Soybean Production Practices for Asian Soybean Rust

Asian soybean rust arrived in the U.S. late last year. Everyone is following it closely wondering what impact it will have on this year's crop. Numerous websites are available to track where rust is currently located and what the potential is for it to move on any particular day. There currently is no genetic resistance to the disease so the only mechanism available for combating the disease if it arrives in our area is via the use of fungicides. Tracking rust spore movement is not the only thing many farmers are considering regarding the management of their crop for this year. I want to address some of the different production practice ideas that have been suggested.

Earlier Maturing Varieties

The maturity groups best adapted for our region range from late MG III to early MG V with those in the early-mid MG IV generally performing best. The hypothesis behind using earlier maturing varieties is that they may avoid the disease either entirely or at least partially depending upon when and if it arrives. Using a late MG II to early MG III variety that is planted during the first 2-3 weeks of May just might do that if rust does not arrive until mid-late August. If the disease arrives that late, it may be possible that either no fungicide or at a minimum one fungicide application will be all that is necessary to get the crop to maturity with no or minimal effect from rust. However, if rust does not arrive, the potential exists for harvesting a crop that yields considerably less than would have been experienced if a variety with more normal maturity for the region would have been used. Since we know little about how this disease will progress in the U.S. at this time, I think the best place for earlier maturing varieties at this time is in research plots where we can assess what kind of yield reductions can be expected with their use. This is something that I will be doing this summer. **My recommendation for this year is to plant varieties of maturity (late MG III to early MG V) that are best adapted to this region.**

Early Planting Date

It is best to plant soybeans when the soil temperature has warmed to 60-65^{o} F. Most generally this occurs in our area during the first 2-3 weeks of May. We have been experiencing a colder than normal spring this year so the optimum time for planting full season soybean is likely to be during the last 3 weeks of May. Soybeans that are planted early will germinate at a soil temperature of 50^{o} F but they will grow slowly making the seedlings much more susceptible to soil borne pathogens and increasing the risk of poor stand establishment. **In order to achieve maximum yield potential, my recommendation is to plant full season soybean between now and the end of May.**

Double Crop Planting Date

For double crop production, the goal is always to plant them as soon as possible after the small grain is removed from the field. Since development of small grains is slower than usual this year, we may see a lot of DC soybean planted after July 1. This may change if we have an onset of above normal temperatures that shortens the length of grain fill period for the wheat and barley crops. Many believe that DC soybeans will be the most

susceptible to rust if it does arrive in this area and I think they are correct. I believe that it will be wise to evaluate small grains harvest time this year as well as closely follow the progression of soybean rust. If rust has arrived in the area or is close by (neighboring states) and planting of DC soybean has not yet occurred by 10 July, it may be more cost-effective to not plant the soybeans. Or, at least be prepared to follow an adequate fungicide application program if you do plant at that late date but if that is the decision at least consider the potential for lower yield plus the costs of protecting the crop with fungicides. And, at that late date if conditions are dry and likely to inhibit quick germination and establishment of the DC soybean crop, save your seed and your money. **Double crop soybean plans should be made with close attention given to 1) U.S. rust development, 2) when the DC soybeans will be planted, 3) how dry the summer has been prior to planting, and 4) what the precipitation outlook is for the remainder of the summer.**

Row Spacing

Narrow row planting (either drilled at 7-7.5 inches or splitter planted in 15-inch rows) of soybean has become common. This is because planting soybeans in narrower than 30-inch rows has provided significant yield benefit. Many farmers are considering going back to 30-inch rows in order to more easily accommodate sprayers. Using 30-inch row spacing will most likely result in yield reductions of 5-10% compared to 15-inch rows and possibly as great as 15-20% less yield compared to planting in 7-7.5 inch rows. A better option is to plant in narrower rows but leave tramlines or wheel rows (rows where seed are not planted and will accommodate the tractor and/or sprayer wheels). By doing this, the opportunity for achieving maximum yield benefit with the narrower rows will exist. And, you will not be driving over soybeans (thus wasting the seed and its cost) if you must spray. Additionally, the soybeans in the skipped rows will likely give some compensatory response because of the row that is missing next to them allowing yield attainment with skip rows to be comparable to the yield achieved with solid seeded soybeans. **My recommendation is to continue to use narrower row planting for soybeans in order to attain maximum yield potential.**

Plant Population

This is an area where farmers can influence cost of production regardless of the threat from soybean rust. Soybeans are known to respond to a wide range of plant populations. Research in Maryland has determined that an optimum population goal for full season soybean is 140,000 seeds/acre. The optimum double crop population can be achieved by planting 175,000 seeds/acre. There is no reason to increase population above these levels to counter soybean rust. If you have been planting above these rates, the risk of rust and its accompanying costs should be incentive enough to reduce other input costs wherever possible.