



Crystal Loon Mills CWP

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Crystal Loon Mills Clean Water Partnership

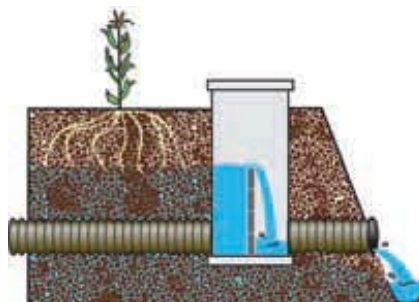
Upcoming Events

Water Conservation & River Protection Forum: From Local to National in conjunction with the Minnesota River Board Annual Meeting, July 27th, Redwood Falls Community Center, Redwood Falls. Join us for an afternoon of dynamic speakers giving us their perspective on water issues from a national, state, and local point of view. Guest speakers include: Tim Palmer, award winning photographer and author; Val L. Little, director of Water Conservation Alliance of Southern Arizona; Sara Smith, Environmental Planner for the Metropolitan Council; and Jim Doering, a local water conservationist. Full board meeting begins at 9am (no charge) and forum begins with lunch at 11am. \$20 registration fee covers lunch and speakers. To pre-register, call 507-389-5491 or email kar-nell.johnson@mnsu.edu.

Strip Tillage Expo, 8:30am - 4pm, Aug. 11th, SWROC, Lambertton. No charge to attend, lunch available on site. Visit <http://swroc.cfans.umn.edu/> for more info about this and other upcoming field days.

Quick Facts about Drainage Water Management

Drainage water management is used to vary the depth of the water table in order to reduce nitrate & nutrient loading on tile-drained soils. Weir boards, or stop-logs are added or removed in a water control structure to raise and lower water levels. The level of the water table is raised after harvest to limit drainage outflow and nutrients reaching ditches and streams during the off-season. Water levels are lowered in the early spring and fall so tile can run freely for field opera-



tions such as planting or harvest. During the growing season, the water level is raised to provide a potential source of water for plant uptake during dry spells. Drainage water management is suitable for flat fields and pattern drainage can be used. Management of the system is required to raise and lower stop-logs for field operations. Limited field research and computer models indicate long-term crop yield benefits beyond typical crop responses

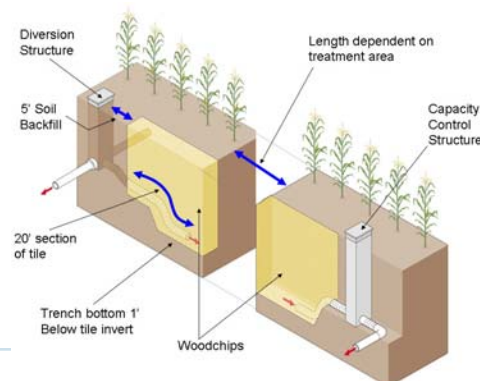
to drainage. Field studies show that nitrates reaching water bodies can be reduced by 15-75% due to the reduced drainage volume, denitrification within the soil profile, and deep seepage. Drainage water management systems may cost between \$500-\$2,000 depending on the type of system installed. Landowners and producers may be eligible for cost-share through the Clean Water Partnership or other partners.

Information provided by Purdue Extension publication: *Drainage Water Mgmt for the Midwest: Questions & answers about drainage water management in the Midwest.* View entire article at: <http://www.ces.purdue.edu/>

What's the buzz about: Woodchip Bio-Reactors?

The use of a woodchip bioreactor is one method for removing nitrate from large volumes of drainage water. Drainage water is diverted into a trench filled with woodchips. Nitrate is removed from the drainage water by denitrification in which nitrate is converted to nitrous oxide and nitrogen gas. It may also help remove phosphorus & *E. coli* from tile lines before the water reaches a drainage ditch or other water body. Unlike other nutrient management methods, bioreactors don't impact crop yield because they work with water after it leaves a field and requires no change from a farmer's production habits. Research is being conducted by members of the Agricultural Drainage Management Coalition (ADMC) to determine the life of reactors in MN & how they respond to our climate over time. John Moncrief, a university professor involved with the study, was skeptical about bioreactors in Minnesota at first. He thought the cold climate would negatively impact the bacteria but the data has changed his mind. The hypothesis now is that bioreactors work here because heat is created inside the trench, similar to a compost pile. "They work in Minnesota" he said. "Now we're trying to find out why and gather data on the specific conditions within them that affect their efficiency. This will allow us to accurately estimate their longevity under Minnesota conditions and, subsequently, implementation costs." Preliminary results show that they're working quite well. Data collected at a test site in Dundas in 2008 shows the bioreactor reduced total suspended solids, such as sediment, by 74 percent; total phosphorus by 78 percent; nitrate-nitrogen by 38 percent; and E. Coli by 52 percent. The combination of controlled drainage and a bioreactor reduced nitrogen and phosphorus in the drainage water by 88 percent. *Information from ADMC & AgriNews.*

Design by Richard Cooke, University of Illinois



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*Your partners for clean water in
the Crystal Loon Mills Watershed*

*Check out our NEW
website for more info &
upcoming community
events!*

[http://
mrbcd.mnsu.edu/org/
lakecrystal/index.html](http://mrbcd.mnsu.edu/org/lakecrystal/index.html)

Take a Kid Fishing Festival Success Despite Rain

Despite the cold, wet weather over 40 kids and their adult friends & families came out to Robinson Park on June 6th for the first ever Take a Kid Fishing festival. Six education & game stations were set up to help kids learn about watersheds, aquatic bugs & mussels, local fish species, boating safety, water quality sampling, and how to make paintings using fish! And fishing of course! Several bluegills and 2 northern pike were

caught by participants. Participants who pre-registered received a free fishing pole, as well as prizes for visiting all six stations. Sponsors and partners included DNR's MinnAqua, Fisheries & Law Enforcement programs, New Ulm Area Sport Fishermen Association, Minnesota River Board,

Legacy Hardware in Lake Crystal, Scheels Outdoor in Mankato, and the LCWM Secondary School Spanish Trip kids.

