

SOYBEAN SEED TREATMENTS-Woodruff

Soybean planting seed are commonly treated with fungicide, inoculant and molybdenum. Are these treatments of value? Some growers have questioned their value saying they see no soybean growth or yield response to the treatments.

Soybean seed treatments, especially fungicide and inoculant may be very good investments for 2008. Some of the soybean seed being marketed this year will have marginal germination between 70 and 80%. Good quality soybean seed should have at least 80% germination. But a significant amount of 2008 soybean seed will have sub-standard germination, which means that seed vigor will also be low. The drought and high August 2006 daily temperatures are probably causes for much of current low quality soybean seed.

Can good soybean stands be obtained with sub-standard planting seed? Yes, but risks of stand failure are much increased. A seed fungicide will help improve seedling emergence for many soil environments, but low vigor soybean seed may emerge poorly if soil temperature is low (below 70°F) or high (above 90°F), if soil crusting occurs, if soil moisture is marginal, or if plant residue is in the seed furrow.

Adverse soil environments/planting conditions could be a big issue for 2008 since much of the Georgia soybean crop is expected to be planted after small grain or other winter-spring crops. Some things that can help improve soybean stands are

1. Use a good seed fungicide. Most seed companies marketing marginal quality soybean seed will likely pretreat seed with fungicide. This effort should be of benefit, especially if germination is below 80%. Value of fungicide on seed with above 80% germ is negligible.
2. Increase seeding rate to compensate for low germ. Normal seeding rates, for 36" row spacing are in the range of 8-10 seed/ft. For marginal quality seed, this rate should be increased to 10-12 seed/ft.
3. Plant only in moist soil. Georgia soils often get hot and dry in late May and June. With double cropping, there is an urgency to get soybeans planted as quickly as possible after winter crop harvest. Timely soybean planting is important but should not be done if/when the soil is hot and dry. Waiting until a good rain will be especially important for getting an acceptable soybean stand with marginal quality seed.
4. Avoid placing soybean seed in or near old crop litter. Decaying crop residue increases populations of soil microorganisms, some of which are seed decay organisms. Planter units which sweep old crop residues away from the seed bed can help improve soybean stands.

Should soybean inoculant (nitrogen fixing bacteria) be used?

For many fields, this will be an easy, inexpensive way to get a soybean yield increase of 2-5 bu/A. For fields new to soybeans, a good inoculation treatment will be essential to making good soybean yield. The Brady rhizobium japonicum bacteria, responsible for forming root nodules, are not native to Southeast US soils. It only reproduces on

soybeans and will not be present in soils until a well nodulated soybean crop has been grown. Soybean nitrogen fixing bacteria can persist in soil for several years but populations will decline sharply with time in the absence of soybean production. Use of soil fumigants and certain chemicals can destroy most of soybean nitrogen fixing bacteria.

Georgia Extension recommends using a soybean inoculant for 2008 soybeans if the land has not been planted to soybeans in the last three years.

Nitrogen fixing bacteria are living organisms. They can be destroyed if the inoculant is exposed to high temperature or chemicals such as seed fungicide or molybdenum.

Protect soybean inoculant by storing the inoculant in a cool place and keeping it separate from seed treatment until planting time. Each bag of inoculant has an expiration date on the cover. Check purchased inoculant to make sure that it is fresh and that it is used before the expiration date occurs.

Should the micronutrient Molybdenum (MO) be used as a soybean seed treatment?

This micronutrient plays a role of improving efficiency of nitrogen fixation in the soybean root nodule. The value of MO was demonstrated many years ago on a low pH soil near Blairsville, Georgia. In this study, soybeans treated with MO grew normally; those without MO were yellow, stunted, and nitrogen deficient. MO fertilization has never been shown to be of value on high pH soils (above pH 6.0). The reason is that MO availability is sharply decreased as soil pH declines below pH 6.0. MO is an essential micronutrient for soybeans. Liming to raise soil pH above 6.0 will correct MO deficiency as well as provide many other benefits for soybean growth. Using two ounce MO seed treatment/bag of soybean seed is commonly done to insure the soybean MO needs are met.

Will seed treatments create problems for air planters?

Seed treatments applied in powder form can present problems for air planters. Using liquid forms of seed treatments should greatly reduce this problem. Some companies will pre-treat soybean seed with liquid fungicide, when done, this will help get around the problem for air planters. Peat base inoculants probably present the biggest problem for air planters. This problem can be eliminated by using a liquid inoculant or by applying inoculant as an in-furrow treatment.

Soybean Rust and Nematode Updates for 2008 - Kemerait

Asian soybean rust: Scouts from the University of Georgia have continued to search throughout the 2007-2008 winter months for the presence of Asian soybean rust surviving on kudzu protected from frost and freeze damage. The last confirmation of Asian soybean rust in Georgia was on 31 December 2007 when the disease was found on a few kudzu leaves left in a pecan orchard between Edison and Morgan in Calhoun County. A bitter freeze during the first week of January seems to have effectively killed back all remaining kudzu in the state and no Asian soybean rust has been found in Georgia since then.

As of 6 March 2008, no Asian soybean rust is known to be present in Georgia. It appears that rust must be reintroduced into the state this year from other regions. Asian soybean rust is currently known to exist in Florida and a small amount is reported to be present in the Tallahassee area.

The University of Georgia will continue to monitor USDA sentinel plots across the state for appearance and spread of soybean rust in 2008. Soybean producers should be prepared to use fungicides to control this disease if a) the disease appears prior to the R6/pod maturity stage and b) environmental conditions favor the spread of disease (sufficient rainfall and/or irrigation). With the current prices of soybeans and the realistic potential for losses to soybean rust, I am certain that fungicides are an important management tool for the control of rust.

Unless Asian soybean rust appears early in 2008, growers should consider the period around first pod set (R3) as a potential target for first fungicide application. Should rust threaten at that time, the fungicide could be tank-mixed with Dimilin and boron for a single application.

Nematodes can be an important pest on soybeans and lead to significant yield losses if not adequately managed. The cornerstone of any nematode management program is to use effective crop rotation. Unfortunately, the nematodes that affect soybeans, for example the southern and peanut root-knot, reniform, lance, and sting, also affect many of the other row crops grown in Georgia. In addition to crop rotation, growers may be able to plant a variety that has some resistance to nematodes.

When the price of soybeans is low, growers may be reluctant to invest in a nematicide for the management of nematodes. However, with the current price of soybeans and the potential damage and losses that can be attributed to nematodes, soybean producers in Georgia may wish to consider using a nematicide this year. Growers who will plant in a field where nematodes that attack soybeans are present at damaging levels may wish to consider use of Temik 15G, 7-8 lb/A at planting, to reduce the impact of these pests. Research will continue in 2008 to determine if other nematicides, such as Telone II, offer economic advantages to growers in the control of nematodes on soybeans.