

## Automated Milking and Calf Feeding

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## ROBOTIC OR AUTOMATED MILKING

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### Why robotic/automated milking?

- Improve quality of life
- Labor management
- Human health
- Latest technology
- Consistency

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Lots of individual cow and herd information at their fingertips!



### Activity chart



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## Automated/Robotic Milking Systems Box Systems

- Lely
- DeLaval
- GEA Farm Technologies
- AMS-Galaxy
- BouMatic Robotics

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Lely



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DeLaval



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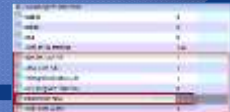
### DeLaval Herd Navigator™



Sensor  
(captures data)



Analyser  
reporting concise  
information



Action  
SOPs made to  
take action



Slide courtesy Francisco Rodriguez, DeLaval

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### GEA Farm Technologies



Photo courtesy Erica Kiestra, KIE Farms

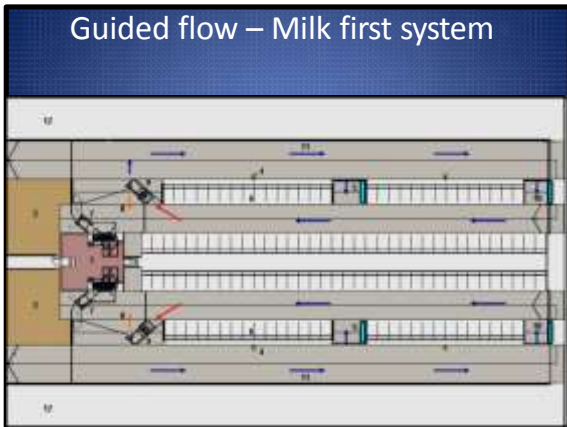
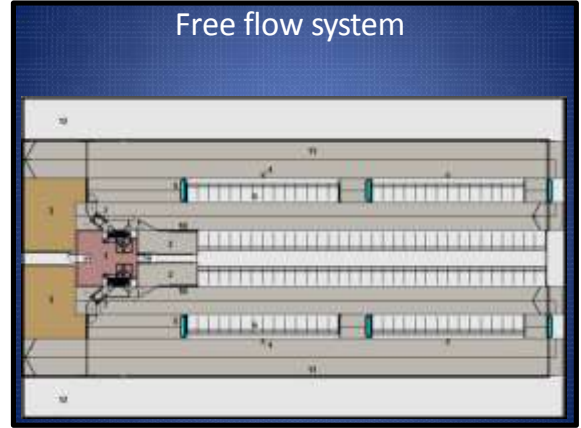
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### AMS-Galaxy



Photo courtesy Brad Biehl, CornerView Farm

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### Parlor Systems

- DeLaval
- GEA Farm Technologies
- MiRobot

### Milking Process – Fully Automated

Capacity depends on the number of stalls (32-80)

150-400 cows/hr.  
1 Operator

Detachment  
Post Dip  
Backflush

Attachment

Pre-Dip

Udder Cleaning

Milk Analysis

Operator

### The AMR™ milking process

10 steps

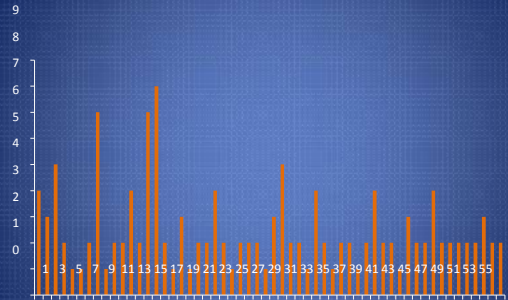
- AMR™ may be CW or CCW
- Rotation 1 stall/move- not continuous motion
- Five (5) robotic arms
- Robot function if CW rotation-
  - #1 preps left teats
  - #2 preps right teats
  - #3 attaches rear teats
  - #4 attaches front teats
  - #5 individual teat spray
- Possibility for easy manual attach if/when desired

## How many farms use robots?

- Over 30,000 units worldwide
- More robots in Europe than in the US
- About 150-200 farms in the US
- Five manufacturers in North America: Lely, DeLaval, GEA Farm Technologies, AMS-Galaxy, and BouMatic
- Most units in the US and Canada are Lely and DeLaval

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## Number of robots per farm



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## RMS Goals

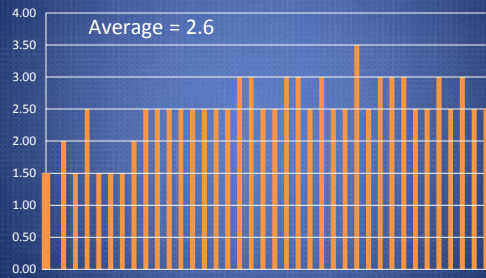
Important:

- > 2.8 milkings per cow per day (> 2.4)
- < 5 failed milkings per robot per day
- > 1.5 hours free time on the robot/day
- Fetch cows at 5-10 cows or less/robot/day
- Production goal of more than 5,000 lbs. milk per robot per day
  - > 4,000 lbs = OK; > 4,500 = good; > 5,000 = excellent

Chad Kieffer, Kiefland Holsteins

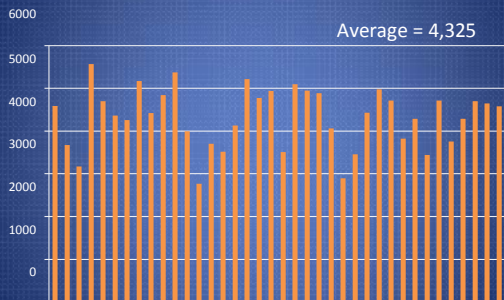
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## Number of milkings per day



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## Pounds of milk per robot



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## Other facility attributes

Attribute	Percent of farms
Mechanical rotating brushes	62%
Automatic feed pushers	21%
Robotic manure scraper	4%



## Summary

- Producers wanted robots for quality of life and labor management
- Robotic barns more likely to have automated manure removal systems, robotic feed pushers and mechanical brushes than other freestall barns

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## AUTOMATED CALF FEEDERS

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## Why feed calves in groups?

- More space per calf
- Social interaction
- More frequent feeding
- Easier to feed larger amounts of milk
- Labor management



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## Automated calf feeder



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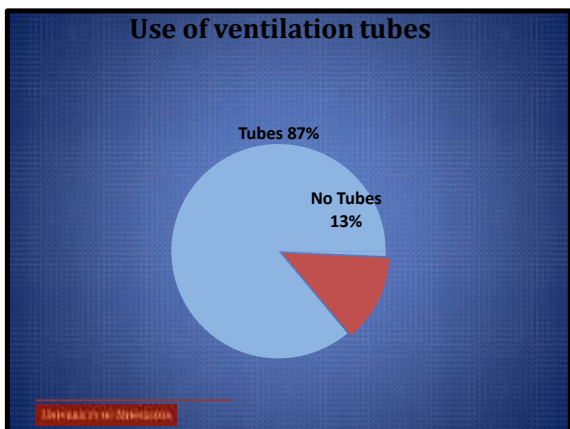
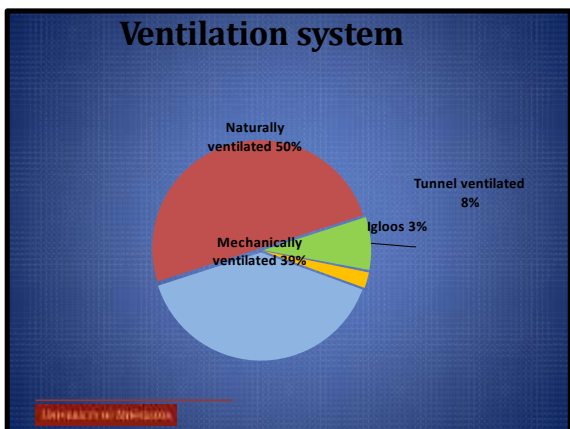


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### What are some of the challenges?

- Calf individual observation
- Prevention of disease
- Competition for feed
- Cost of equipment
- Equipment setup
- Equipment cleanliness

Mark your calendars!



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 Mayo Civic Center, ROCHESTER, MN  
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Thank you for your time and attention!  
 Questions/Comments?  
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