

Water quality, farming can go hand-in-hand

Western Lake Superior Sanitary District's mission to keep water clean doesn't stop at the water's edge.

WLSSD's Field Green® fertilizer program uses advanced field practices to protect surface water and groundwater. Field Green® is used in fields and mines throughout the region.

Making a fertilizer from wastewater treatment solids recycles nutrients. The other options for those solids are putting them in a landfill or burning them.

The Environmental Protection Agency and state agencies set standards for biosolids before they can be used as fertilizer.

Field practices important

The Field Green® program also follows careful practices in the field to protect water quality. We work with farmers to help them be productive and profitable, while protecting our water.

Biosolids field practices are similar to fertilizer rules and share the goal of making sure nutrients stay put in the soil and out of water.

This issue of the Biosolids Digest focuses on helping farmers while protecting our waterways.



Farming can be productive while protecting waterways and wetlands, like the one in the foreground of this picture.

Staying away from water key

That mission is especially important in this region. Minnesota, for example, has more surface water than any other state in the lower 48.

Good field practices for fertilizing include providing setbacks, sometimes called buffer zones, around surface water. Groundwater can't be closer than three feet to surface at any time during the year, and even farther below the surface if soils are sandier and drain faster.

The concepts are simple. Spread only enough biosolids as needed. Keep a lot of soil between biosolids and water.

Inside

How to use a grass waterway,
page 2

Setbacks and buffers,
page 3

Getting in touch with us,
back page

Grass waterways save soil, clean water

By Jane Anklam
Douglas County Extension

Grassed waterways are constructed, intentionally managed pathways directing concentrated runoff water across farmland.

As opposed to a drainage ditch, a waterway slows and distributes runoff that would otherwise erode into gullies.

The need for a grassed waterway depends on soil type, slope, crop rotation, tillage practice, and the volume of water in the channel.

Each of these components impacts the speed of water creating the eroded channel.

Tilled fields prone to gully formation

A farmer growing hay with a mixture of grasses and legumes will likely avoid gully development.

When the same field is tilled and planted to a small grain or row crop, soil is exposed to the energy of flowing water.

This is when leaving a grassed channel to “slow the flow” is a consideration.

If you are a farmer who has an intensive crop rotation, such as back-to-back row crops of corn, silage, soybeans or small grains, you likely have been challenged by this erosion.

Once the channel is established, it is not likely to “heal” without installing a constructed grass waterway. It is best to plan for a grassed waterway before a gully develops.

Agencies can help plan waterways

The width, depth, type of grass and management can be determined specifically for your field, rotation and management.

The Natural Resources Conservation Service has guidelines to size the waterway appropriately. NRCS, Land and Water Conservation Departments, and Soil and Water Districts may have cost-shares for grassed waterways.

In any case, these agencies can provide you with information for your specific site to properly plan for your farm.

Managing a grassed waterway is key to its function and longevity. Both the inlet and outlet of the waterway need to be stable to avoid annual cutting back of the gully.

This stability should be accounted for in the design and construction, not an afterthought.

Waterways can produce crops, too

An established waterway should be mowed once a year to keep the grass from growing rank, falling over, and impeding the flow.

If the waterway will be crossed with farm machinery, the implement should be raised prevent ruts.

Fertilizer and herbicide sprayers should be shut off when crossing or adjacent to the waterway.

Grassed waterways are a key to sustainable farming: protecting your investment in farmland, yield, water quality and way of life.



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Setbacks protect streams, wetlands

Growing a crop and protecting water can be compatible with a few precautions.

One of the simplest ways is to stay away from water, such as wetlands, creeks, and rivers. One of the most effective methods is to mark setbacks from water for fertilizing and other field practices.

Some people call them buffers, others call them setbacks. Setbacks can be 20 feet to 120 feet in Minnesota, for example, depending on the type of water feature and other factors.

Field Green® crews follow regulations adopted by the Minnesota Pollution Control Agency and the Wisconsin Department of Natural Resources.

Setbacks have several benefits

On fields tilled for planting, less sediment can run off through a setback. This is especially true if the buffer zone has plants in it, such as tall grass, when it's called a grass filter strip.

An Iowa State University study found that a 15-foot setback with vegetation can trap 55 percent of the nitrogen and 60 percent of the phosphorus in runoff water. That's an improvement, even if not 100 percent effective.

The Iowa State study recommends taking care of the filter strip. It's important to make sure water spreads out evenly,



Field Green® staff are checking GIS information in a field. WLSSD uses computerized mapping to establish buffer zones, or setbacks, from water features.

instead of letting runoff cut a channel through it. Taller, permanent grasses with dense stems are best, and it's OK to cut it for hay once a year.

Soil type makes a difference

Sand and loam particles settle out well in a setback with grass, along with the nutrients attached nutrients.

Clay's tiny particles stay suspended in water and take longer to settle out, so it's best to have a wider buffer strip on clay fields.

State and federal agriculture departments have publications to help farmers manage filter strips. So does the U.S. Natural Resources Conservation Service.

A setback doesn't mean the land is taken out of production. The NRCS recommends managing the vegetation in a setback, especially if the setback area is a grass filter strip, and that includes harvesting grass hay.

Harvesting will help maintain the right types of plants to filter sediment and nutrients.

Laying out a buffer strip or setback is a good start to keeping waterways clean and creating good relationships with neighbors and downstream communities.



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Clear Answers for Clean Water®

Contact us

Have a question or want information on Field Green® biosolids? Here is a guide to our staff members:

If you're interested in enrolling a field in the biosolids program, have general questions, are a member of the public or are a government official, contact:

*Craig Lincoln, Environmental Programs Coordinator,
(218) 740-4808 or craig.lincoln@wlssd.com*

If you are an existing customer and would like to schedule a field or have questions on a recent application, contact:

*Paul Wilken, Lead Land Application Operator,
(218) 740-4764 or paul.wilken@wlssd.com*

For general questions, contact:

*Todd MacMillan, Biosolids Supervisor,
(218) 740-4767 or todd.macmillan@wlssd.com*



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