THE MOVEMENT OF ANTIMICROBIAL CHEMICALS IN SOIL

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ABSTRACT

Tylosin (Tyl) and chlortetracycline (CTC) are antimicrobial chemicals used as growth promoters in cattle, swine, and poultry production and can be excreted as the parent compound. Landspreading manure can move these chemicals into the soil. The objective of this study was to determine how Tyl and CTC from pig slurry applied to soil moved during simulated rainfall. Three application sites in Brookings County were used. The first year slurry with high concentrations of CTC and Tyl (118 mg and 0.110 mg respectively) was used. The second year slurry with low concentrations of CTC and Tyl (14.3 mg CTC; Tyl was only detected not quantifiable) was used. Rainfall was simulated using Cornell Sprinkler Infiltrometers. The high concentration year had percent recovery for CTC ranging from 0.86 to 3.54% for CTC and 8.40 to 12.07% for Tyl from rainfall runoff. The low concentration year had no recovery from rainfall runoff. Soil extractions yielded no antibiotics either year.