Robotic Milking Systems

Different Technology
Different Management

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MILKING TECHNOLOGY

ROBOTS TAKE HOLD ON FARM

One of two automated milking machines at Windsett Farm in Genoa. The automated arm center uses lasers to guide and connect to the udder.
Has to be Profitable!

- Trading capital for labor.
- Business planning key.
- Quality of life a key factor.
- But….quality of life decreases dramatically when bills can’t be paid.
Parlor Annual Capital and Labor Costs

120 cows 18,000 # $10/hr labor

- Tie Stall
  - $35,040/year labor
- Low Cost Remodeled Parlor
  - $25,000-capital ($4,250 annual)
  - $14,600/year labor
- Medium Cost Remodeled Parlor
  - $50,000-capital ($8,500 annual)
  - $14,600/year labor
- High Cost Remodeled Parlor
  - $100,000-capital ($17,000 annual)
  - $14,600/year labor
- New Parlor
  - $250,000 ($42,500 annual)
  - $14,600/year labor

Robot - $59,600 annual; Labor $9,855

= Range = $1.77- $2.06 (10%↑)
(labor cost = $0.35/cwt)
Cows adjust easier than the farmers.
What Changes!

- Milking Routine—obviously!
- Labor needs, both time and type.
- Feeding strategy
- Grouping strategy
- Data management
Labor Efficiency

- Key to making the system profitable.
- Labor decreases are not a given.
  - Limited data but there appears to be a broad spectrum of results
- Higher tech labor needed to maximize the robot and to gain value from data.
Keys to Labor Efficiency

• Cow enter the system voluntarily.
  – Training Cows
  – Training People

• Limited system calls.

  Learning curving in becoming comfortable with system and getting the settings right for you.
Labor Efficiency

• Cows always in barn so need efficient strategies for:
  – Stall maintenance
  – manure cleaning
  – cow treating
  – cow observation
Feeding Management

• Cows not grouped.
• Feeding for individual cow needs.
• Feed in the milking stall-especially important with free flow systems.
• Partial Mix Ration.
• Balance the energy offered in the PMR so motivated to enter milking stall.
• Nutritionists-this is a change for them too.
Stocking and Grouping

- Stocking rate 55-60 cows per stall
- Overstocking prevents some cows from getting milk adequately.
- Groups-cows in all phases of lactation, age.
Lots to Learn Still

• Farmers experimenting to maximize milk per robot.
  – Low group more densely populated.
  – High group less densely populated.
Factors Effecting Milking Frequency

• Can adjust milking freq. for each cow.
• Feed palatability.
• Stocking Rate.
• Individual cow milking speed-udder conformation, milking speed.
• Lameness
Data Management

• More data collected
• More time needed to analyze.
• Learning curve-
  – What’s important
  – What’s not important
  – What may be important some day.
Health Indicators

- Milk color (per quarter)
- Fat/protein indication of the milk
- Lactose indication of the milk
- Conductivity of the milk (per quarter)
- Milk temperature
- Rumination minutes of the cow
- Cow activity
- Cow weight
- Milk production of the cow
- Feed intake of the cow
- Amount of rest feed of the cow
- Milking time/dead milking time
- (Max.) milking speed
What Farms Are Doing

• Check reports 2-3 times a day
• More in-depth analysis when time permits
• Looking for changes
• Udder Health
• Heat Probability
• Sick Cows
• Fetch cows-cows who haven’t been milked.
Exciting Technology!

• Opportunity for improved Quality of Life
• Intensive management via increased information.
• Requires a change for both Cows and People!

Questions???