

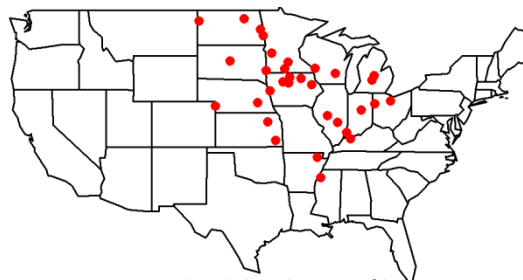
## Biological N Fixation Project (2016 season)

**Sites:** The experiment has been successfully replicated in 33 locations around US Corn Belt (Figure 1).

**Treatments:** a complete randomized block design was performed in each location. Treatments applied were related with N management practices at different moments of the growing season (Table 1).

**Table 1:** Treatments: fertilizer N rates and timing.

Treatment	Application timing	Fertilizer N Rates
1	Non-treated control	-
2	At planting	100 lb N per acre
3	V4	100 lb N per acre
4	R2 to R3	100 lb N per acre



**Figure 1:** Geographical distribution of locations across US map.

### Preliminary results: Seed yield.

Five out of 33 locations showed significant differences ( $p < 0.05$ ; Table 2) among treatments. Because of the vast environmental conditions explored among locations seed yield ranged from 37-to-97 bu ac<sup>-1</sup>. Even though the significance of the treatment factor in five out 33 locations, there was no clear trend in response to fertilizer N application. However, in Fargo, Mayville, and Waco at least one of the treatments was significantly higher than the control.

**Table 2:** Analysis of variance for seed yield (bu ac<sup>-1</sup>) at 13.5% moisture for each location and treatment applied.

Location	Control	N at planting	V4	R2-R3	Treatment
Attica, OH	73.0	73.0	78.5	77.6	ns
Beaver Dam WI	76.5	79.0	75.9	79.1	ns
Blencoe IA	81.8ab	79.3c	82.2a	79.9bc	*
Britt IA	79.7	77.6	76.3	78.0	ns
Clarksdale MS	80.9	74.0	77.9	77.9	ns
DevilsLakeWest ND	49.9	51.3	51.9	49.1	ns
Effingham IL	65.6	66.1	66.2	66.7	ns
Fargo ND	49.8b	51.4b	54.1a	51.5b	*
Fort Branch IN	77.9	76.6	75.7	78.7	ns
Garretson SD	93.3	96.8	94.2	93.0	ns
Holloway MN	77.0	91.6	90.3	92.4	ns
Ithaca MI	61.5	59.2	58.6	68.0	ns
Lamar NE	81.7	83.9	85.0	89.3	ns
LeSueur MN	67.4	75.1	68.9	74.4	ns
Manchester IA	82.1	83.6	82.9	83.6	ns
Marshalltown IA	84.7	86.1	84.8	86.0	ns
Mayville ND	63.5b	64.3b	63.5b	68.1a	*
Owensboro KY	70.5	68.8	70.0	66.6	ns
Pierre SD	92.4	92.9	93.1	94.3	ns
Pocahontas IA	74.8	76.2	74.0	76.8	ns
Portland MI	71.6	73.3	76.2	72.4	ns
Springfield IL	73.2	68.6	71.3	70.5	ns
Thayer KS	75.5	72.3	74.2	71.1	ns
Tipton IN	68.7a	67.5a	63.3b	66.5ab	*
Truman MN	87.6	89.2	86.9	86.9	ns
VanWert OH	74.2	73.2	78.7	77.5	ns
Vincent IA	85.2	89.4	90.1	91.4	ns
Waco NE 24	71.3	74.5	69.5	82.4	ns
Waco NE 34	72.6b	78.6ab	72.2b	86.9a	*
Walnut Ridge AR	57.7	57.4	55.3	56.3	ns
Wamego KS	81.2	67.5	78.9	78.0	ns
West Salem WI	86.8	84.0	84.4	85.4	ns
Williston ND	37.5	42.7	40.8	39.2	ns

\* Significant at  $p \leq 0.05$ . ns: non significant. Different letters represent the least significant differences (LSD) of the means at  $p \leq 0.05$ .