

# Management of Bacterial Diseases on Dairy Farms

Pamela L. Ruegg, DVM, MPVM  
Professor, Dept. of Dairy Science  
University of Wisconsin, Madison



THE FIGHTING  
**WISCONSIN**  
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# Dairy Farms are Unique in Animal Agriculture

- Cows have high value
  - Only milking cows produce income
    - Must grow for 2 years before producing milk
  - Milk of most treated adult cows must be discarded and has no value
    - Strong disincentive against use of most antibiotics
  - Strong emphasis on prevention
- Population of dairy farm with 200 animals
- 100 adult cows
  - 85 milking cows
  - 15 dry cows
- 100 growing heifers
  - 50 bred or pregnant and waiting to deliver
  - 50 too young to breed
    - 10 fed milk or replacer



# Risk of Disease in Dairy Animals is Greatest in Distinct Periods

In 2 years of growth  
Risk of disease is high only about 8% of time

In each 1 year lactation cycle  
Greatest Risk is focused at Calving & Dry off



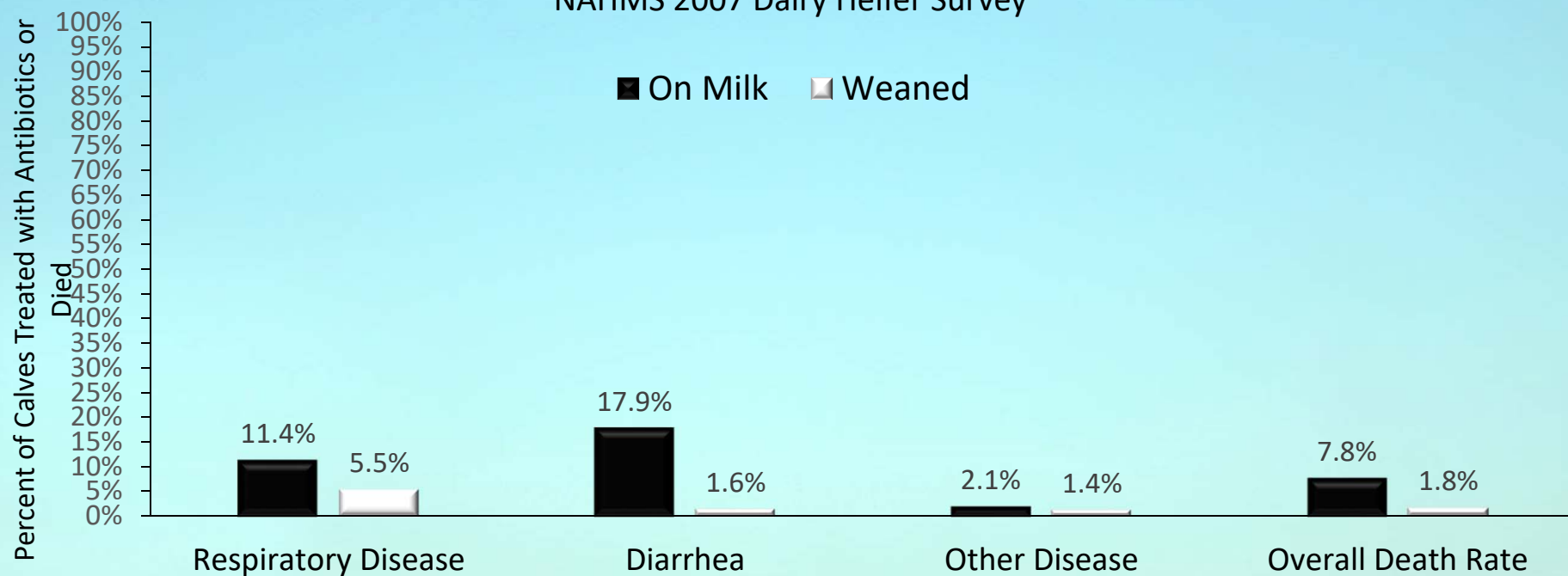
Diarrhea  
Pneumonia  
Naval

Infections  
of udder,  
uterus &  
feet

Infections  
of udder

# Diarrhea & Pneumonia are the Primary Bacterial Diseases of Calves

% of Preweaned & Weaned Heifers Treated with Antibiotics or Died  
NAHMS 2007 Dairy Heifer Survey



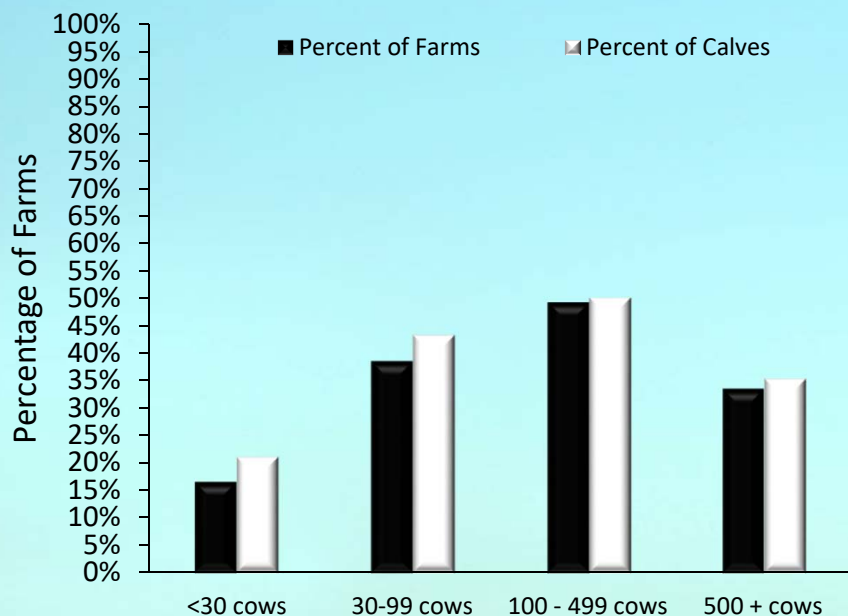
# Disease Control in Calves

- Emphasis is on prevention
  - Ensuring adequate immunity by consumption of enough colostrum
    - 1<sup>st</sup> mothers milk
  - Good housing that minimizes transfer of bacteria among calves
  - Good nutrition
  - Good husbandry
  - Vaccination

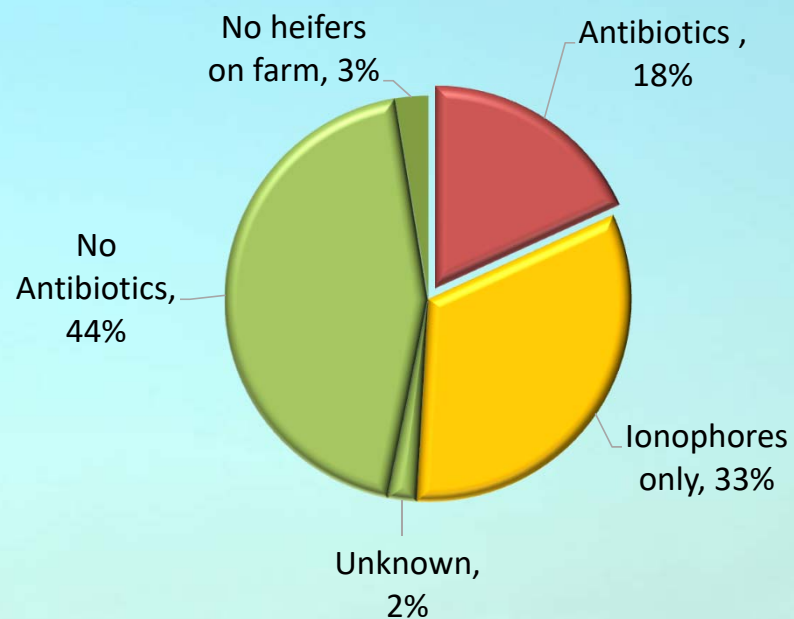


# New Regulations Have Impacted Calf Management on Some Farms

## Use of Medicated Milk Replacer Before Implementation of VFD



## Use of Medications in Weaned Heifer Diets



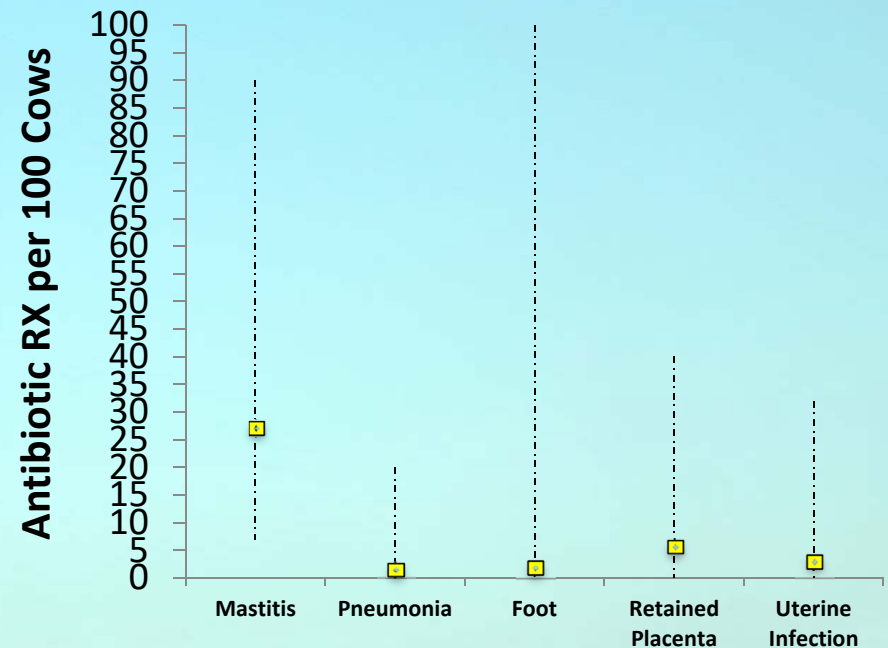
NAHMS Dairy 2007 & 2014



# Mastitis is the Most Common Reason for Antibiotic Use in Adult Cows

- Rate of mastitis is much greater than other bacterial diseases
  - Most cases are mild
- 65-85% of antibiotics are used to treat or prevent mastitis
  - Pol & Ruegg, J Dairy Sci 2005
  - Saini, et al., J Dairy Sci 2012

Annual Antibiotic Treatments on 47 Large WI Dairy Herds

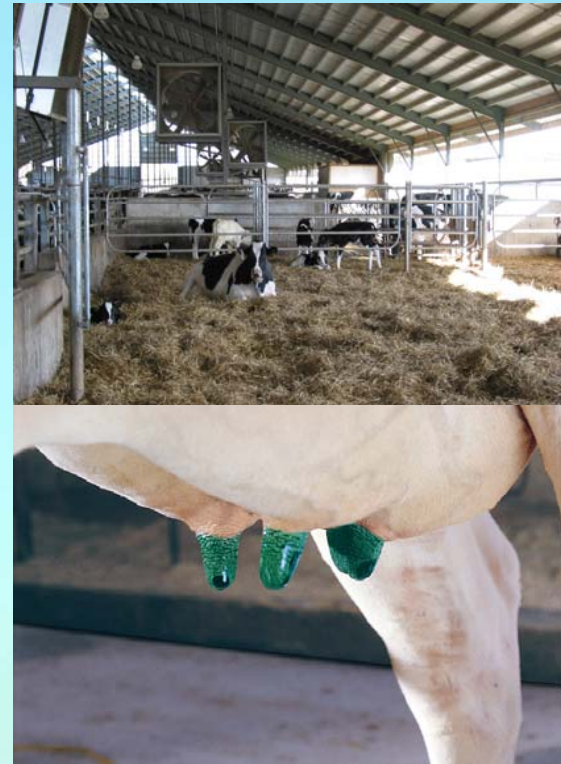


Data from Oliveira and Ruegg, J Dairy Sci 2014



# Prevention of Mastitis is a Daily Part of All Dairy Farms

- Milking management
  - Teat disinfection
  - Milking hygiene
  - Well trained workers
  - Well Functioning machines
- Housing management
  - Providing clean, dry bedding
  - Adequate space
- Reducing exposure to infected cows
  - Segregation
  - Treatment





# Treatment of Mastitis

- Most infections are subclinical
  - Milk appears normal but contains too many white blood cells
  - Not usually treated until dry off
- Some infections cause clinical signs
  - Abnormal milk is the only sign in 50% of cases
  - Swollen udder occurs in 35% of cases
  - Cow is ill in 5 – 15% of cases
- Treatment of clinical mastitis
  - Usually using antibiotics infused into the udder for 3 to 5 days
  - 7 FDA approved antibiotic products on market
  - Milk is discarded during treatment & for 3 – 4 days afterwards
  - Each day about 1-2% of herd has milk discarded due to RX



# Antibiotic Treatments of Adult Dairy Cows

- Dry Cow Treatment

- Intramammary antibiotics given at dry off on 90% of farms
- Purpose is to:
  - Treat subclinical cases
  - Reduce risk & treatments in next lactation
  - Prevent spread
  - Prevent new infections in high risk, dry off period

- Other Treatments

- <5% of cows are:
  - treated for lung or digestive problems
- <10% of cows are:
  - treated for uterine problems or lameness
- Changes to regulations will decrease use of antibiotics for lameness
  - Less access to OTC drugs



# Overview – Dairy Herds

- Emphasis of dairy farmers is to prevent disease
- Well known risk periods and well known preventive strategies
- Growing calves are at risk during first 2 months of life
  - Diarrhea, pneumonia and naval infections
- Mastitis is the primary reason antibiotics are given to adult cows
- Reducing antibiotic treatments is a goal of dairy farmers
  - Need improved methods to identify which mastitis cases will benefit from antibiotic therapy

