

ENVIRONMENT

Title: Evaluating Nutrient (nitrogen and ortho-phosphate) Export with Subsurface Drainage Water from Spring Applied Swine Manure to Soybean Planted Sub-watersheds - NPB #11-085

Investigator: Kapil Arora,

Institution: Iowa State University

Co-Investigators: Carl Pederson, and Dr. Ramesh Kanwar

Date Submitted: August 23, 2012

SCIENTIFIC ABSTRACT: Manure application to soybeans has been put under focus in the recent years. Currently, in Iowa, there is a limit of 100 pounds per acre of available nitrogen that can be applied for soybean crop use. One-year study was conducted to compare nutrient movement with sub-surface tile water between a manure applied sub-watershed and a no manure applied sub-watershed, with both sub-watersheds planted to soybeans. Nutrients observed in this study were nitrate-N ($\text{NO}_3\text{-N}$) and ortho-phosphate ($\text{PO}_4\text{-P}$). Sub-watershed with no manure applied yielded more flow volume than the sub-watershed with manure application. Consequently, nitrate-N mass was higher for the sub-watershed with no manure applied in comparison with the sub-watershed with manure application. Ortho-phosphate mass showed the same trend. Flow weighted nitrate-N concentration was slightly higher for the sub-watershed with manure applied than the sub-watershed with no manure applied. Flow weighted ortho-phosphate concentration was slightly higher for the sub-watershed with no manure applied than the sub-watershed with manure applied. The use of data presented in this report should be evaluated very carefully as it is a non-replicated study with only one year data observed and reported.

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 This report has not been peer-reviewed.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
