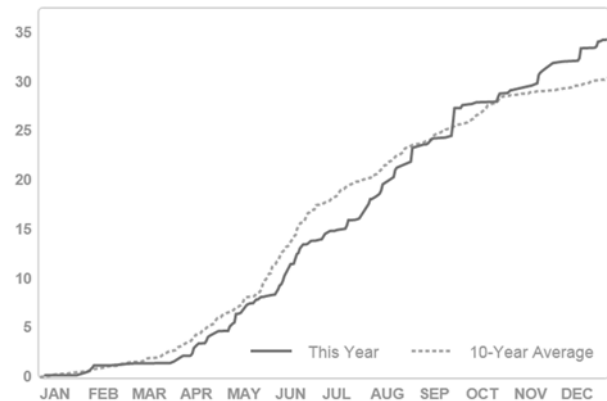


Nebraska On-Farm Research Network

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

Study ID: 200125201501
County: Nance
Soil Type: Ortello fine sandy loam; Hord fine sandy loam;
Planting Date: 5/6/15
Harvest Date: 10/30/15
Population: 32,000
Row Spacing (in.) 30
Hybrid: unknown
Reps: 6
Previous Crop: Corn
Tillage: No-Till
Seed Treatment: unknown
Foliar Insecticides: unknown
Foliar Fungicides: unknown

Note: 0-36" soil sample taken after 2014 crop for nitrates were 4.1 ppm and 7.3 ppm (average was used for NRD N recommendation).
 Irrigation water nitrate: 12.3 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 45 lbs N/acre and was applied at planting. A side-dress rate of 106 lbs N/acre was applied. Total N applied was 151 lbs N/acre.

Project SENSE Nitrogen Treatment: For the SENSE treatment strips, 45 lbs N/acre was applied at planting with another 30 lbs N/acre applied at sidedress. Crop canopy sensing and application occurred on 7/1/15 at the V10 growth stage. Across all project SENSE treatments, the average N rate applied in-season was 48 lbs N/acre with a minimum rate of 30 lbs N/acre, and maximum rate of 209 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)	lb N/ bu grain	Marginal net return (\$/ac)‡
Grower N Management	151	212 A*	78 B	0.71 A	675.65
Project SENSE N Management	123	213 A	97 A	0.58 B	697.50
P-Value	N/A	0.6916	0.0009	0.0003	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 28 lb/acre lower than the grower's N application. There was no statistical difference in yield 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.