

# On-Farm Evaluation of Cover Crops following Corn Silage - Stearns Co.

Cooperator: Dan Ley  
 Nearest Town: Roscoe  
 Soil Type: Sandy Loam  
 Tillage: No till  
 Previous Crop: Corn Silage  
 Planting Date: May 16, 2014  
 Row Width: 30"  
 Fertilizer: Within UMN rec's  
 Planting Population: 29,000  
 Harvest Date: October 20, 2014  
 Experimental Design: Replicated, randomized complete block  
 Partners: Stearns Co SWCD and NRCS



Photo 1. No-till drill planting fall cereal rye.



Photo 2. Corn planted into fall broadcast cereal rye.

### Purpose of Study:

Row crop systems using conventional tillage allow the soil to be idle from October/November through April/May. This often leaves the soil vulnerable to wind and water erosion, and nutrient loss due to leaching and runoff.

Cover crops are one tool that growers can utilize to protect and enhance their most valuable resource: productive soil. Lack of knowledge about this practice creates a barrier to adoption. While time is limited to establish cover crops after corn for grain or soybeans are harvested, there is a small window to seed cover crops after corn is harvested for silage.

### Objectives:

Evaluate cereal rye cover crop establishment using three different seeding methods: no-till drill (Photo 1), broadcast and incorporate, slurry seeding and no cover crop to determine differences in the subsequent corn yield.

### Results:

Cover crops were planted 9/11/13 right at silage harvest. The field received 1.5" of rain 2-3 days later. This greatly improved the chance of successful establishment. Rye growth was about 6-8" before cold temps ended the season. The spring was very wet and terminating the rye was not completed until the rye was 10-14" tall.

Where the rye was very thick and tall (no-till drill and broadcast-incorporate), had a negative effect on emergence and corn growth (Table 1, Photo 2). The slurry seed rye did not have the full emergence and therefore had similar corn emergence and growth as using no cover crops (Table 1). Plant growth factors affected crop yield, with more rye biomass negatively effecting yield (Table 1).

**Conclusion:** While cover crops offer soil protection and other benefits, a spring cover crop must be treated as a weed and terminated at 2-4 inches or it could negatively effect the primary crop yield.

Table 1. Fall cover crop seeding methods and corn growth and yield response.

TRT	June 8 Stand (plants/a)	June 8 Height (inches)	Corn Yield (bu/a)
Slurry Seeded	26,917 a	19.4 b	148 a
No-till Drill	23,667 b	16.2 c	117 b
Bdcst Incorp	18,917 c	15.2 c	94 c
No Cov-er Crop	27,750 a	20.5 a	154 a

Means followed by different letters are significantly different at the 95% confidence level.

For Additional Information:  
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