USDA United States Department of Agriculture

# Restoring Soil and Clean Water with Managed Grazing

## Background

Managed Grazing, using a rest-rotation system of pastures, is one of the most environmentally friendly and cost effective methods of livestock farming today. Managed Grazing results in a thick, healthy sod that greatly reduces soil erosion and the runoff of manure, nutrients, and agricultural chemicals. On farms that properly implement managed grazing there is improved water quality and wildlife habitat for the following reasons:

## Conserve and Build Soil

Soil erosion is eliminated or reduced to below 1 ton per acre per year with Managed Grazing. The average annual erosion rate on cropland in Wisconsin is 4.4 tons per acre per year, therefore a topsoil savings of 3 tons per acre per year occurs by adopting Managed Grazing. It takes 4 acres to produce a grass finished steer considering winter feed, mother cow and yearly replacement, therefore each finished steer would save 12 tons of topsoil. This reduced soil erosion keeps 8 lbs. of phosphorous that is tied to soil particles out of our rivers, streams, and lakes where it can cause pollution and algae blooms.

**Managed Grazing with Dairy Heifers.**

Perennial vegetation makes for healthier soil by increasing the amount of organic carbon in the soil. Having livestock graze the vegetation stimulates the soil micro-organisms with extra carbohydrates giving them food so they can breakdown dead plant materials into nutrients for growing plants. Under Managed Grazing, the percent organic matter in the soil can increase by 1 percent or 20,000 lbs. of atmospheric carbon over 5 years. That amounts to an increase in water holding capacity of 20,000 gallons of water per acre.

## Improve Water Quality

Runoff of fertilizers and surface applied manure is reduced by 75 percent under a 3-5 inch grass cover compared to annual row crops, such as corn and soybeans. Groundwater nitrates are lower under Managed Grazing compared to corn because of a process call de-nitrification (nitrates are reduced to nitrogen gases to the air) which is more prevalent under a grass/sod cover. Since 4 acres are needed for each grass-fed steer marketed, this would save over 100 lbs. of nitrogen from entering our surface and groundwater.

The potential for excess manure generation is reduced on farms implementing Managed Grazing. Animal numbers are tied to the available land base (forage supply), therefore, the possibility that manure production will exceed the available acreage for spreading is minimal, unlike operations that bring in stored or purchased feed, which can easily tip the balance on the side of excess manure and nutrients.

Pesticide use under Managed Grazing is reduced 90-100 percent compared to corn and soybeans. Most farmers who graze do not use any form of herbicides or insecticide on their pastures therefore avoiding potential contamination of surface or groundwater.

**Wisconsin**

Natural Resources Conservation Service

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