



PROTECTING SOIL AND WATER RESOURCES

Melissa Schlupp, Conservation Manager
Sauk County Land Resources and Environment Department

1

Consider Your Goals

- 
Income or tax assessment needs
- 
Recreation, wildlife habitat, scenery
- 
Future property transfer
- 
Maintain/improve soil health
- 
Protect water quality
- 
Organic certification

2

A Good Starting Point: State Performance Standards

- Wisconsin adopted administrative rules in 2002 (NR 151), with revisions effective in 2011 that set statewide performance standards and prohibitions for all Wisconsin farms.
- These are considered minimum conservation standards meant to protect land and water resources while maintaining productive farmland
- All landowners must comply with these standards and prohibitions.
- Cost-share funding may be available to assist with compliance.
- Some state and local programs may require compliance whether or not cost-share funds are available.
 - Farmland Preservation
 - County Ordinances

3

Tolerable Soil Loss

Wikipedia: Maximum average annual soil loss expressed as tons per acre per year that will permit current production levels to be maintained economically and indefinitely.



4

What does Erosion Cost?

- 1 Dime is 0.053 inches thick – spread over one acre of land, that's just under 8.8 tons/acre of soil (*that would fill about 80% of a 10 cu/yd dump truck*)
- Depending on your region, a dump truck load of topsoil can cost \$150-300.
- A 10-acre field that lost a dime's width worth of topsoil would be equivalent to 10 dump trucks of soil removed from your land.
 - 27 lbs/acre – Nitrogen
 - 3 lbs/acre – Phosphorus, Potassium, Sulfur
 - Carbon = \$4.00/ton
 - Nitrogen = \$0.50/lb
 - Phosphorus = \$0.70/lb
 - Potassium = \$0.40/lb
 - Sulfur = \$0.50/lb
- Total loss of \$18.83/acre in nutrients alone

5



Contour Strip
Cropping



Rotational
Grazing



Contour Buffer
Strips



No Till



Cover Crops

6



Gully Erosion

- A gully 1 feet wide x 1 feet deep x 100 feet long can lose 4.5 tons soil per year!




Grade Stabilization Structure



Grassed Waterway

7



Tillage Setbacks

- Consider requiring a 5-20 foot setback
- Conservation Reserve Enhancement Program (CREP)

8



Nutrient Management

Nutrient Management plans are required on all land where manure or commercial fertilizer are applied

Farmland Preservation Program

Manure Storage

Local Ordinances

9

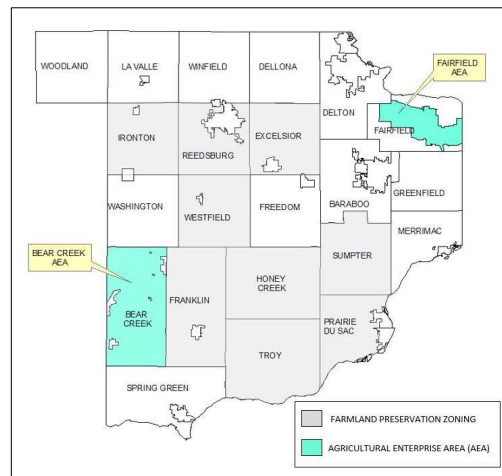
Farmland Preservation Program Requirements

9 townships

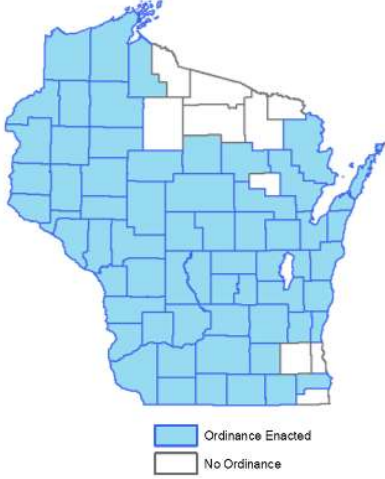
2 Extraterritorial Zoning districts

2 Agriculture Enterprise Areas (AEA)

Existing long-term agreements



10



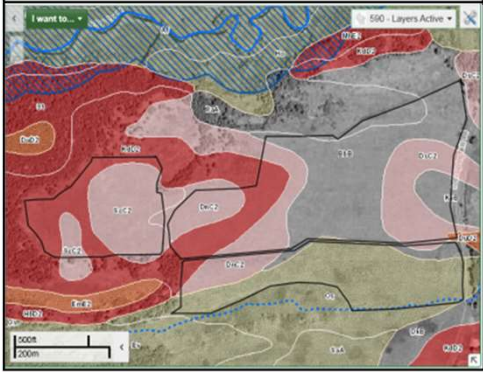
■ Ordinance Enacted
■ No Ordinance

Manure Storage Ordinances

Sauk County Chapter 26:
Agriculture Performance Standards and Manure Management Ordinance

- Established 1990
- Updated 2009, 2017, 2021

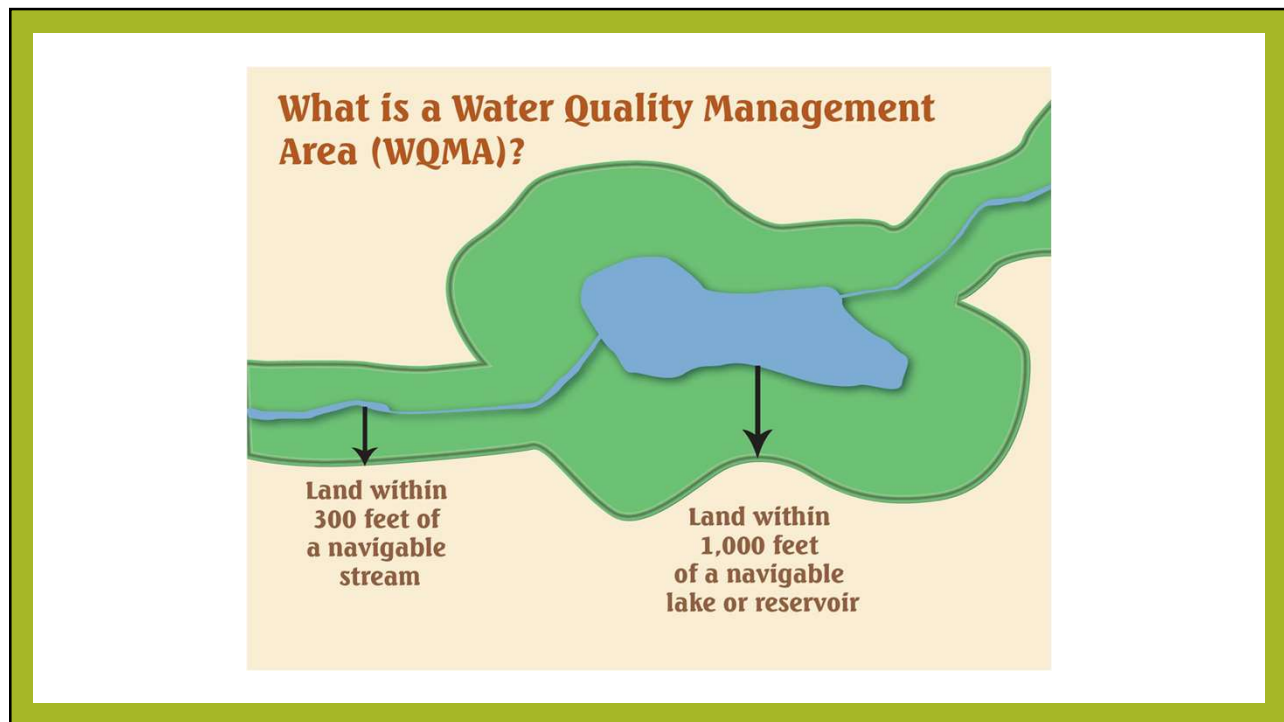
11



Nutrient Management

- Nutrient Management plans can act as conservation plans
- Meet tolerable soil loss
- Address gully erosion
- Routine soil sampling
- Avoid sensitive areas (i.e. WQMAs)

12

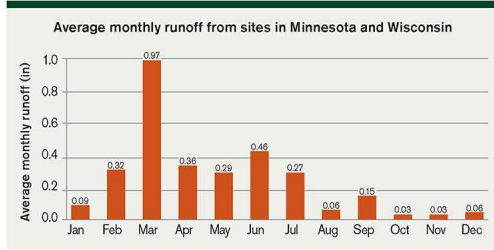


13



14

Limitations on winter manure spreading



15

Soil Compaction



16

Livestock Management



Clean Water Diversions
Near WQMA



Unlimited Livestock
Access to Streams



Unconfined Manure
Piles near WQMA



Runoff from Feedlots &
Manure Storage

17

Other Considerations



- Fall nitrogen applications
- Fall tillage
- Fall terminated alfalfa
- Soil health

18

Soil Health Principles

Keep the
soil covered

Minimize
disturbance

Living roots
year round

Increase
diversity

Incorporate
livestock

19

Healthy soils can...

- Improve water infiltration
- Reduce soil erosion
- Alleviate soil compaction
- Increase water holding capacity of soils
- Improve nutrient cycling



20



Healthy soils can...

- Reduce pest pressures
- Provide supplemental feed for livestock
- Protect surface and groundwater resources
- Provide habitat for birds, pollinators, and other wildlife species

21

Long term commitment

- Who makes the investment?
- Is it included in the lease agreement?



unlock the SECRETS OF SOIL

More farmers, ranchers and others who rely on the land are taking action to improve the health of their soil. Many farmers are actually building the soil. How? By using soil health management systems that include cover crops, diverse rotations and no-till.

When they're building the soil they're doing something else - they're also building the land's production potential over the long-term.

But how do landowners know if their tenants are doing everything they need to do to make and keep their soil healthy? Barry Fisher, an Indiana farmer and nationally recognized soil health specialist with the USDA's Natural Resources Conservation Service, recommends that they ask their farming partner these five questions.

#1 DO YOU BUILD ORGANIC MATTER IN THE SOIL?

Organic matter (carbon) may be the most important indicator of a farm's productivity. The amount of soil organic matter often determines the price farmers will pay to rent or buy land. Finding a farmer who is interested in building organic matter by using practices like no-till and cover crops is like finding a bank with a better rate on a Certificate of Deposit, Fisher says.

DO YOU TEST THE SOIL AT LEAST ONCE EVERY

22

Local Resources

- UW-Madison Division of Extension
- Land Conservation Departments (County)
- Natural Resources Conservation Service (Federal)
- Farm Service Agency (Federal)



Photo: Wisconsin NRCS

23

THANK YOU!
QUESTIONS?

24