Diet Impacts on Phosphorus Losses from Manured Soils Under Simulated Rainfall. (S11-joern153548-Poster)

Authors:

- D.L.Nussbaum-Wagler* - *Purdue University*
- J.A.Lory - *University of Missouri*
- R.L.Mikkelsen - *North Carolina State University*
- B.C.Joern - *Purdue University*

Abstract:

Animal manure type, application rate, and application method all can influence the amount of phosphorus (P) lost in runoff. The surface 20 cm of soils from Indiana (Sleeth silt loam), Missouri (Creldon silt loam), and North Carolina (Cecil sandy clay), were packed in 1 m x 20 cm x 5 cm-deep pans in triplicate at 1.3 g/mL, and set to 5 percent slope. Manure from swine and poultry fed a standard diet (ST) or a diet containing low phytic acid corn and phytase (LP) was collected and applied at a rate of 224 kg N/ha to all three soils either on the soil surface or uniformly incorporated. Three rainfall simulations were conducted with 24 h between each rainfall. Deionized water was applied at 75 mm/h and the first 30 min of runoff was collected as a composite sample. Runoff was analyzed for dissolved reactive P (DRP), bioavailable P, total P, and sediment. Manure incorporation significantly reduced P losses compared to surface application and less P was lost in the LP manure treatment than the ST manure treatment for both animal species. Soil mineralogy and soil test P affected P losses when manure was incorporated, but not when manure was surface applied.

Corresponding Author Information:

Brad Joern
Purdue University
Agronomy Department, 1150 Lilly Hall
West Lafayette, IN 47907-1150

phone: 765-494-9767
fax: 765-496-2926
e-mail: bjoern@purdue.edu

Presentation Information:

Presentation Date: Tuesday, November 12, 2002
Presentation Time: 10:00 am-12:00 pm
Poster Board Number: 1922

Keywords:

phosphorus, runoff, manure, phytase