



WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: IA1241

Title: Effect of Swine Waste Effluent Field Application on Tn916 Content of Surface Waters

Focus Categories: Water Quality, None

Keywords: Sphaerotilus, antibiotic resistance, environmental genetic exchange, Tn916, Enterococcus faecalis

Start Date: 03/01/2001

End Date: 02/28/2002

Federal Funds: \$2,375

Non-Federal Matching Funds: \$3,911

Congressional District: Iowa 3rd

Principal Investigator:

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Abstract

Our previous work has shown that (i) Tn916 may be introduced in to the soil by application of manure containing wastes, (ii) that Tn916 mediated genetic exchange occurs in the soil, and (iii) that members of the normal soil microflora may receive Tn916. The experiments contained herein are designed to provide evidence that Tn916-containing enterococci appear in the surface waters after application of manure-containing wastes. The results will substantially "close the loop" by showing that fecal enterococci the water supply, which would then provide a mechanism by which these may be taken up by animals and humans. The strength of the current approach is that the analysis will depend on detection of specific DNA sequence responsible for gene mobilization as well as the presence of the specific antibiotic resistance gene.