

RURAL CONSERVATION PRACTICES FOR CLEANER WATER

No one comes out a winner when water is polluted. Whether it's a farm family unable to drink their well water, children denied a chance to swim in a clean lake or anyone who has seen their favorite stream turn brown and gamefish vanish, we all pay the price for poor water quality. But it doesn't have to be this way. Rural landowners can do much for clean water and this fact sheet describes some key practices and help available.

The Problem

There is growing debate today about regulating certain farm operations that affect the environment. Much of the debate centers on *nonpoint source pollution*. While the term might not be familiar, we've all seen nonpoint source pollution every time rain or melting snow wash soil from cropland, manure from barnyards or oil from city streets into lakes and streams.

In rural areas, what happens on one field or one farm might not be significant, but on hundreds of farms, on thousands of fields the runoff adds up to a serious water quality problem. For farmers, the soil, manure, fertilizer and pesticides washing off the land or seeping down into the groundwater also mean that valuable resources are "going down the drain."

The Solution

For more than a decade, Wisconsin's Priority Watersheds Program has helped eligible landowners and local governments voluntarily control nonpoint source pollution. The program provides cost-sharing for conservation practices that help protect water quality, and free consulting and engineering design work.

The voluntary, cost-sharing approach is a means for landowners and the public to share the responsibility for the clean water that everyone wants. The approach has been successful over the years because both groups get something of value. Landowners and local governments get financial help to be good environmental stewards. The public gets cleaner water and, in the long run, everyone benefits from sustained farm productivity, a stronger local economy and the feeling of doing the right thing.



Getting Involved

On the back page you will find phone numbers for conservation staff in your county. They can explain the Priority Watershed Project in your area, eligibility requirements, and how involvement can benefit both your land management and local water quality. Look inside for examples...

Soil Conservation Practices

Conservation Tillage

Conservation tillage is a term describing any tillage method that leaves at least 30% of the soil surface covered with the last year's crop residue *after* planting. This residue protects the soil from the impact of heavy rain and slows runoff water. Erosion rates can thus be greatly reduced. Familiar conservation tillage methods include straight-shank chisel plowing, ridge tilling, and limited discing.

Cost-Sharing

- \$15/acre (three years of payment may be available for some fields).



Contour Farming and Strip-Cropping

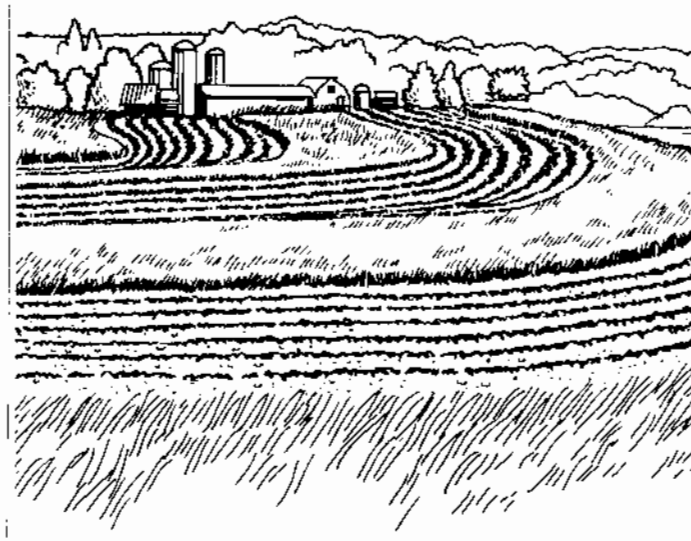
Contour farming is tilling and planting across the slope following the natural contours of the land. Contour strip-cropping (shown right) follows the same pattern, but also breaks the field into alternating bands of row crops and close-growing crops such as hay or small grains.

Farming on the contour slows down water and lets it soak in. Less runoff moving at a slower speed also reduces soil erosion. Strip-cropping further reduces erosion as the strips of hay protect the soil surface and filter out sediment. Both keep soil on the field and out of water.

These low cost practices save fuel and fertilizer. They also provide a sound method for farming steeper slopes.

Cost-Sharing

- \$6/acre for contour farming
- \$12/acre for contour strip-cropping
- 50% cost-sharing on obstruction removal or tiling, if necessary.
- 70% cost-sharing to recreate any lost wildlife habitat.



Grass Waterways

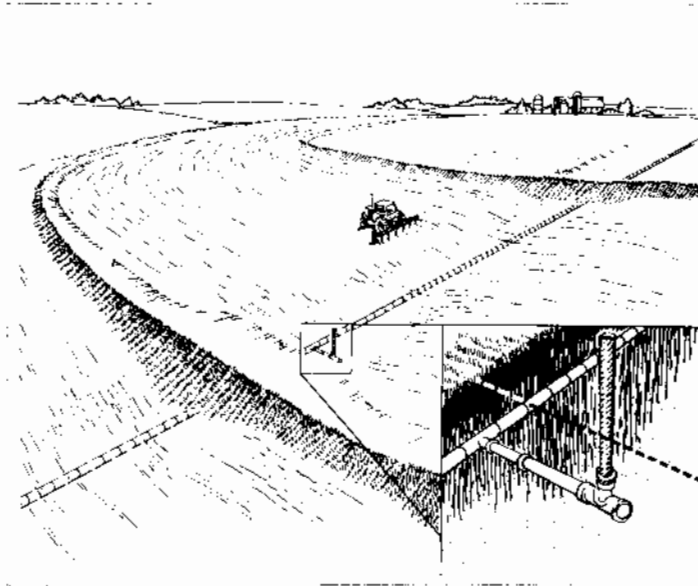
A grass waterway is a natural or graded channel, usually broad and shallow, planted to grass. Its main job is to carry runoff water from cropland while preventing erosion.

Grass waterways keep tons of sediment from being eroded off the most susceptible areas of a field, which could otherwise pollute surface waters. The vegetation in a grass waterway may also trap some sediment washed from adjacent cropland.

The width and depth of a waterway depends on the nature of the land draining through it. Once established, tillage equipment must be lifted when crossing waterways. However, they eliminate the inconvenience of fixing and crossing gullies that otherwise continually form.

Cost-Sharing

- 70% of total cost



Terraces

A terrace is one or more earthen ridges constructed across a slope to intercept runoff water. Such ridges divide long slopes into shorter segments, reducing the amount and speed of runoff. Water collected on the upslope side of the ridge is either diverted to a grass waterway or allowed to slowly drain into an underground tile system, as shown.

Several types of terraces are used in Wisconsin, depending on local soil types, slopes, and farming practices. Especially on long slopes, each type is very effective at reducing soil erosion. Terraces can reduce erosion rates enough that cropping some fields with a moderate to high erosion potential is more acceptable. However, they can be quite a costly soil conservation practice.

Cost-Sharing

- 70% of total cost.

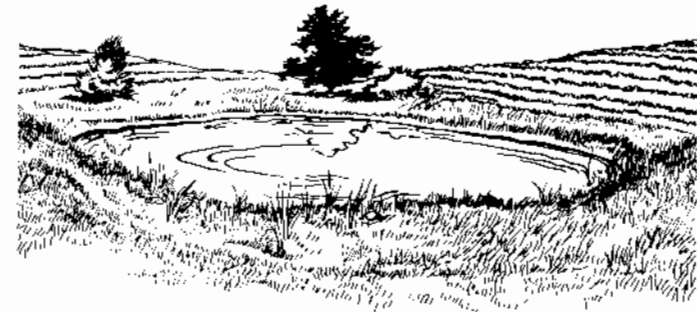
Sediment Basins

A sediment basin is formed by excavation or constructing an earthen embankment across the bottom of a drainageway. The basin collects runoff water and allows most sediment to settle out. Water is slowly released, usually through a pipe outlet and tile line.

Unless used with other soil conservation practices, sediment basins can become filled-in after only a few years, and lose their effectiveness. They can be designed in a variety of sizes and shapes adapted to individual sites. Plantings nearby can increase wildlife habitat and aesthetic appeal.

Cost-Sharing

- 70% of total cost.



Livestock Waste Management

Manure Storage and Spreading

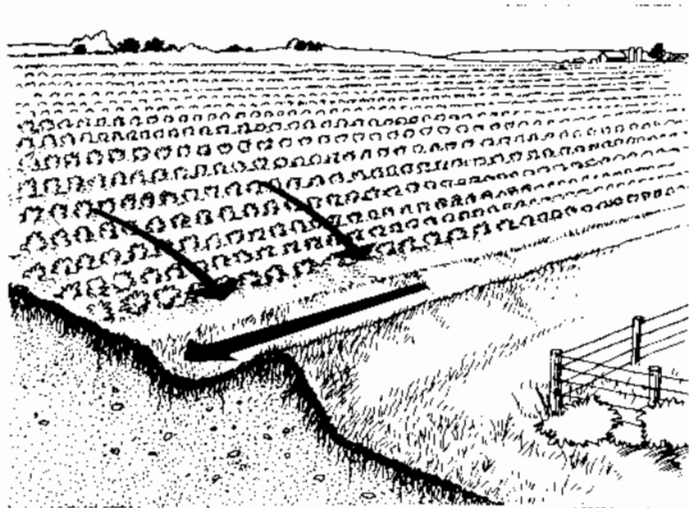
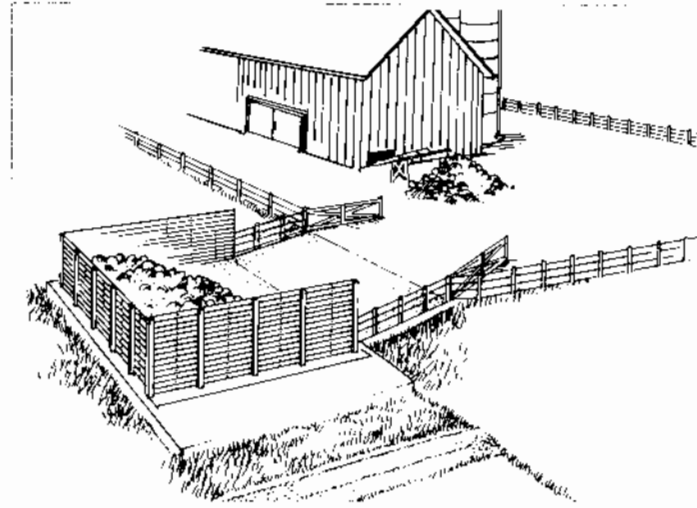
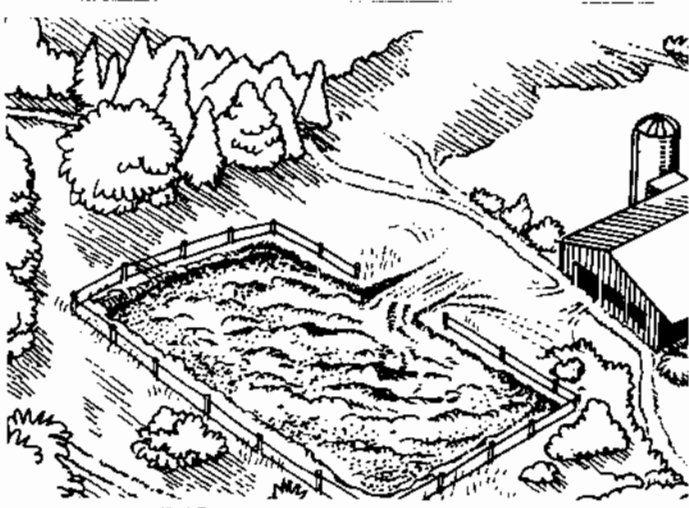
Manure can be a valuable part of a crop nutrient program. If treated as a waste product, however, it often ends up in streams and lakes and can cause high nitrate levels in groundwater.

County Conservation staff can assist landowners with the development of manure spreading plans. Such plans identify the application rate, locations, and time for spreading. This maximizes the manure's value to crops grown while preventing water pollution. In some cases, a manure storage facility is needed to help the farmer avoid spreading on frozen ground where spring runoff may carry potential pollutants to streams and lakes.

Common types of storage facilities include earthen pits for liquid manure and wooden or concrete-walled structures for solid or semi-solid manure. All are designed to fit individual farming operations and free farmers from daily spreading.

Cost-Sharing

- 70% of cost (a maximum payment may apply.)



Diversions

A diversion is an earthen ridge and channel built across a slope to carry runoff water around problem areas such as manure-covered barnyards or highly erodible fields. Typically, water collected by the diversion is directed to a stable area such as a grass waterway.

Diversions can be a simple, effective way to prevent excess runoff from flushing manure and eroded soil into streams and lakes.

Cost-Sharing

- 70% of total cost.

Barnyard Runoff Controls

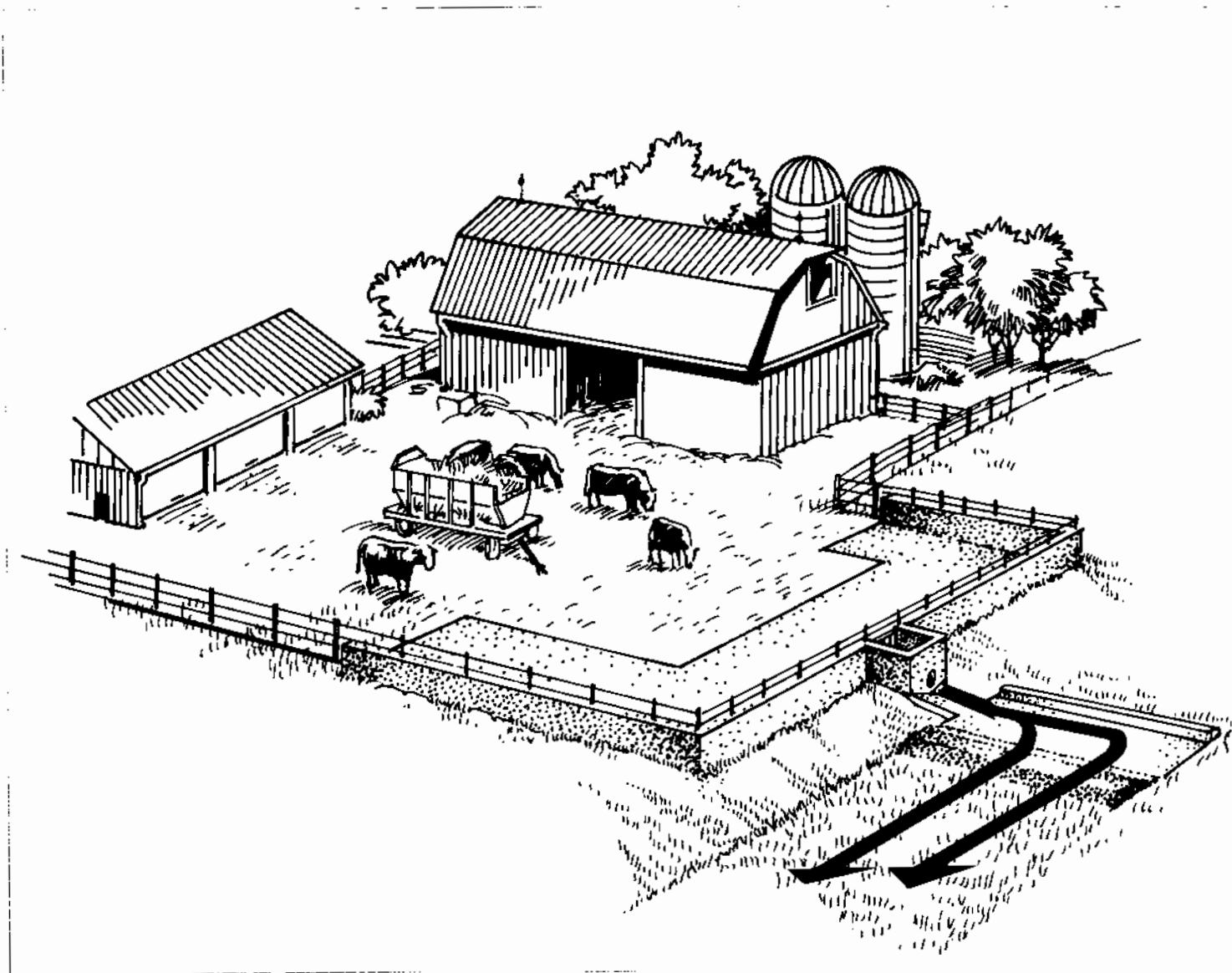
Barnyard runoff controls prevent manure from washing off a barnyard and into nearby waters. This is done in two ways: 1.) Reducing the amount of clean water flowing across manure-covered areas which would otherwise flush off pollutants; 2.) Filtering any remaining runoff that leaves the barnyard because of rain falling directly on the lot.

Typically, one or more of the following practices are used: rain gutters on the barn, an earthen diversion upslope from the yard, a wooden or concrete wall around the low end of the yard, an outlet which slowly releases water and a grass filter strip.

Barnyard runoff controls are very effective in keeping manure nutrients, disease-causing bacteria and organic matter out of streams and lakes. In addition to protecting water quality, the practices have proven to be popular with farmers because of improved herd health and barnyard management.

Cost-Sharing

- 70% of total cost.



Streamside Management



Buffer Strips

Vegetated buffer strips separating cropland from streams or lakes can stabilize these areas and prevent them from eroding. Buffer strips can also help filter sediment in the runoff water from adjacent cropland.

Natural vegetation along stream corridors can support an abundance of wildlife and reduce maintenance for the landowner. The width of buffer strips depends on many factors, including the natural characteristics of the drainage area above, and management of the land.

Cost-Sharing

- 70% of total cost. Additional funds may be available for conservation easements or through other programs.

Streambank Stabilization

Streambank stabilization involves the repair and protection of critical streambanks susceptible to seasonal erosion. High water in spring or after a heavy storm can cut into streambanks, often depositing tons of soil into a stream virtually overnight. Streambank erosion is generally not widespread, but can cause severe pollution problems where it occurs.

Several methods can stabilize eroding streambanks. Rock riprap (shown) is a commonly used material. The bank is cut back to a stable slope and a suitable base prepared. Large rocks are then placed to absorb the force of moving water. Banks that have been trampled or are only moderately eroded can often be reshaped and seeded, but livestock must be fenced away.

Stable banks can mean less cutting by streams into fields or fenced pastures.

Cost-Sharing

- 70% of total cost including alternative livestock watering, if necessary. Additional funds may be available from other sources for fish habitat work.

Fencing and Crossings

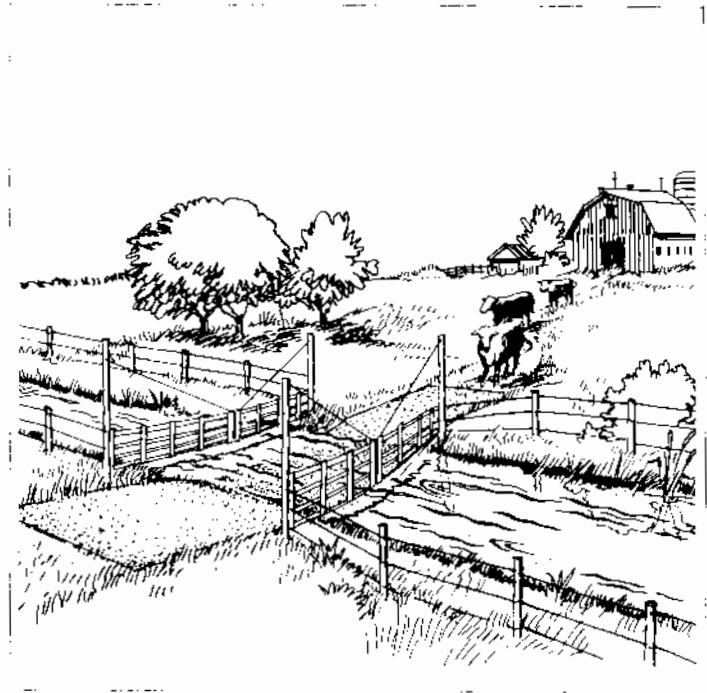
Fencing along a streambank is a simple and effective way to keep livestock from trampling banks and killing vegetation needed to hold the soil in place. This also keeps manure from being deposited directly in the water.

Barbed wire or electric fencing can include a crossing for livestock and machinery. A good crossing helps prevent erosion and keeps the stream bottom from being churned up by using a firm foundation of gravel or roughened concrete. Swing gates (shown) or suspended panels can be used to limit cattle access while also avoiding long-term obstruction of the stream.

In many areas of Wisconsin, fencing livestock away from streams and lakes has produced dramatic improvements in water quality and the number of fish.

Cost-Sharing

- 70% of total cost. Additional funds and volunteer group help is sometimes available.



Other Conservation Practices

Conservation Easements

A conservation easement is an agreement with the landowner to convert cropland or shoreland to permanent vegetation. This reduces the amount of sediment and other pollutants entering lakes and streams while keeping the land in private ownership.

The landowner is compensated for the change in land use and the public benefits from better water quality as well as enhanced wildlife habitat and possible recreational opportunities.

Cost-Sharing

- Value negotiated individually in conjunction with critical area planting, buffer strips, and wetland restoration.

Nutrient and Pest Management

Nutrient and pest management involves activities such as manure and legume crediting, planting disease resistant varieties, and timing harvesting schedules and crop rotations to reduce use of agricultural chemicals. State cost-shared practices include soil and manure nutrient testing, field scouting for pests and spill control measures for pesticides.

Reducing agrichemical inputs through better management cuts costs. It also protects the quality of our lakes, streams, and groundwater, as well as human health.

Cost-Sharing

- 50% of total cost.

Wetland Restoration

Many of our natural wetlands have been destroyed over the years by drainage and conversion to agricultural land. Because wetlands are a valuable resource and play such an important role in maintaining water quality, their protection is encouraged.

Wetlands can improve water quality by trapping sediment, maintaining stream flow during dry periods and removing nutrients from surface water. They also provide vital habitat for a variety of wildlife.

Wetland restoration can be as simple as breaking a few tiles, plugging drainage ditches or building small earthen ridges across a naturally wet area.

Cost-Sharing

- 70% of total costs. Additional funds may be available for conservation easements or through other programs.

Becoming Part of the Solution

If your favorite lake or stream is not as productive or beautiful as it once was, maybe it's suffering from nonpoint source pollution. Landowners in priority watersheds can now take advantage of financial assistance to reduce such pollution. Thousands of others have already done so statewide. The process begins by talking to your county conservation staff. They can help prepare a conservation plan individualized to your property. In many cases, solutions to water quality problems can be as simple as changing crop rotations or following a manure spreading plan. In other cases, where solutions such as a grass waterway, fencing cattle out of a stream, or barnyard improvements are needed, the state will help pay up to 70% of total costs. The illustrations inside show in a general sense how the various conservation practices look and work. But keep in mind that county staff work closely with landowners to make sure that each practice fits in with the individual farming operation.

Your Local Contacts

For more information, contact your local University of Wisconsin-Extension (UWEX) Land Conservation Department (LCD), Soil Conservation Service (SCS), or Department of Natural Resources (DNR) office:

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