

## **Soybean Seeding Protocol – 2005**

### **Objectives: Investigate narrow row soybean performance at low populations**

As stated in the objective, we are attempting to find the lower end of the soybean population response curve in narrow rows planted with grain drill openers. To express our bias at the beginning of this project, we believe that seeding rate recommendations and practices have a built in buffer of about 20,000 extra seed to compensate for poor stands associated with soil crusting and poor seed placement of grain drills. With the evolution to no-till systems and improved grain drills, we believe it is possible to eliminate or severely reduce this buffer to get seeding rates similar to those for a row crop planter.

With the stated objective and bias in mind, we will deviate slightly from our typical seeding rate recommendations for on-farm research. Normally we talk about bracketing your current input rate with treatments higher and lower. For example if you current seeding rate is 150,000 and you were implementing three treatments we would recommend something in the range of 120 000, 150 000, and 180 000 seed/acre as your treatments. For this study, we are recommending that we have more treatments on the low end of the seeding spectrum. Below are three treatment scenarios that you can use as guides.

### **Treatment Scenarios (Assuming 180 000 seed/acre as the current practice)**

#### **Three treatment levels**

Use seeding rates of 180 000, 150 000, and 120 000 seed/acre

#### **Four treatment levels**

Use seeding rates of 180 000, 155 000, 130 000 and 105 000 seed/acre

#### **Five treatment levels**

Use seeding rates of 200 000, 175 000, 150 000, 125 000 and 100 000 seed/acre

#### **Treatment size**

Each treatment strip should be big enough to facilitate yield monitor harvest. Typically we talk about at least one full header width and 300 feet in length. To make everything easy on you, I would recommend planting treatments the length of the field in regular shaped fields. A good rule of thumb is for plots to be 2.5-3 times the width of your header. In 2003, 60 foot wide plots worked well as everyone had 15 or 30 foot drills and 20 or 22 foot flex heads. This allowed the cooperators to harvest in a normal manner and insured that at least one full header pass was completely within the treatment strip.

If planting on terraced ground, split terraces in half starting one treatment at the top of the terrace and the other treatment following the contour at the bottom of the terrace. If the terraces are far enough apart, you will have a full header pass somewhere off the terrace or out of the channel.

**Replication:**

We need at least two replications at a location. As you have heard from Randy and I in the past, there is not substitute for replication and the more we can get the better our confidence in our results. Replicating treatments is easy with a light bar guidance system if you have to manually change seeding rates. If you have VRA capabilities, replication is easy.

**Randomization**

Randomly placing the treatments is also beneficial so that every treatment has an equal chance of getting in the same spot. We often just write 1, 2, 3, 4, or 5 on a piece of paper and pull them out of a hat (this means we did not plan ahead when going to the field). Excel will create random numbers using the =RANDBETWEEN(1,5) function, where the first number is the lower limit and the second number is the upper limit. If you use this Excel function, remember that it may give you three 5s in a row. The F9 key will cause Excel to recalculate. Keep pressing it until you get your treatments assign for that rep. Each replication should be randomized independently and not just repeated from the first rep.

**You Record – We count**

We would prefer that all seeding information be logged with a GPS system. If you do not have the equipment to do that, we may be able to provide it. If you record where you planted the treatments, we will come take stand counts after emergence. This part of our study is to examine emerged plant stands and yield, so prior knowledge of exactly how much is being planted is not critical. If you want to know an approximate emergence percentage, pass the approximate seeding rate information along with the plot location data and we will calculate it as well.

**Yield Data**

Since we will have a lot of locations and harvest is a busy time for everyone, you do not need to wait on us for harvest. Simply email or mail the raw data files to us and we will match them up with treatments to calculate yields.

**Other Information**

The only other information we may need would be variety, primarily maturity group, and if any fertilizer or seed treatments were used. We will have the planting date information from your planting data.

**If you have questions, do not hesitate to call me at 785-532-7214 (office), 785-313-3115 (cell) or 785-776-3531 (home) or via email at [sstaggen@ksu.edu](mailto:sstaggen@ksu.edu)**

Thank you for helping us with this project. I am certain that farmer participation was an important part of gaining the Kansas Soybean Commissions support and I look forward to working with each of you.

Sincerely  
Scott Staggenborg