

Soybean Populations and Profits
1-28-2010

There has been some questions asked about what the ideal Soybean Population should be in the area. There is actually a lot of things to look for when determining this. Seed Cost, Row Spacing, Planting Conditions, Maturity, Germination, Treatments, etc. Typically, around the area, we tend to plant/seed around 150,000-200,000 seeds/Acre. There is an article from the University of Minnesota that better describes how we can try different populations to help improve your bottom line.

Soybean planting population and profits: can less equal more?

By Lizabeth Stahl, U of M Extension

ST. PAUL Minn. (1/20/2009) - Following the trend of most agricultural inputs, soybean seed costs have tracked upward as well. In the quest to reduce input costs, growers may be asking themselves if greater profits could be achieved with reduced seeding rates.

The answer depends in part on your starting point. The effect of soybean seeding rate on yield was evaluated in University of Minnesota research trials conducted across southern Minnesota in 2007 and 2008. These trials, supported by the Minnesota Soybean Research and Promotion Council, demonstrated that very low seeding rates under good conditions could result in maximized yields.

Starting with a low plant population, however, can be risky as stand loss can be expected throughout the growing season. A guideline commonly used for estimated stand loss throughout the season is 20 percent. Losses, however, can vary considerably. Differences between planting and final populations ranged from a loss of 8 percent to 47 percent depending on target population and location in University trials in 2008. Losses were greatest where seedbed conditions were very wet at planting.

Previous soybean population research and studies looking at the effect of hail injury on soybean show that soybean stands of 100,000 plants per acre or more at harvest are sufficient to obtain optimal yields. As you move into central and northwestern Minnesota, it appears harvest stands of 125,000 to 150,000 plants per acre are needed to maximize yield.

To achieve desired stands at harvest, the following guidelines have been developed by Seth Naeve, University of Minnesota Extension soybean specialist (recommendations are in live seeds/acre): For Group II soybeans, a seeding rate of 140,000 is recommended, for Group 1 - 150,000, for Group 0 - 160,000, and for Group 00 - 170,000. Note that if conditions are less than

ideal, a higher seeding rate should be considered to help compensate for an increased risk of seedling loss.

What effect can tweaking seeding rates have on a producer's bottom line? Consider an example where a bag of soybeans containing 150,000 seeds/bag at 90% germination sells for \$45. This translates to 135,000 live seeds/bag ($150,000 * 0.90$). If a grower currently plants at 160,000 live seeds/acre, this equals a seed cost of \$53.33/acre. Switching to a seeding rate of 140,000 live seeds/acre equals a seed cost of \$46.67/acre, or a savings of \$6.60 per acre. If the grower plants 500 acres of soybeans, this equals a difference in input costs of \$3,330. At a seed cost of \$50/bag, the difference equals \$7.41/acre or \$3,705 over 500 acres.

Keep in mind if you are currently seeding soybeans at a rate greater than 140,000 live seeds/acre and are considering switching to a lower rate, it is recommended to adjust downward gradually over time versus making a dramatic change. It is also recommended to take stand counts after emergence and prior to harvest to see what is happening in your field. Also keep in mind seeding rate recommendations are based on planting under optimal conditions.

If seedbed conditions are less than ideal, cool and wet weather is in the forecast after planting, disease issues are common in a field, or your planter distributes seed poorly vertically or horizontally, you may need to adjust the seeding rate above 140,000 live seeds/acre in order to achieve a harvest stand of 100,000 plants per acre. Soybeans planted in high pH areas prone to iron deficiency chlorosis will also likely benefit from higher seeding rates, particularly in 22 to 30 inch rows.

Any use of this article must include the byline or following credit line:
Lizabeth Stahl is an Extension Educator in Crops with University of Minnesota Extension.

Feel free to call with questions

Adam Erickson

701-540-8383