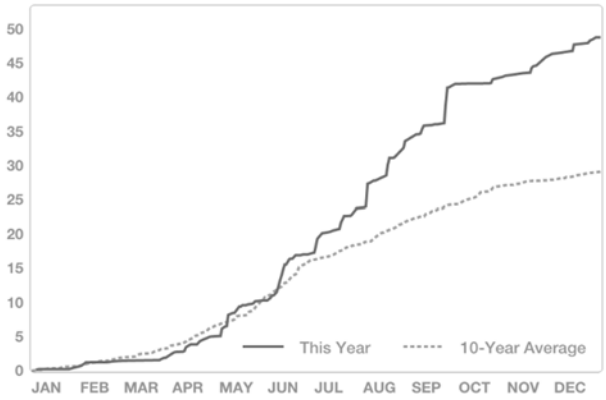
Nebraska On-Farm Research Network

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

Study ID: 210037201501
County: Colfax
Soil Type: Lawet silt loam;
Planting Date: 5/5/15
Harvest Date: 11/1/15
Population: 32,000
Row Spacing (in.)
Hybrid: GO7B39 3111A
Reps: 6
Previous Crop: Corn
Tillage: Minimum Till
Herbicides: ***Pre:*** LexarEZ ***Post:*** HalexGT
Seed Treatment: Avicta Complete Corn (A500)
Foliar Insecticides: ForceCS at planting
Foliar Fungicides: QuiltXL

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 75 lbs N/acre applied at planting. A side-dress rate of 123 lbs N/acre was applied on 6/22/15. Total grower N application was 198 lbs N/acre.

Project SENSE Nitrogen Treatment: For the SENSE treatment strips, 75 lbs N/acre were applied at planting. Crop canopy sensing and application occurred on 7/10/15 at the V12 growth stage. Across all project SENSE treatments, the average N rate applied in-season was 72 lbs N/acre with a minimum rate of 30 lbs N/acre, and maximum rate of 227 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	198	207 A*	58 B	0.96 A	$626.85
Project SENSE N Management	147	201 B	76 A	0.74 B	$638.10
P-Value	N/A	0.0031	0.0007	<.0001	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 51 lb/acre lower than the grower's N application. Yield was significantly lower for the Project SENSE treatment (6 bu/ac). Partial Factor Productivity of N was higher for the Project SENSE N treatment. Marginal net return looking at grain and N prices was favorable for the SENSE treatment this year because N savings outweighed the loss in yield.

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