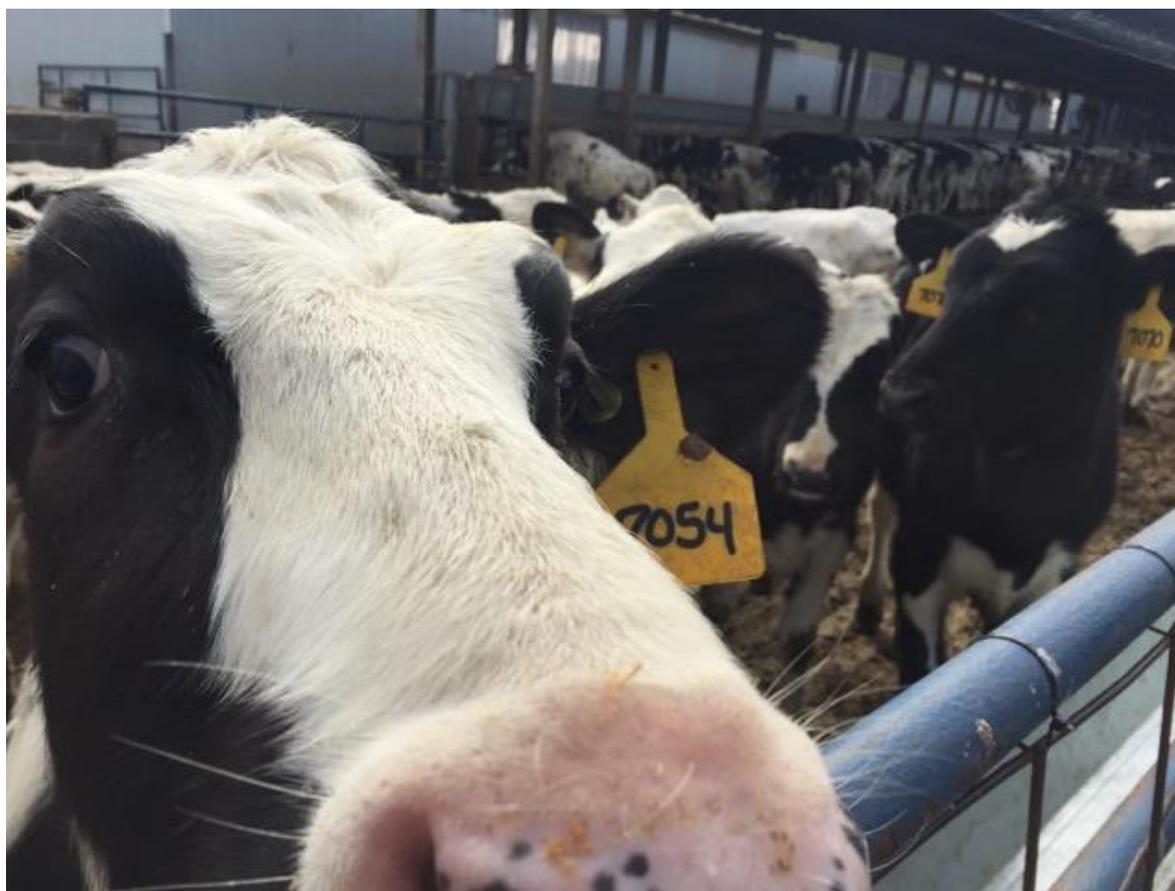




How to Keep Our Water Safe from Hidden Germs

By Kristen Molfetta, University of Delaware graduate student and intern to the White Clay Wild & Scenic River Program

Keeping our water safe and clean can sometimes be a bit of a challenge, especially when it comes to limiting the risk of *pathogens*. Most of us have heard the word pathogen before, and it probably reminds us of being sick, right? Pathogens are different types of bacteria, viruses, and parasites that can also contaminate and sicken drinking water sources, just like they do to us. **Cryptosporidium** (or “Crypto” for short) is a common waterborne pathogen.



The source of waterborne pathogens is almost always fecal matter from infected humans and animals. Pathogens like Crypto get into creeks and rivers from *non-point sources*, such as manure runoff from rain and improperly cared for septic systems. Drinking untreated water or accidentally ingesting water while swimming are common sources of human infection. That’s why it’s important we keep our water in White Clay Crypto-free.

Interesting facts about Crypto:

- The word crypto comes from a Greek word “hidden”, and the word spore meaning “germ”. So Cryptosporidium literally translates to "hidden germ".
- Crypto is resistant to chlorine and other disinfectants like alcohol gels and hand sanitizers and is expensive to treat.
- Crypto is one of the most frequent causes of waterborne disease among humans in the U.S. It has been documented in 95 countries on every continent except Antarctica.

Easy things you can do to prevent Crypto from contaminating our drinking water:

- *Maintain your septic system:* Pump the tank regularly, conserve water, minimize solids and hazardous materials in the waste stream.
- *Manage animal waste:* Pick up after your pets on walks, at parks, and at home.
- *Only rain in the storm drain:* No dumping or disposing anything in these, they flow directly to the creek!

What White Clay Wild & Scenic River Program is doing to protect our watershed:

In addition to things that residents can do to minimize the risk of waterborne-pathogens in our creek, there are measures that farmers can undertake on agricultural lands to reduce their impact on water quality. This past fall, the White Clay Wild and Scenic River Program supported two projects to help reduce Crypto from agricultural sources located in the White Clay. Several **best management practices** ([BMPs](#)) were implemented on two local farms to manage runoff from animal manures.

In the Spring Newsletter, we learned about farmer and neighbor, Barclay Hoopes, and his 62-acre, family owned and operated farm located in New Garden Township Pennsylvania. As noted, Barclay has a strong understanding and respect for his land, and values soil conservation and water quality and has actively worked over the years to minimize his farm’s impact on the environment and local water quality. He has undertaken several conservation projects on his New Garden property, and in 2014 he received funding to apply conservation improvements to another property he raises cattle on located in the head waters of the Middle Branch of White Clay in Franklin Township.*



Before and After Streamside buffer installed (photo courtesy of Chester County Conservation District)

Conservation improvements included one controlled **stream access** and **pasture fencing** to keep the animals from having free access to the creek, and a **riparian (stream side) forest buffer** to help slow and filter runoff, and reduce manure loading to the nearby creek. In addition to some regrading and redirecting of rain water to keep it out of heavy use areas.

A second manure management and Crypto reduction project took place in December 2014 on a cattle farm just north of New Garden in London Grove Township located in the headwaters of the East Branch of White Clay Creek.** The 1,230 acre dairy farm, owned and operated by landowner Walter Moore, is the second largest dairy farm in Chester County managing nearly 900 mature cows. This project was initiated after a lagoon on the property had been compromised, and manure-contaminated water ran down slope to the adjoining stream. A new upgraded **manure containment system** was constructed on the property. The new waste storage system assures proper long-term storage of animal waste generated on site during long winters and helps to prevent runoff to the stream. This helps New Garden Residents, because any contamination upstream will eventually make its way downstream through New Garden and into Delaware.

Conservation improvements and upgrades, like those at the Hoopes and Moore farms in Chester County, as well as regular maintenance and upkeep of residential septic systems, help protect the White Clay from harmful pathogens. Minimizing the pathogens entering our waterway keep it safe for swimming and fishing, and allow our creek, the source of drinking water for over 120,000 people, to remain a healthy and safe choice. We can all do our part, however small it may seem, to keep our local waterways clean for current and future residents to enjoy.

**In addition to the landowner contribution, outside funding sources for the Hoopes farm project include the White Clay Wild & Scenic River Program, United Water Delaware, City of Newark, and the Chester County Conservation District.*

***In addition to the landowner contribution, outside funding sources for the Moore farm project include the White Clay Wild & Scenic River Program, United Water Delaware, City of Newark, and the Brandywine Conservancy.*