

UC DAVIS VETERINARY MEDICINE CALIFORNIA DAIRY RESEARCH & EXTENSION CENTER FOR SUSTAINABLE FARM ANIMAL SCIENCE UNIVERSITY OF CALIFORNIA Agriculture and Natural Resources



Results from robotic survey for large dairy producers

Camila Lage
High Plains Dairy Conference
March 1, 2022

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Research team

- Dr. Fernanda Ferreira (UC Davis)
- Dr. Daniela Bruno (UCANR)
- Dr. Marcia Endres (University of Minnesota)
- Dr. Camila Lage







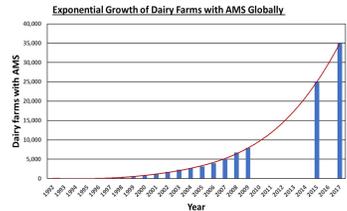
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The first robot was installed in 1992 (Jacobs and Siegford, 2012)

In 2017, there was an estimated number of 35,000 units installed around the world (Salfer et al., 2017);

The global milking robots market size stood at USD 1.25 billion in 2019 and is projected to reach USD 2.94 billion by 2027 (Fortune business insights, 2021).



Exponential Growth of Dairy Farms with AMS Globally

Figure 1. Global exponential growth in the adoption of Automated Milking Systems (AMS). Since the first commercial system was released in 1992, the adoption of robotic milking systems has been growing exponentially worldwide. Sources: Koning, 2010; Siepert et al., 2018; Salfer et al., 2019.

Figure credit: Juan M. Pileiro, Assistant Professor and Dairy Extension Specialist, Texas A&M AgriLife Research and Extension Center

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Only about 1% of all AMS located in the United States (de Koning, 2010)

Slower adoption in the US (Jacobs and Siegford, 2012):

Uncertainty about the technology
USA: A higher proportion of large dairies

Cost and return of the investment? - CA
Economies of scale and labor costs

It becomes more attractive....

Reasons driving the increase in interest in AMS adoption in the US

Ag labor shortage, increase in labor costs, immigration issues

Other reasons include:
Familiar succession and modernization of farm
Increase interest in animal welfare

How does large dairies that transitioned to AMS perceive the benefits?




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Survey to describe the perceptions of US producers on the implementation of AMS in dairies with ≥ 7 AMS units installed

We estimate that there are approximately 100 farms with 7 or more AMS boxes across the US (DeLaval and Lely, personal communication).



55 farms directly contacted.
 29 responded (53%)
 11 states across the US

Follow-up visits with some farms to better explore the answers




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Characteristics of the respondents

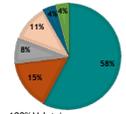
Time since AMS installation
 Min: 9 months
 Median: 47 months
 Max: 187 months

< 5 years

AMS units
 Min: 7
 Median: 12
 Max: 36

Cows under AMS
 Min: 400
 Median: 663
 Max: 2,200

BREED COMPOSITION OF THE HERDS



100% Hbs tein
 Hbs tein + Crossbred
 Hbs tein + Jersey
 Hbs tein + Jersey + Crossbred
 Hbs tein + Brown Swiss

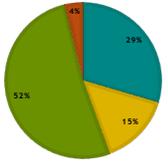
> 50% has 100% Holstein herd



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Characteristics of the respondents

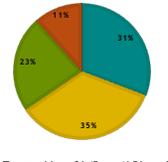
RESPONDENTS WERE



Full owner
 Part owner
 Herd manager
 Other

> 50% of respondents were herd managers

AVERAGE AGE OF RESPONDENTS

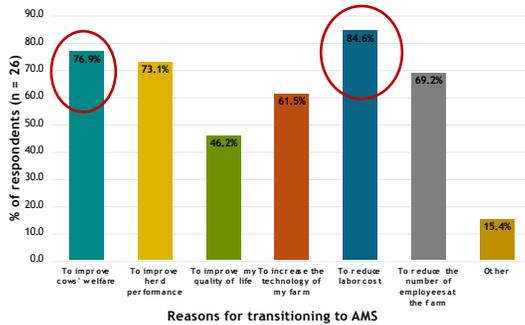


under 35 years old
 36-45
 46-56
 Over 56

66% of respondents were younger than 45 years old

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Why AMS?



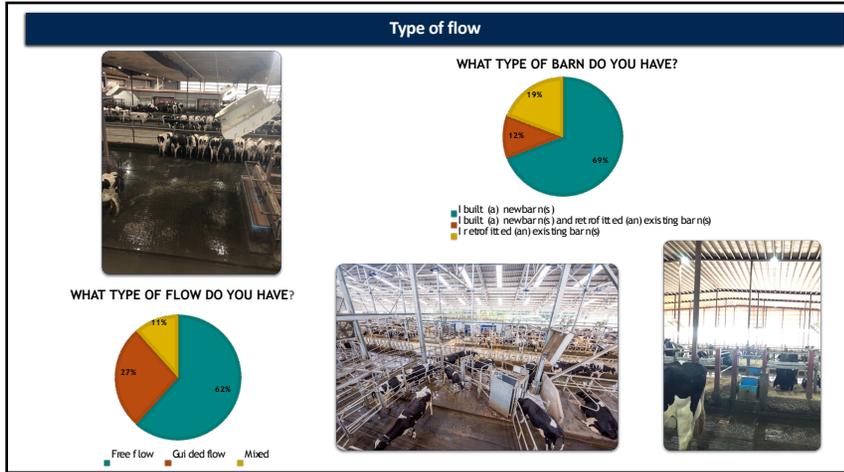
% of respondents (n = 26)

To improve cow welfare
 To improve herd performance
 To improve my quality of life
 To increase the technology of my farm
 To reduce labor cost
 To reduce the number of employees at the farm
 Other

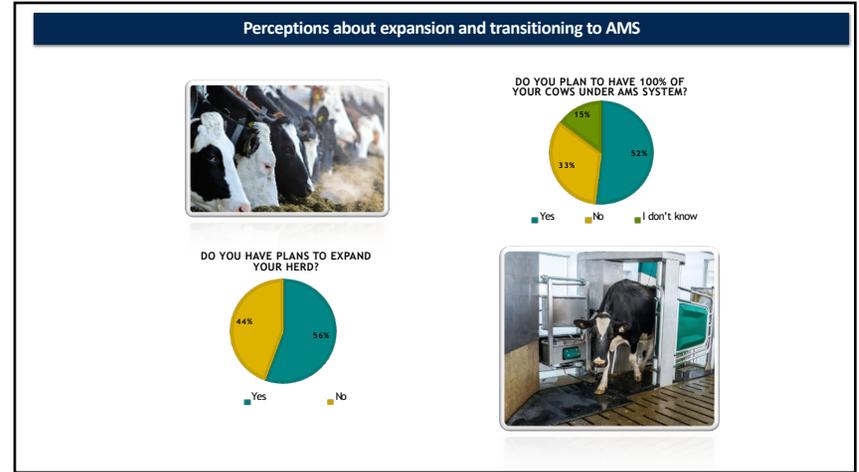
Concerns with labor availability and costs (Martins et al., 2019)

Consumer's perception of dairy cattle welfare (Beaver et al., 2020)

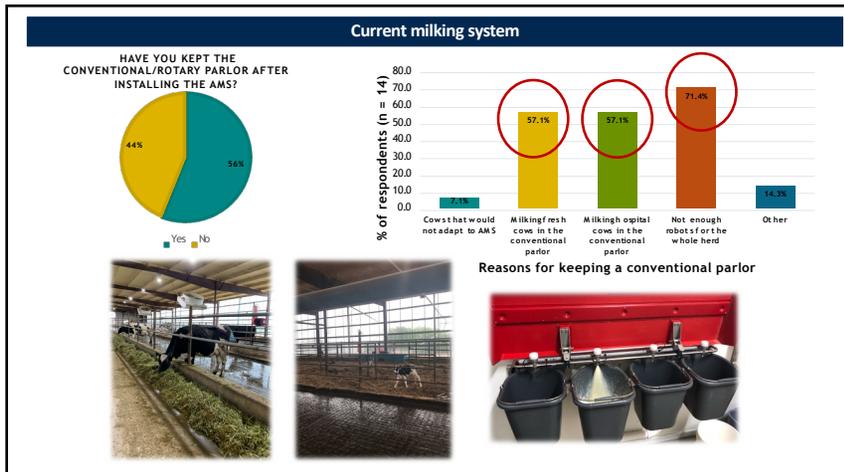
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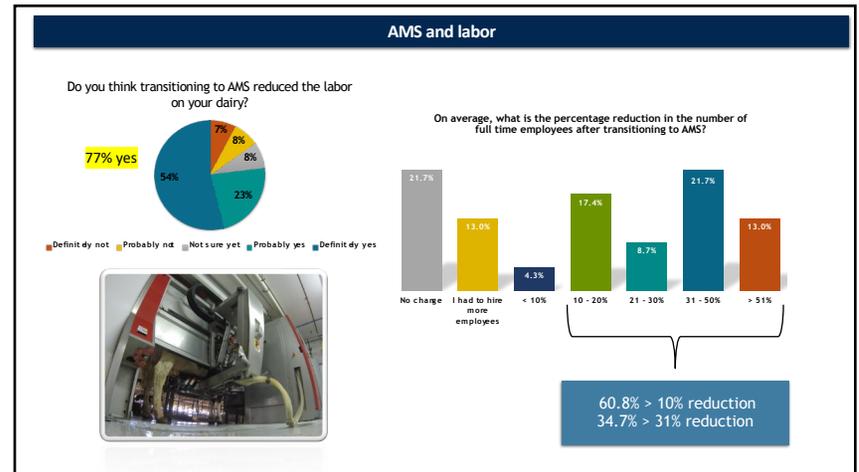
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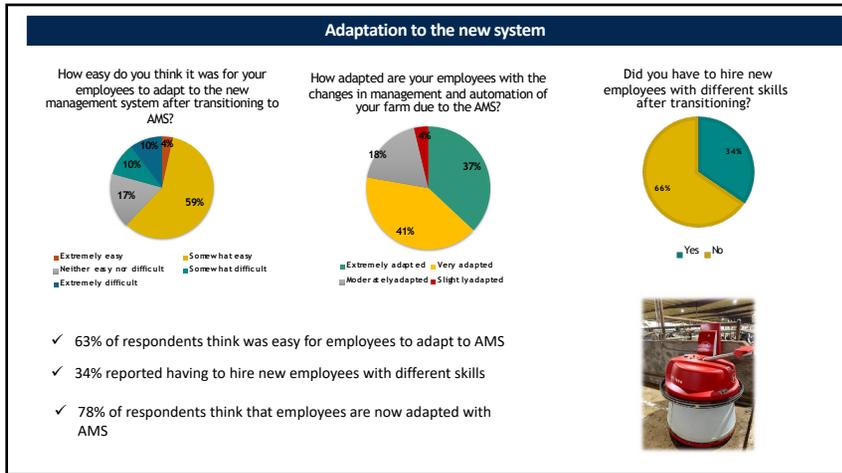
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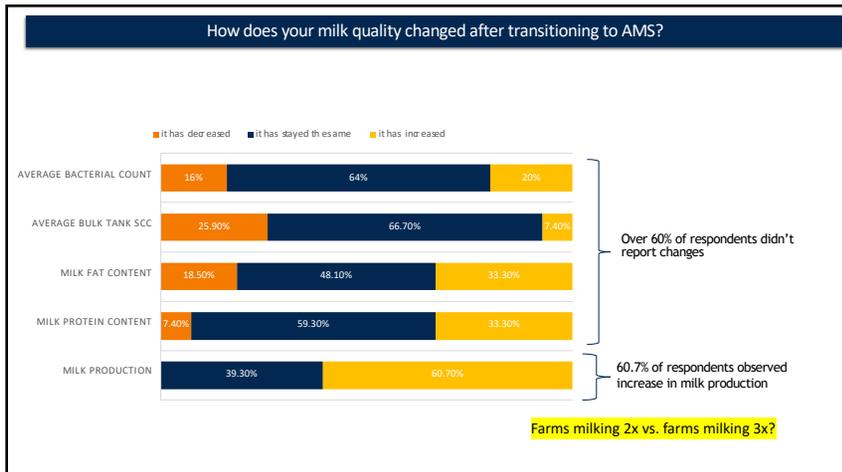


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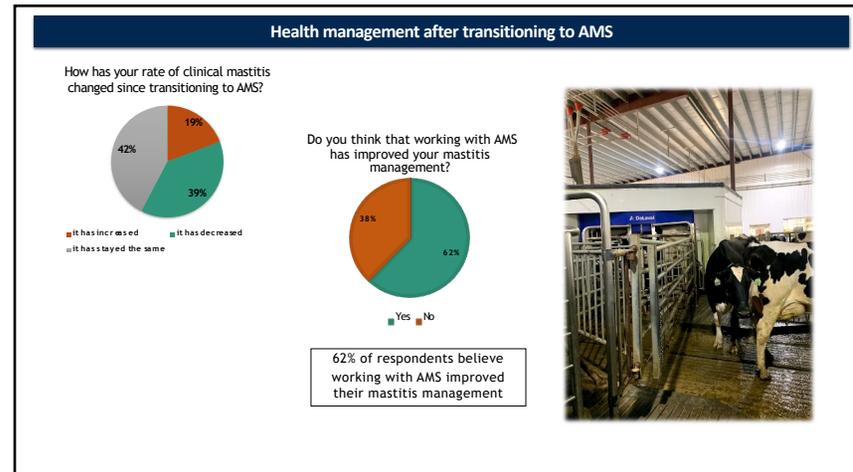
Take home messages so far

1. Respondents have different goals for their farms regarding expansion, going 100% robotic or layouts (building new facilities, flow etc).
2. However, majority of respondents agree that the transition reduced the needs for labor as full-time employees;
3. The intensity of this reduction varied among respondents, specially between farms that are 100% robotic and farms that still kept their conventional parlor up and running.

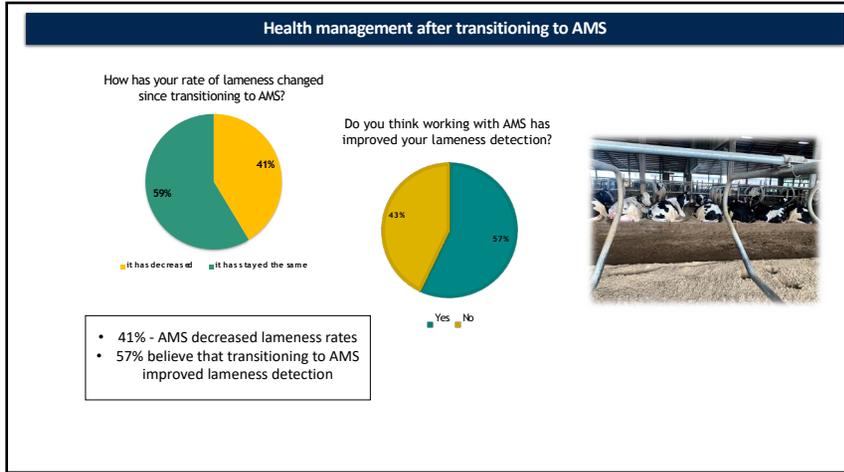
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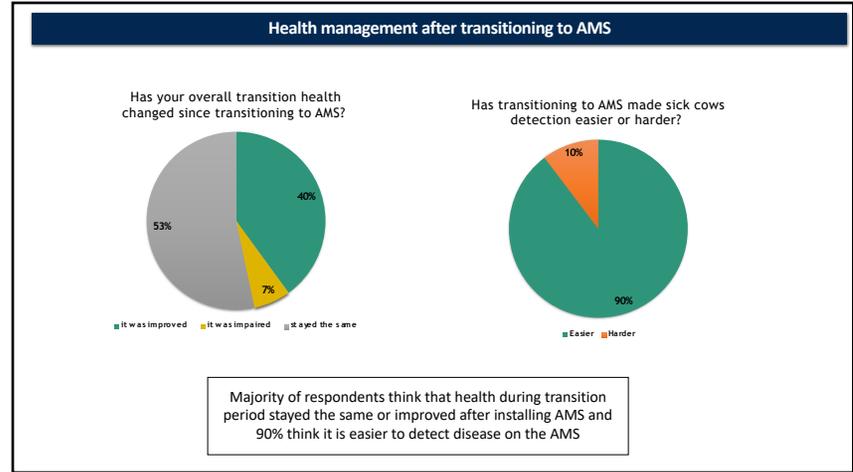
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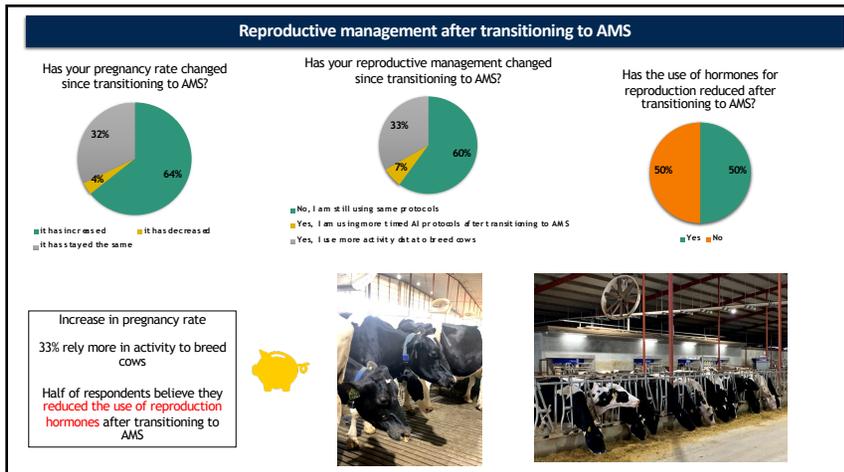
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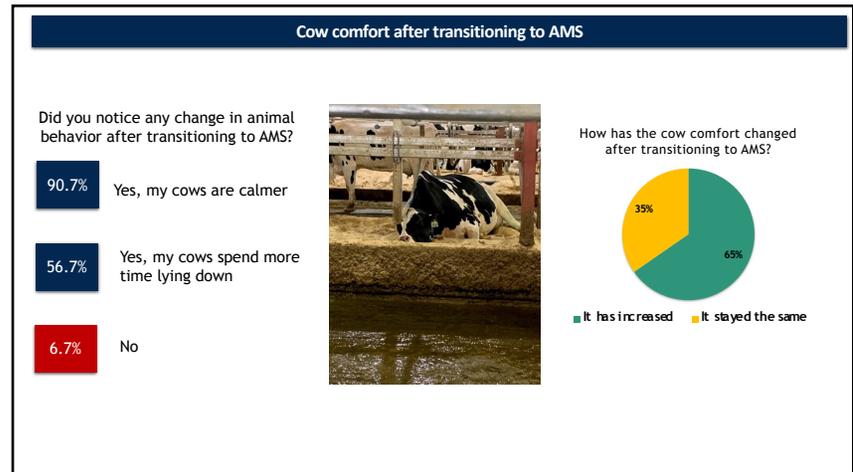
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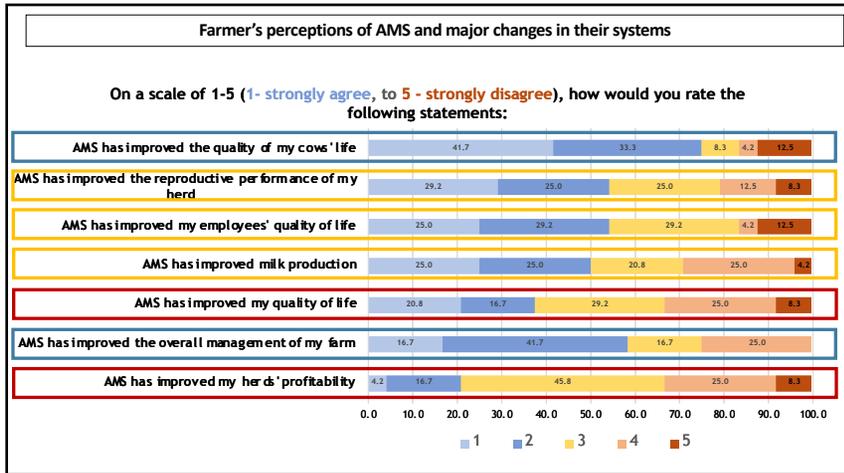
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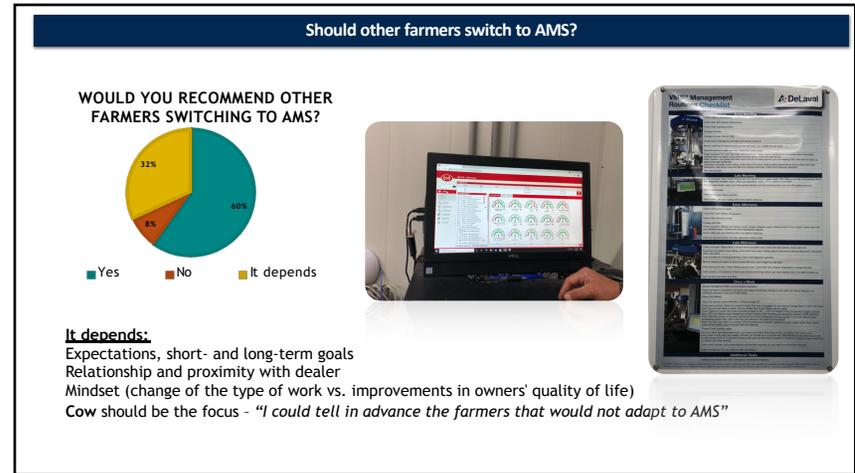
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Take home messages (so far)

- AMS have met producers' expectations
 - improving cow production and welfare
 - reducing labor
- The economic aspect of the investment is not clear
 - relatively recent transition
 - would benefit from further investigation.

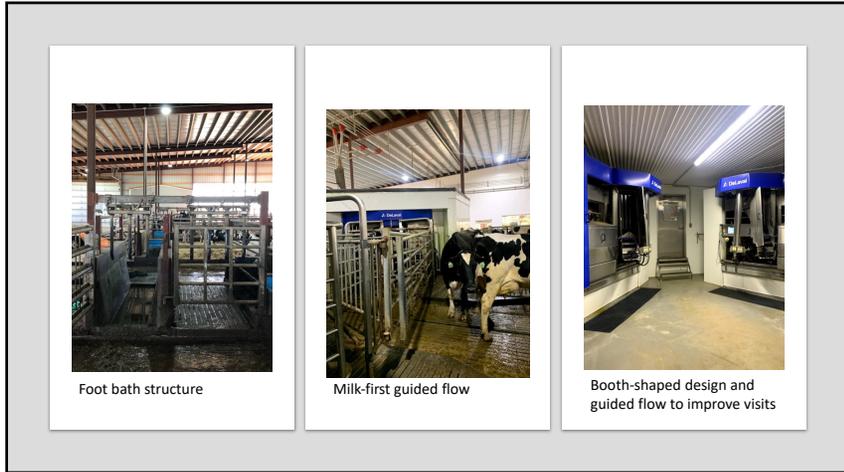
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- No farm is the same** and will need different structures and resources to succeed

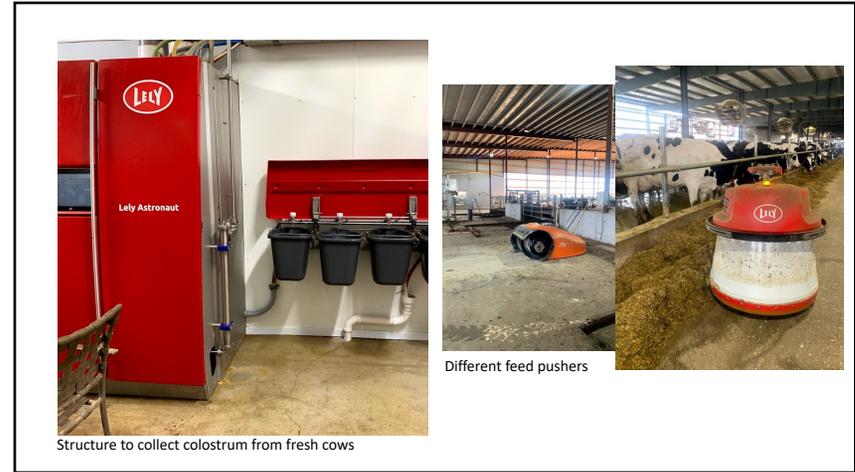
Lely Cosmix to help train heifers – help select the ones that will adapt better to AMS vs. the ones that goes to the conventional system

2 examples of management centers used to dry cows in farms that have 100% of cows under AMS (hoof trimming chute and structure with ditch)

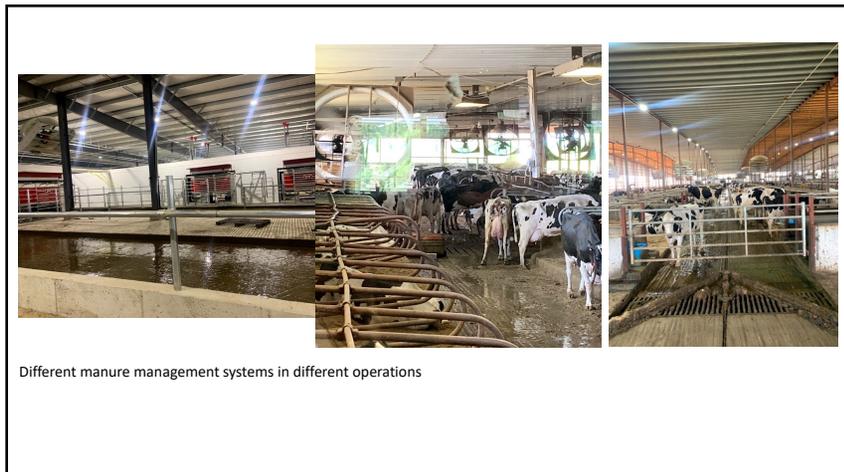
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Take home messages (so far)

- Aligned objectives among farmer, dealer and other stakeholders (Veterinarian, Nutritionist) appears to be an important component of the success of the transition

Farmers

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DeLaval

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ATM

MICHIGAN STATE UNIVERSITY

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Thank you!
Questions?

Camila Lage (cd546@cornell.edu)



Farmers

