



Healthy Land  
Clean Water  
For Life

# Soil Health and Continuous Improvement of Soil Resources

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## Three Points

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- 100+ years of cultivation and grazing has had an impact on our soil resources
- There is an opportunity/responsibility to seek a path forward to protect and restore our soil resources

# Resources Basic to Food and Commodity Production

- Human Resources
- Seed - Plant Genetics
- Fertility
- Crop Protection Products
- Equipment
- Soil Resources



# Human Resources

- University Education
- University research through Extension
- Web access to specialized information
- Conferences - production/conservation
- Journals and Publications
- Certified Crop Advisors

# Seed - Plant Genetics

- Plant genome mapping
- Plant breeding, GMOs
- Testing/certification
  - Germination
  - Yield
- Field days

# Fertility

- Soil testing
- Nutrient management planning
- Four Rs, nutrient management
  - Source
  - Rate
  - Timing
  - Placement
- Manure utilization



# Crop Protection Products

- Pesticides
  - GMOs
  - Modes of Action
  - Scouting and IPM services
  - Product Labels
    - Effective
    - Safety
    - Environmental protection

# Equipment



# Equipment



# Soil Resources

We can't make the same claim that  
over the last

10, 20, 50, 150 years

- that we can see improvement in our  
soil resources

# Soil Resources

- Soil mapping and digitization of soil surveys
- Soil erosion control programs, practices and systems - TA/FA

# Clarion Soil

## Loamy Wisconsin Glacial Till

A1: 7-12 inches

very dark brown loam

A2: 12-18 inches

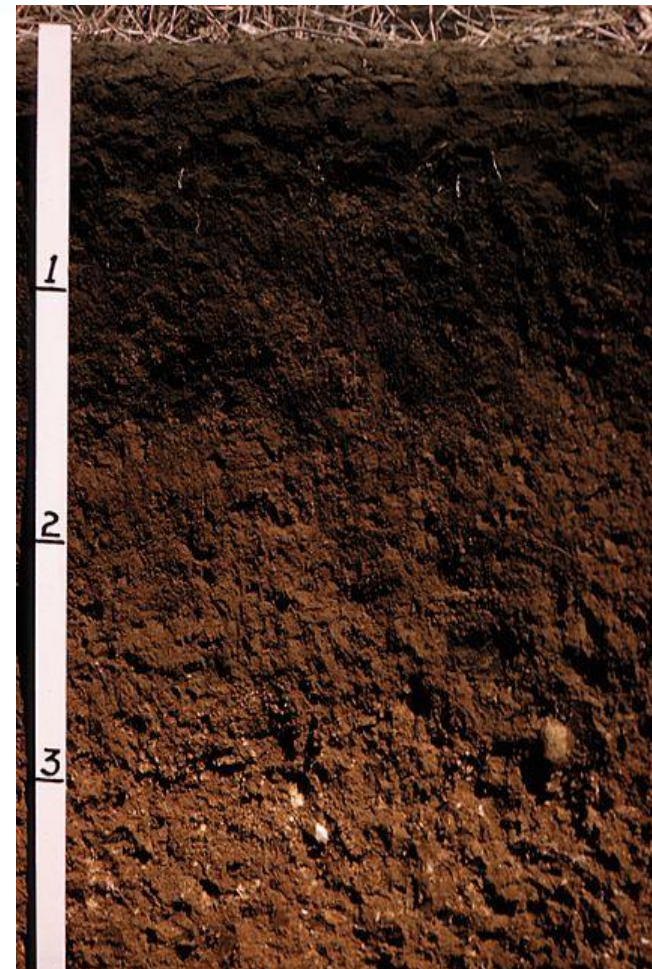
dark brown loam

Bw1: 18-26 inches

dark yellowish brown loam

Bw2: 26-36 inches

dark yellowish brown loam



# Clarion Soil



# Clarion Soil Resource

- We map 'erosion phases'
- Color changes – reduced soil carbon
- Soil accumulation – down gradient
- Tolerable soil loss



# Soil Conservation/Soil Health

- Conservation practices have resulted in an important measure of protection
- Concept of soil health suggests a system approach to erosion control, and the opportunity to restore or enhance soil properties



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# Soil Health Concept - Cover Crops

- Prevent erosion – as a part of a conservation plan
  - Keep it green
  - Maintain more residue following harvest, through planting
  - Mimic the native vegetation
- Without taking our cropland out of production

# Cover Crops

- Restore soil properties - roots
  - Build soil organic matter
  - Improve soil structure
    - Permeability
    - Moisture holding capacity
    - Reduce compaction
    - Enhance soil biology
- Increase soil/crop resilience

# Cover Crop Cropping System

- Not without challenges
  - Weather limitations
  - Labor/equipment
  - Support services
    - Growing agribusiness products/services
  - Learning curve
    - Field days
    - Farmer to farmer
  - Cost/economics

# Continuous Improvement

To meet future demands for food, fuel, fiber, and forage – we need to ~~protect~~ restore our nation's soils

We have to increase our commitment to manage our soil resource as if it is the most important crop production asset we have