

The Effect of Fall Seeded Cover Crops on Corn

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Objective

To determine the corn yield effect of a cover crop overseeded or drilled in soybeans.

Background

Crop Year: 2013	Tillage: No-till
Location: O.A.R.D.C. NW Ag Research Station	Planting Date: May 14, 2013
County/Town: Custar, OH , Wood County	Nitrogen: 300 #/ac 9-23-31
Soil Type: Hoytville clay loam	66 gal/ac 28% UAN
Drainage: systematic subsoil	Seeding Rate: 32,000
Previous Crop: soybean	Harvest Date: October 29, 2013

Methods

The treatments were replicated four times in a randomized complete block design. Plot size- 10 x 80 feet each entry. Harvest data was collected from the center 2 rows. All treatments received the same tillage, fertility, and seeding rate. On September 12, 2012 select cover crops were broadcast applied (overseeded), on designated treatments, to standing soybeans by using a Hagie highboy sprayer equipped with a Gandy seeder. On October 17, 2012 cover crops were planted after soybean harvest on designated treatments. A white splitter planter seeded radish in one box and winter pea in the next box 15 inches apart. A drill was used on select treatments to no-till seed cover crops into soybean stubble. On October 22, 2012, strip tillage was done on treatment # 2. The following spring, all treatments were no-till seeded to Pioneer 0832AMX corn. Glyphosate was applied on April 23, 2013 on treatment # 5 with annual ryegrass. Glyphosate was applied to all treatments on May 6, 2013. On May 16, 2013, Atrazine, 2,4-D, and glyphosate were applied after planting corn. Sidedress nitrogen was applied at V6 corn growth stage at a rate which would not be excessive. Cover crop nitrogen contribution would be observable by increased corn yields.

Results

Treatment	Cover Crop	Type of seeding	Date of seeding	Yield bu/ac
1	None			137.7 BCD
2	None, strip till			141.1 CD
3	Oilseed Radish, Winter Pea	Overseed	9-12-12	143.0 CD
4	Oilseed Radish, Winter Pea	Planted, 15 inch rows	10-17-12	134.7 ABC
5	3 way, Annual Ryegrass, crimson clover, oilseed radish	Overseed	9-12-12	142.2 CD
6	Crimson Clover	Overseed	9-12-12	147.6 D
7	Crimson Clover	Drill	10-17-12	129.3 AB
8	Winter Pea	Overseed	9-12-12	125.3 A
9	Winter Pea	Drill	10-17-12	135.8 ABC

LSD (0.10) 11.1

Summary

There was not a significant difference in corn yield between the control treatments (None and None but strip tilled, overseeded crimson clover, overseeded radish with pea and the 3 way cover crop mix. Crimson clover overseeded was significantly higher yield compared to drill seeded crimson clover. Overseeded winter pea resulted in less yield due to lack of germination. Winter pea is better suited to drill or planter seeding because of its larger seed size and need to be placed into the soil. Small seeded cover crops can more easily fall through the soybean canopy to reach the soil surface and germinate before soybean leaf fall at maturity. Overseeding results in more fall growth of cover crops. Corn yields were reduced due to no-till planting into wheat residue.

It would be recommended for producers to use an aerial application for overseeding to avoid destroying soybean plants from ground applicator tires or have tram lines established.

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