

Final Report-March 5, 2015

Project Name: Determining the Profitability of Using Cover Crops in Soybean Cropping System

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Objectives: To determine the long term benefit and cost effectiveness of consistently using cover crops in a (primarily corn and soybean) grain crop rotation. Specifically, we will track crop yields each year and compare those fields with a cover crop to those without. With this information we will be able to do a cost/benefit analysis of the practice.

Progress to Date:

For the second year of this study, cooperators at the Franklin, Lancaster, Lebanon and York County locations planted side-by-side plots of cover crop and no-cover crop treatments in the fall of 2013. Unfortunately, at the Lancaster location there was an oversight and the cover crop plots were not planted in the same part of the field as the first year. Initially, it was decided to keep this location in the study and use the data from the remaining years of the project. However another complication has arisen with planting the cover crop this fall and this location will have to be dropped from the study.

On the Lebanon and York farms, cereal rye was used. The York field was broadcast and left on the surface and the stand was even more inconsistent than the prior year. A mixture of barley and rye was used on the Franklin County farm, planted late and the stand was very poor. Three replications of were planted at each farm location. A mixture of trical/ryegrass/ crimson clover was planted at the Lancaster farm.

Field and Cover Crop Information Collected

Location	Fall 2013 Planting Date	Cover Crop	2014 Termination Date	Height
Jackson-York Co.	October 25 (approx.)	Cereal rye	May 5	8"
Graybill-Lancaster Co.	October 5	Trical/ryegrass/crimson clover	May 5	21"
Reichard-Franklin Co.	October 21	Barley/cereal rye	May 12	18"
Ziegler-Lebanon Co.	Oct 28 (approx.)	Cereal rye	May 7	10-12"

Following is the yield data from the fields the fall of 2014.

Location	Ave Yield-With Cover Crop	Ave Yield-No Cover Crop
Lebanon	149 bu/ac	151
Franklin	142 bu/ac	166 bu/ac
Lancaster	212 bu/ac	211 bu/ac

These results show that there was no yield benefit of the cover crop at any of these three locations. For the York County test field, the combine yield monitor data currently in-hand provides the average yield of soybeans in the cover crop plots (51 bu/ac) and the average yield for the entire field (51 bu/ac). Based on that and looking at the yield map, I do not believe there was any difference between the treatment and control at that location.

This fall, the field at the Franklin County site was harvested in mid-November and subsequently, the cover crop was planted very late for the second year. The field in York County was planted in barley so there will be no control to compare with. The cooperators have told me that this field will be planted in double crop soybeans after the barley is harvested next year. That means that any cover crop that might be planted for the final year of testing would be planted extremely late. Because of this and the inconsistent stands at this site as well, the late plantings at the Franklin County location for two years and the inconsistent placement of the treatments at the Lancaster County location, I do not think that the study will be able to go on and be completed with confidence that it would provide an accurate comparison of the cover crop effect. Thus I will not continue to request resources from the soybean check-off program to pursue this study any longer.

Thank you again for providing us with funds to carry out this project to this point. I think it was a good idea but might be better suited to a research farm field where there is more control of the fieldwork that needs to be done.

Sincerely,

A handwritten signature in cursive script that reads "John E. Rowell". The ink is dark and the handwriting is fluid and legible.

John Rowehl
Extension Educator
York County