

Nitrogen Management Options for Soybean

Ryan Buetow, DREC, Dickinson, ND, 2016

A field trial was conducted to observe the effects of four N treatments grown with the university recommended population of 150,000 plants per acre at locations in Dickinson and north of Glen Ullin. The cultivar chosen was Integra 20300 as it had done well in previous variety trials in the region. Plots were planted in Dickinson on May 18th and in Glen Ullin May 20th. Five plants per plot were excavated on August 9th to observe average nodules per plant. Combined across locations addition of granular inoculant increased the number of nodules and increased yield as expected.

Treatment	Average Root Nodules Per Plant
Control	0.3 bc
No Inoculant + 30 lbs N	0.2 c
Inoculant	2.5 ab
Inoculant + 30 lbs N	3.9 a

LSD 0.05

Treatment	Yield
Control	22.1b
No Inoculant + 30 lbs N	23.2b
Inoculant	29.3a
Inoculant + 30 lbs N	29.4a

LSD 0.05

Observing Effects of Rotation, Nitrogen, and Fungicide on Fungal Leaf Disease of Wheat

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A field trial was conducted over the 2016 growing season in cooperation with producer Ryan Kadrmas. The plots were located north of Dickinson, ND near the Stark/Dunn county line. There were two fields representing two rotations. One field was spring wheat following sunflower and the other was winter wheat following spring wheat. The variety of spring wheat planted was LCS Nitro at a seeding rate of 115 lbs/acre at 13,000 seeds/lb. The spring wheat was planted March 21st 2016. The variety of winter wheat planted was LCS T158 planted at 90 lbs/acre at 12,000 seeds/lb. Winter wheat was planted September 18th 2015.

The spring wheat and winter wheat were fertilized on May 6th. There were 3 fertilizer treatments. 0 lbs of additional N, 30 lbs of additional N through urea, and 60 lbs of additional N through urea. The winter wheat was sprayed with fungicide on May 9th with a rate of 4 oz of Tilt fungicide and the spring wheat was sprayed on June 27th.

Measurements were taken throughout the growing season on disease incidence, height, and postharvest measurements such as grain yield and protein. A reading was taken on greenness of the plots to measure the normalized difference vegetation index (NDVI).

Winter wheat was harvested July 21st and the spring wheat was harvested August 11th. Grain samples were sent to Southwest Grain elevator in Dickinson, ND for protein analysis.

Although no statistical differences were observed among the treatments, with few exceptions, fungicide-treated plots had lower levels of fungal leaf diseases than non-treated plots. Both site locations experienced below-normal rain fall totals, yet disease levels were not observed in the wheat on sunflower research site. This helps portray the importance of crop rotation in managing wheat diseases in southwest ND.

