MARATHON COUNTY

Conservation, Planning, & Zoning Department

Why are we here today?

Paul Daigle
Land and Water Program Director
Professional Soil Scientist
Professional Hydrologist

Share impacts and find solutions to changes in Climate

MARATHON COUNTY
Conservation, Planning, & Zoning Department

- Observed Impacts on farms and from farms on climate change
- Willing to listen to understand, in order to find common ground
- Open-minded and willing to explore new ideas
- Interested in finding solutions, not defending status quo

The relationship between agriculture and changing weather

MARATHON COUNTY

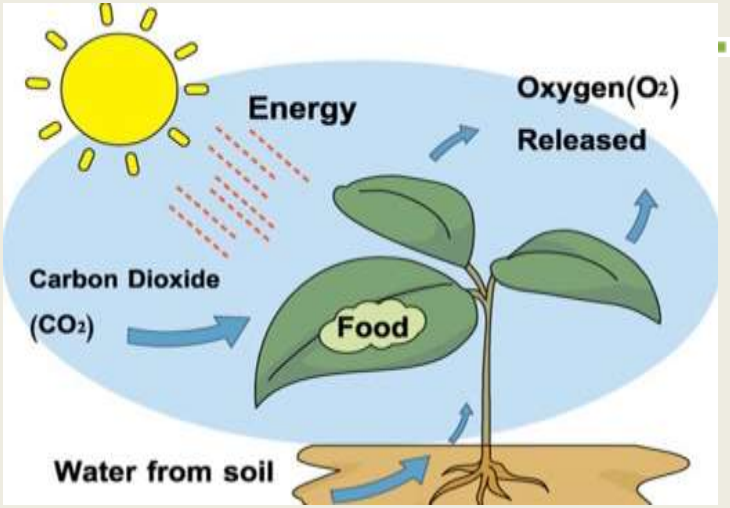
Conservation, Planning, & Zoning Department

- Importance of the land and water
  - No land and water
  - No Farms
  - No Food
- Importance of the agricultural uses
- Many users with varying interests and values

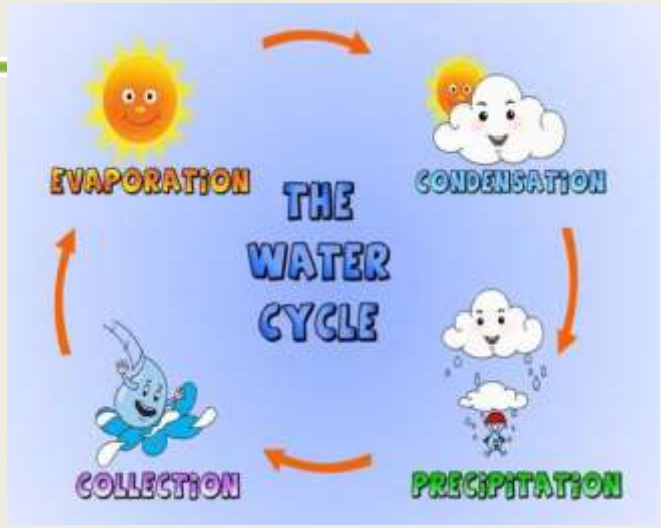
Ecosystem Processes-Disruptions

MARATHON COUNTY
Conservation, Planning, & Zoning Department

Solar Energy- Chemical Energy

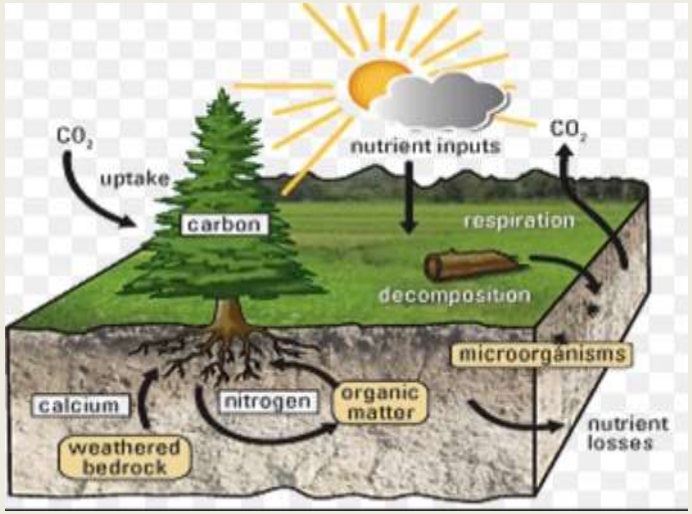


Water Cycle



Community Dynamics-Diversity

Biogeochemical Nutrient Cycle



We need to support farming systems that mimic these cycles


According to the Wisconsin Valley Improvement Company records- Northern half of WI experienced the driest decade on record from 2000-2010

According to the Wisconsin Valley Improvement Company records- Northern half of WI then experienced the wettest decade on record from 2010-2019

Dramatic shifts in weather patterns, indicative of climate change, make farming extremely difficult.

Coupled with dramatic swings in commodity prices makes farming far more risky.

“Man argues….nature acts”!

MARATHON COUNTY

Conservation, Planning, & Zoning Department

Voltaire

Agriculture runs on Ancient sunlight!

MARATHON COUNTY

Conservation, Planning,

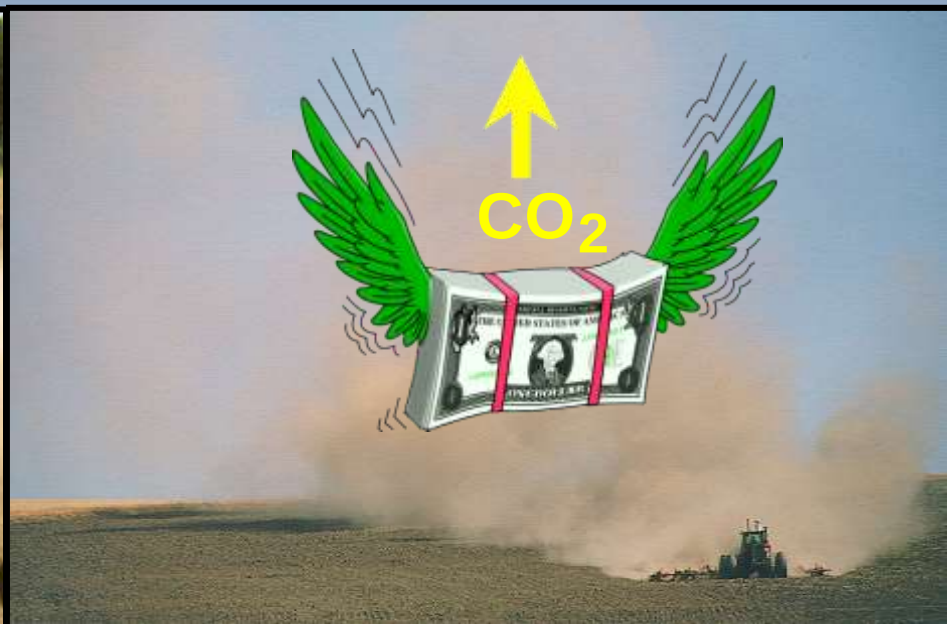
MARATHON COUNTY

Conservation, Planning, & Zoning Department

There has been an increase of 22% in the amount of land planted to row crops and under intensive tillage in the last two decades in Marathon County

No. 1 Environmental Enemy in Production Agriculture

Tillage-induced Carbon Dioxide Loss



Tillage destroys soil aggregates:

MARATHON COUNTY
Conservation, Planning, & Zoning Department

Tilled soil

No-till soil


401
424

Increase in gully erosion

MARATHON COUNTY

Conservation, Planning,
& Zoning Department


Increase in volume and speed of runoff
Increase sheet and rill erosion

Disrupted water cycle-Infiltration problem-leading to down stream flooding, lack of groundwater recharge & lack of base flow to streams

MARATHON COUNTY

Conservation, Planning, & Zoning Department

Increasing Sediment and nutrient runoff which lead to poor water quality

Voluntary Conservation and minimal compliance requirements

MARATHON COUNTY

Conservation, Planning, & Zoning Department

It is still not enough!

MARATHON COUNTY
Conservation, Planning, & Zoning Department

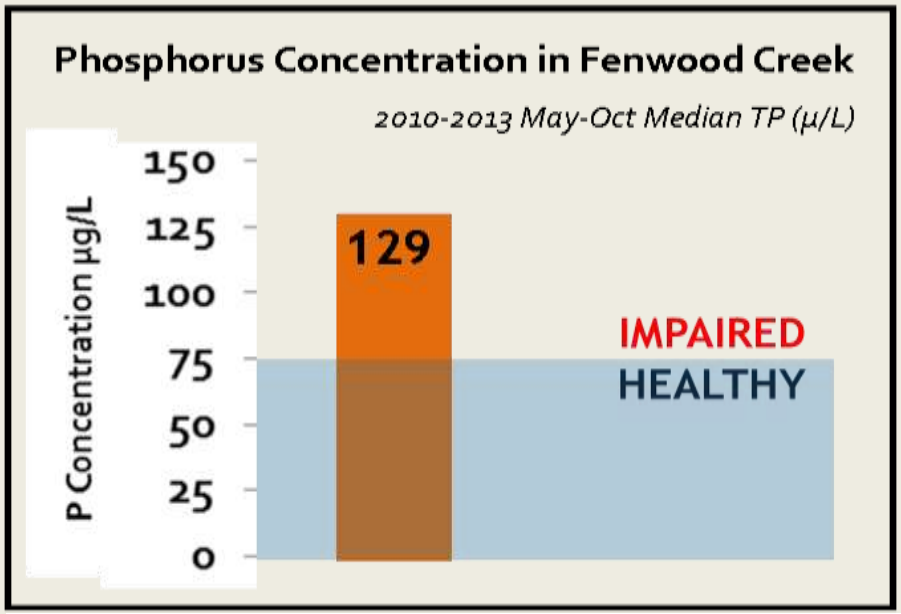


Figure 4 Phosphorus concentrations in Fenwood Creek

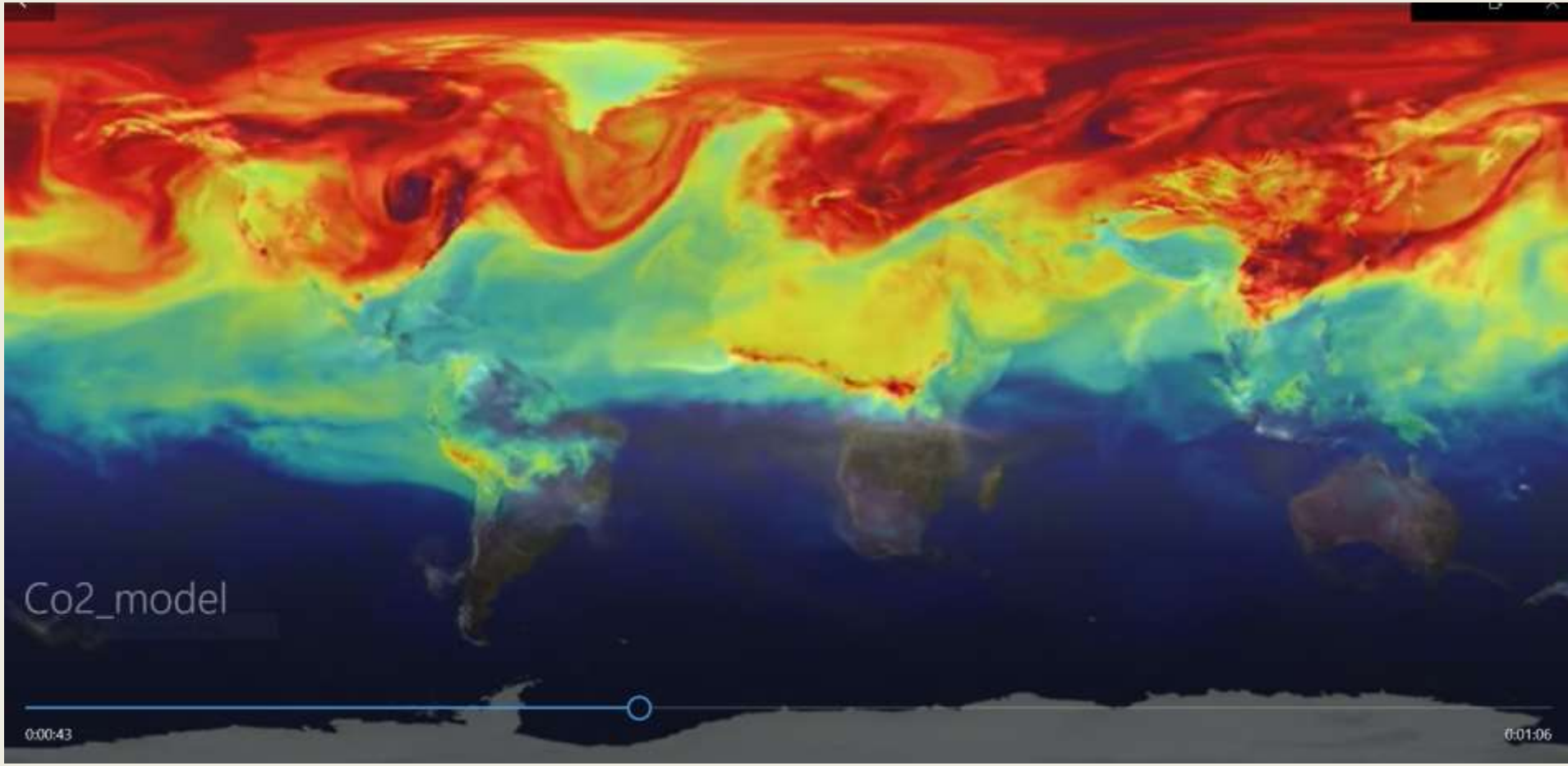
This soil is naked, hungry, thirsty and running a fever!

Ray Archuleta 2007

Northern Hemisphere in the Spring CO2 is red/orange-Source is NASA

MARATHON COUNTY

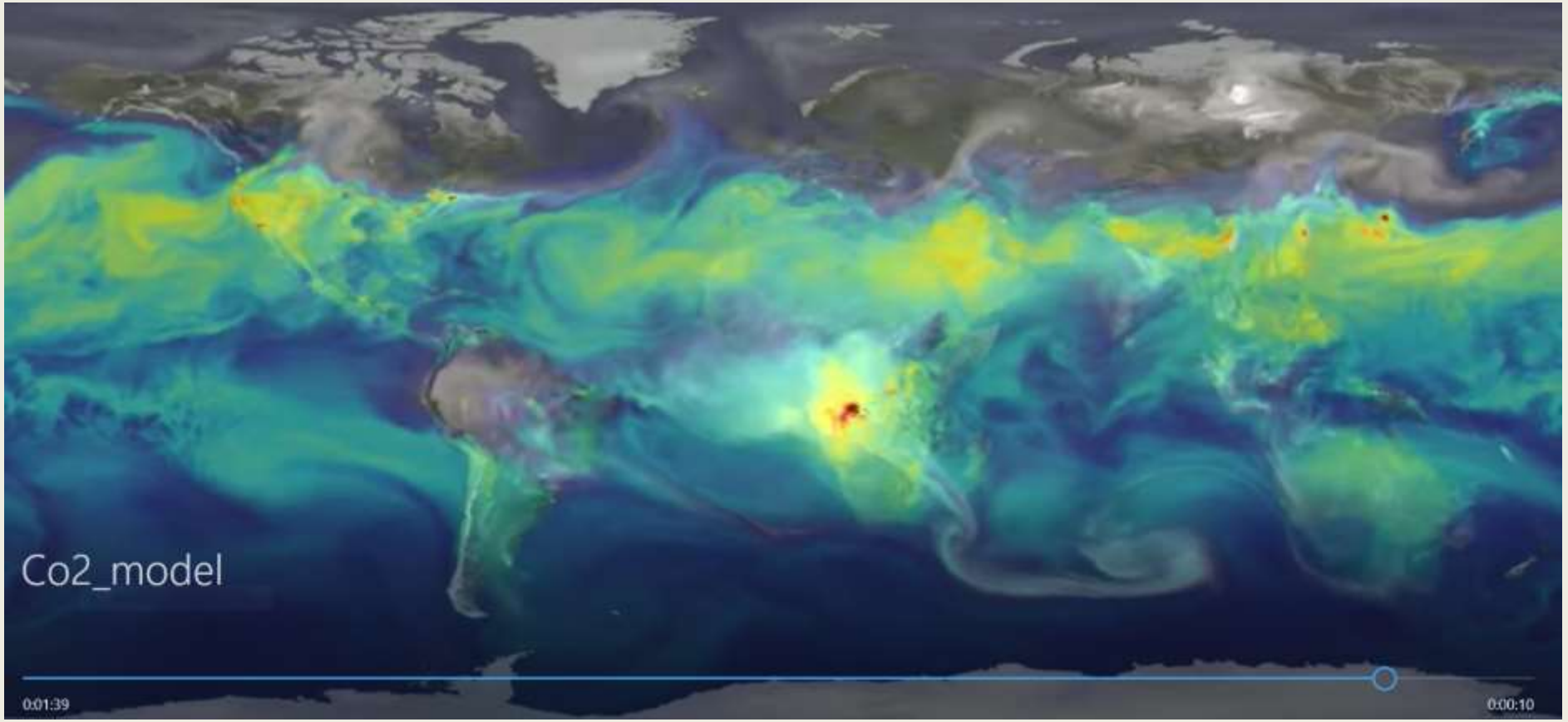
Conservation, Planning, & Zoning Department



Northern Hemisphere mid summer

MARATHON COUNTY

Conservation, Planning, & Zoning Department



Organizational responsibility

MARATHON COUNTY
Conservation, Planning, & Zoning Department

USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

Farms/Farmers/Farm groups

WISCONSIN DEPT. OF NATURAL RESOURCES

MARATHON COUNTY

DEPARTMENT OF AGRICULTURE, TRADE & CONSUMER PROTECTION • WISCONSIN • FORWARD

Our lakes and rivers are filled with nutrients and sediment From unfulfilled promises of the best laid nutrient and conservation management plans „

MARATHON COUNTY

Conservation, Planning, & Zoning Department

Solution is right in front of us-Nature's cover-farming must mimic nature

MARATHON COUNTY

Conservation, Planning, & Zoning Department

Mother Nature always wins

MARATHON COUNTY

Conservation, Planning, & Zoning Department

Science with correct Mindset!

MARATHON COUNTY

Conservation, Planning, & Zoning Department

No relationship

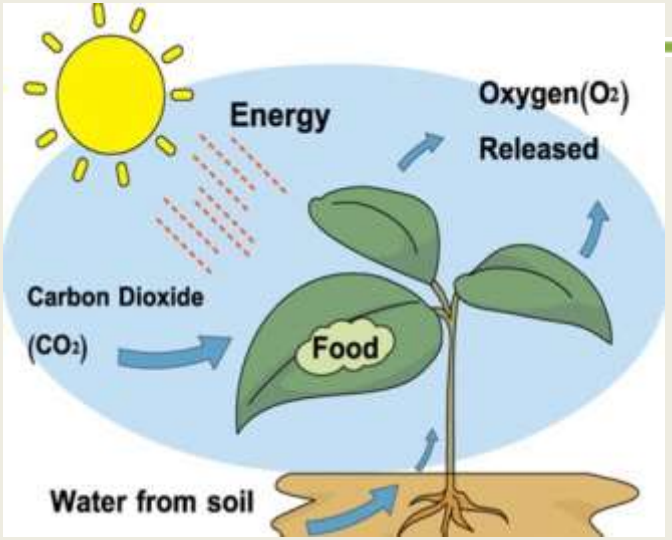
Relationship

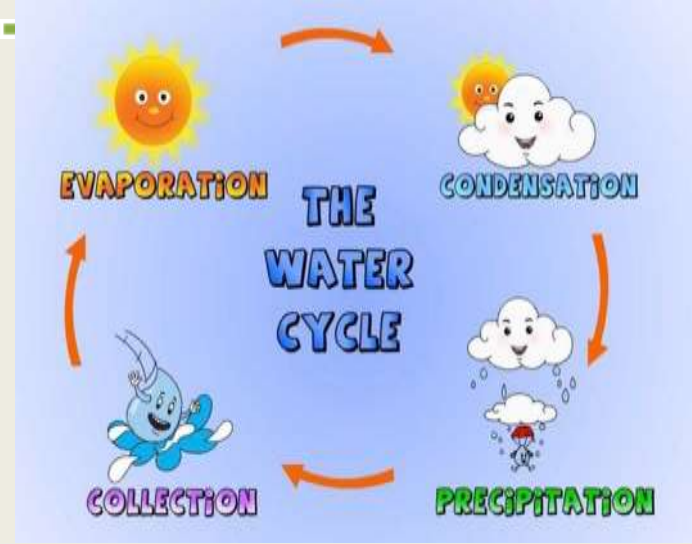
We have options to choose from? Which one's mimics nature?

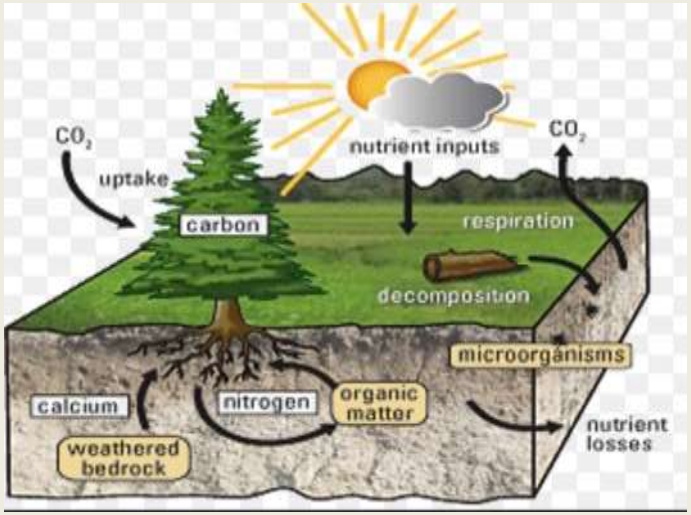
PLANT AND SOIL ARE ONE!

Restore Ecosystem Processes:

Conservation, Planning, & Zoning Department







Which Field Captures Solar Energy?
Cover the soil year round

A new farming approach…

MARATHON COUNTY

Conservation, Planning, & Zoning Department

Planting Corn Into Cover Crop Mix

Solutions are known

MARATHON COUNTY
Conservation, Planning, & Zoning Department

Soil health = Watershed health through the use of resilient farming systems.

I would argue Climate Health

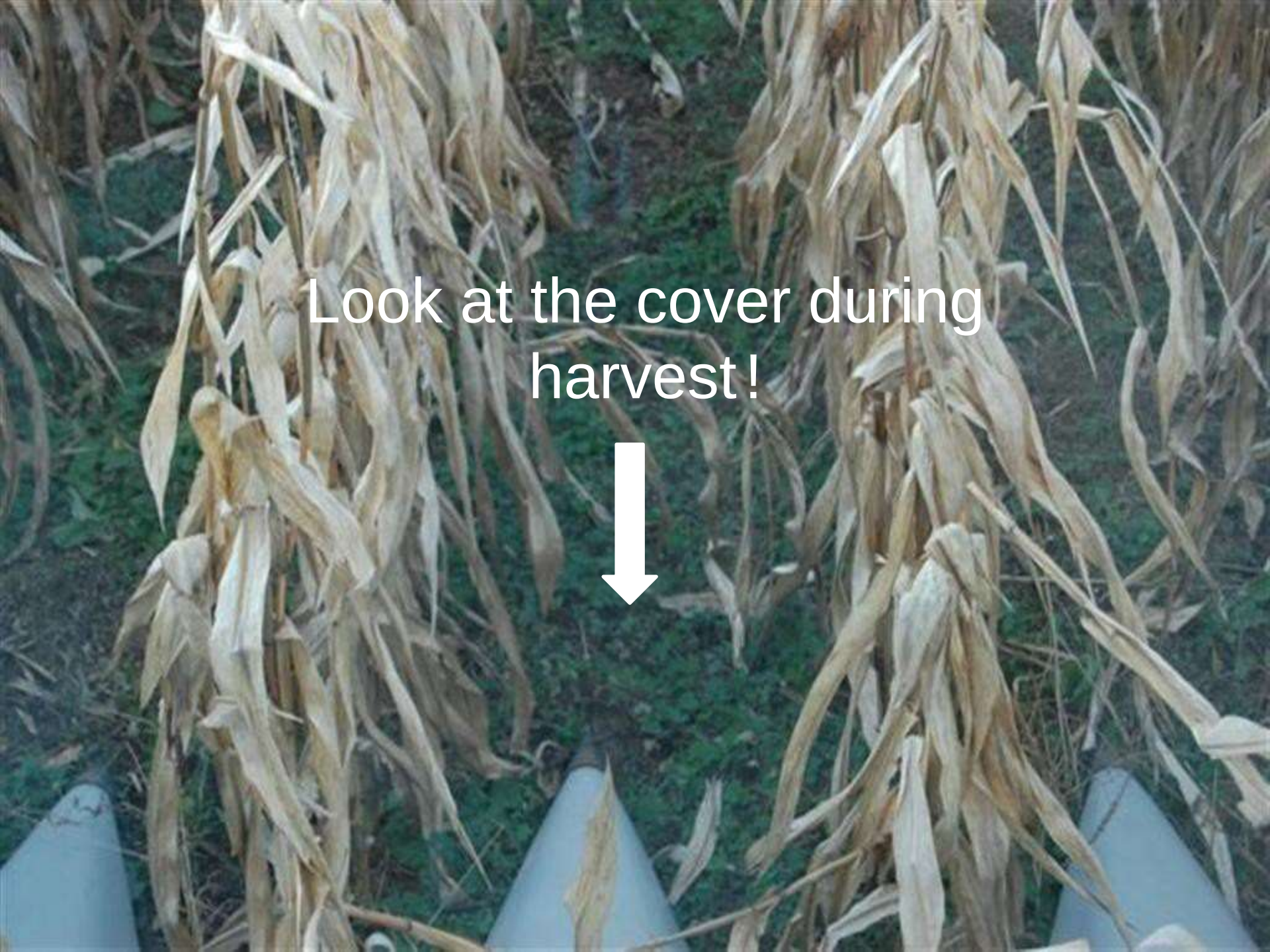
Understand Nature Is:

MARATHON COUNTY
Conservation, Planning, & Zoning Department

These practices will reduce CO2 levels, reduce temperature extremes, cut sediment and phosphorus levels in half or more: outcome resilent agriculture systems

MARATHON COUNTY
Conservation, Planning, & Zoning Department

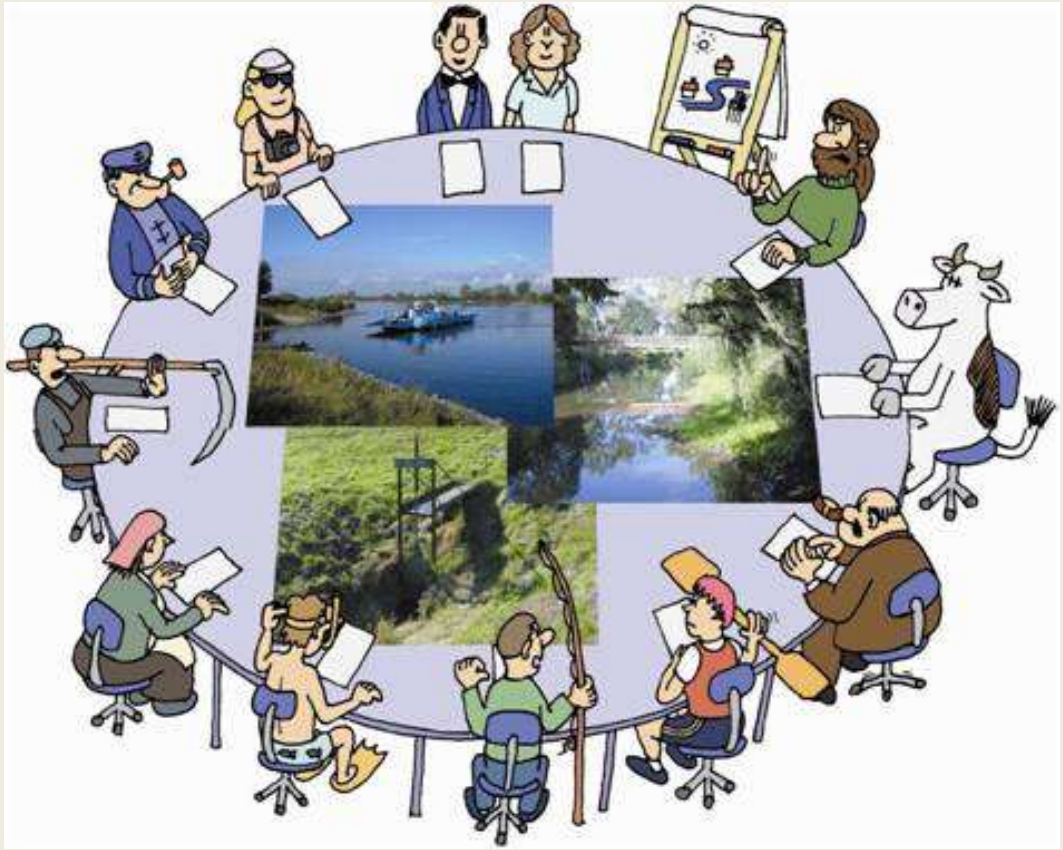
Carbon mat (skin): feeds soil, keeps it cool, suppress weeds, and protects from rain drop


Look at the cover during harvest!

Managed Grazing Systems: perennial sods, feeding livestock, year round soil cover, no tillage needed.

Finding the right stakeholders

Diversity-one group won't solve this alone! Not the farmers, not the producer groups, not government, not user groups, not the non-profits



Stakeholders with the right values

Eau Pleine Partnership for Integrated Conservation (beyond a producer led group)

MARATHON COUNTY
Conservation, Planning, & Zoning Department

"Integrating resilience into the natural resources, community, and economy of the Eau Pleine Watershed"

EPPIC
Eau Pleine Partnership for Integrated Conservation

PHEASANTS forever
The Habitat Organization

WVIC
WISCONSIN VALLEY IMPROVEMENT COMPANY

MARATHON COUNTY

UW Extension

ATHON UNTY

USDA NRCS
U.S. Department of Agriculture
Natural Resources Conservation Service

lanning,
rtment

bepco
Big Eau Pleine Citizens Organization

WISCONSIN
DEPT. OF NATURAL RESOURCES

RIVER ALLIANCE of WISCONSIN

Central Wisconsin No-Tillers

Central Wisconsin River Graziers

EPPIC
Eau Pleine Partnership for Integrated Conservation

Marshfield Agricultural Research Station
University of Wisconsin-Madison

Farmers

Wisconsin Farmers Union
UNITED TO GROW FAMILY AGRICULTURE

Wisconsin Farm Bureau FEDERATION

Short Lane Ag Supply LLC

Questions?

MARATHON COUNTY

Conservation, Planning, & Zoning Department

Contact information:
715-261-6000
cpz@co.marathon.wi.us

Thank you!