

January 20, 2017

IDENTIFYING YIELD LIMITING FACTORS IN SOYBEANS

I am assisting Professor Patricio Grassini in the UNL Agronomy Department who is collecting a large data set on soybean yields across Nebraska. The U.S. is the largest soybean producer in the world with 35% of the total production and the north central region of the U.S. has 80% of that production. Last year producers surveyed sent data in on fields in the 2014 and 2015 crop year. This year data is being collected for last year or 2016 crop year. All data is kept strictly confidential and information was collected of 3,500 fields in 10 states. The following are some findings thus far.

- 1) The average irrigated and dryland yields in Nebraska were 56 bu/ac and 67 bu/ac respectively both above the average yield for the region of 54 bu/ac.
- 2) Only a small percentage of farmers achieved whole field averages of 80 bu/ac or 2% of the surveys submitted.
- 3) Half of those fields were no-tilled but in Nebraska no-till farming was greater at 77% of the dryland and 51% of the irrigated fields.
- 4) Only 25% of the fields in the North Central Region (IL, IN, IA, KS, MI, MN, OH, NE, ND and WI) were planted the first week in May or earlier. In Nebraska this was 45%. Dr. James Specht at UNL has always talked about more nodes per plant with planting early. There have been many technology advances allowing us in the southern tier counties to start planting soybean the last part of April. Once the beans hit the vegetative stage, it only takes 3.7 days to produce new nodes and nodes are where soybeans pods set on. Larger farms, improved planters and herbicide use, improved cold tolerance in soybeans, fungicide treatments and climate change are all playing a role.
- 5) Seeding rates were generally 140 to 200K per acre. These rates are well above the reported economically optimal soybean seeding rate of 120-125K.
- 6) Most soybean producers in the survey were using a 15 inch row spacing except for Nebraska and eastern Iowa where 30 inch spacing still prevails.
- 7) Across the region studied, 8%, 19% and 24% of soybean fields are treated with foliar fungicide only, insecticide only or both fungicide and insecticide respectively. These figures are lower in Nebraska at 6%, 3% and 17% respectively.

We could use some more survey data from last year to complete this 3-year study. I have reached out to some producers via email and several returned already but we need more. The survey is posted on our website at saline.unl.edu and needs to be returned before April 1 of this year. The yield and agronomic data on the one page survey is specific to 4 fields in your operation. It can be irrigated or dryland or both. In Saline County we need both because that reflects our county.

Grassini's goal is to work for you, and ultimately, considerations where we may have gaps that, if changed, could result in higher yields. You can also print off the survey directly by going to <http://go.unl.edu/ncrsoybean>



Wilber Crop Clinic Update – Once again we have a great lineup of speakers for the Wilber Crop Clinic which will be held Friday, February 10 at Sokol Hall in Wilber. The doors open at 8:00 a.m. with coffee, rolls, kolaches and viewing of displays. The program is from 9:00 a.m. until the last door prize is given out at 2:45 p.m. Something new, from a legal perspective, Katie Spohn, partner with the Bruning Law Group, will be giving an update on the Syngenta lawsuit, EPA and HSUS farm legal issues. I hope to see you there and registration is at the door for this sponsored program.

Randy Pryor, Extension Educator

University of Nebraska-Lincoln Extension in Saline County • 306 West 3rd Street, Wilber, NE 68465

Phone (402) 821-2151 • Fax (402) 821-3398 • e-mail: randy.pryor@unl.edu