



## Filter Mound Treatment System

August 1, 2005 - September 30, 2008

The typical approaches to managing milking center wastewater for dairy farmers are to direct it to a liquid manure storage facility or to a conventional septic system. Liquid manure storage is cost-prohibitive for the well over 1,000 dairy farmers in Michigan who manage their livestock manure as a solid. Conventional septic systems are limited because of the rapid clogging of the leach field due to accumulation of milk fats.

The filter mound treatment system included three settling tanks, a timer-controlled pump, a 5-foot deep mound of filter media, and a pressurized pipe distribution system. The mound of filter media is placed on top of the ground, leaving the topsoil in place. Wastewater is sprayed over the top of the filter media through the pressurized distribution pipes (1.5-inch diameter PVC), then passes through the filter media and the underlying soil profile.

An inter-agency workgroup considered the filter mound system as a promising alternative because it provides an opportunity for the microbes in the filter media and the topsoil to treat the wastewater. A research filter mound system was installed at a dairy farm in central Michigan. The research system, designed by MSU and NRCS, tested four different filter media - shredded bark, wood chips, small Styrofoam chips and pea stone. Water samples were collected and analyzed to determine the effectiveness of each filter media type.

Research results were favorable. Shredded bark was chosen as the preferred media. However, the workgroup concluded that testing at additional farms, with the incorporation of some minor design improvements, is necessary.

**Grant Amount: \$ 83,127.00**

### Partners involved:

- Michigan Department of Environmental Quality
- Natural Resources Conservation Service
- Michigan State University and MSU Extension
- Clinton Conservation District
- Michigan Land Improvement Contractors of America
- Michigan Milk Producers Association

