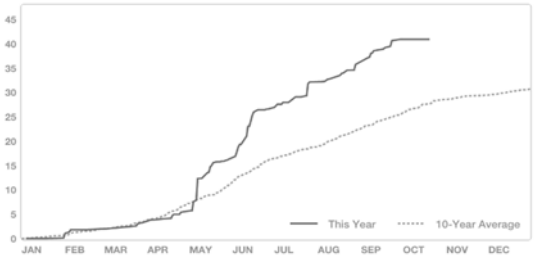
Nebraska On-Farm Research Network

Corn Planted into Rye and Winter Mix Cover Crop

Study ID: 119109201501
County: Lancaster
Soil Type: Wymore silty clay loam; Colo-Nodaway silty clay loam; Mayberry silty clay loam;
Planting Date: 4/29/15
Harvest Date: 10/19/15
Population: 25,560
Row Spacing (in.) 30
Hybrid: unknown
Reps: 4
Previous Crop: Wheat
Tillage: No-Till
Herbicides: ***Pre:*** unknown ***Post:*** unknown

Note: Barren Stalks noticeable, significant Waterhemp pressure
Irrigation: None
Rainfall (in.):



Soil Samples (2013):

ID	Soil pH	Buffer pH	OM	NO3	Bray I P	K	Mg	Ca	Na	S	Zn	CEC	H	% Base Saturation K	Mg	Ca	Na
			%	ppm	ppm	ppm								%			
1	5.9	6.4	3.5	5.3	50	267	500	3342	25	6	2.3	28.7	24.4	2.4	14.5	58.3	0.4
2	6.3	6.6	3.8	7.3	111	268	429	3333	22	4	6.2	26.0	19.2	2.6	13.7	64.0	0.4

Introduction: This study is looking at the effects of a cover crop on the subsequent cash crop. This is a continuation of a similar effort, however this is the first year for cover crops on this part of the field. Following wheat harvest In summer of 2014, prior to seeding the cover crop, 8 lb/ac of 90% sulfur, approximately 50 lb/ac potash, and 3,000 lb/ac ag lime were applied. Soil samples from 2013 are shown above. After the cover crop was seeded, 5 ton/acre chicken manure was applied. Manure analysis is below. There were three treatments in this study: no cover crop, cereal rye cover crop, and a winter mix cover crop. Cereal rye was seeded at 1 bu rye/acre. The winter mix was seeded at 40.75 lb/ac and included 7.5 lb/ac winter pea, 3.75 lb/ac hairy vetch, 3 lb/ac common vetch, 3 lb/ac lintels, 22 lb/ac winter wheat, 0.75 lb/ac rape seed, 0.75 lb/ac Winfred Hybrid. Cover crops were seeded into wheat stubble on August 19, 2014. Cover crop was killed April 22, 2015 using the farmer's standard burndown herbicide program, therefore the cost of herbicide is not included in the marginal net return calculations. Corn was planted April 29.†Bushels per acre corrected to 15.5% moisture.

Manure Analysis	Analysis Dry Basis	Nutrients lbs\ Ton Dry Basis	Nutrients lbs/Ton As Received
Organic Nitrogen, %N	7.46	149.2	80.7
Ammonium, % N	0.537	10.7	5.8
Nitrate, % N	<.001	0	0
Total N (TKN), % N	8.00	159.9	86.5
Phosphorus, % P205	4.33	86.7	46.9
Potassium, % K20	3.18	63.6	34.4
Sulfar, % S	0.73	14.7	7.9
Calcium, % Ca	10.38	207.7	112.4
Magnesium, % Mg	0.55	11.1	6
Sodium, % Na	0.58	11.7	6.3
Sodium Adsorption Ratio	4.77	--	--
Zinc, ppm Zn	381.80	0.8	0.4
Iron, ppm Fe	339.60	0.7	0.4
Manganese, % ppm Mn	343.30	0.7	0.4
Copper, ppm Cu	268.90	0.5	0.2
Soluble Salts, mmho/cm	44.65	57.2	30.9
pH	7.20	--	--
Moisture, %	45.90	--	--
Dry Matter, %	54.10	--	--

*Values with the same letter are not significantly different at a 90% confidence level.
‡Net return based on $3.65/bu corn, $14.50/acre cereal rye seed cost, $71.00/acre winter mix seed cost (a large portion of this cost was due to freight for shipping), and $13.37/acre drill application cost.

Results:	Yield (bu/ac)†	Moisture (%)	Harvest Stand Count	Marginal Net Return ($/ac)‡
Check	172 A*	16.6 A	26,100 A	$627.80
Cover Crop – Rye	155 A	16.4 A	24,650 A	$537.88
Cover Crop – Winter Mix	158 A	16.5 A	26,100 A	$492.33
P-Value	0.1486	0.8852	0.3465	N/A

Summary: There was no significant grain yield difference between the no cover crop treatment, cereal rye, and winter cover crop mix. Net return was less for both the cereal rye cover crop and winter mix cover crop.

In Partnership with:

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