



Project Objective: The objective of this project is to quantify the effects of cover crops on soybean and corn yields.

- Project Insights:**
1. Low levels of cover crop growth resulted in minimal yield impact on corn and soybean.
 2. Ground seeding options provide better cover crop establishment.
 3. Termination after planting in soybeans had a yield increase at 3 locations in soybeans in 2025.

2025 Yield Results

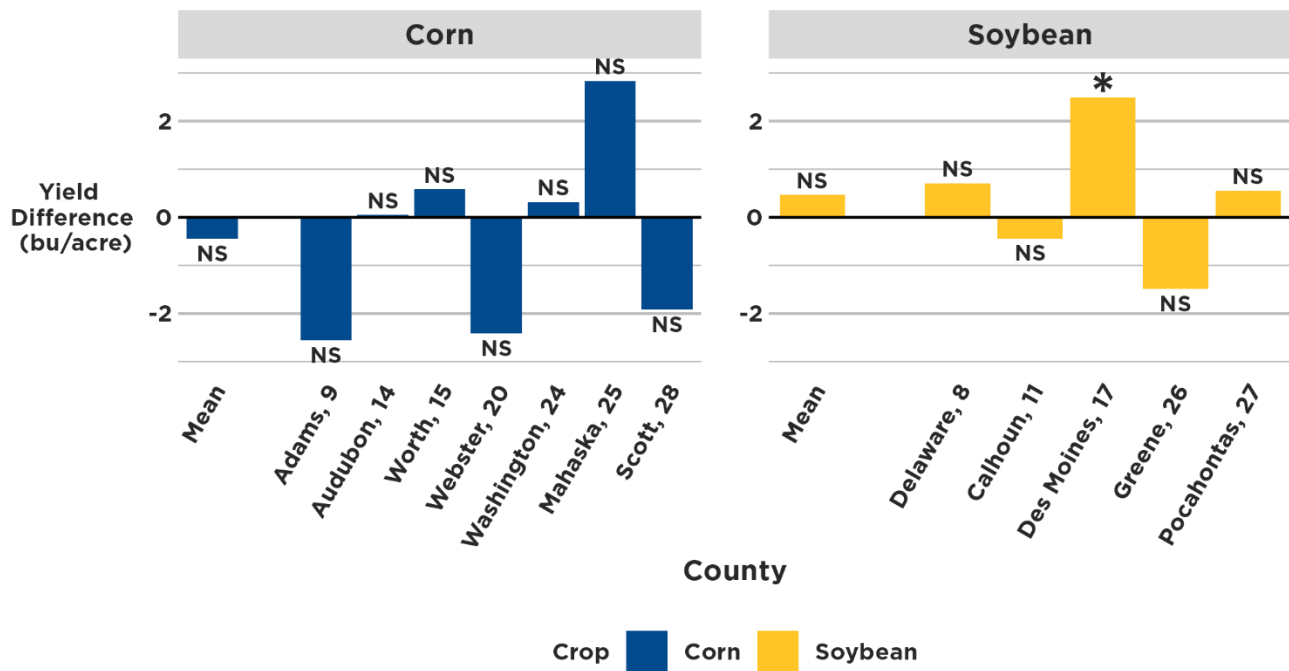


Figure 1. The X-axis is the county and Site ID for each trial, and the Y-axis is the yield difference. A negative value indicates a yield loss in the cover crop treatment. * Indicates statistically significant yield differences, NS indicates a statistically insignificant yield difference.

2025 Project Discussion

The multi-year cover crop trials are part of an ongoing project that was initiated in 2014 with the goal of quantifying effects from cover crops over several years. In 2025, yield differences ranged from -2.56 to +2.84 bushels per acre for corn and -1.49 to +2.48 bushels per acre for soybean (Figure 1). Across all eleven sites included in the analysis (Figure 2), only one site (Site 17) resulted in a statistically significant response to cover crop use, with a 2.48 bushel per acre increase in soybean yield.



One of the issues farmers faced in 2024 was timely cover crop termination which was impacted due to heavy spring rains. In 2025 most of the sites did not experience these conditions and field operations were not impacted. Looking at termination timing and cash crop planting, 6 sites (3 soybean and 3 corn) were planted into a living cover crop stand and then terminated from 1 day to 4 weeks following planting. The other 6 sites (2 soybean and 4 corn) were terminated anywhere from 3 weeks to 2 days prior to planting. Soybeans planted into a living cover crop showed a significant response of 1.1 bushel per acre with a negative response for those sites terminated prior to planting (Figure 3). This may be a result of the relatively low amount of biomass this year compared to previous years where high biomass resulted in reduced yield for both crops. For corn, an average negative response was seen regardless of termination timing.

Long-Term Cover Crop Trials 2025

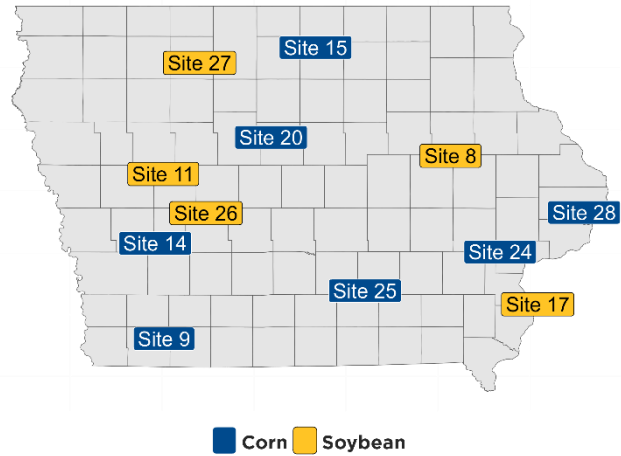


Figure 2. Trial locations in 2025, blue indicates corn and yellow indicates soybeans.

In 2025, nearly all sites continued to utilize blended cover crop mixes, with species selection dependent on the planned cash crop (Table 1). These mixes were chosen to increase species diversity and provide additional nutrient benefits through scavenging and nitrogen fixation. The two exceptions in corn were Site 24, which used a straight rye cover crop (60 lbs/acre), and Site 25, which used a blend of hard red wheat, balansa clover, winter camelina, radish, and mustard (55 lbs/acre).

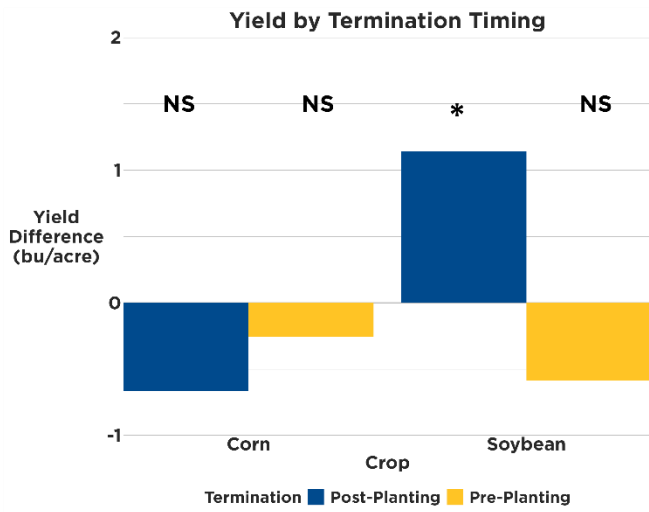


Figure 3. Corn and Soybean yield differences based on cover crop termination timing.

Ahead of Corn	
Triticale	78.10%
Hairy Vetch	15.60%
Winter Camelina	6.30%
Seeding Rate: 32-45 lbs/acre	

Ahead of Soybean	
Cereal Rye	47.60%
Triticale	47.60%
Winter Camelina	4.80%
Seeding Rate: 32-60 lbs/acre	

Table 1. Cover crop seed mix ratios and seeding range by crop.



Cover Crop Establishment

Satellite imagery close to termination timing was used to help quantify ground coverage by calculating normalized difference vegetation index (NDVI) values for each of the sites during the spring. For this project, NDVI values have historically been closer to 0.2 for no cover strips and 0.4 for the cover crop strips. Across all sites in 2025, calculated NDVI values for cover crop strips ranged from 0.14 to 0.30 and align with early spring scouting that showed minimal growth. This was a change from 2024 where NDVI values ranged from 0.16 to 0.79 but also resulted in significant yield losses. Based on yield response and NDVI values in 2024 and 2025 (Figure 4), yield losses are seen at NDVI values above 0.4 in both corn and soybean.

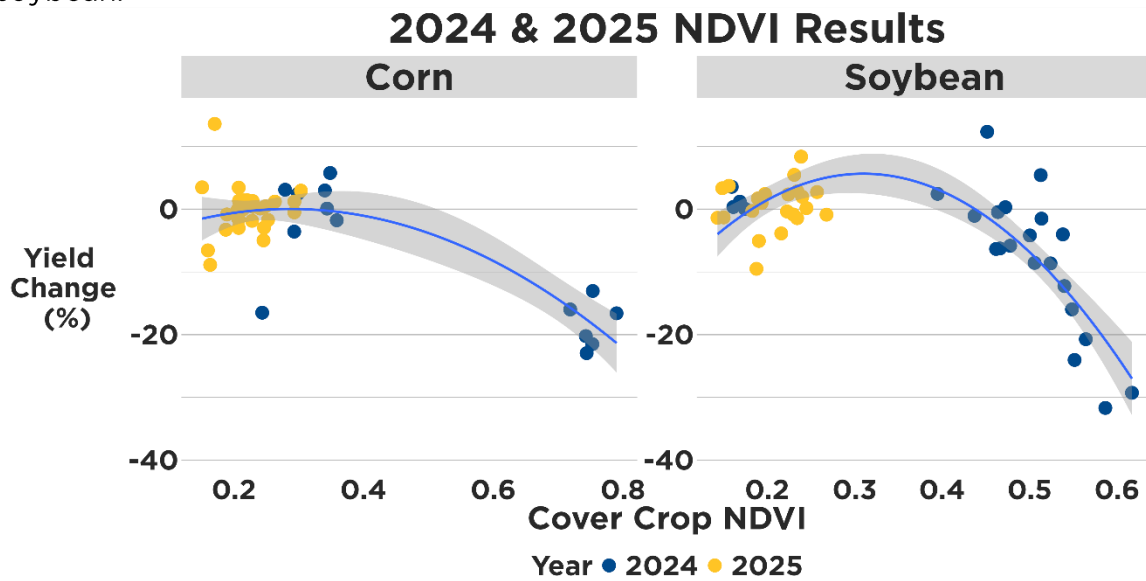


Figure 4. Calculated NDVI values for cover crop strips and yield differences compared to uncovered in corn and soybean. As NDVI values quantifying biomass accumulation increase, yield decreases.

Differences in NDVI values were observed when looking at the different seeding methods used in 2025. While most of the sites were seeded using a drill (7 sites), 2 sites each were implemented with an airplane and air seeder. Average NDVI values were consistent between the Air Seeder and Airplane seeded sites but increased on those sites seeded with a drill (Figure 5). While site specific field conditions and management practices will have an impact on the amount of cover crop growth, setting the seed up for success in the fall is also important.

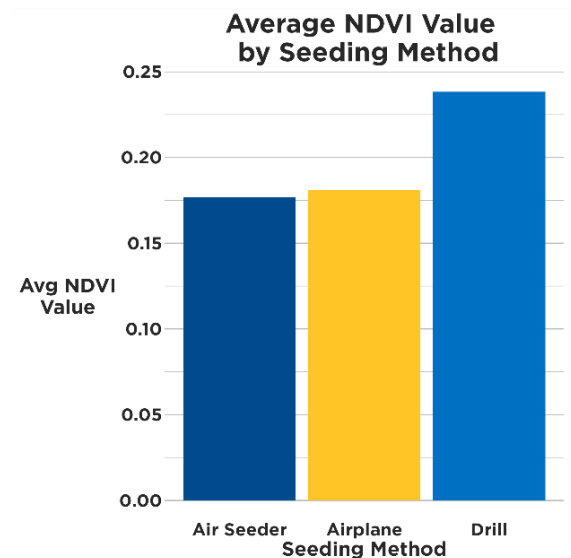


Figure 5. Cover Crop NDVI by planting method.