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Source of Cryptosporidium in a rural Watershed

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Abstract Text:

Cryptosporidium causes cryptosporidiosis, an infectious disease affecting animals and humans for which there is no effective treatment. The parasite has a low infectious dose and survives for long periods in chlorinated water. Because of the potential for widespread transmission in water, there is a critical need to identify and control sources of waterborne contamination. Of particular importance to agriculture is the specific contribution of cattle to Cryptosporidium contamination of rural watersheds. Our objective is to identify the source(s) of Cryptosporidium in rural watersheds, specifically addressing the role of cattle in water contamination. By exploiting the host adapted nature of most Cryptosporidium species and genotypes, we have determined that adult cattle are contributing to Cryptosporidium contamination of rural rivers in North Dakota and Minnesota. The species found in our study are not infectious for humans; however, our data supports the potential for cattle to contribute to water contamination and serves as a useful model for studying the source, fate and transport of Cryptosporidium in water.

Impact Statement:

Our data supports the hypothesis that cattle contribute to Cryptosporidium contamination of rural surface waters. However, the Cryptosporidium species found are not significant for humans. This information is critical to making risk based decisions on controlling human pathogenic Cryptosporidium in water.