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High Yielding Soybeans - Best Management Practices

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Over the past few years there has been a lot of interest among growers in achieving higher yields in soybeans. A lot of this is driven by commodity prices and the higher demand for oil seeds as opposed to corn. When it comes to corn production, as an industry, we have come a long way, and are good corn producers. When looking at soybeans, we have found that there are some areas in our production practices we can evaluate to move the yield ceiling higher and increase profits. Here are some key areas to look at to raise the yield bar for soybeans.

Fertility

Fertility is especially important for soybeans and is often ignored when we are in a corn/soy rotation. pH is always the first place to start. An adequate pH close to 6.5 is desired for greatest nutrient availability. Once the pH is set, looking at soil test data and keeping current soil test records is critical. Soil testing every 3 years is preferred. Phosphorus and Potassium should be looked at closely. Soybeans remove a large amount of the P and K they take up. If you are planning to plant soybeans after soybeans, applying DAP and potash based on yields is a good idea to maintain high yields.

Genetics

Studying yield data and performance is a good idea, but also looking at your fields and their characteristics is equally important. Agronomic packages among varieties should be considered. Protection against BSR, PRR, SDS, SCN, and other diseases can have a large impact on performance.

Treatments

Seed treatments can also add a level of protection to varieties. Seed treatments such as AgriShield® from LG Seeds can help against soil-borne diseases and insects. Also, treatments such as ILeVO® can protect against SDS. Inoculants can also be helpful to add to your seed to help with nodulation. Rhizobia bacteria in the soil fix roughly 50% of the nitrogen a soybean plant uses, the rest coming from mineralization and organic matter. If you have a field that has low pH, sandy soils, prone to flooding, or has not had soybeans for a long period of time, inoculants can show a positive return.

Planting

Planting conditions important to pay attention to based on your geography and soil types. If possible, conventional tillage or shallow tillage can help create a level seedbed that can warm soils up faster. Vertical tillage tools have become popular due to their speed and ability to level the field with minimal disturbance. However, make sure to apply your burndown before using these tools since vertical tillage tools struggle to take out weeds. Good seed to soil contact and planting conditions are also important.



Photo Courtesy of Brian Weihmeir, LG Seeds

Earlier planting dates have also stood out for higher soybean yields. This is attractive to a lot of growers because it doesn't require us to increase production costs. Soybeans are plants that love sunlight. By planting earlier, we can capture more sunlight and raise the bar. The goal is to flower by summer solstice so we maximize sunlight. When planting earlier, we should consider applying seed treatments to protect us against unfavorable weather that we may experience in April to ensure we have a good final stand.

Plant populations have also been experimented with over the past few years. On farm trials and other research has shown that we can lower plant populations without sacrificing yield. A lot of this is credited to seed quality, seed treatments, and planters. However, weed control should be considered. With lower plant populations, weed control can be more difficult to achieve and can negatively impact yields. A population of 130,000 to 150,000 is generally a good place to start based on equipment, soils, practices, etc. Narrow rows are also beneficial. 15" or less is ideal for quicker canopy and better placement by using a planter and not a drill.

Weed Control

Weed control is usually a priority for most growers. With tough to control small-seeded broadleaf's such as Palmer and Waterhemp, the goal is to stop weeds before they germinate. A good pre-emerge herbicide with a residual is a must. There are a lot of good pre-emerge herbicides on the market today that have broad spectrum control. Another consideration is layering residual herbicides. In a lot of cases this is also a must. By overlapping residual herbicides, we can achieve clean fields at canopy. There are a lot of trait options available to growers to achieve clean fields. One caution when growing continuous soybeans is the limited options for post herbicides that can fuel resistance in the future.

Plant Health

Plant health is also important in soybean production. Post applications of Fungicide and Insecticide are a good practice to implement in our programs. Timing is important and it should be applied at R3. R3 is when one of the four uppermost nodes is 3/16" long. Applying fungicide and insecticide can control diseases and insects as we approach seed development. It is critical that we minimize stress between R4-Full Pod to maximize yields. Timely rains in August are also important to help with seed development.

Summary

As we look at each of these factors in soybean production, we should evaluate our current programs to see which areas we are excelling in and which areas we could possibly improve to set the bar higher. We should also ask ourselves, what areas will result in my largest increase in soybean production? Talking to your LG Seeds DSM and Agronomist is helpful to select the right varieties and treatments to align with your farming practices.



Sources and additional information:

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<http://ocj.com/2016/03/planning-for-high-yielding-soybeans/>

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