RESEARCH ABSTRACT

ENVIRONMENT

Title: Pathogenic and Indicator Bacteria in Agricultural Watersheds
NPB# 04-070

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Abstract

Escherichia coli and *Enterococcus* are indicator bacteria that were measured in Iowa streams that drain land with different levels of swine production. We completed a study monitoring=g these bacteria over three and one-half years. Bacteria were readily transported from manured fields, reaching levels exceeding 10,000 per 100 ml of water. In contrast long-term averages showed only a few hundred bacteria per 100 ml and long-term averages do not correspond to the estimated densities of swine in the three catchments. This and other data obtained from manured and non-manured fields suggest that wildlife are also a source. Cattle are also a likely source. Regrowth of bacteria in water from stream sediments appears to contribute to the peak in populations observed in July, August and September that were seen in each year. Studies of *E coli* survival in soil suggest that avoiding manure application immediately before rainfall is a producer practice that will have immediate water quality benefits. This project also investigated the feasibility of using quantitative PCR to measure populations of *Salmonella* and *E coli* O157:H7, which are both human/livestock pathogens. While we were able to obtain qualitative measurements showing the presence of *E coli* O157:H7, the quantitation was not achieved.

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 This report has not been peer reviewed

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