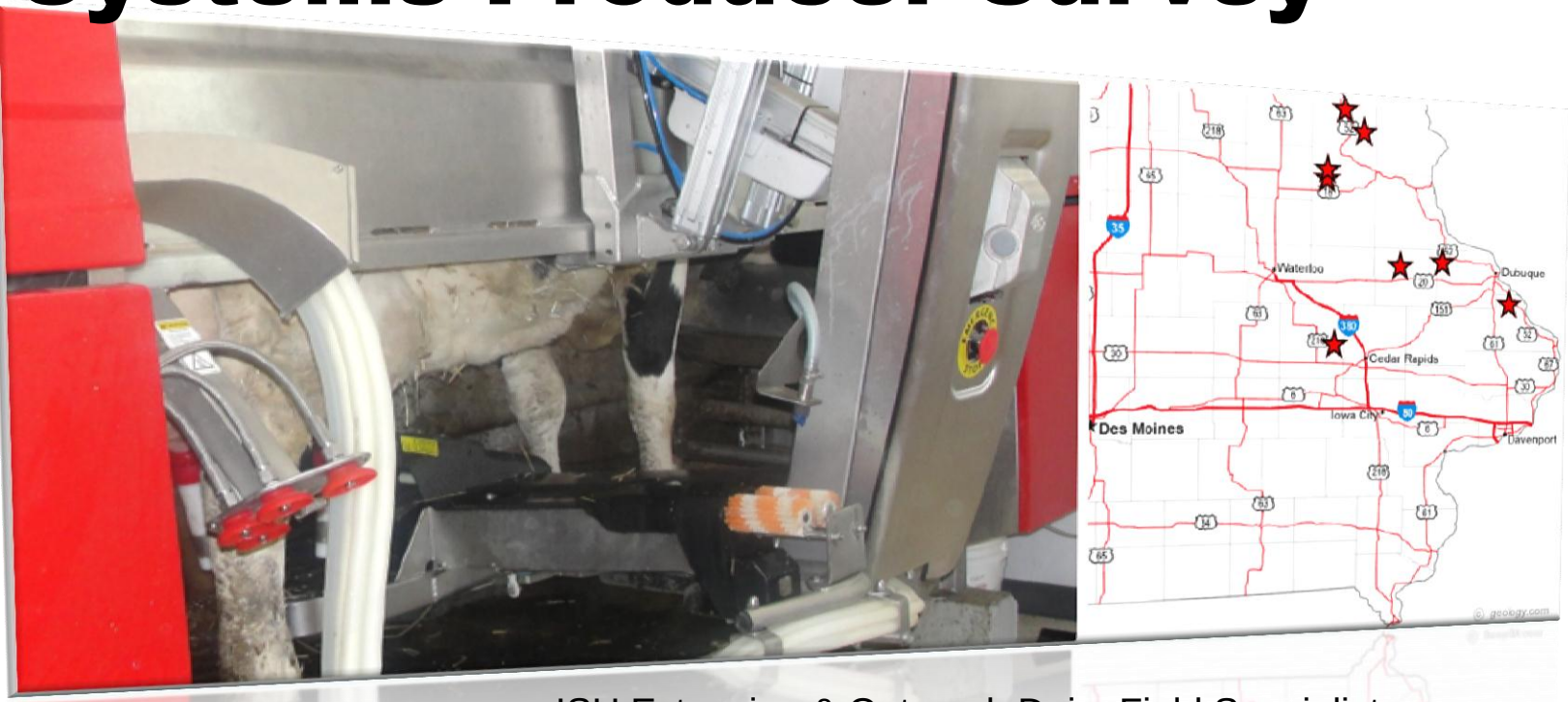
Automatic Milking Systems-Producer Survey



North Central Risk Management Education Center

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National Institute of Food and Agriculture

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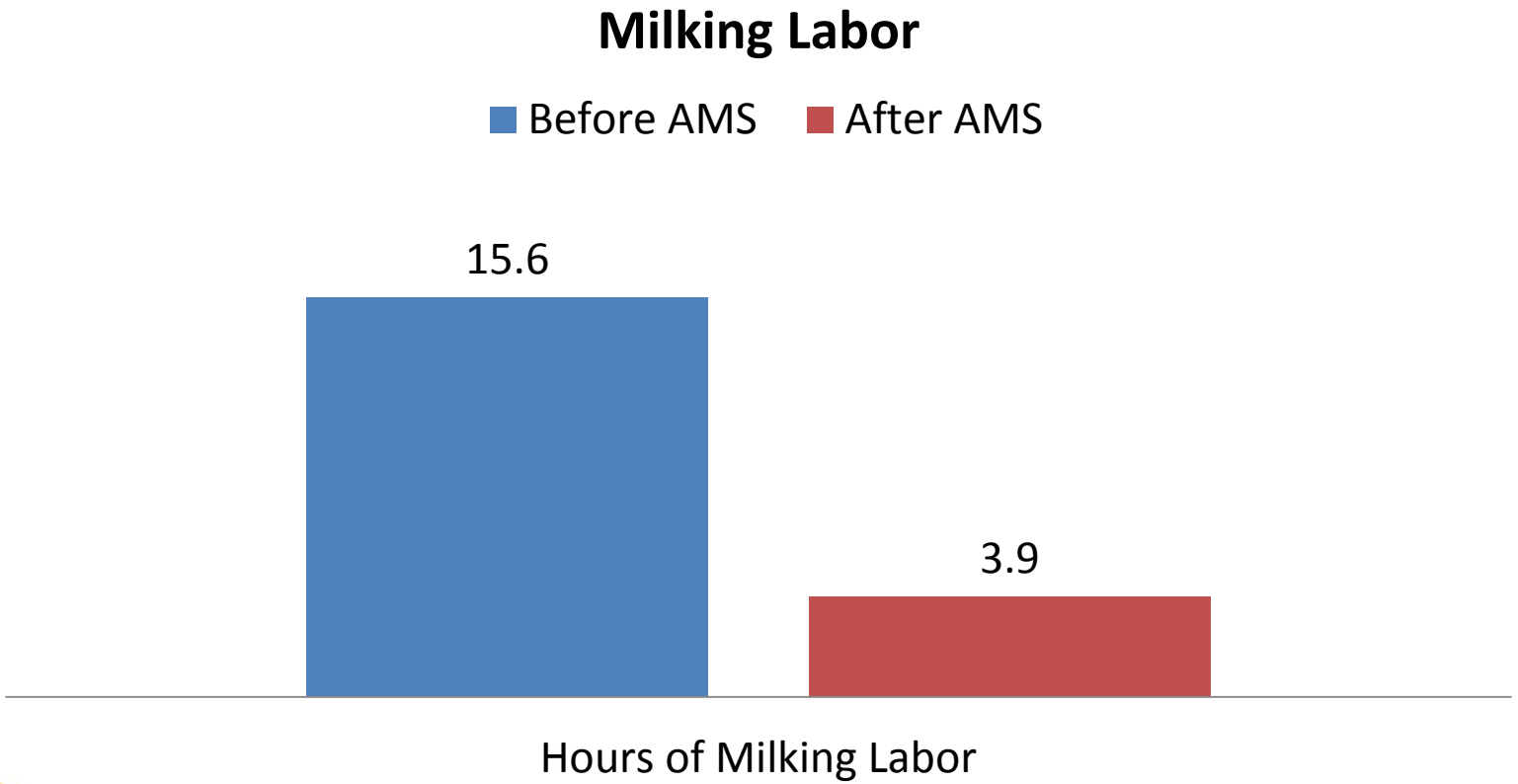
Producer Survey Response

- 8 producers responded
- Avg. installation age: 8 months
- Herd Size Avg: 12% increase
  - Before: 149 cows
  - After: 167 cows
- Average cost per AMS: $185,000 without building costs

Labor Efficiency

- Primary goal when installing an AMS
  - Labor savings valued at $44,030/year
  - Hiring, training, and overseeing employees decreased (37 minutes/day)
  - Records Management labor increased minimally at $212 per year (37.8 minutes/day)
    - Information and records collected from AMS

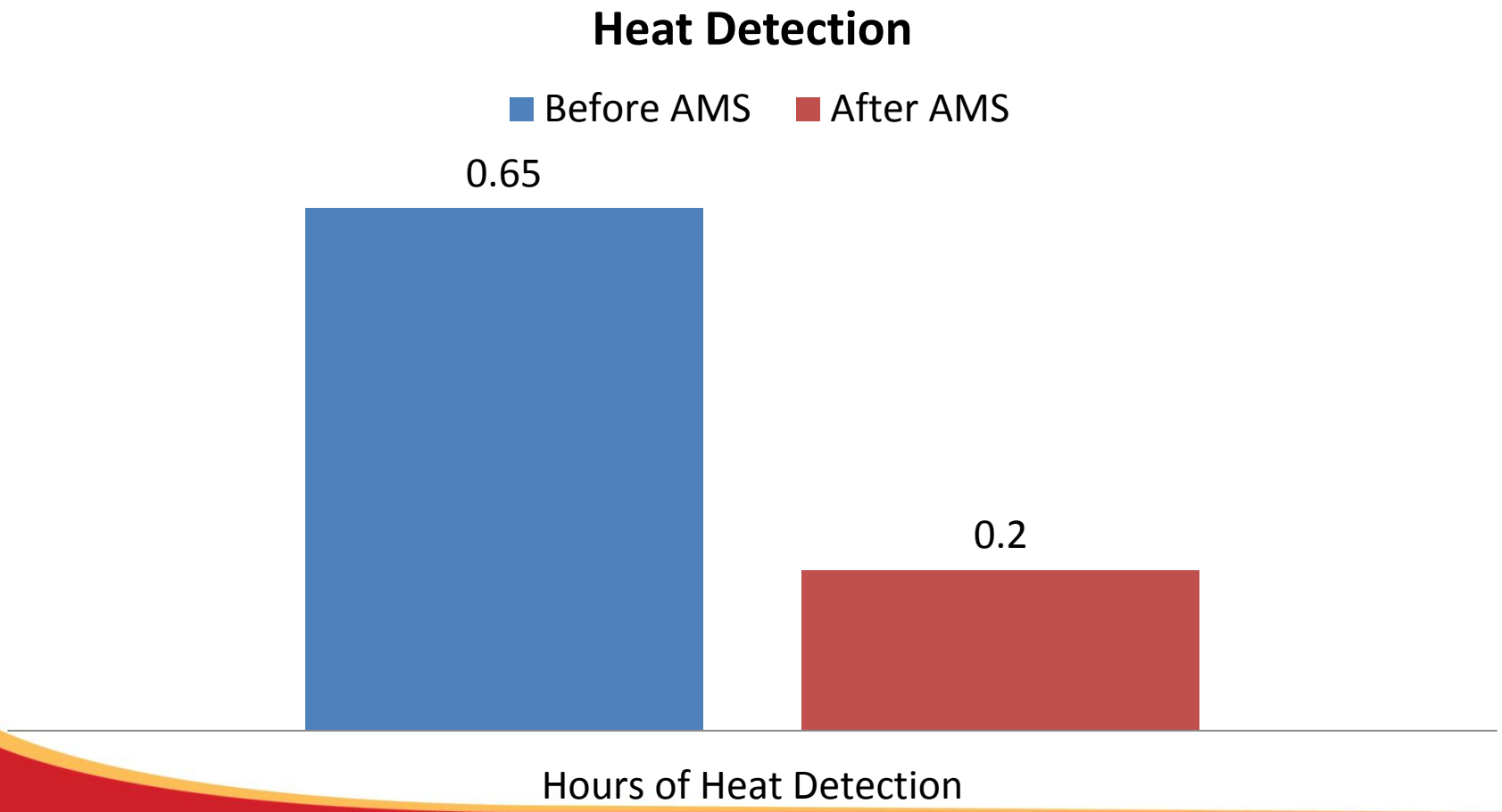
75% Decrease in Total Milking Labor



Milking Labor Management

- Milking Frequency:
  - Before: 2 times/day
  - After: 2.9 times/day
- Fetching cows 2.25 times per day
  - Average 10 cows fetched per robot per day

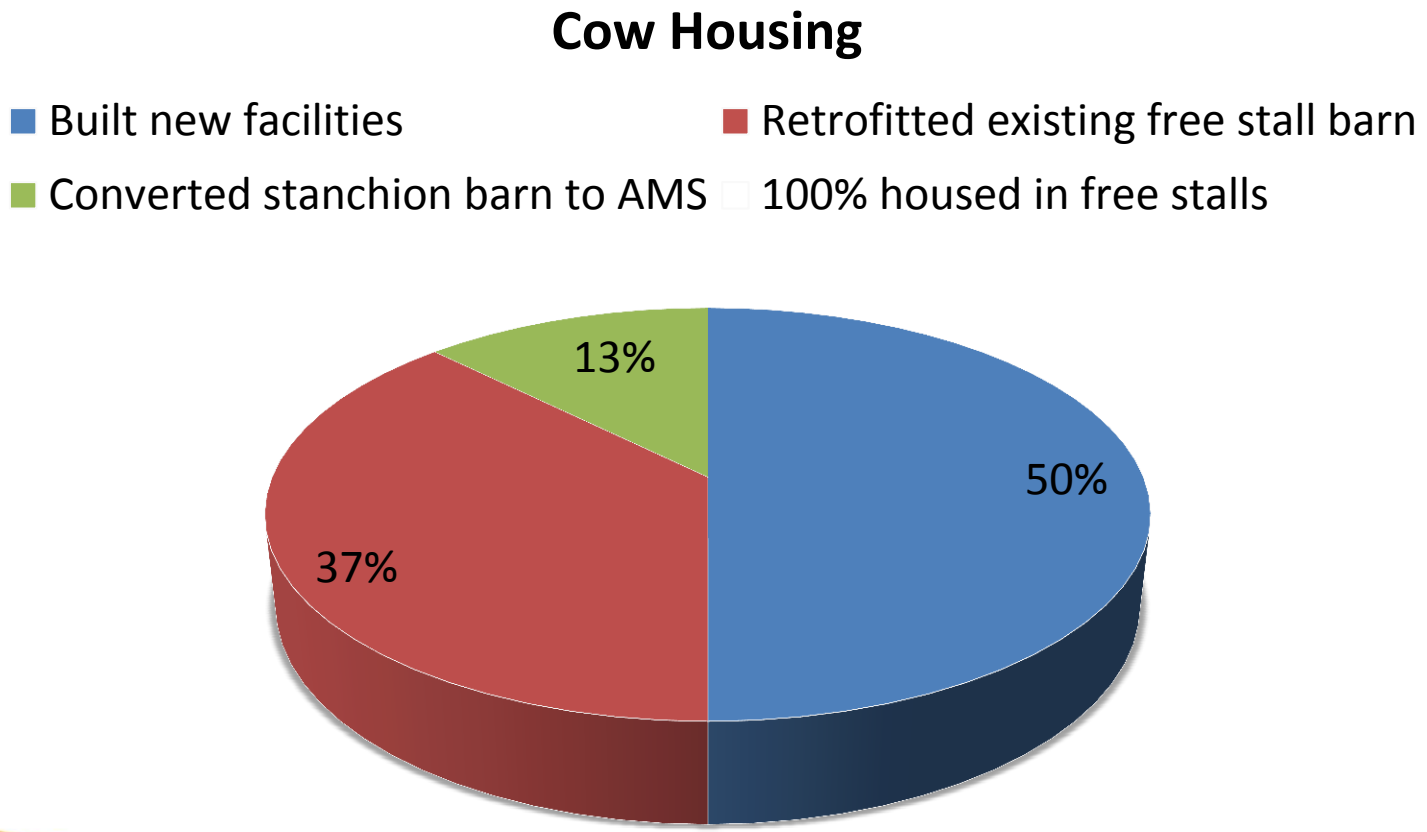
70% Decrease in Heat Detection



Labor Efficiency

- Cows milked per labor hour
  - Increased from 21.3 to 185.2 cows
    - 781% decrease in milking labor!
- Labor cost per hundredweight
  - Reduced from $1.93 to $0.35/cwt.
- Labor cost per cow
  - Reduced from $1.34 to $0.27 per cow
- *For one robot using a 74 cow per robot basis, producers saw milking labor savings of $23,997 per year*

Management Practices of Dairy Producers



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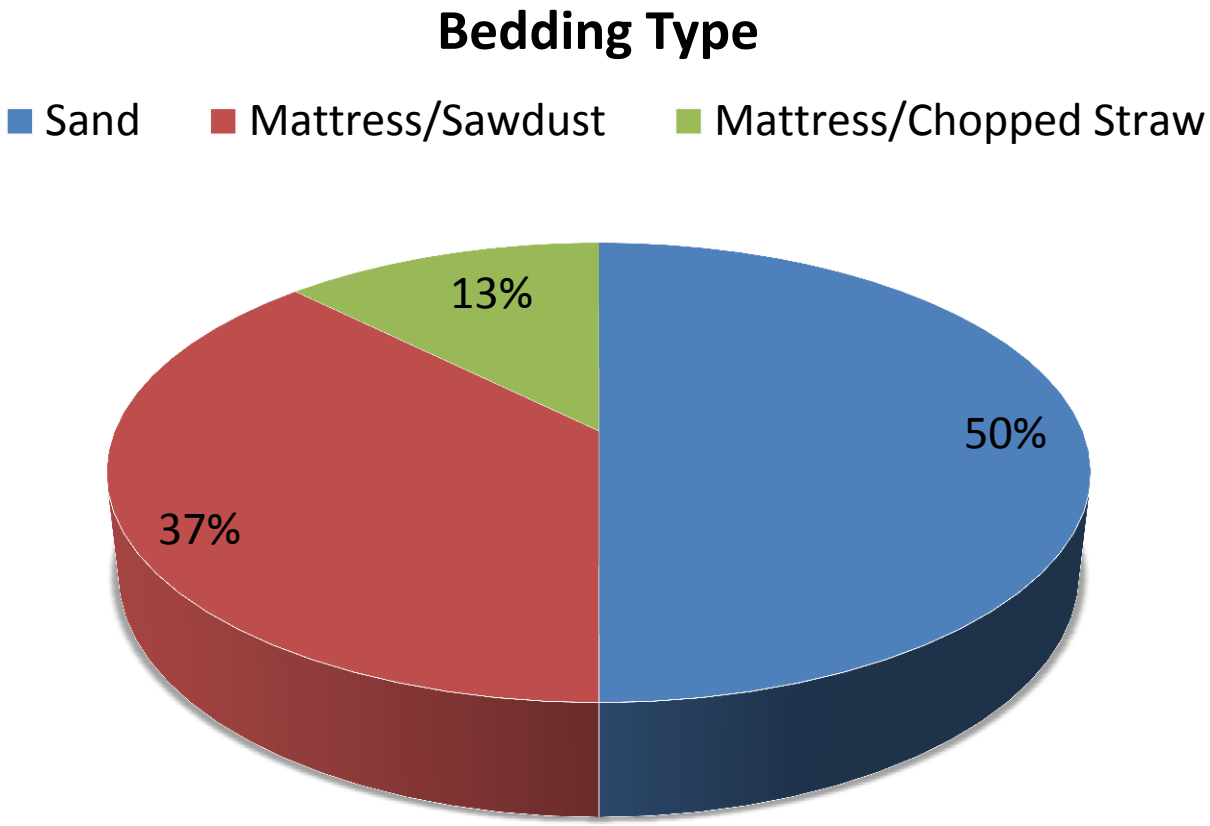
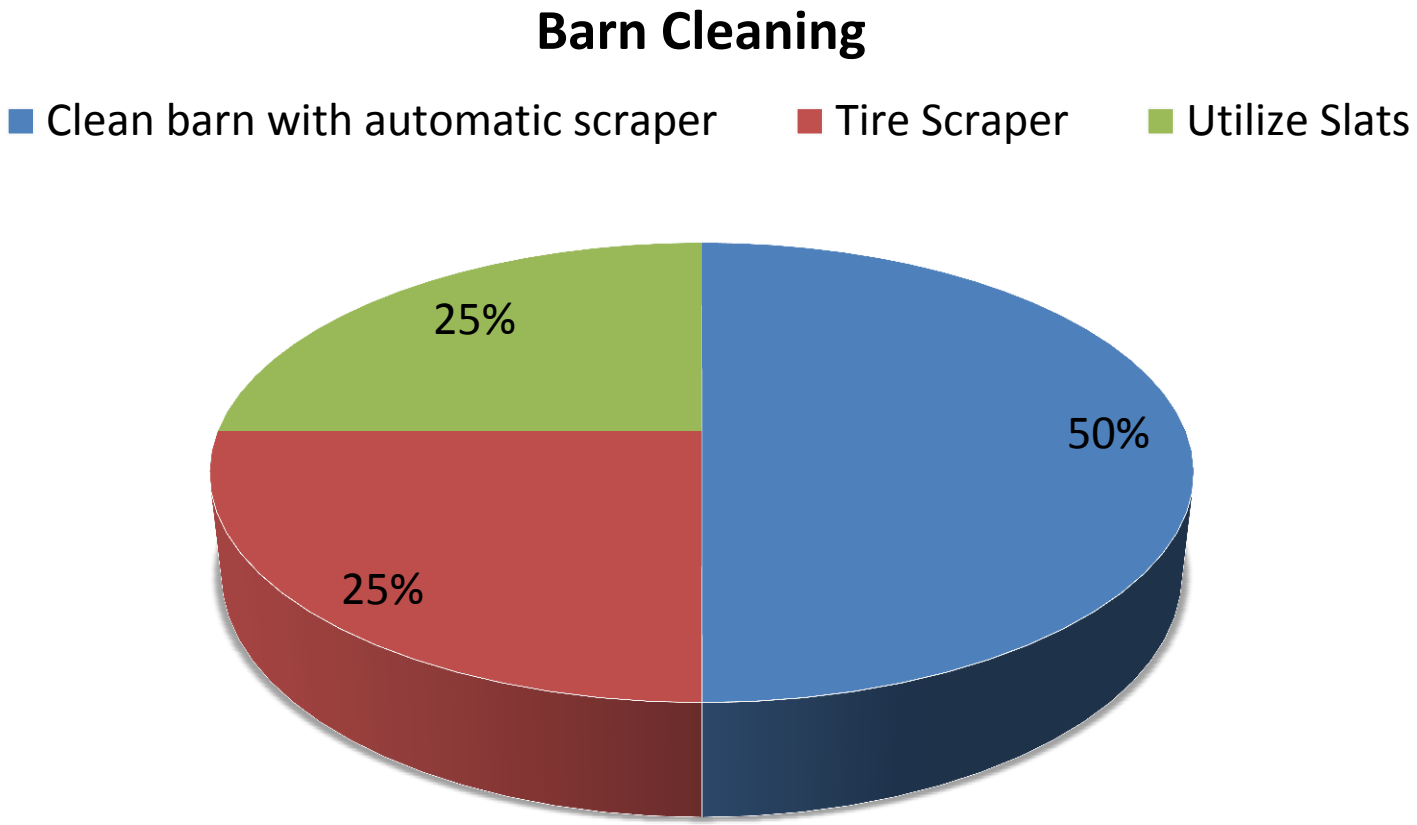
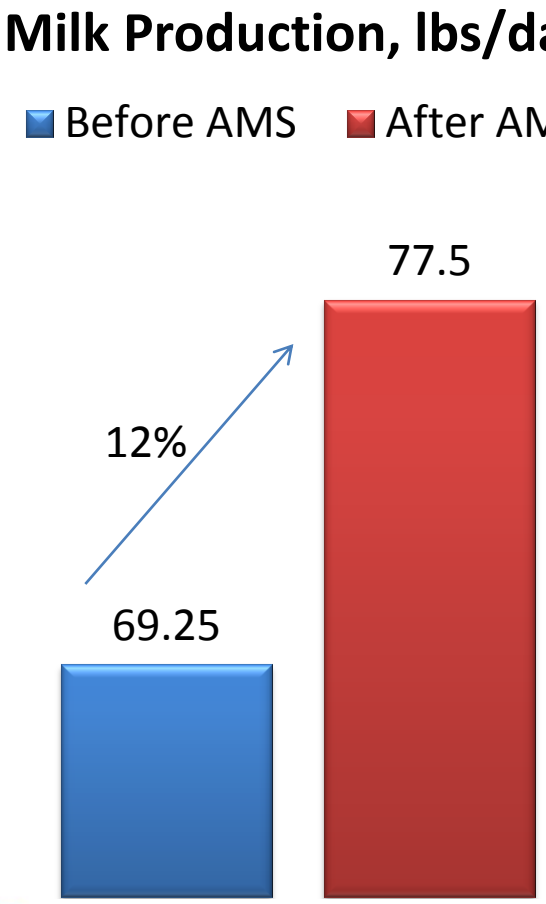
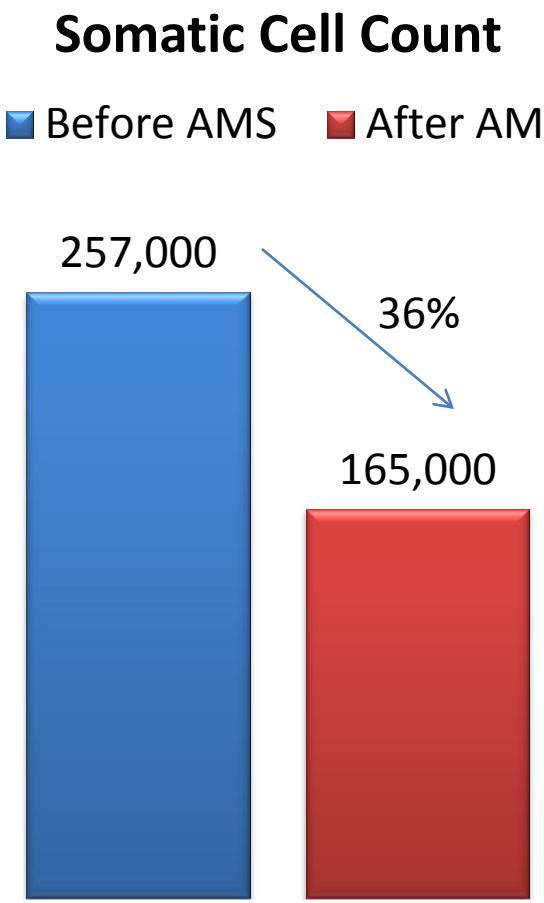


Management Practices of Dairy Producers



Milk Production and Quality





75% of the producers were extremely satisfied to moderately satisfied with using conductivity to manage milk quality

Feed Management

- Managing the feeding system is critical to the AMS success
- Properly balancing the Partial Mixed Ration (PMR) and pellet drives the success of visits to the AMS.
- Provide fresh, timely, high quality forage in the bunk contributes to AMS success

Feeding Management

- Partial Mixed Ration
  - Avg. 0.73 lbs of PMR fed per pound of milk
  - Costs reported ranged from $0.08 to 0.12 per pound of PMR*Cost per pound of PMR is of low confidence in the data set due to low response rate
  - 62.5% of producers are feeding the PMR ration 2 times per day
    - Pushing up feed varied from no push-up to 5-6 times per day to continuous with robotic pusher.

Feeding Management

- Pellet Management
  - Minimum pounds of pellet fed through robot: 5 lbs
    - 37.5% farms decreasing to 2 pounds of pellet per day 14 days prior to dry-off
  - Maximum pounds of pellet fed through robot: 14.5 lbs
    - Early lactation and/or high production
  - Avg. cost per pound of pellet feed: $0.13 per pound

- Pellet Palatability
  - Typical ingredients include corn and a variety of by-products such as linseed, wheat midds, molasses, soybeans, oats, and DDGs.
  - Major driver of AMS success

Reproductive Management

- 87.5% of cows are bred in a natural heat through activity monitoring system
  - Some farms still observe for heat 1-2 times/day in addition to activity monitoring
- Half the farms utilize a synchronization program
  - ranging from 1% for problem cows up to 25% of all cows in the herd.
- 62.5% report using less synchronization programs than in previous system.
- Services per conception decreased
  - 19% to 2.1 services per conception.
- Pregnancy rate increased by 6%.

Other Issues of Concern

- Minimal change in cull rate
- Reasons for culling did not change after AMS
- Decrease in electrical use
- Increase in water and chemical usage; possibly attributed to herd growth

Satisfaction Index

- 100% of producers agree or strongly agree that:
  - The AMS has been a good personal, financial and management investment.
  - The AMS has improved cash flow.
  - The AMS has improved profitability.
  - The AMS has improved quality of life
    - By an average value of $22,500

Reasons for Installing an Automatic Milking System

1. **Flexibility in Schedule** (n=8)
   - Have more time for family events, improved quality of life
2. **Labor Efficiency** (n=5)
   - Ability to work in other areas of the farm, labor consistency and availability, and milking frequency
3. **Information** (n=4)
   - Technology, individualized cow data and mgt.
4. **Comparison of another system** (n=3)
   - Going to build anyway, similar cost to other systems

Investment Analysis

- High initial investment cost due to the automation of the milking system
- Annual investment cost assuming
  - **15 year useful life**:
    - $336.04 per cow or $1.42 per hundredweight
  - **10 year useful life**:
    - $402.70 per cow or $1.70 per hundredweight
  - **Total annual investment and labor cost**:
    - $1.77/cwt. (15 yrs) -- $2.06/cwt. (10 yrs.)

Investment Analysis

- Payback period
  - **Based on labor savings and increased milk production**
    - 15 year useful life = 6.1 years
    - 10 year useful life = 7.2 years
  - **Based on labor savings, increased milk production, and other revenue (reproduction savings potential)**
    - 15 year useful life = 5.3 years
    - 10 year useful life = 6.1 years

Summary

- AMS provided a positive quality of life and milking labor advantage over previous system.
  - Average of 12% more cows able to be milked with an average of 75% less labor
  - Production increased 12% while SCC dropped 36%
  - Feeding and housing efficiencies gained

Bottom Line of AMS:

Cows and People like Them!