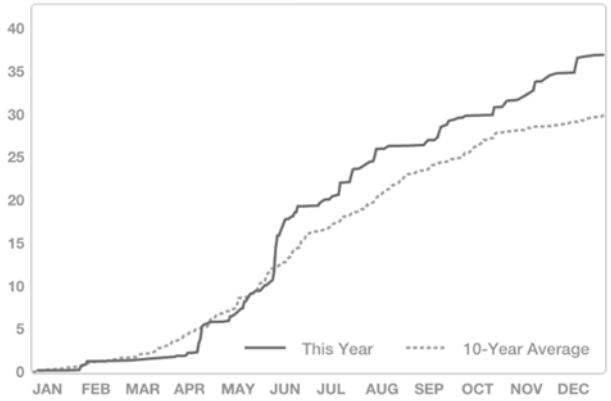
Nebraska On-Farm Research Network

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

Study ID: 214001201501
County: Adams
Soil Type: Hersh fine sandy loam; Kenesaw silt loam;
Planting Date: unknown
Harvest Date: 10/15/15
Population: unknown
Row Spacing (in.) 30
Hybrid: Unknown
Reps: 6
Previous Crop: Hailed soybeans, then cover crop
Tillage: Unknown
Herbicides: ***Pre:*** Unknown ***Post:*** Unknown
Seed Treatment: Unknown
Foliar Insecticides: Unknown
Foliar Fungicides: Unknown
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 34 lbs N/acre applied at planting. A side-dress rate of 140 lbs N/acre was applied. Total grower N application was 174 lbs N/acre.

Project SENSE Nitrogen Treatment: For the SENSE treatment strips, 34 lbs N/acre were applied at planting with an additional 41 lbs N/acre added on 6/9/15 to bring the base rate to 75 lb N/acre. Crop canopy sensing and application occurred on 6/30/15 at the V9 growth stage. Across all project SENSE treatments, the average N rate applied in-season was 89 lbs N/acre with a minimum rate of 30 lbs N/acre, and maximum rate of 204 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	174	254 A*	82 A	0.68 A	$814.00
Project SENSE N Management	164	252 A	86 A	0.66 A	$813.20
P-Value	N/A	0.6515	0.4013	0.5340	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 10 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 was $1/acre lower the Project SENSE treatment when looking at average yield and N applied.

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