

Wheat Response to Manure Nitrogen Carryover

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Introduction and Response This study is the second year rotation of the corn response to manure and commercial fertilizer study. To track the mineralization or release of manure nitrogen (N) over time, wheat was planted after corn with no additional nitrogen fertilizer applied other than was applied for the previous corn crop. During the corn year, the level of manure application treatments was calculated assuming a 60% release of the manure N for crop uptake. To test this release rate, a second manure treatment was applied assuming only 30% release of the manure N or an N rate at 1.5 times higher than the base rate. These manure rates were compared to commercial N at respective levels. To account for the added phosphorous (P) in manure, a commercial N treatment was applied with P equal to the manure P levels. Wheat yields were determined to ascertain the effect of carry-over N from the previous year N treatments described above.

Preliminary Results The commercial N fertilizer treatment with added P was not different than the other treatments, therefore, the data is not shown. Figure 1 shows that wheat yields among the treatments are similar except for the check and 1.5x Manure treatments that are lower. Therefore, there seems to be significant N carryover from all the treatments except the higher rate of manure. With only two years of data it is hard to explain why the 1.5x manure treatment seems to have lower yields even though it should have the same amount of carryover as the 1.5x N Fertilizer treatment. Soil samples have been taken throughout the study but have not been analyzed to see if they can explain any of these yield differences. There is one more year of wheat trials to be conducted in 2008. That data combined with the soil test data should give us a clearer picture of what is happening with the N carryover from the treatments.

