

Parasite Testing Capabilities

The Rose WQEMM Laboratory is the only USEPA certified *Cryptosporidium* and *Giardia* program for water testing in the State of Michigan.

Giardia and *Cryptosporidium* are protozoan parasites that infect the gastrointestinal tract of animals and humans. These parasite infections may progress to symptomatic disease, called giardiasis and cryptosporidiosis, respectively. Although some subspecies and assemblages have a degree of host specificity, these organisms are generally considered zoonotic pathogens, meaning that the lifecycle of the organism can be completed in either the human host, or a non-human animal host. This capability leads to reservoirs of active infections outside the human population, with the potential of transmission of the pathogen between human and animal populations. Both parasites are obligate parasites, meaning that they do not reproduce outside of the host. However, both *Giardia* and *Cryptosporidium* produce environmentally resistant stages, called cysts and oocysts, respectively. These resistant stages, which are shed in the feces of infected individuals, allow the organism to survive in the environment outside of the host's body. This environmental resistance increases the likelihood that a suitable host will encounter the organism, and possibly become infected. There are several routes of transmission of *Giardia* and *Cryptosporidium*, the route of interest in this study was waterborne transmission.

Approaches used by the Rose WQEMM Laboratory

- USEPA Method 1623 by filtration/IMS/FA
- Genotyping

Microscopic detection of Cryptosporidium and Giardia by FITC (photo taken by Rebecca Ives, Michigan State University)

