



## Building Better Buffers

# Buffers for Clean Water

## Buffers for Water Quality



Minnesota's buffer law was enacted to improve water quality statewide. Landowners can make water cleaner by taking the following voluntary actions to improve their buffers.

**The wider the buffer, the greater the benefits:** Buffer law width requirements reflect a minimum size that provides some water quality benefits, but wider buffers may increase benefits. Wider buffers are better at trapping sediment and nutrients and reducing erosion. Parcels with steeper slopes or poorly drained soils need wider buffers to adequately treat runoff.

**Concentrated flow:** On many parcels, water flows to a handful of low points and discharges into water bodies. Installing wider buffers and grassed waterways or stabilizing tile intakes and outlets in these areas could yield a greater benefit for water quality.

**Better plants for better water:** Vegetation plays multiple roles in riparian buffers: It can reduce flow velocity, filter runoff, increase infiltration, uptake nutrients, stabilize soil, and add organic matter to the soil. Trees and shrubs along riparian corridors can decrease temperatures in waterbodies, which helps aquatic life. Deep-rooted, native prairie plants with stiff stems such as Big Bluestem, Indian Grass, Switchgrass, Maximilian Sunflower, and Stiff Goldenrod are effective at slowing surface runoff and intercepting subsurface flow.

## Financial Assistance Options



A variety of financial assistance options may be available to landowners working to comply with the buffer law. Your local SWCD, NRCS, or FSA office should be your first stop to see what programs are available to assist you with putting conservation on your land. BWSR, the United States Department of Agriculture (USDA), the Minnesota Department of Agriculture (MDA), local SWCDs and other organizations all provide voluntary, incentive-based conservation options to landowners through multiple programs.

### Buffer Law Requirements

- ◆ **Public Waters:** 50-ft average, 30-ft minimum width buffer
- ◆ **Public Ditches:** 16.5-width buffer
- ◆ **Alternative Practices:** Practices that provide water quality benefits comparable to full-width buffers may apply in some situations, along with reduced width buffers.
- ◆ **Buffers must consist of perennial vegetation, not row crops or noxious or invasive weeds**



**ABOUT THE SERIES:** Building Better Buffers is a series of guides offering voluntary options to landowners who want to improve their existing buffers. They provide information about improving buffers for increased water quality, enhanced habitat, and forestry, plus ideas for buffer maintenance and alternative practice options.

## Looking to the Future: Saturated Buffers



A saturated buffer is an area of perennial vegetation between agricultural fields and waterways where tile outlets drain. Tile lines connect to a control structure, which distributes water laterally along the buffer.

As water drains into the buffer, the living roots of perennial vegetation absorb water and nutrients, like nitrate-nitrogen. According to the Iowa Nutrient Reduction Strategy, a saturated buffer has the potential to remove 50% of nitrate-nitrogen from water that is diverted through the buffer.



Photo Credit: Goodhue SWCD

## Alternative Practices



While buffers consisting of perennial vegetation meeting established widths are the standard requirement under the buffer law, an alternative practice may be better suited for landowners on certain parcels used for cultivation farming. The law is flexible, allowing the use of alternative practices in place of buffers in some circumstances, as long as they provide an equivalent water quality benefit. The Minnesota Agricultural Water Quality Certification Program, NRCS filter strips, buffering tile intakes, and conservation-minded tillage are just a few examples of alternative practices that work for both landowners and water quality improvements. Interested producers should contact their local SWCD for more information.



## Healthy Soil for Water Quality



Buffers improve soil health by reducing wind and water erosion, adding organic matter to soils, and providing refuge for beneficial species. Buffers and in-field soil health practices can work hand in hand to protect water resources.

Landowners throughout Minnesota are becoming increasingly interested in practices that improve soil health. A healthy soil ecosystem gives growing plants access to air, water, and nutrients. Soil health practices such as reducing tillage and planting cover crops can potentially improve agricultural profitability by reducing input costs and increasing productivity. Fertile soil can support beneficial insects, which can reduce pest control costs. Beneficial plants can also reduce wind erosion.

At the same time, efforts to improve soil health can protect water resources by increasing the water holding capacity of the soil. Healthy soil is more resistant to erosive forces like wind and flowing water, which can reduce the flow of pollutants and sediment to streams and lakes. Soil health practices can also increase production for the agricultural economy.



Photo Credit: Middle Fork Crow River Watershed District