

ENVIRONMENT

Title: Impact of Liquid Swine Manure Application on Soybean Yield and Surface and Ground Water Quality – **NPB #07-135**

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Scientific Abstract:

Field experiments were conducted from 2007 through 2009 to determine the effects of liquid swine manure application to soybeans on nitrate-nitrogen ($\text{NO}_3\text{-N}$) leaching to subsurface drainage water (ground water at a depth of four feet from the ground surface) and crop yields under corn-soybean rotations. In this three year study, N-application rates from swine manure to soybean averaged about 100 lb-N/ac and 150 lb-N/ac to corn in the corn-soybean rotation system. Data on $\text{NO}_3\text{-N}$ concentrations and nitrogen leaching losses to subsurface drainage water and crop yields were collected and analyzed as a randomized complete block design. The results of this study indicated that the average $\text{NO}_3\text{-N}$ concentrations and $\text{NO}_3\text{-N}$ leaching losses to subsurface drain water were not significantly different among treatments when liquid swine manure was applied to both corn and soybean in comparison with the treatment when liquid swine manure was applied to corn only. Also, corn and soybean yields were among the highest when soybean plots received the application of swine manure. The results of this three year study clearly indicate that fall applications of liquid swine manure to both corn and soybean at nitrogen application rates of 150 lbs/acre to corn and 100 lbs/acre to soybean, used in this study, could be an acceptable practice for farmers and swine producers.

These research results were submitted in fulfillment of checkoff-funded research projects. This report is published directly as submitted by the project's principal investigator. This report has not been peer-reviewed.

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