Use of Anaerobic Digested Swine Manure in Corn Production. (S04-sawyer153026-Poster)

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Abstract:

The processing of manure in an anaerobic digester for biogas production is only a partial manure treatment process. It is not designed as a disposal method, but can alter manure characteristics. Therefore, after digestion producers still need to utilize and manage digested manure, most likely as land application for plant nutrient utilization. The objective of this study was to compare the N supply from raw and anaerobically digested swine manure for corn production. Raw and digested swine manure was fall injected as main plots, three manure N rates as subplots, and six spring-applied fertilizer N rates as sub-subplots. Corn was the previous crop each year. Response to manure N was determined through grain yield, N uptake, plant N status assessments, and soil inorganic N. After two growing seasons results indicated no difference between raw and digested swine manure as a plant N source. Equivalence of N supply from both manure sources to corn varied between years, with 100% in 2000 and 50% in 2001. This difference was attributed to varying growing seasons and loss potential from time of fall manure application compared to the spring-applied fertilizer. Late fall and early spring sampling indicated rapid N conversion to nitrate. From this work, digested swine manure can readily supply adequate N for corn production and should be managed in a similar fashion as raw manure.

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