

Ag Land Management

Agricultural Best Management Practices



Put 'em out to pasture

Rotational grazing

Pasturing livestock is a common practice among livestock producers. Several studies and research through the University of Minnesota show that livestock grazing, if done properly, can enhance the quality of grazing lands. Pasture areas are often those areas that are not conducive to farming and generally contain sensitive landscape and surface water features. Nutrients left by livestock serve as a fertilizer source to pasture plant species, which then utilize and filter the nutrients rather than the nutrients being in excess and exiting the area in the form of runoff.



Effects of livestock on watersheds

Livestock manure

Livestock manure used as fertilizer has benefited farmers for decades and if applied properly can meet crop nutrient requirements, build up soil organic material and decrease dependence on commercial fertilizers, increase soil fertility, and in some cases, reduce soil erosion. Manure as fertilizer is a constant reminder that we can reuse and recycle a product that was once thought of as a waste product with insignificant value.

Manure, feed/silage leachate and milkhouse waste can be high in nutrients, specifically nitrogen and phosphorous. If improperly applied, manure does have the potential to contribute to nutrient loading and bacteria/viral levels of water sources.

If manure is not properly applied it often leads to negative environmental and water quality impacts.

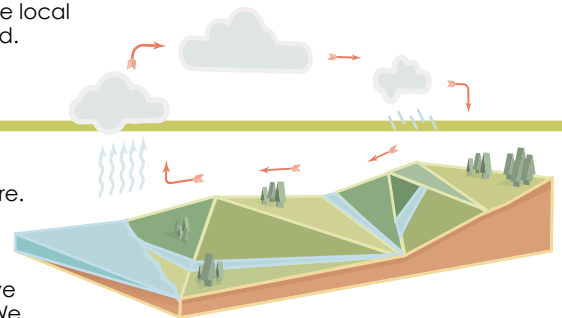
Rules for manure:

Several rules apply to all land where manure is applied, regardless of the distance to sensitive areas. For example, state rules limit nitrogen rates on all fields where manure is applied. Estimated plant-available nitrogen from all sources may not exceed expected crop nitrogen needs for non-legumes and expected nitrogen removal for legumes. Manure from all storage areas holding manure from more than 100 animal units must be tested for nutrient content. In addition, for all feedlots where manure management plans are required, manure cannot be applied to bare, harvested fields in June, July, or August unless a cover crop is planted for the remainder of the growing season.

When local ordinances are more restrictive than state rules, the local ordinances must be followed.

Watershed protection:

As farmers you understand better than most that there is an interdependency in nature. Elements are connected in ways that if tampered with will affect other elements. Our lakes are linked not only with streams and rivers, but with the weather, our homes, our yards and our farmlands. All together we view this as a watershed. Protecting the quality of our lakes reaches well beyond the shoreline. Over years of research we have developed a plan that takes all the elements surrounding a watershed into account. We call it our protection approach. And we would like farmers to join in our efforts.

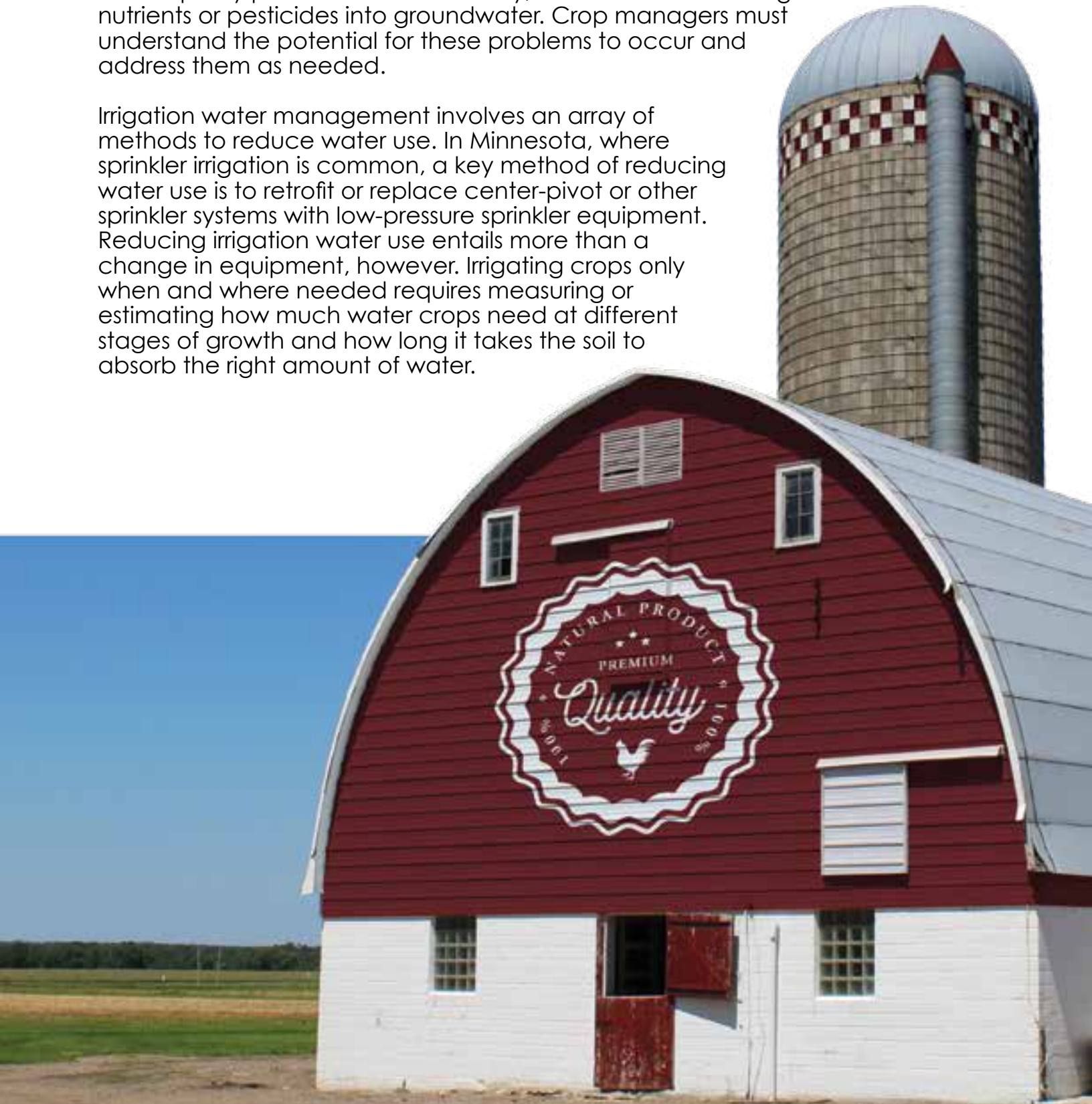


Best Management Practices (BMPs)

Irrigation management

Irrigation management aims to prevent irrigation-induced soil and water quality problems such as salinity, soil erosion or leaching of nutrients or pesticides into groundwater. Crop managers must understand the potential for these problems to occur and address them as needed.

Irrigation water management involves an array of methods to reduce water use. In Minnesota, where sprinkler irrigation is common, a key method of reducing water use is to retrofit or replace center-pivot or other sprinkler systems with low-pressure sprinkler equipment. Reducing irrigation water use entails more than a change in equipment, however. Irrigating crops only when and where needed requires measuring or estimating how much water crops need at different stages of growth and how long it takes the soil to absorb the right amount of water.



Vegetative buffer strips

Vegetation buffers are strips of land with permanent vegetation designed to intercept stormwater runoff and minimize soil erosion. Buffers can reduce the amount of sediment and pollutants carried by runoff to nearby lakes, wetlands, or streams. Soil particles accumulating as sediment in a lake can suffocate organisms and reduce sunlight needed by aquatic life. Sediment often carries pollutants such as phosphorus, a nutrient used in fertilizer. These nutrients cause excessive growth of algae and aquatic plants, deplete the oxygen level of water, and degrade water quality. Soil microbes and grass in buffer strips, however, can facilitate the transformation and uptake of these pollutants, thus protecting surface water resources.

Under the law, landowners must use buffer strips. Other best management practices include winter cover crops to help control soil erosion on their land. Buffers help trap snow and reduce wind erosion of topsoil. The benefits of buffers to farmers include reduced flood damage to crops, reduced erosion and sediment loss, and reduced ditch maintenance costs. In addition, buffer strips can eliminate end rows and provide turn areas for farmers' machinery.

Buffer widths must be:

- An average of 50 feet, minimum of 30 feet, on public waters
- A minimum of 16.5 feet on public drainage systems

For more information on buffer laws, please visit bwsr.state.mn.us/buffers.



Native grasses, unlike turf grass, intercept runoff and have long roots that do a better job of filtration and minimizing erosion. They also stabilize streambanks

Soil health principles:

There are 4 soil health principles:

- Keep soil covered.
- Keep living roots in the soil as much as possible.
- Encourage diversity above and below ground
- Minimize soil disturbance.

Healthy soil gives us clean air and water, bountiful crops and forests, productive grazing lands, diverse wildlife, and beautiful landscapes. Soil does all this by performing five essential functions:

Regulating water

Soil helps control where rain, snowmelt, and irrigation water goes

Sustaining plant and animal life

The diversity and productivity of living things depend on soil.

Filtering and buffering potential pollutants

The minerals and microbes in soil filter and detoxify organic and inorganic materials.

Cycling nutrients

Carbon, nitrogen, phosphorus, and other nutrients are stored, and cycled in the soil.

Physical stability and support

Soil structure provides a medium for plant roots. Soils also provide support for man-made structures.



4 things you can do...

While there are many things you can do with the land, the most important 4 things you can do are:

1

Prevent gully erosion on cultivated fields

During heavy rains, gullies can form rapidly where farmers have tilled and planted over natural depressions in the land and form pipelines that swiftly carry away sediment and nutrient-rich water that eventually ends up downstream in our lakes and rivers. Establishing a grass waterway or installing a sediment basin at the downstream end can help.

3

Manage livestock access to streams

When livestock trample streambanks, the soil is left unprotected and may collapse. Limiting livestock access to streambanks is one of the best ways for a farmer to prevent erosion and loss of productive land. It also reduces the risk of humans and livestock coming into contact with water-borne bacteria.

2

Vegetative buffer strips

Establish a vegetative buffer strip between row crops and lakes and streams. A 50 ft. wide buffer strip is required by law and will have significant benefits to the adjacent water body by filtering pollutants and taking up nutrients that otherwise could end up downstream. It could also provide habitat for fish and wildlife. For more information on the buffer law, please visit bwsr.state.mn.us/buffers.

4

Manure control

It makes sense, environmentally and economically, to apply manure when it is more likely to stay on the field, not when the ground is frozen and snow-covered and when the risk of runoff is highest.



PROTECT OUR WATERS!

YOU CAN HELP

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