

Milk House Wastewater

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Where does your milk house wastewater go?

Local feedlot officers are asking Minnesota dairy producers this question when they make site visits. As a result, some small and mid-sized dairy producers are learning that they need to upgrade their milk house wastewater handling system to comply with Minnesota Feedlot Rules (Minnesota Rules Chapter 7020). The MPCA 7020 rules prohibit wastewater discharge to waters of the State, polluting waters of the State, and discharge to road ditches. Milk house wastewater can be land applied as part of a manure management plan or applied through infiltration fields.

Dairy producers want milk house wastewater systems that

- Perform reliably,
- Meet environmental regulations,
- Fit their management practices, and
- Are economical to install and operate.

Treatment Options

- Short and long term storage with land application.
- Septic tank and bark beds/strips.
- Septic tank and aerobic treatment units to trenches.
- Septic tank to irrigation.
- Septic tank and gravel filter to trenches.
- Flocculator with land application of solids and liquid infiltration field.
- Constructed wetland.

There is limited design information for treating milk house wastewater.

Demonstration Research Projects

Researchers at the University of Minnesota are leading two research demonstration teams that are designing, installing, monitoring and evaluating different treatment systems in Carver and Wright counties, and Winona and Goodhue counties. The projects have been done in collaboration with dairy producers, NRCS, SWCD, county staff and other organizations.

Carver and Wright Counties

Eight systems were installed in Carver and Wright counties in Fall 2001 and Spring 2002. The operations had from 50 to 130 cows, there were no parlors. Average equipment and installation costs were nearly \$10,000 for the eight systems with a range of \$6,200 to \$14,400. Cost sharing, experience, and non-research situations are expected to reduce costs.

Winona and Goodhue Counties

Seven systems were installed in Winona and Goodhue counties in Fall 2004. The operations had from 50 to 100 cows. Two operations had parlors. Average equipment and installation costs were slightly over \$9,600 for the eight systems with a range of \$6,000 to \$14,000.

Observations

- Water use is highly variable from farm to farm.
- Waste milk cannot be treated by the systems.
- Bark beds/strips worked well, good wastewater distribution is needed.
- Irrigation works, need good drain back in cold weather and a flat area without runoff to minimize pollution potential. Odor can be an issue.
- Aerobic treatment systems used reduced organic levels but were not able to reduce them to the levels that allow discharge.
- Most farmyards have limited space and many things buried in the farmyard, which makes system installation difficult.

For More Information

- Look for tours next summer in Winona and Goodhue counties.
- Visit the milk house wastewater website at <http://www.bae.umn.edu/extens/milkhouse/>.

Take Home Message

- Be aware that milk house wastewater needs to be handled properly.
- The University of Minnesota is leading research with cooperators to evaluate systems for Minnesota.
- Design and management guidelines will be developed in cooperation with SWCD and NRCS.
- It is expected that SWCD and NRCS will provide cost sharing and design help.

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