

# Robotic Milking Systems

Different Technology

Different Management

Presented by

**Beth Dahl, Harvest NY, NWNY Dairy, Livestock &  
Field Crops Team**

**Kathy Barrett, Cornell PRO-DAIRY Program**

# UNDERGROUND ADVENTURE

Carve out lifelong memories on tour of Howe Caverns

DON'T MISS DO IT! IN TODAY'S ITHACA JOURNAL

A GANNETT COMPANY

# THE ITHACA JOURNAL

SATURDAY/SUNDAY, MARCH 1-2, 2014

MILKING TECHNOLOGY

## ROBOTS TAKE HOLD ON FARM



One of two automated milking machines at Windstett Farm in Genoa. The automated arm center uses lasers to guide and connect to



# 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.



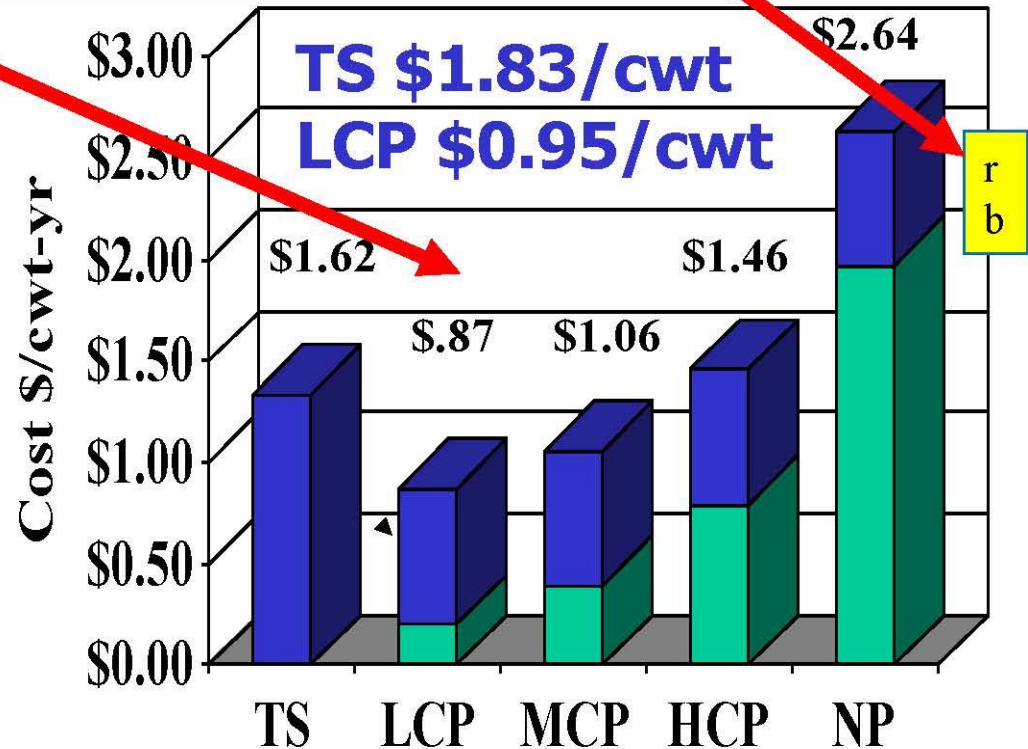
# Parlor Annual Capital and Labor Costs

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%<sup>^</sup>)**  
 (labor cost = \$0.35/cwt)

■ Labor Cost  
 ■ Capital Cost



Cows adjust easier then 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???