



## USDA-CSREES 2006 National Water Quality Conference

### Antibiotic Uptake by Plants from Soil Fertilized with Animal Manure

Antibiotics are commonly added to animal feed as supplements to promote growth of food animals. However, absorption of antibiotics in the animal gut is not complete and as a result substantial amounts of antibiotics are excreted in urine and feces that end up in manure. Manure is used Worldwide not only as a source of plant nutrients but also as a source of organic matter to improve soil quality especially in organic and sustainable agriculture. Greenhouse studies were conducted to determine whether or not plants grown in manure-applied soil absorb antibiotics present in manure. The test crops were corn, green onions, and cabbage. All three crops absorbed chlortetracycline but not tylosin. The concentrations of chlortetracycline in plant tissues were small (2 to 17 ng g<sup>-1</sup> fresh weight), but these concentrations increased with increasing amount of antibiotics present in the manure. This study points out the potential human health risks associated with consumption of fresh vegetables grown in soil amended with antibiotic laden manures. The risks may be higher for people who are allergic to antibiotics and there is also the possibility of enhanced antimicrobial resistance as a result of human consumption of these vegetables.

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