

## **No-Till/ Cover Crop Summary for 2015-2017**

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This summary will discuss the history of the farming methods used on the land in this experiment, including problems and benefits of conventional farming, minimal tillage and no till methods.

In this 170 acre piece we have grown grain and hay. Conventionally we Fall rip and disk after grain harvest. Spring disk with roller harrow and then plant grain. We used minimal dry spread fertilizer of 90 units N, 30 units P, 20 units PK, and 20 units sulfur. A standard herbicide application was made at the proper time. Yields held around 100 bushel per acre. I do not have a problem with erosion. My interest in this project was to increase yield with less input, and also to improve my soil health.

During these three years, I have had soil testing done and followed the recommendations which were the same as what I was putting on before, conventionally. I incurred more cost with the soil testing, with the variable rate application which was recommended, and the results were unchanged. Another additional cost was spraying Round-Up each Spring to kill the cover crop. With the practice of no-till I felt as though the soil was becoming more compacted with less water penetration which negatively affected both the grain and the cover crop in emergence and health and decreased yields all three years. I feel the reason for this may be because of my particular soil and the high sub level in my area.

With the increasing amount of residue left from the grain and the windrows from baling straw and the cover crop residue, it was difficult to get a good stand the next year. The no-till drill did not seem to make a difference.

With the no-till practice we eliminated two passes over the field, which decreased costs, but with the increased cost of the Round-Up and the cost of the cover crop seed, with reduced yield I do not see the benefit in this particular practice without some adjustments.

In the future, I would be interested in a minimum till, which would entail some disking once or twice a year but still use the cover crop to incorporate organic matter and build soil health. I would like to try harvesting grain, baling the straw, disking for residue management, planting cover crop for winter months to increase organic matter, disk in spring, and seed grain.

I can see the benefits of the no-till and cover crop practice in the right environment, but I feel it needs these adjustments to work in my area and with my particular soil type.