

Welcome to the . . .  
U.S. Dairy Forage  
Research Center Farm and  
University of Wisconsin  
Ag Research Station



Prairie du Sac  
Wisconsin

What is the . . .



# U.S. Dairy Forage Research Center?

- U.S. Department of  
Agriculture (USDA)
- Agricultural Research  
Service (ARS)



# Three main locations . . .



Labs, greenhouses,  
and offices on the  
UW-Madison campus.



2,006-acre, 350-cow research  
farm near Prairie du Sac, WI.

Institute for  
Environmentally  
Integrated Dairy  
Management  
Marshfield, WI

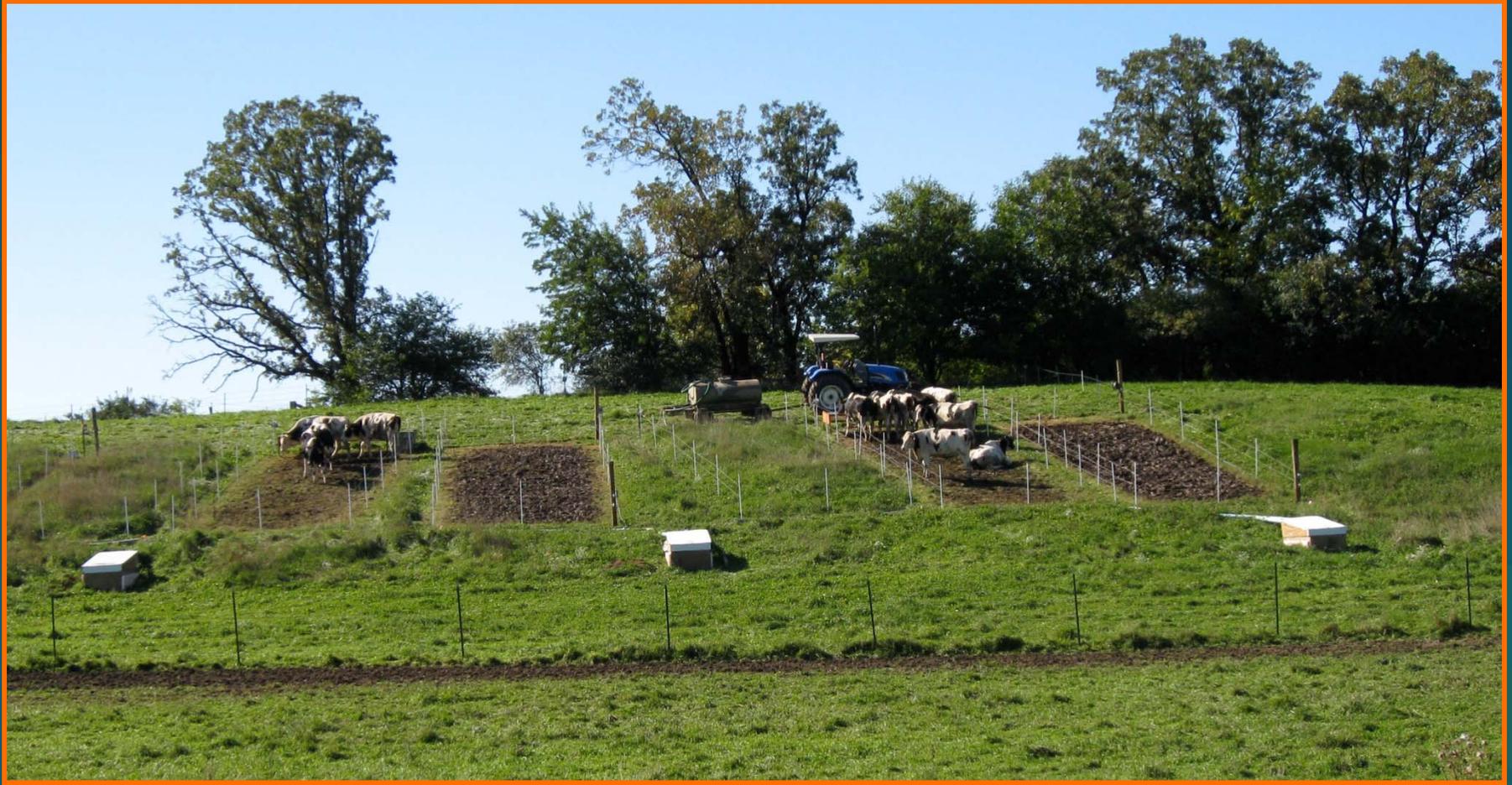


Also scientists at:  
St. Paul, MN

A photograph of a tractor with a harrow in a field, with farm buildings in the background. The tractor is yellow and green, and the harrow is yellow. The field is green and brown, and the sky is blue with white clouds. The background shows a farm with several buildings, including a large white barn and a smaller building with a red roof. The overall scene is a rural farm landscape.

Mission:

To develop knowledge and tools needed to enhance sustainable and competitive dairy forage systems that . . .



. . . protect the environment,

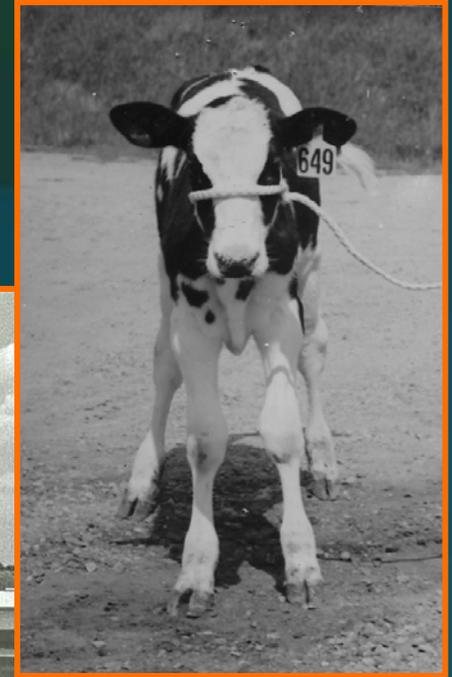


. . . promote  
animal health,

. . . and ensure a safe,  
healthy food supply.



# Farm History

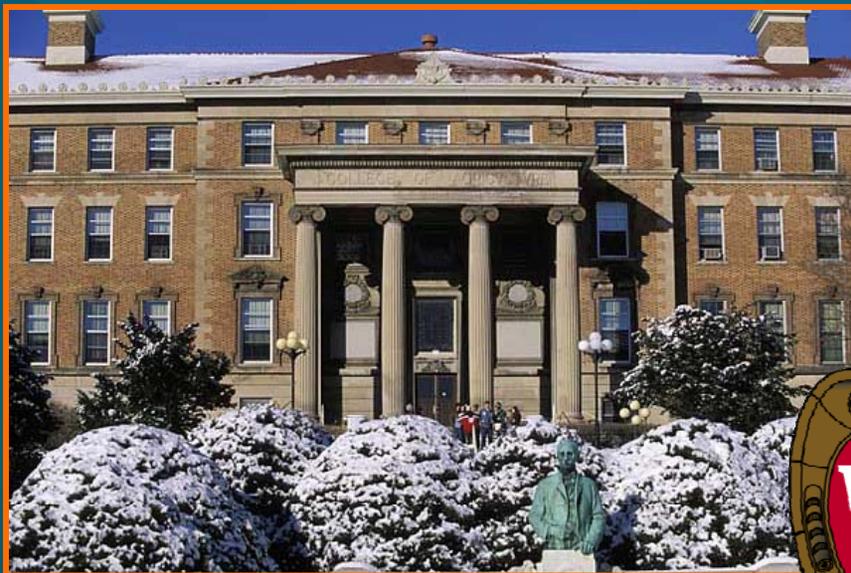


- Efforts to establish a USDA dairy research facility date back to the late 1950s.
- 1974-1979: Planning and appropriations.
- 1980: Construction of buildings and feed storage units.
- 1980: First animals brought to farm.

# Farm History:

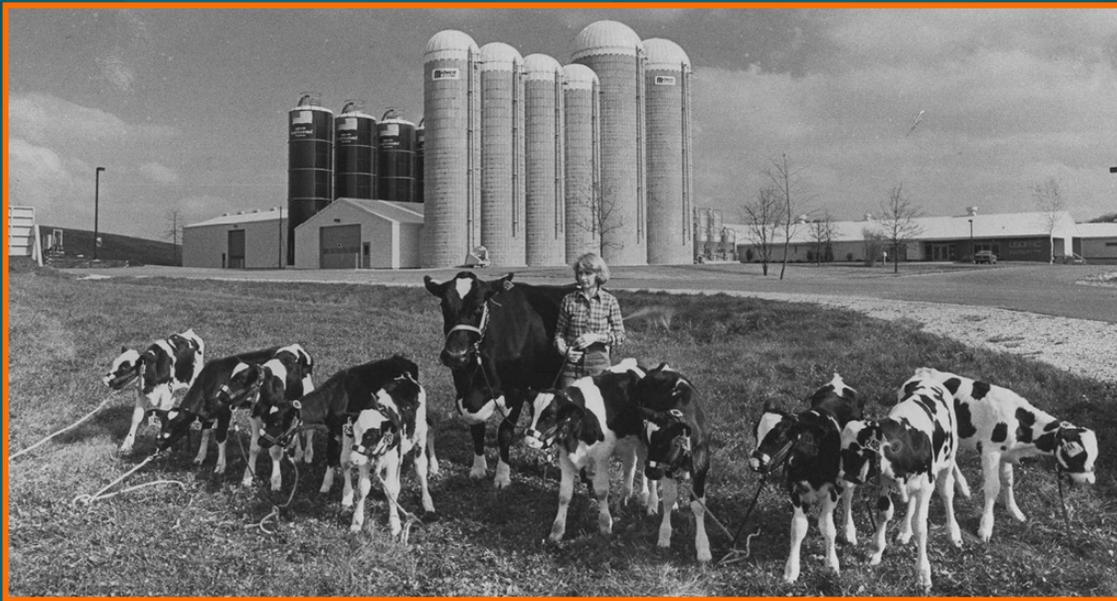
## The Herd and UW Connection

- The Farm operates jointly with the University of Wisconsin-Madison College of Agricultural & Life Sciences, Agricultural Research Stations.



# Farm History:

## The Herd and UW Connection



- UW-Madison provided the foundation herd and uses revenues from the farm to offset operating costs and to pay the state employees who work at the farm.

# Farm History:

## The Herd and UW Connection

- The dairy herd and farm are also available for research by the UW-Madison College of Agricultural and Life Sciences.



# Farm History:

## The Land and BAAP Connection

- The Farm is on land that was previously owned by the U.S. Dept. of Defense's Badger Army Ammunition Plant (BAAP) – originally known as the Badger Army Ordnance.



# Farm History:

## The Land and BAAP Connection

- The BAAP was built in 1942 to make gun and rocket powder for World War II.
- It was used intermittently over a 33-year period during WWII, the Korean War, and the Vietnam War.
- It was put on standby status in 1976.



# Farm History:

## The Land and BAAP Connection



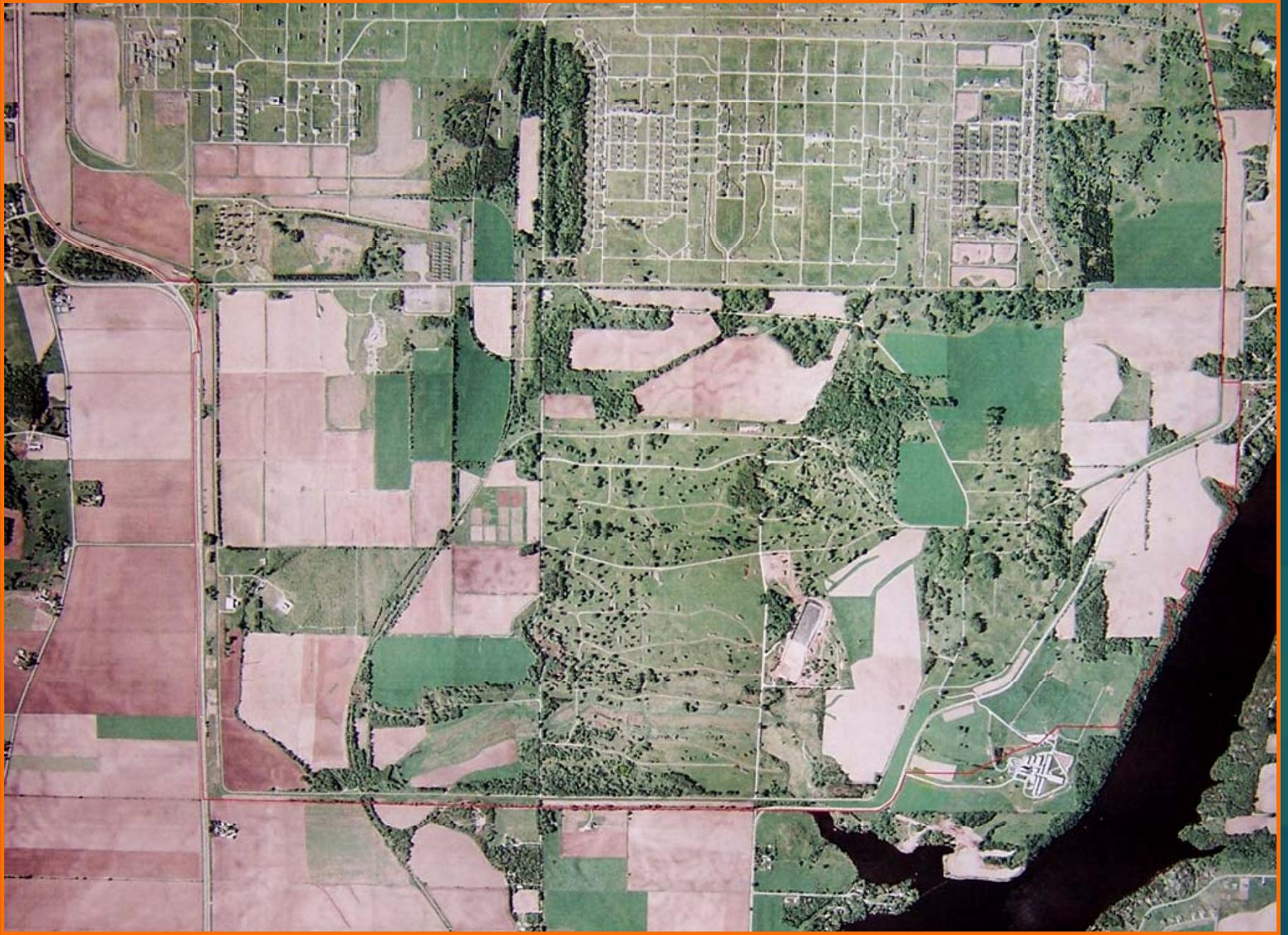
- In 1980, the USDFRC obtained a special permit through the U.S. Dept. of Defense to farm, at no cost, about 1,500 acres of cropland and pastureland that were part of the BAAP.

# Farm History:

## The Land and BAAP Connection



- In 1999, the USDFRC began to make lease payments for the use of the land.
- On September 29, 2004, the USDA received custody of 1,943 acres of the BAAP to be used by the USDFRC Farm.



# Farm History:

## The Land and BAAP Connection

- The USDA was the first to receive land from the 7,354-acre BAAP.
- Subsequent transfers are anticipated to be made to the Bureau of Indian Affairs on behalf of the Ho Chunk Nation and to the National Park Service on behalf of the Wisconsin Department of Natural Resources.



# Farm statistics

2,006 acres total

- 520 acres corn for grain and silage
- 300 acres alfalfa
- 348 acres soybeans
- 235 acres pasture
- 90 acres winter wheat
- 23 acres red clover
- 40 acres in small research plots
- 450 acres in buildings, roads, and woodlands



# Farm Statistics



350 cows

350 calves & heifers

# Farm Statistics

Milk production, 2x

Rolling herd avg.

- 27,345 lbs. milk
- 3.69% fat
- 3.03% protein

(February 2010)



# Facilities

## Cow barns

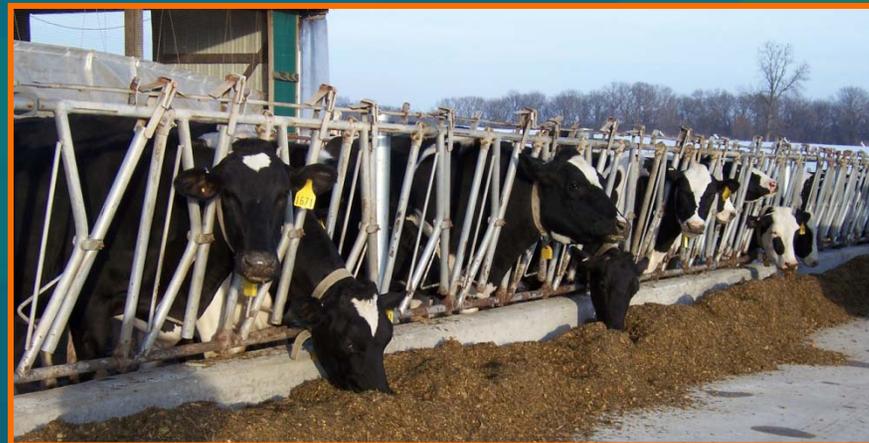
- D Barn – 72-cow tie-stall barn + 14 maternity pens
- E Barn – 72-cow tie-stall barn + 16 stalls in ammonia trial chambers



# Facilities

## Cow barns

- F Barn – 196-cow free-stall barn; (4 groups of 48 cows or 8 groups of 24 cows)
- K4 Barn – 40-stall, sand bedded, dry-cow barn



# Facilities

## Heifer housing

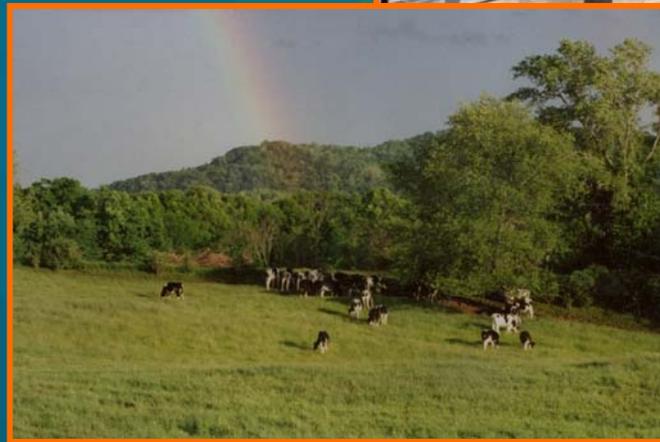
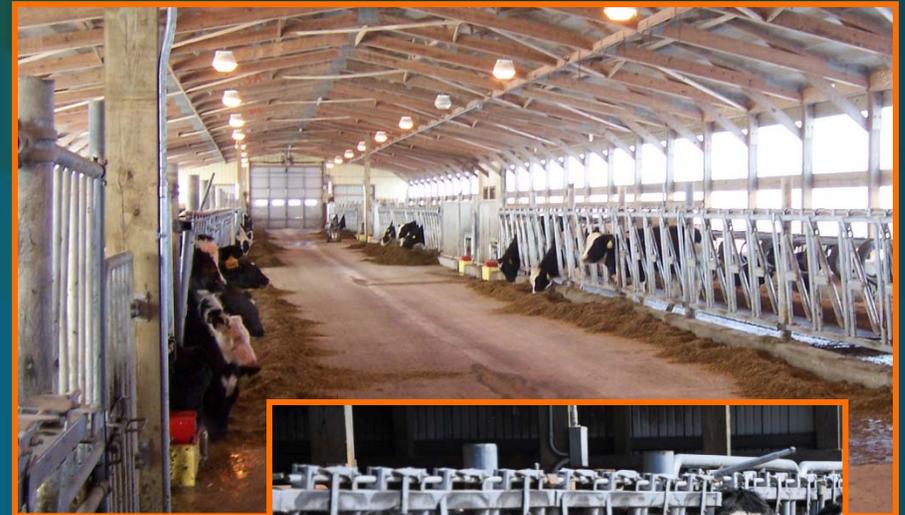
- 54 calf hutches; move calves out at 8 weeks
- Super hutches for heifers for the next 4 weeks
- On bedded pack in open K3 Barn for next 3 months



# Facilities

## Heifer housing

- G Barn – 196-head free-stall barn for heifers from 6-10 months until ready to breed
- Breeding age and pregnant heifers on pasture (summer) or on bedded pack in K3 Barn (winter).



# Facilities



## Milking parlor

- Double-8 herringbone
- Automatic take-offs
- Individual milk weights
- Crowd gate



# Facilities



## Feed storage:

- 4 bottom-unloading, oxygen-limiting, glass-lined silos @ 14' X 50'
- 4 stave silos @ 14' X 55'
- 2 stave silos @ 24' X 70'
- 1 bottom-unloading, oxygen-limiting, concrete silo @ 24' X 78'

# Facilities

## Feed Storage

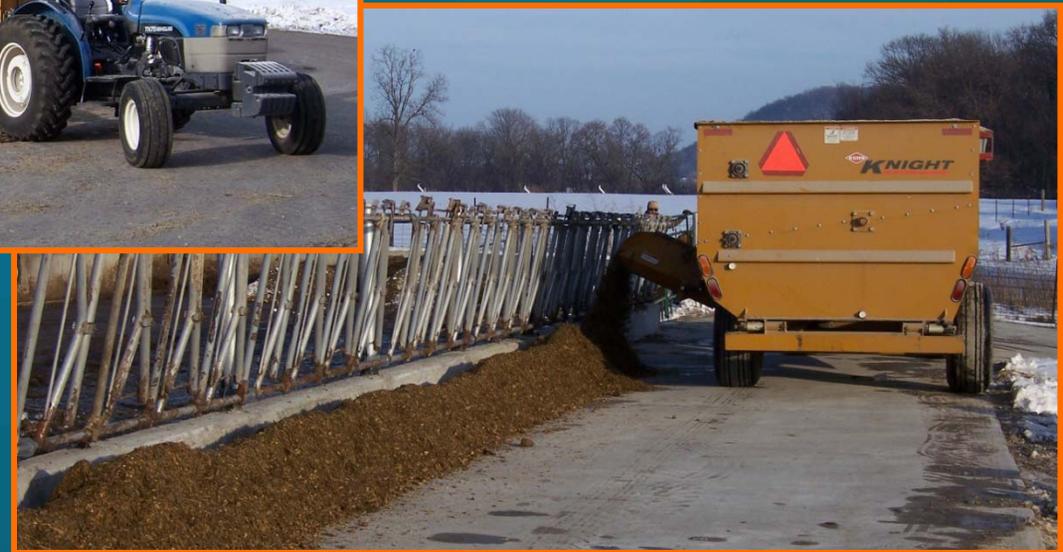
- 3 bunker silos @ 16' X 72' (sized for research)
- 2 bunker silos @ 32' X 124'
- 1 bunker silo @ 28' X 96' (one side) and 124' (other side)
- Silo bags in various locations
- 15 commodity bins



# Facilities

## Feeding Equipment

- TMR wagon for regular herd feeding



# Facilities

## Feeding Equipment

- Several Rissler TMR carts to mix and deliver research diets to selected cows.



# Staff



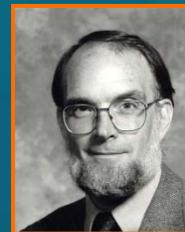
Rick Walgenbach  
Farm Manager and  
Research Agronomist



Nancy Betzold  
Herd Manager

# Our team includes . . .

- Four dairy scientists
- Four agronomists
- Two ag engineers
- Two plant geneticists
- Two plant physiologists
- Three soil scientists
- One chemist
- One microbiologist
- One Dairy Systems Specialist



# Staff

## Field Staff:

- Ag Project Supervisor
- Automotive Mechanic
- 4 Farm Equipment Operators

## Barn Staff:

- 12 Animal Research Technicians (ART) – milking, feeding, some sampling for research
- 2 ARTs, Advanced (above responsibilities plus herd health and breeding)
- 3 supervisors
- 1 Barn Maintenance Mechanic



# Types of Research

## Agronomy:

- Field studies – cropping systems, pasture quality, etc.
- Genetic studies – developing species and cultivars, genetic engineering for improved plants, etc.



# Types of Research

## Dairy Nutrition:

- Rumen fermentation trials
- Digestion trials
- Feeding trials
- Scientists are studying
  - protein
  - carbohydrates and fiber
  - non-fibrous carbohydrates
  - rumen microbes



# Types of Research

## Engineering:

- Harvest methods and equipment
- Feed storage methods and facilities



# Types of Research

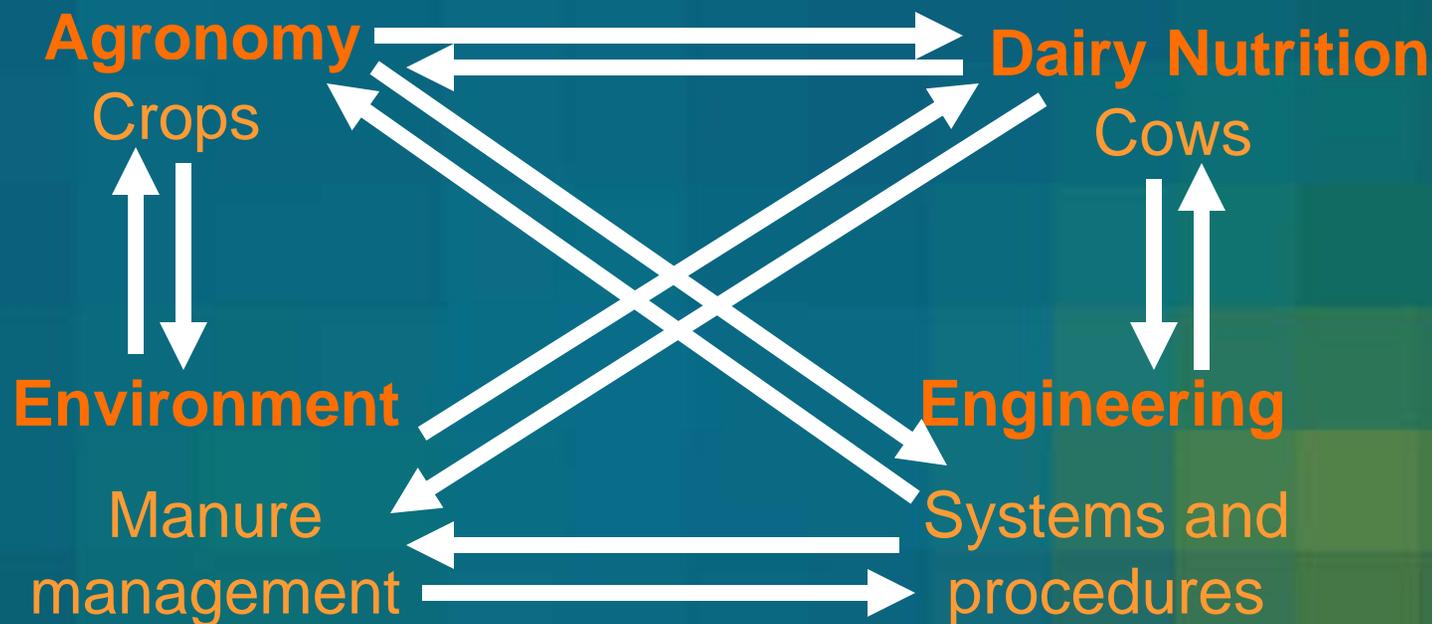
## Environment:

- Nutrient cycling
- Manure management
- Ammonia emissions



# Types of Research

And how they're all integrated:



# Research Procedures and Capabilities

46 rumen cannulated cows and heifers allow us to easily collect rumen contents or infuse ingredients into the rumen for various fermentation, digestibility, and feeding trials.



# Research Procedures and Capabilities

Milk, crop, feed, and soil samples and measurements are taken frequently.



# Research Procedures and Capabilities

Small field plots allow scientists to conduct plant breeding and cropping system research on a small scale.



# Thank you for visiting the U.S. Dairy Forage Research Center Farm

