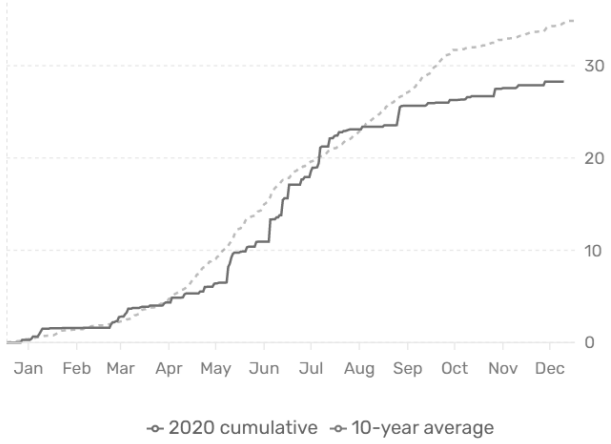
Soybean Benchmarking: Baseline vs Improved Soybean Practices

Study ID: 1126131202001
County: Otoe
Soil Type: Judson silt loam
Harvest Date: 10/2/20
Seeding Rate: 130,000
Row Spacing (in): 30
Variety: Pioneer® P37A69X
Reps: 4
Previous Crop: Corn
Tillage: Disk
Herbicides: ***Pre:*** 16 oz/ac Sulfen Met for burndown; 16 oz/ac Stalwart® C ***Post:*** 22 oz/ac Buccaneer Plus® on 6/10/20
Seed Treatment: PPST

Fertilizer: Average 150 lb/ac 11-52-0 from variable-rate application
Irrigation: None
Rainfall (in):



Soil Tests (June 2020 - average of study area)

pH	BpH	CEC	1:1 S Salts	OM	Nitrate-N	K	S	Zn	Fe	Mn	Cu	Ca	Mg	Na	H	K	Ca	Mg	Na	Mehlich P-III
		meq/100g	mmho/cm	%	ppm	ppm									%					ppm
6.6	7.2	13.1	0.16	3.6	9.7	167	10.3	2.61	44.5	11.7	0.81	2241	172	12	0	3	85	11	0	39

Introduction: Analysis of producer survey data revealed: (1) an average yield gap of 20-30% between current farmer yield and potential yield as determined by climate, soil, and genetics, and (2) a number of agronomic practices that, for a given soil-climate context, can be fine-tuned to close the gap and improve soybean producer profit. In Nebraska, three practices were identified as being important for improving yield and producer profit. These practices relate to planting date, seeding rate, and the use of foliar fungicides and insecticides. This study collectively tested the "baseline" practices versus the "improved" practices. Across four Nebraska sites in 2019, the improved treatment resulted in an average 8 bu/ac yield increase and $46/ac profit increase compared to the baseline treatment. Soybean cyst nematode tests for this field came back negative.

Baseline: Soybeans planted on May 15, at a rate of 140,000 seeds/ac, with no foliar fungicide or insecticide.

Improved: Soybeans planted on April 22, at a rate of 130,000 seeds/ac with a foliar fungicide (16 oz/ac Quilt Xcel®) and insecticide (4 oz/ac Hero®) application on July 14.

Results:

	Stand Count (plants/ac)	Test Weight (lb/bu)	Moisture (%)	Yield (bu/ac)†	Marginal Net Return‡ ($/ac)
Baseline	128,333 A*	58 A	10.1 A	50 B	421.07 B
Improved	113,667 B	58 A	9.3 A	58 A	470.42 A
P-Value	0.026	0.868	0.245	0.008	0.022

*Values with the same letter are not significantly different at a 90% confidence level.
†Bushels per acre corrected to 13% moisture.
‡Marginal net return based on $9.50/bu soybean, $55/unit seed ($55/ac for baseline and $51.07/ac for improved), $26/ac for fungicide and insecticide for improved treatment, and $6.94/ac for application of fungicide and insecticide on improved treatments.

Summary: In 2020, the improved treatment (lower seeding rate, early planting, and fungicide and insecticide application) resulted in a 8 bu/ac yield increase and a $49.35/ac increase in profit.

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