

## Nebraska On-Farm Research Network

### Corn Planted into Grazed and Non-Grazed Cover Crop

**Study ID:** 025155201501

**County:** Saunders

**Soil Type:** Tomek silt loam; Yutan silty clay loam;

**Planting Date:** 4/30/15

**Harvest Date:** 11/5/15

**Population:** 25,994

**Row Spacing (in.)** 30

**Hybrid:** Pioneer P1257AM

**Reps:** 3

**Previous Crop:** Wheat

**Tillage:** Tilled twice – once after manure application and once before cover crop seeding.

**Herbicides:** *Pre:* 1 lb/ac Atrazine 90 DF, 32 oz/ac Buccaneer Plus, 3.5 oz/ac Corvus, 2 lb/ac AMS, and 1.2 pt/ac MSO on 5/1/15 *Post:* 1 pt/ac Atrazine 4L, 32 oz/ac Buccaneer, 3 oz/ac Laudis, 2 lb/ac AMS, and 1.19 pt/ac MSO on 6/9/15

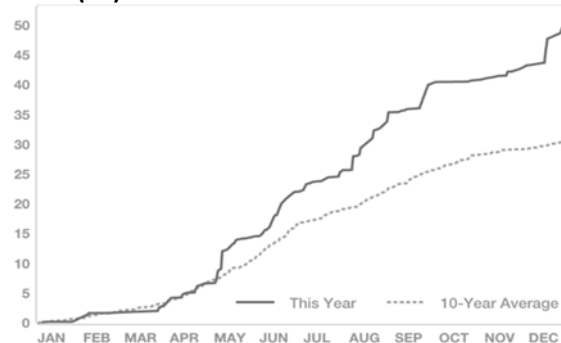
**Fertilizer:** 28 ton/acre manure applied post wheat harvest, summer 2014.

No additional fertilizer applied

Note: Fall 2014 Weed Control (No Cover Crop Area Only)  
9/29/14 Roundup PowerMax 30oz/ac + AMS 3lb/ac

**Irrigation:** None

**Rainfall (in.):**



**Introduction:** This study looked at the effects of a cover crop following wheat on the subsequent corn yield. Wheat was harvested in summer 2014 and straw was baled and removed, then 28 ton/acre manure slurry was applied. The field was tilled twice, once after the manure application and once before seeding the cover crop. This study included three treatments: corn planted into no cover crop (check), corn planted following cover crop, and corn planted following a grazed cover crop. The cover crop used in this study was a mix of 3 lb/ac daikon radish (30%), 15 lb/ac oats (13%), 3 lb/ac purple top turnip (60%), 5 lb/ac sorghum (17%), and 4 lb/ac safflower (44%). The cover crop was seeded at a rate of 27 lb/acre on August 15, 2014 and was winter killed. The no-cover crop treatment had an additional fall herbicide application to control weeds in these strips. The application was 30 oz/ac Roundup PowerMax and 3 lb/ac AMS on Sept. 29. For the grazed treatment, steer calves were stocked at a rate of 1 calf per ton of above ground biomass (excluding radish and turnip tubers), which was equal to 1.7 calves per acre (995 lb BW/ac). Calves grazed for 52 days in 2014. The initial BW was 585 ± 8 lb. Ending BW was 664 ± 30 lb. Overall, ADG was 1.55 ± 0.57 lb/d and gain per acre was 137 ± 6 lbs/acre. Total forage biomass was approximately 2.39 ± 0.44 tons per acre (above ground biomass = 1.76 ± 0.31 tons/acre; below ground biomass = 0.70 ± 0.34 tons/acre). Above ground biomass accounted for 74% of the total biomass produced. In 2014, the radish produced the most biomass, accounting for 60% of the total biomass, followed by turnip at 17%, oats at 16%, and sorghum at 10%. Safflower was not detectable. Corn was planted into all three treatments on April 30, 2015. This study compared grain yield of corn planted into wheat stubble (check), planted into grazed cover crop, and planted into non-grazed cover crop.



Figure 1: Aerial image of cover crop study area on Oct. 14, 2014.

#### Results:

	Yield (bu/ac)†	Moisture (%)	Marginal Net Return (\$/ac)‡
Check	236 A*	14.2 A	845.07
Cover Crop-Non-Grazed	211 B	14.2 A	728.35
Cover Crop-Grazed	227 AB	14.3 A	978.50
P-Value	0.0337	0.1423	N/A

†Bushels per acre corrected to 15.5% moisture.

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

‡Net return based on \$3.65/bu corn, \$28.43/ac cover crop seed cost, and \$13.37/ac drill application cost. Cost of additional fall herbicide application to non-cover crop treatment was \$8.21/ac for products and \$8.12/ac for application. Calf price in 2014 was \$1579 for the starting calf weight and \$1784 for the ending calf weight. With calves gaining 79 lb, there was a gain of \$125/calf or \$213/ac. With the cost of fencing and labor to provide water and check cattle at \$12.50/calf (\$21.25/ac), the net income for the calves would be 191.75.

**Summary:** The non-grazed cover crop treatment was significantly lower than the check. There was no significant difference between the grazed cover crop treatment and the check. It is speculated that lower corn yields on the ungrazed plots may be due to nitrogen tie up by the forage cover crop. Soil tests are planned for spring of 2016 to further evaluate this. With the additional income for the cattle, the grazed cover crop treatment was most profitable.



In Partnership with:



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