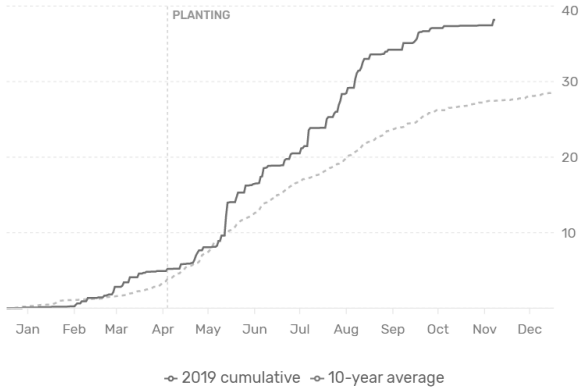
Impact of Early Interseeded Cover Crop on Irrigated Corn

Study ID: 0916185201901
County: York
Soil Type: Hastings silt loam 0-1% slope
Planting Date: 4/18/2019
Harvest Date: 10/11/19
Seeding Rate: 30,000
Row Spacing (in): 36
Variety: Pioneer® P1366AMXT™
Reps: 4
Previous Crop: Corn
Tillage: Ridge-Till
Herbicides: ***Pre:*** 2.5 oz/ac Corvus® banded with planter ***Post:*** 22 oz/ac glufosinate one day prior to interseeding cover crop
Foliar Insecticides: None
Foliar Fungicides: None

Fertilizer: 195 lb N/ac as NH_3; 4 gal/ac 10-34-0 in-furrow at planting
Irrigation: Pivot, Total: 1.5"
Rainfall (in):



Introduction: This study evaluated the impact of interseeded cover crops on corn yield. There were three treatments: a check with no cover crops interseeded, an interseeded nitrogen cover crop mix, and an interseeded diverse cover crop mix. The nitrogen mix consisted of 4 lb/ac crimson clover, 3 lb/ac red clover, 2 lb/ac yellow sweet clover, 4 lb/ac Winterhawk annual ryegrass, 1.5 lb/ac impact forage collards, and 1.5 lb/ac Trophy rapeseed. The diverse mix consisted of 2 lb/ac red clover, 2.5 lb/ac Hubam white seed clover, 4 lb/ac Winterhawk annual ryegrass, 1 lb/ac purple top turnip, 3 lb/ac golden flax, 0.5 lb/ac phacelia Angelia, and 0.5 lb/ac chicory. Glufosinate was used to burndown any emerged weeds one day prior to interseeding. The cover crop mixes were interseeded by drilling on June 7 when corn was V5-V6. Corn yield, stand counts, and stalk rot were measured. Cover crop species and biomass were also measured by sampling 9 sq ft per treatment.

Figure 1. Interseeding cover crop mixes on June 7, 2019 (left) and cover crop establishment in standing corn on September 6, 2019 (right).

Results:

	Brassica	Rye	Clover	Weeds	Standing Dead Material	Total (not including weeds & dead)
	----------lb dry matter/ac----------					
Crop Crop - Diverse Mix	71 A*	24 A	2 A	95 A	9 A	97 A
Cover Crop - Nitrogen Mix	192 A	17 A	11 A	75 A	11 A	220 A
P-Value	0.586	0.757	0.111	0.549	0.745	0.619

*Values with the same letter are not significantly different at a 90% confidence level.

	Stalk Rot (%)	Stand Count (plants/ac)	Moisture (%)	Yield (bu/ac)†	Marginal Net Return‡ ($/ac)
Check	13.75 A	25,500 A	19.4 A	241 A	923.21 A
Crop Crop - Diverse Mix	8.13 A	25,750 A	19.4 A	241 A	883.04 B
Cover Crop - Nitrogen Mix	10.00 A	25,708 A	19.4 A	243 A	890.46 B
P-Value	0.700	0.983	0.192	0.750	0.041

†Yield values are from cleaned yield monitor data. Bushels per acre corrected to 15.5% moisture.
‡Marginal net return based on $3.83/bu corn, $25.58/ac nitrogen mix seed cost, $23.61/ac diverse mix seed cost, and $14.40/ac drilling cost.

Summary:

- Measured cover crop biomass was variable and had no statistically significant differences between the two cover crop mixes.
- Corn stand count, stalk rot, and yield were not different between the three treatments. Net return was lower for the cover crop treatments due to additional seed costs and drilling costs.

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