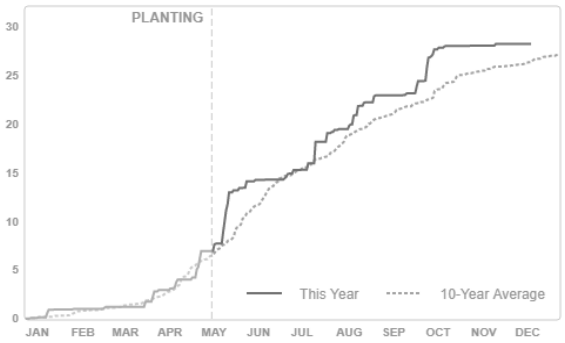
Soybeans Planted into Rye Cover Crop

Study ID: 064099201701
County: Kearney
Soil Type: Coly-Kenesaw loam 0-3% slope; Hersh fine sandy loam 0-6% slopes; Kenesaw silt loam 0-1% slope; Libory loamy fine sand 0-3% slope; Coly silt loam 3-6% slopes
Planting Date: 5/8/17
Harvest Date: 10/13/17 and 10/16/17
Population: 170,000
Row Spacing (in): 10
Variety: Pioneer 24T84X
Reps: 6
Previous Crop: Corn
Tillage: No-Till
Seed Treatment: ILeVO®
Soil Samples (Nov. 2016):

N (lb)	P (ppm)	K (ppm)	S (ppm)	Zn (ppm)
53	66	396	15	6.52

Fertilizer: 20 ton/ac feedlot manure spread on field in March 2016
Herbicides: ***Pre:*** 2,4-D LV6 on 4/8/17; 53 oz/ac glyphosate and 2.9 oz/ac Elite, and 10 oz/ac Sharpen® on 5/5/17 ***Post:*** 49 oz/ac glyphosate, 22 oz/ac ExtendiMax®, 6 oz/ac Outlook®, 1.5 oz/ac Zidua®
Irrigation: Pivot, Total: 7"
Rainfall (in):



Introduction: This study compared the effects of a cereal rye cover crop on the soybean crop yield. The rye treatment was compared with a no cover crop check. Rye was drilled following corn harvest in 10" rows on Nov. 1, 2016. The rye was terminated with glyphosate on May 5, 2017. Soybeans were drilled in 10" rows on May 8, 2017. The satellite imagery from April 19, 2017, shows the rye and no rye strips prior to termination (*Figure 1*). A close-up is shown in *Figure 2*.

Figure 1. Aerial imagery of the study area from April 19, 2017.

Figure 2. Soybeans growing in corn stubble only (no cover crop) (left) and in rye cover crop (right) on June 27, 2017.

Results:

	Harvest Stand Count	Moisture (%)	Yield (bu/acre)†	Marginal Net Return‡ ($/ac)
Check	153,267	12.0 B*	80 A	714.25 A
Cover Crop - Rye	138,027	12.1 A	81 A	692.20 B
P-Value	-	0.058	0.682	0.008

*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 $8.90/bu soybean and $24.30 cover crop cost.

Summary:

- Statistics were not completed on the harvest stand counts as counts were not made for each replication.
- There was no yield difference for the soybeans following the rye cover crop treatment compared with the soybeans following no cover crop.
- The marginal net return was lower for the soybeans following the rye cover crop due to the increased input costs for establishing cover crops.

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