

ENVIRONMENT

Title: Cover crops, timing, and compaction: Evaluating practices to improve manure nitrogen management - #17-183 IPPA

Investigator: Daniel Andersen

Institution: Iowa State University

Date Submitted: 4/29/19

Scientific Abstract

The addition of cover crop to agricultural systems has been stated to provide organic matter in the form of carbon to the soil, erosion control, and reduce the potential NO₃-N loss from the soil, which all contribute to successful and sustainable agriculture systems. In addition to the utilization of cover crop, Midwestern farmers can apply manure as fertilizer to add carbon, nitrogen, phosphorous, and potassium to the soil. One of the major concerns among farmers is the loss of nutrients, specifically NO₃-N. It can be lost to ground water as leachate, which is partly responsible for the hypoxic dead zone in the Gulf of Mexico. Through the combination of cover crop and the correct timing of manure application, the amount of nitrate lost into leached water can be reduced. The objective of this experiment was to find the optimal time to apply liquid manure, when combined with a winter rye cover crop. We compared the use of cover crop with various manure application timings (immediate, two, and four weeks after cover crop emergence), by the amount nitrate concentration in leached water. This study will provide guidance on how different manure application timing and the use of a cover crop can mitigate nitrate loss to the environment.

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 This report has not been peer-reviewed.

For more information contact:

National Pork Board • PO Box 9114 • Des Moines, IA 50306 USA • 800-456-7675 • Fax: 515-223-2646 • pork.org
