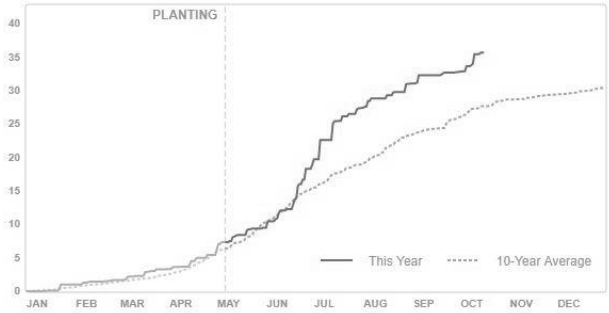
Corn Planted into Cereal Rye Cover Crop

Study ID: 0321027201801
County: Cedar
Soil Type: Crofton-Nora complex 6-11% slopes, eroded; Alcester silty clay loam 2-6% slopes; Shell silt loam occasionally flooded; Nora silt loam 6-11% slopes, eroded
Planting Date: 5/6/18
Harvest Date: 10/17/18
Population: 27,500
Row Spacing (in): 30
Hybrid: Pioneer® P0589AM
Reps: 3
Previous Crop: Soybean
Tillage: No-Till
Herbicides: ***Pre:*** 1 qt/ac Bicep Lite II MAGNUM®, 3 oz/ac Balance® Flexx, 1 oz/ac Sharpen®, 6 oz/ac 2,4-D, 32 oz/ac Roundup PowerMAX®, and 8 oz/ac Banvel® on 4/27/18 ***Post:*** 48 oz/ac Durango® and 2 oz/ac Explorer™

Seed Treatment: Poncho® 250
Foliar Insecticides: None
Foliar Fungicides: 6.8 oz/ac Approach® Prima and 6.4 oz/ac Brigade® on 7/22/18
Fertilizer: P, K, and S variable rated in fall 2017; 30 gal/ac 32% UAN with herbicide on 4/27/18; 7 gal/ac 32% UAN, 7 gal/ac 10-34-0, and 2 qt/ac Zn with planter
Irrigation: None
Rainfall (in):



Soil Tests (Oct. 2017 – 6 samples, averaged over study area):

pH	BpH	OM	CEC (meq/ 100g)	P	K	S	Ca	Mg	Na	Zn	Fe	Mn	Cu	B	Base Sat	K	Ca	Mg	Na
				ppm											%				
6.9	6.8	3.4	24	44	156	6.3	3953	303	20	3.2	75	146	1.6	0.6	16.6	2.0	77.5	11.9	0.4

Introduction: This study compared the effects of a cereal rye cover crop on the subsequent corn crop yield. The rye treatment was compared with a no cover crop check. Rye was planted on November 5, 2017, at a rate of 1 bu/ac (56 lb/ac). The cover crop was terminated with the normal burndown program of Roundup® on April 4, 2018. Seed and drilling cost was $36/ac.

Results:

	Moisture (%)	Yield† (bu/acre)	Marginal Net Return‡ ($/ac)
Check	18.0 B*	214 A	691.60 A
Cover Crop - Rye	18.2 A	219 A	669.64 B
P-Value	0.0304	0.149	0.07

*Values with the same letter are not significantly different at a 90% confidence level.
†Bushels per acre corrected to 15.5% moisture.
‡Marginal net return based on $3.23/bu corn and $36/ac for rye seed and planting.

Summary:

- The rye cover crop treatment had significantly higher grain moisture than the untreated check.
- There was no difference in yield for the corn following the rye cover crop and the check.
- The marginal net return was lower for the corn following the rye cover crop due to the increased input costs for establishing cover crops.

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