RESEARCH ABSTRACT

ENVIRONMENT

Title: Evaluation of Manure Injection Technologies & Development of a Manure Management Practices Assessment Tool - **#17-208 IPPA**

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Scientific Abstract

When applying manure, the importance of the mode in which the manure makes it to the soil, both through the vehicle facilitating application and injector type, soil type and timing of application is important for ammonia and odor emission, as well as nutrient utilization within the cropping system. Research has been done with regards to the compaction effect of vehicles on the soil, how injection implements interact with the soil, and how soil is affected with water. However, the amalgamation of that research to examine the system as a whole is not conclusive. Most work on ammonia volatilization has occurred at the plot-scale, with university equipment under ideal conditions. The impact of scaling this to the field-level where end row, turn around, and practices that expedite efficiency at the field scale occur can change expected performance level. The selection of each piece of a manure application is not made on a piece by piece basis, but instead as a whole to best meet an applicator needs. The purpose of this research is to synthesize research to start down the path of being able to provide recommendations to producers and applicators to best benefit their crops, while reducing the negative impacts of nitrogen and phosphorus on the environment, but studying both ammonia volatilization and by providing an analysis of different application strategies.