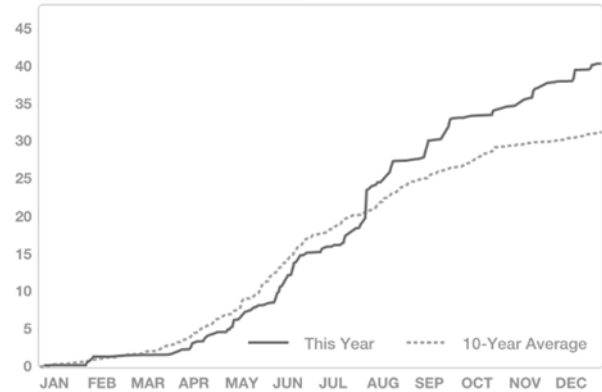


Nebraska On-Farm Research Network

Project SENSE (Sensor-based In-season N Management)

Study ID: 207121201501
County: Merrick
Soil Type: O'Neill sandy loam; Blendon fine sandy loam; O'Neill loam; Wann loam; Lamo-Saltine complex;
Planting Date: unknown
Harvest Date: 11/6/15
Population: unknown
Row Spacing (in.) 30
Hybrid: unknown
Reps: 6
Previous Crop: Unknown
Tillage: Unknown
Herbicides: Pre: Unknown **Post:** unknown
Seed Treatment:
Foliar Insecticides: unknown

Foliar Fungicides: unknown
Note: Irrigation water nitrate: 20 ppm
Irrigation: Pivot, Total: unknown
Rainfall (in.):



Introduction:

This study compares crop canopy sensor based in-season N application to the grower's standard N management.

Grower Nitrogen Treatment: The grower initial N rate was 40 lbs N/acre applied at planting. A side-dress rate of 135 lbs N/acre was applied. Total grower N application was 175 lbs N/acre.

Project SENSE Nitrogen Treatment: For the SENSE treatment strips, 40 lbs N/acre were applied at planting. Crop canopy sensing and application occurred on 6/20/15 at the V10 growth stage. Across all project SENSE treatments, the average N rate applied in-season was 68 lbs N/acre with a minimum rate of 30 lbs N/acre, and maximum rate of 298 lbs N/acre.

Results: Data were analyzed using the GLIMMIX procedure in SAS 9.4 (SAS Institute Inc., Cary, NC). Mean separation was performed with Fisher's LSD.

	Total N rate (lb/ac)	Yield (bu/ac) [†]	Partial Factor Productivity of N (lb grain/lb N)	lbs N/bu grain	Marginal Net Return [‡]
Grower N Management	175	283 A*	91 B	0.61 A	\$919.20
Project SENSE N Management	108	282 A	153 A	0.38 B	\$959.10
P-Value	N/A	0.4000	0.0047	0.0017	N/A

[†]Yield data from cleaned yield monitor data. Bushels per acre corrected to 15.5% moisture.

*Values with the same letter are not significantly different at a 95% confidence level.

[‡]Marginal net return based on \$3.65/bu corn and \$0.65/lb N fertilizer. Cost of applicator and equipment is not included in this calculation.

Summary: At this site, the Project SENSE N application was 67.5 lb/acre lower than the grower's N application. There was no yield difference between the two treatments. Partial Factor Productivity of N was higher for the SENSE N treatment. Marginal net return looking at grain and N prices was favorable for the SENSE treatment this year due to saved N with no yield penalty.



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