS HERE: SO WHAT'S NEXT?

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Soybean Rust Manuals still available in limited supply. Contact Dr. Bob Kemerait or Dr. Phil Jost.

SOYBEAN RUST IS HERE: SO WHAT'S NEXT? (Kemerait and Jost) As of the beginning of August, Asian soybean rust has been confirmed at sites located in Seminole, Decatur, Colquitt, Brooks, Tift, Laurens, and Effingham Counties. Soybean rust has been found in sentinel plots, research plots, and in one kudzu patch. As of 8 August, soybean rust has not yet been found in a commercial production field in the state. Volunteer soybeans infected with rust in Seminole County have been destroyed. Dr. Layla Sconyers continues to monitor sentinel plots around the state with help from county agents.

Soybean rust has now been identified at sites stretching from near the Alabama and Florida borders in the southwest corner of the state to near the South Carolina border on the eastern edge of the state. Clearly, the disease could be present on soybean nearly anywhere in the Coastal Plain of Georgia. Recent finds in Auburn, Alabama, and Laurens and Effingham Counties demonstrate that the disease is moving north. Therefore, growers in north Georgia need to be prepared to apply fungicides should the disease continue its northerly trek.

Below are a series of questions that address issues frequently asked of the Extension Service today.

Q1. *Why haven't you found soybean rust in any commercial fields yet when it is so widely distributed in research and sentinel plots?*

A1. There are likely a couple of good reasons for this. First, sentinel plots and research plots are fairly limited in size and are intensely scouted on a weekly basis. Leaf samples are collected and analyzed with a microscope; many of the pustules that have been found would never have been identified if not brought to the laboratory. Even very careful scouting of commercial fields might not identify these low levels of infection. Second, nearly all of the plots where rust has been found were planted much earlier than commercial fields and also are early maturity groups. Whereas many commercial fields are currently in early reproductive growth stages, many of the soybeans in the sentinel plots are approaching the R6 stage and are more susceptible to spread of rust.

Q2. *Does this mean that rust isn't present in commercial fields yet?*

A2. Absolutely not. In fact, soybean growers across the Coastal Plain should assume that their soybeans are potentially in a "high risk" scenario with rust being present in the area. The main reason that we believe rust has not yet been reported from a commercial field is because a) many fields are in early reproductive (or even vegetative) growth and disease has not spread much in the field if it is present, and b) inoculum levels, while wide spread, are still building to higher levels.

Q3. *What are the fungicide spray recommendations for growers in Georgia at this time?*

A3. We continue to urge soybean growers in the Coastal Plain to apply fungicides to their crop once it enters reproductive growth stages. We believe this is becoming even more critical as more rust is found around the region and because weather conditions over the past 10 days have been quite favorable for spread of the disease (high humidity, cooler temperatures, and rain). At this time we feel that infection within fields across the Coastal Plain is still relatively low and allows growers to choose from a wide range of options to include protectants (e.g. chlorothalonil and strobilurins) and curative fungicides (triazoles and triazole/strobilurin mixes). However, this level of infection could change very quickly and as the risk of infection increases or rust is found in a field, growers should use a triazole or triazole/strobilurin mix. (Note: propiconazole does not have the same level of curative activity of other triazoles such as Folicur, Domark, or Laredo.)

Q4. *What about growers in north Georgia?*

A4. Growers in north Georgia should continue to scout their fields and watch the progress of the disease closely. Once their crop reaches bloom, and if the threat of rust is still relatively low, they may wish to consider mixing a protectant fungicide with dimilin or boron when they plan to make this application to provide additional "insurance".

Q5. *You have told us in the past that chlorothalonil is not nearly as effective at managing rust as are the other materials, and yet you mention it here as useful as a protectant spray. Why is that?*

A5. While it is true that chlorothalonil is less versatile than other fungicides one might use for control of rust (it is a "pure" protectant lacking any systemic, or "locally" systemic activity), it can be effective if applied before rust infection occurs. Also, chlorothalonil is fairly inexpensive. Because the spread of rust in Georgia has been thus far a "crawl" rather than an "explosion", we feel many growers have had time to apply chlorothalonil before significant infection has

occurred. HOWEVER, for maximum protection and insurance, growers may want to choose a more versatile fungicide, especially as the threat of disease increases.

Q6. *Once a grower has made his or her first fungicide application, what should they do next?*

A6. Strobilurin fungicides typically offer 3 weeks of protection; triazoles are thought to offer typically 2 weeks of protection. After a grower makes the first application of fungicide, he or she should monitor the spread of rust closely and also pay attention to weather conditions. If the weather is hot and dry, he may be able to extend the interval between sprays; if it is very wet, a second application is likely needed after approximately 2 weeks unless rust is not known in the area. More than likely, rust will become more of a problem later in the season, so the second application, if necessary, should include one of the stronger triazoles.

Q7. *When can growers forego worry about spraying fungicides?*

A7. Once the crop reaches “R6” or “full seed”, it no longer needs to be protected with fungicides.

Q8. *If I start spraying fungicides at R1 or R2 will I have to spray 3 times?*

A8. Of course the answer to this really depends on if and when the true epidemic starts. However, considering the growth of the soybean plant from R1 (first bloom) to R3 (beginning pod development at the top of the plant) requires about 2 to 3 weeks. From R3 to R4 (pods $\frac{3}{4}$ inch long at top of plant) requires about 2 weeks. After this point pods start to rapidly develop until R6 (full seed size reached). Thus if 2 applications are initiated at R1 there still may be a week or 2 left during which the crop will be unprotected. **Unless the disease is present in your field at this time** it may be wise to wait until R2 (8 to 10 days after R1) to initiate sprays, which could save a third spray. Growers who choose to delay the initial application should consider the use of a triazole or triazole/strobilurin combination product which offers some level of curative activity. In addition, an application at R2/R3 may be tank-mixed with Boron and Dimilin (see INSECT ISSUES discussion below).

Q9. *We are seeing a lot of downy mildew and frogeye leaf spot this year. How does these affect fungicide recommendations?*

A9. It is true that we are seeing more of both of these diseases (or at least we are watching the soybeans more closely than ever!). Currently we do not have a threshold or spray recommendation for downy mildew; however we do believe that spraying for frogeye is important. **Timely fungicide application to control frogeye leaf spot can increase yields even if rust does not appear.** Therefore, when frogeye appears in your crop, growers should respond appropriately and not wait for rust to appear in the area.

INSECT ISSUES (Roberts and Jost) Historical data indicates that the probability for treating late season foliage feeding caterpillars in soybeans is extremely high in the Coastal Plain Region of Georgia. Heavy populations of velvetbean caterpillar and soybean looper migrate into Georgia and infest soybeans during August and September. For this reason, many growers apply a protective treatment of Dimilin in combination with boron at the R2 - R3 stage. Research with Dimilin and boron have consistently shown yield increases of about 10%. A two ounce application of Dimilin at the R2-R3 stage controls velvetbean caterpillar and green cloverworm

season long without disrupting beneficial insect populations. In most cases, fields treated with Dimilin at the R2 stage (full bloom) do not require an additional insecticide treatment for foliage feeders unless heavy populations of soybean looper are present.

Questions have arisen concerning the application of Dimilin with fungicide applications targeting soybean rust that are being made prior to the R2-R3 stage. An R1 application of Dimilin will most likely not provide the optimum response in terms of yield increase when compared with a late R2 or R3 application as recommended. In terms of insect control, Dimilin will protect contacted foliage from velvetbean caterpillar defoliation for the remainder of the season. However, any new growth will be unprotected and thus may be defoliated by velvetbean caterpillar. Thus, if making a fungicide application at R1, Boron and Dimilin should not be applied. If the first fungicide application is being made at R2 or R3 then Dimilin could be applied so as not to incur the additional expense of another trip across the field.

Stink bugs have been relatively high in early soybeans and other crops such as cotton. Be sure to scout fields and treat for stink bugs when needed. Soybean loopers have also been observed in soybeans during the last week to ten days.

WHAT IS THIS R1, R2 , R3 STUFF? (Jost) The following table is reprinted from last month's newsletter.

Stage	Comments
VE	Soybeans have just emerged from the ground. The only leaves present are the cotyledons.
VC	A pair of "unifoliolate" leaves have developed just above the cotyledons. At this time both sets of leaves, the cotyledons and the unifoliates, are arranged opposite each other on the stem. After this point all new foliage will consist of trifoliates (3-leaflets) arranged alternate on the stem.
V1	One set of trifoliolate leaves on the plant in addition to the cotyledons and the unifoliolate leaves.
V2-Vn	Until the plant starts to bloom they growth stages are discussed in terms of main-stem trifoliolate leaves. In Georgia we may see as many as 16 to 20 main-stem leaves prior to flowering.
R1	One bloom present on the plant. At this point growth stages are discussed in terms of flower and pod development. This first flower will generally appear towards the bottom half of the plant. <i>If</i> rust is present in or around your area this is the key time to trigger a spray.
R2	Full bloom. Flowers are present to the top of the plant. Occurs 8 to 10 days after R1.
R3	Pods can be observed at the uppermost nodes on the plant. This is generally the time at which we trigger a Boron and Dimilin spray in Georgia. Occurs 2 to 3 weeks after first bloom.
R4	Full pod. Pods at the top of the plant are ¾" long. Occurs 10 to 14 days after R3.
R5	Beginning seed. Seeds in the pods are 1/8" long at the top of the plant.
R6	Full seed. Seeds fill the pod cavity at the top of the plant. After this point beans should be safe from the effects of rust.

R7	Beginning maturity. At least one mature pod can be found on the plant. Occurs 2 to 3 weeks after R4.
R8	Full maturity. Beans are close to being harvest ready

MIDVILLE FIELD DAY (*Jost*) The annual field day at the Southeast Research and Education Center in Midville will be held again this year. This will be primarily a cotton and soybean field day. Soybean discussions will be centered on the rust issue. Topics will include fungicide trials and variety evaluations. The field day will be held on August 25, 2005 beginning at 9:00 a.m. **Please RSVP to 912-681-5639 so that arrangements can be made for the meal.**

Your local County Extension Agent is a source of more information on these subjects

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