

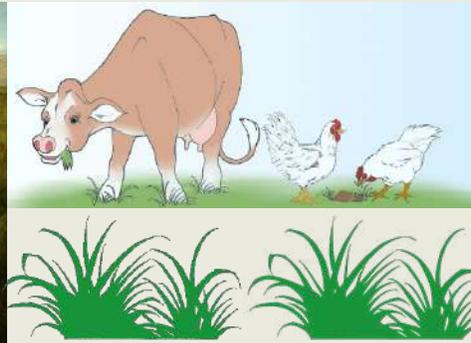
# ~Four Season Grazing Management~

Kevin Mahalko: Gilman, Wisconsin

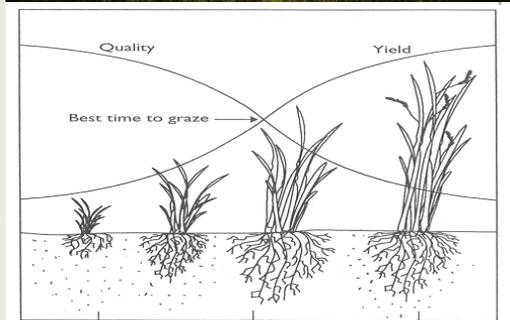
Dairy Grazier Organic Valley, Educator River Country  
RC&D, Dairy Grazing Apprenticeship, Grassworks



# Managed Grazing: Linking Food, People, Animals and the Environment



Gene Schriefer



**Freshly grazed**  
 -photosynthesis low  
 -depletion of energy reserves  
 -slow growth

**Lush vegetative growth**  
 -photosynthesis high  
 -renewal of energy reserves  
 -rapid growth

**Flowering and seeding**  
 -photosynthesis reduced due to shading  
 -energy diverted to flower and seed production  
 -slow growth

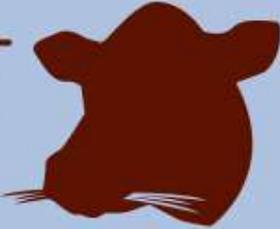


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**DAIRY**  **GRAZING**  
**APPRENTICESHIP**

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DGA-NATIONAL.ORG





# DGA: First In The Nation

## NATIONAL STANDARDS FOR TRAINING IN MANAGED GRAZING DAIRY PRODUCTION

- Guided work experience
- Related instruction
- Facilitated peer group
- Industry networking
- Pathway to farm ownership







Gary Larson / Andrews McMeel Publishing / AP

# 100% Grass-fed Dairy Standard

## Five Fundamentals

- **No grain.** Cows eat a diet of high quality forages (pasture and hay) along with needed supplements like essential vitamins and minerals.
- **Pasture is a priority.** Cows must get the majority of their feed from good quality and well managed pastures during the grazing season.
- **Animal health is first.** Wellness checks or veterinarian oversight are required, these are not voluntary options – cows and calves must be healthy.
- **NO antibiotics, NO growth hormones, NO GMOs.**
- **Yearly farm inspections.** A 100% grass-fed farm receives a yearly on-farm review.



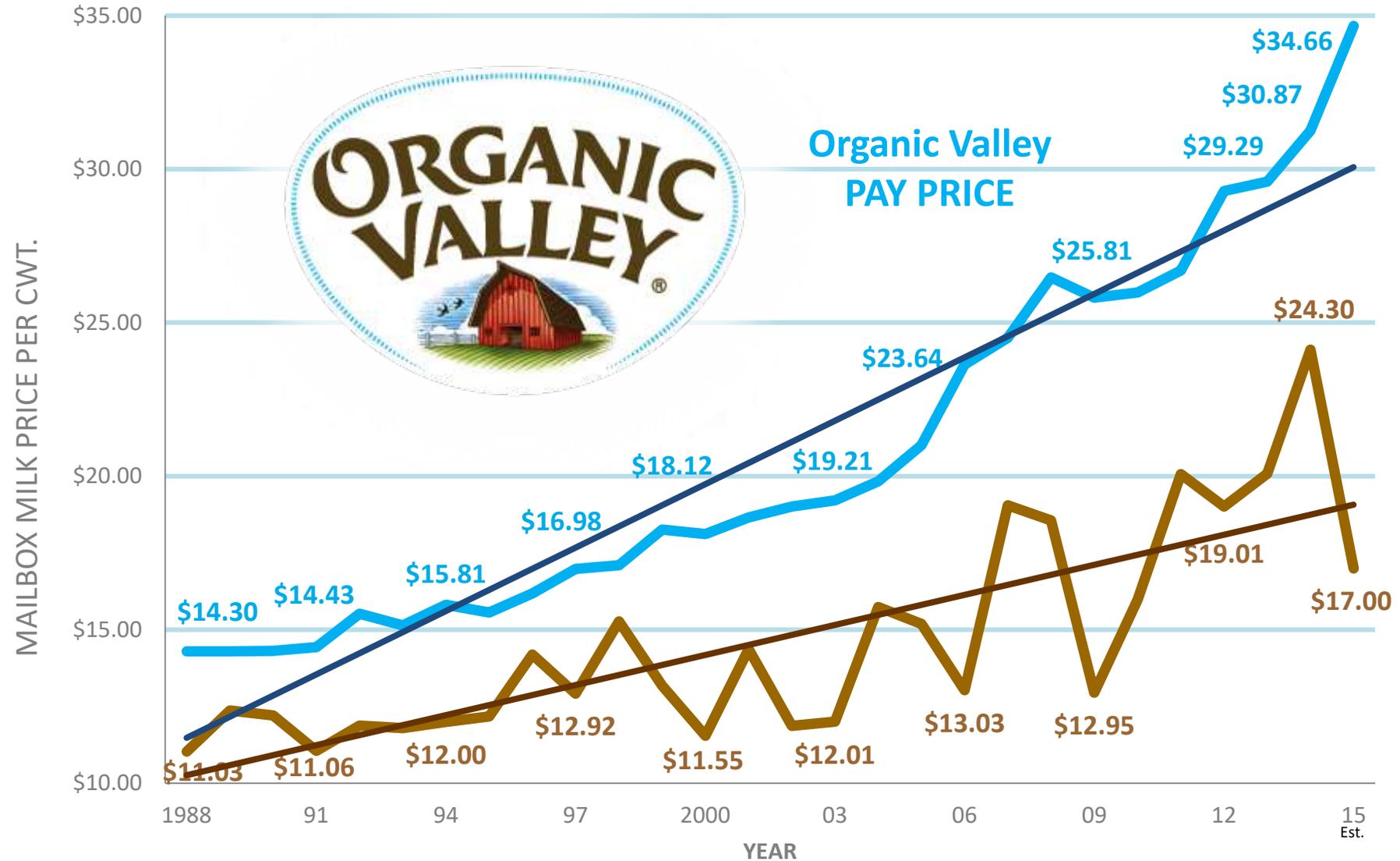


# Milk Cows Eating Grass with Snow



# Over 25 Years of Sustainable Farmer Pay

## MIDWEST MAILBOX DAIRY PAY PRICE



Balanced Omega-3 intake supports:

- ✓ Prevention of atherosclerosis, heart attack, depression and cancer
- ✓ Memory maintenance
- ✓ Normal brain development
- ✓ Cell membrane permeability
- ✓ Anti-inflammation

Dietary Ratio	Omega 6	Omega 3
Ideal	3	1
Estimated American Intake	11-30	1
Fat of grain-fed cow	7.65	1
Fat of grass-fed cow	1.53	1

**Nutritional content of food impacts blood serum levels of omega fatty acids in humans.**

# Grassmilk™ Family of Products

## #1 100% Grass-fed Dairy Brand!!\*



Source: SPINS combined natural and mainstream grocery channels 52 weeks ending 12/25/2016

\* Includes milk, cheese and yogurt

# Building Soil

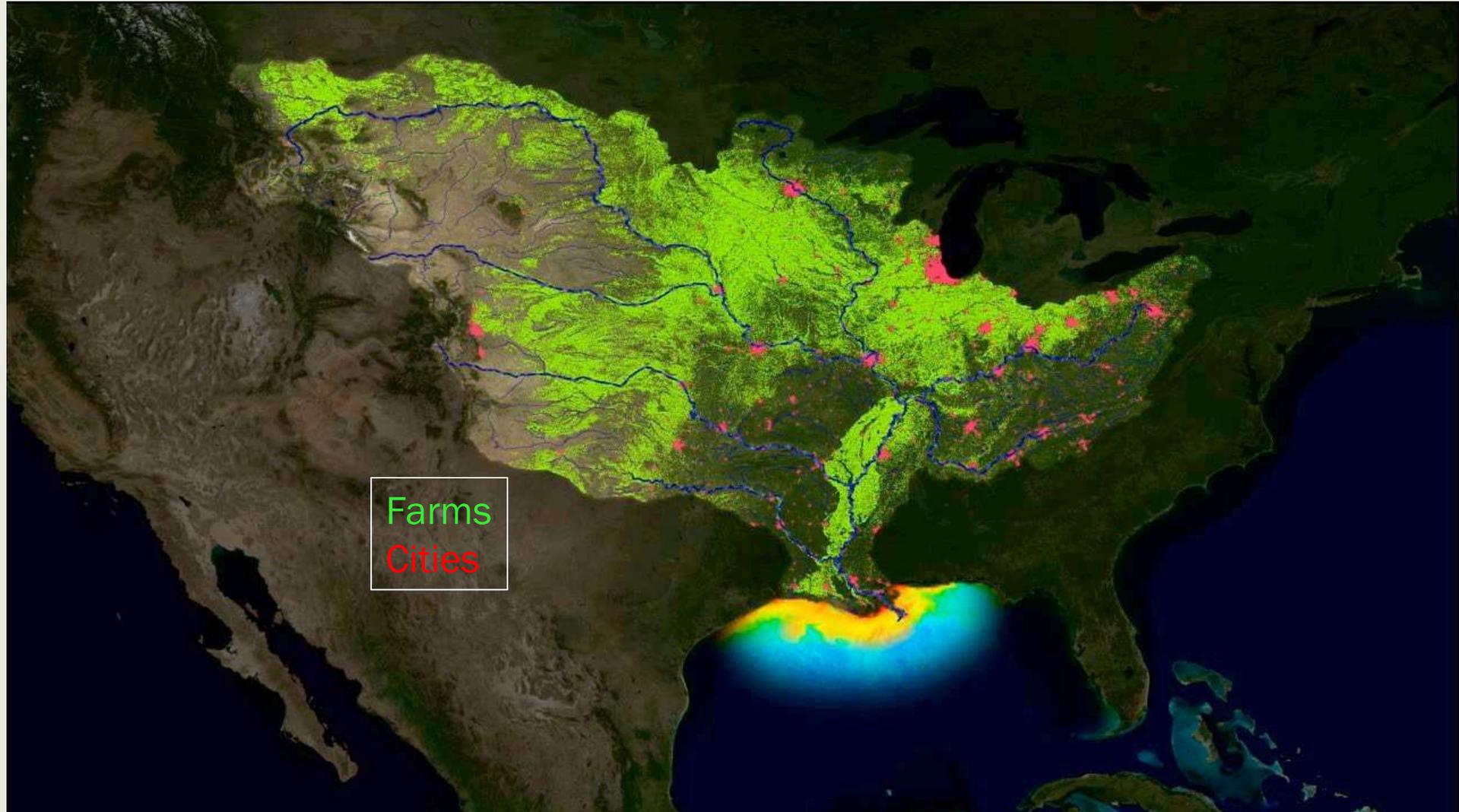
How did nature make all that soil in the first place?



# Agricultural impacts in the midwest are not new....



....and are far reaching



# SeaWiFS image of sediments reaching the Gulf of Mexico from Mississippi River Delta



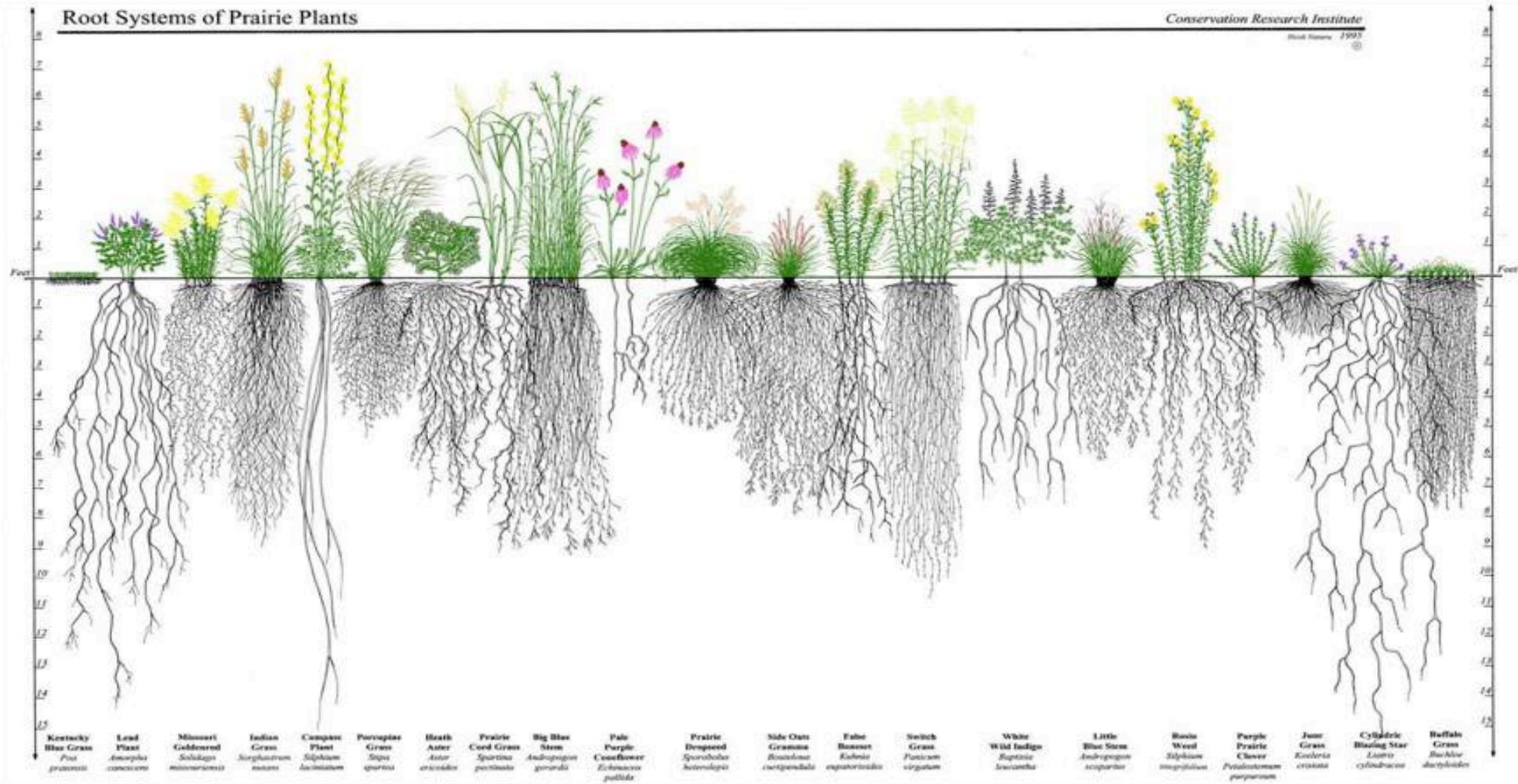
<https://oceancolor.gsfc.nasa.gov/outreach/ocsciencefocus/CreepingDeadZones2.pdf>







# Approximately 2/3 Of Your OM Increase Will Come From Roots!



# Grazing Research Trial





## **Net Ecosystem Carbon Balance of Subhumid Pasture**

MIRG lost significantly less carbon in year 1 than all other treatments, and in year 2, MIRG was the only treatment that had a positive NECB.

*Oates & Jackson, 2014*



# Organic dairying...

- combines the requirement to graze – which reduces net emissions,
- prohibits the use of fossil fuel based applications to land, and
- promotes atmospheric CO<sub>2</sub> sequestration.





# Corralling Dairy Cows on Cropland to Enhance Manure Management

J. Mark Powell and Michael P. Russelle, USDA-Agricultural Research Service, Dairy Forage Research Center, Madison WI and St. Paul MN

(jpowell2@wisc.edu; 608-264-5044)



Recent measurements on fifty-four Wisconsin dairy farms show:

- Cows and heifers spend considerable time in outside areas, such as pastures, 'dirt lots' (PHOTO above), feed bunk areas and barnyards.
- Average annual deposition rates (kg/ha) in outside areas range from 340 to 5470 for manure nitrogen (N) and 80 to 1170 for manure phosphorus (P).
- Some farmers rotate these outside areas with pasture and/or crops

## OBJECTIVE

Determine impact on soil compaction, crop yields and N uptake of corralling dairy heifers on cropland.

## HYPOTHESIS

Substantial gains in manure N recycling through crops can accrue by corralling dairy cows & heifers on cropland

- Experimental units of four dairy heifers in 20x20 portable corrals during the summer (PHOTO 1) and the winter (PHOTO 2).
- In addition to crop yields and N uptake, measurements are made of ammonia (via micro-met, masts as in photos), nitrate (via drainage lysimeters to 1.5 m soil depth) and soil inorganic and total N.
- Just prior to first crop planting after corralling, we measured soil compaction with a cone penetrometer in all plots.
- Corraling during the spring caused soil compaction.
- Corraling during the winter did not cause soil compaction.

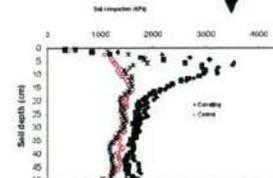
Photo 1. Corraling heifers on cropland during summer.



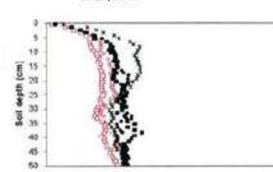
Photo 2. Corraling heifers on cropland during winter.



Corraling in spring



Corraling in winter



## METHODS

A two-year field trial evaluates a factorial arrangement of two manure application methods, (1) corralling heifers on cropland to apply feces plus urine, and (2) land-applied manure from the barn; two manure application rates (1) manure deposited during 2 days of corralling or 2 days in the barn, and (2) manure deposited during 4 days of corralling or 4 days in the barn; two periods of manure application (1) spring-summer corresponding to April to September, and (2) fall-winter corresponding to October to March; two cropping patterns (1) wheat-sorghum-rye-corn silage-rye for plots manured during April to September; (2) corn silage-rye-corn silage-rye for plots manured during October to March.

## PRELIMINARY RESULTS

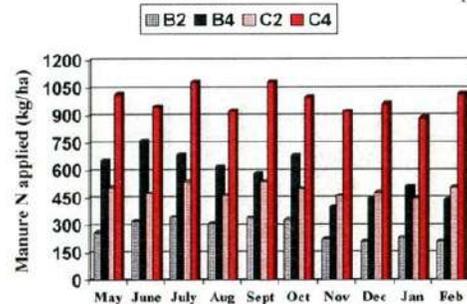
• From 50 to 150% more N is applied via corralling (due to urine) than via barn manure

• Difference between manure N applications via corralling (C2 and C4) and barn manure (B2 and B4) reflect in-barn manure N losses

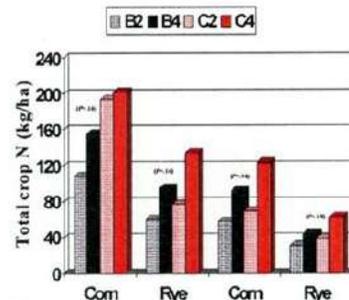
• In-barn manure N losses appear to be lower during cooler months (Nov to Feb)

• Although manure N applications via B4 and C4 are higher than agronomic recommendations, they are well within range of on-farm deposition rates in outside areas.

Nitrogen applications via corralling and barn manure applications



First year and residual crop N uptake after November manure applications

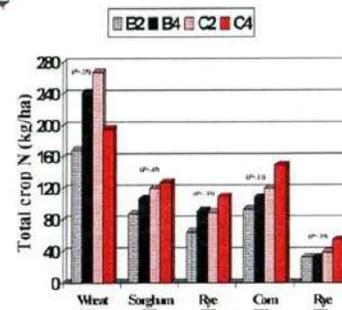


Crop N uptake in plots where heifers were corralled were higher than where barn manure was applied

• Greater crop N uptake in corralled plots continued for two complete corn silage-rye rotations

• Positive effects of winter corraling on crop N uptake may last for more than two years

First year and residual crop N uptake after August manure applications



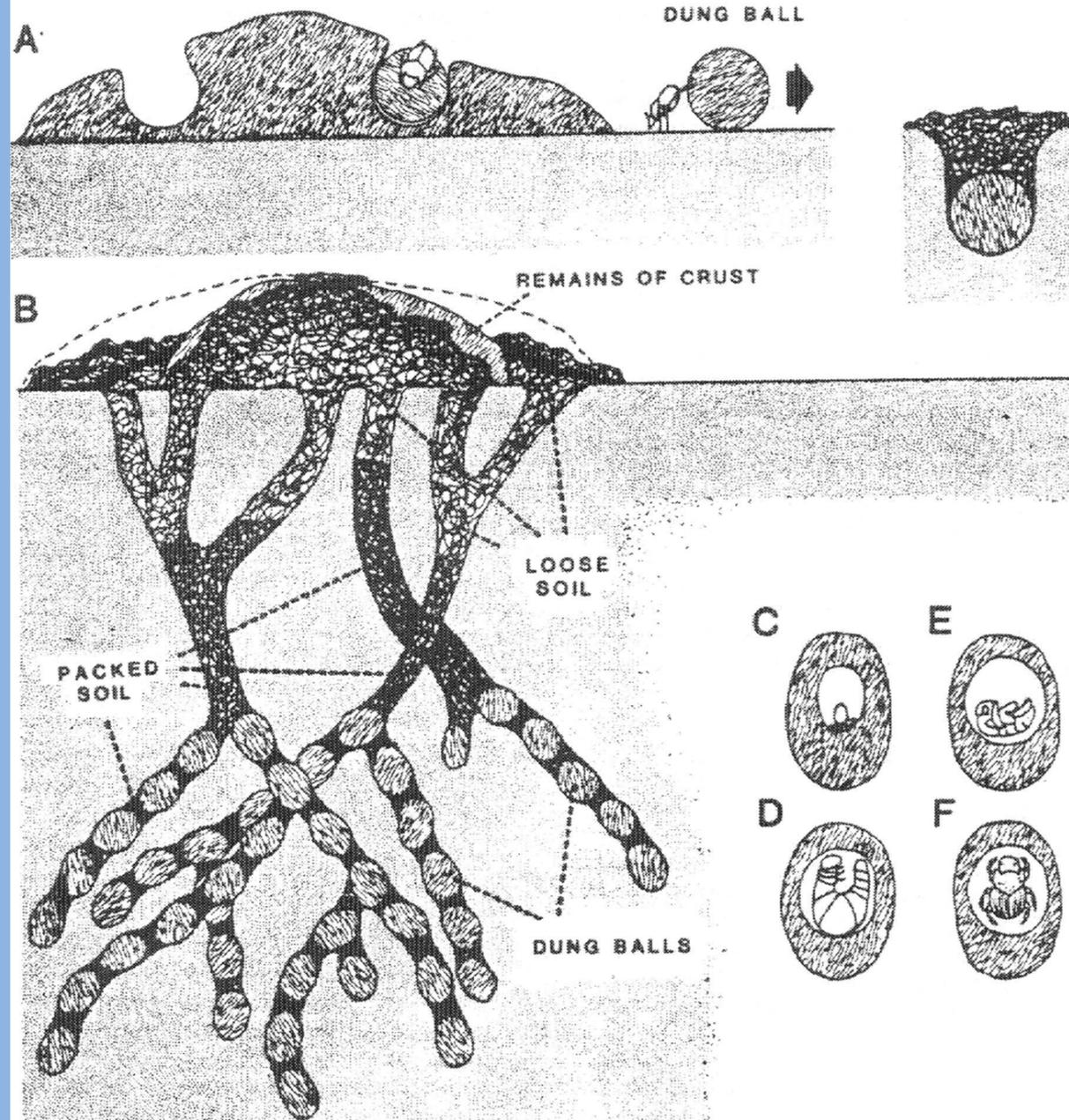
Lack of response by wheat to corraling may have been due to high manure N application and subsequent crop lodging

• The four crops after wheat each had higher crop N uptake in plots where heifers were corralled than in plots that received barn manure

• Positive effects of summer corraling on crop N uptake may last for more than two years

Next steps: Corn silage yields and N uptake for 2004 will complete crop data component of experiment;

Larger-scale on-farm trials and economic analysis of manure management practices will be initiated





**You can graze even if it sometimes feels like you're herding cats.**



# WI Grazing and Organic Contact Organizations

- RIVER COUNTRY RC&D  
[www.rivercountryrcd.org](http://www.rivercountryrcd.org)
- GRASSWORKS INC.  
[www.grassworks.org](http://www.grassworks.org)
- ORGANIC VALLEY CROPP COOP  
[www.organicvalley.coop](http://www.organicvalley.coop)
- WI DATCP GRAZING/ORGANIC  
DAIRY GRAZING  
APPRENTICESHIP [dga-national.org](http://dga-national.org)