



On-Farm Demonstration Trial: Cover Crop Studies Interseeding Cover Crops Trials

Mike Witt—on-farm trials coordinator and agronomist, ISU Extension and Outreach

Andrew Weaver—agricultural specialist, Northwest Research and Demonstration Farms

Ryan Farmer—agricultural specialist, Armstrong Memorial Research and Demonstration Farm

Dordt University, Agriculture Department

Objective

Determine the effects on yields of interseeding a cover crop into V5 corn to define best management practices.

Introduction

Cover crops can benefit farmers by aiding in soil erosion control, increasing organic matter in the soil, and reducing nitrate losses into surface waters. Cover crops also have been promoted to alleviate soil compaction and improve soil drainage. Cover crops are an important practice in meeting Iowa’s nutrient reduction strategy goals. However, some research has indicated that planting corn or soybean following a cover crop or interseeding a cover crop can result in yield reductions. The objective of these trials is to evaluate yield potential for corn and soybean crops based on cover crop planting timing and species.

Materials and Methods

Crop Year–2021

Trial	210106	210117	210602	210603	210113
Trial County	Sioux	Sioux	Pottawattamie	Adair	Sioux
Soil Type	Galva, Primghar	Moody	Exira	Nira	Galva, Primghar
Previous Crop	Soybean	Corn	Soybean	Soybean	Corn
Tillage	Conventional	Conventional	No-Till	No-Till	No-Till
Current Crop	Corn	Corn	Corn	Corn	Soybean
Hybrid–ariety Number	P0075AM	P1093Q	DK60-80	DK60-80	P22T86E
Hybrid–Variety Company	Pioneer Corteva	Pioneer Corteva	Dekalb	Dekalb	Pioneer Corteva
Row Spacing	30 in.	30 in.	30 in.	30 in.	30 in.
Seeding Rate	34,000/ac	34,000/ac	34,000/ac		140,000/ac
Planting Date	May 1	May 1	April 26	April 27	April 30
Harvest Date	October 6	November 6	October 18	October 17	September 22
Experimental Type	On-Farm Demo	On-Farm Demo	On-Farm Demo	On-Farm Demo	On-Farm Demo
Replications	4	4	3	6	3
Cover Crop Mixture lbs/ac	Red Clover: 3.5 Cowpea: 17.5 Radish: 3.5 Cereal Rye: 24	Red Clover: 3.5 Cowpea: 17.5 Radish: 3.5 Cereal Rye: 24	Red Clover: 3.5 Cowpea: 17.5 Radish: 3.5 Cereal Rye: 24	Red Clover: 3.5 Cowpea: 17.5 Radish: 3.5 Cereal Rye: 24	Red Clover: 3.5 Cowpea: 17.5 Radish: 3.5 Cereal Rye: 24
Application Dates	June 11	June 11	June 8	June 8	June 11

Results

Trial Number	Treatment	Yield (bu./ac.) ^a	P-value ^b
210106	Cover Crop	241.3 a	0.02
	Untreated Control	236.8 b	
210117	Cover Crop	197.3 a	0.79
	Untreated Control	195.9 a	
210602	Cover Crop	210.4 a	0.54
	Untreated Control	218.1 a	
210603	Cover Crop	232.2 a	0.76
	Untreated Control	230.3 a	
210113	Cover Crop	82.4 a	0.61
	Untreated Control	81.0 a	

^aValues denoted with the same letter within a trial are not statistically different at the significance level of 0.10.

^bP-value = the calculated probability that the difference in yields can be attributed to the treatments and no other factors. For example, if a trial has a P-value of 0.10, there is 90% confidence the yield differences are in response to treatments. This is consistent for demonstration trials.

Key Takeaways

- Cover crop interseeding significantly increased yield in one trial: 210106.
- Cover crop interseeding did not statistically reduce yields in any trials.
- Biomass amount from cover crops at time of harvest was low with only cowpeas and cereal rye present.

NOTE: The results presented are from replicated demonstration trials. Statistics are used to detect differences at a location and should not be interpreted beyond the single location.