

Sustainable Agriculture for Sustain Society

There is a large number of farm practices which proponents claim are sustainable, often accompanied by claims that other farm practices are not sustainable. Yet, there are some basic requirements that any farm practice has to meet for it to be sustainable:

1. It must provide a reasonable economic return in the near term and long term.
2. It must maintain the environmental resources, such as the land, water, and air in a condition that is equal to, if not better, than before.
3. It must provide food that promotes the health and well-being of those who consume it.
4. It must both support the community and receive support from the community.

There may certainly be other requirements, yet these are basics that cannot be ignored. One practice which can meet these criteria is often one that the general public finds surprising; that is managed grazing of livestock. Livestock are often considered in a negative light by many. That's understandable given that poor management of livestock can have severe negative impacts on the environment. Ironically, properly managed grazing systems may be one of the most sustainable, and environmentally friendly farm practices known.

While management practices and impacts of these practices vary in differing climates, there is much research from the Midwestern U.S. demonstrating the positive benefits of managed grazing on the environment.

1. Well managed grazing systems can reduce runoff of sediment (soil erosion) and nutrients into surface waters compared to cropping systems.
 - a. Research in Manitowoc County demonstrated a thousand fold increase in total suspended solids (sediments or soil) in runoff from a conventionally tilled field compared to a managed grazing system.
 - b. Research from Ohio State University demonstrated a 0.1 ton/acre soil loss/acre from well manage pasture, versus 6 tons per acre from corn. They also found that infiltration rates of rainfall were higher in pasture compared to corn or forest.
2. Grasslands are prime nesting habitat for many bird species. Providing them with nesting grounds through the use of managed grazing; that is leaving a portion of the pasture acres uncut or ungrazed until July, allows grassland birds to successfully nest and rear young. Nesting in managed grazing systems was double that of cropland, and when that grazing system included a refuge—ungrazed pasture until July—the nesting tripled compared to cropland.
3. Nutrients, such as phosphorous and nitrogen are essential to life, yet we need a system that keeps them in the right places at the right times. Managed grazing helps farmers keep nutrients where they are supposed to be and keeps them out of our waterways.
4. Quick crusting of manure deposited by the cow in pasture prevents its nutrients from runoff. Cattle depositing manure and urine on pasture also prevents odors, which are so common in confinement systems where manure and urine are mixed

together. When urine and manure are mixed it cause ammonia to be released. However, on pasture urine is immediately absorbed into the soil.

5. Active organic matter in pastures helps keep nitrogen from leaching into groundwater.
6. A Wisconsin study found that managed grazing is compatible with good stream management. Managed grazing reduced erosion and increased instream habitat when compared to continuous grazing or woody buffers. It was comparable to grass buffers which were not grazed.

Many of the environmental improvements have yet to be documented because of a lack of research but Wisconsin Grazing specialist Paul Daigle has made the following observations on farms that graze for at least 5-6 months of each year:

1. Electricity bills drop by \$50-\$100 per month during the grazing season because the cows are outside and do not need fans on to cool them or motors run to feed them. (Cumulative result is 108 farms saving \$75 per month for 6 months is \$48,000 per year.)
2. Fuel bills drop by \$500-\$1000 per year because the cows are harvesting the feed and spreading the manure. (Cumulative impact of 108 farms saving \$750 per farm is \$81,000 per year.)
3. Pesticide use drops by 90-100% on managed pastures.
4. Mechanical spreading of manure is reduced by 60-90%. Expensive manure storage needs are also greatly reduced. These storage facilities are typically cost-shared by taxpayers.

Farm conservation programs come and go, and so do taxpayer dollars to fund them. In Wisconsin the designated watershed approach has been one of the main ways the state and counties have used to reduce sediment and nutrient runoff into surface waters. However, providing technical and costshare assistance to landowners to install and use managed grazing systems appears to be a much more cost effective way to accomplish the same goals.

Paul Daigle, Grazing Specialist for Marathon County Conservation, Planning, and Zoning wrote about the impact of converting over 10,000 acres to managed grazing in Marathon County from 1998-2004:

The grand total of phosphorus reduction to surface water is 55,563 lbs. per year for the first year of our project. Based on our annual project budget of \$65,000, the cost to reduce phosphorus is \$1.17 per pound (this does not include any cost sharing). Using typical best management practices on an average farm, it costs 20-60 times more money per pound to reduce phosphorus in surface waters. ***This project has been shown to be the lowest cost way our department has to reduce sediment and nutrient runoff into our surface waters.***

Brian Pillsbury, grazing specialist for the USDA Natural Resources and Conservation Service also has this to say about managed grazing:

“There is no other management practice we can offer livestock producers today that provides the environmental benefits necessary to meet the water quality goals of Wisconsin for the least amount of taxpayer investment.”