Milk-powered Management Tools

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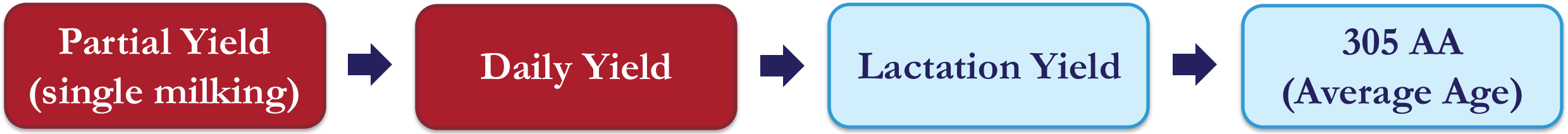
CDCB Producer Exchange | March 31, 2025

Milk Recording (DHI)

- 3.8 million cows on DHI testing and processing
  - > 90% sampled at one milking



Yield Factors

Milk

Fat

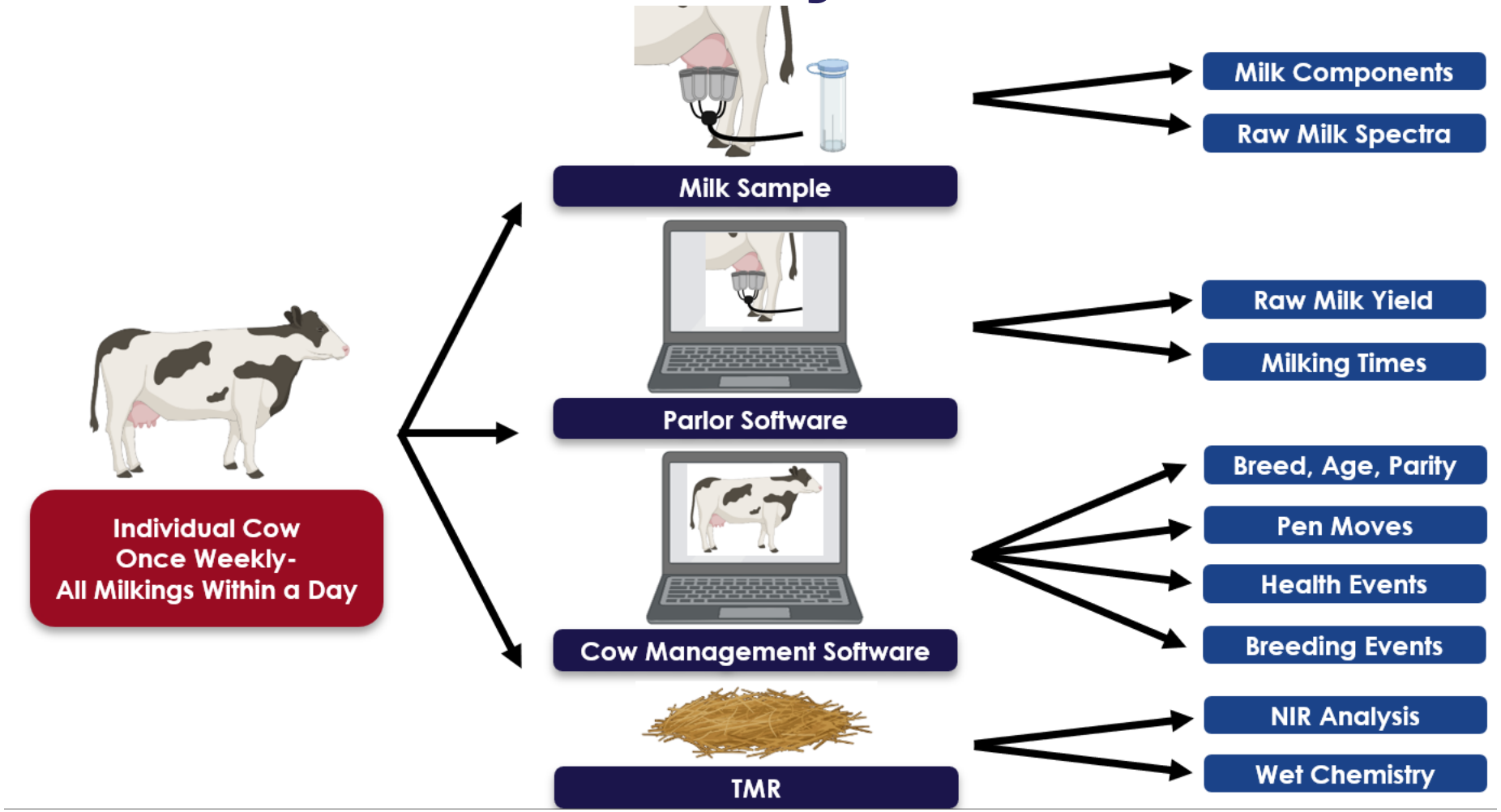
Protein

Lactation Factors Project

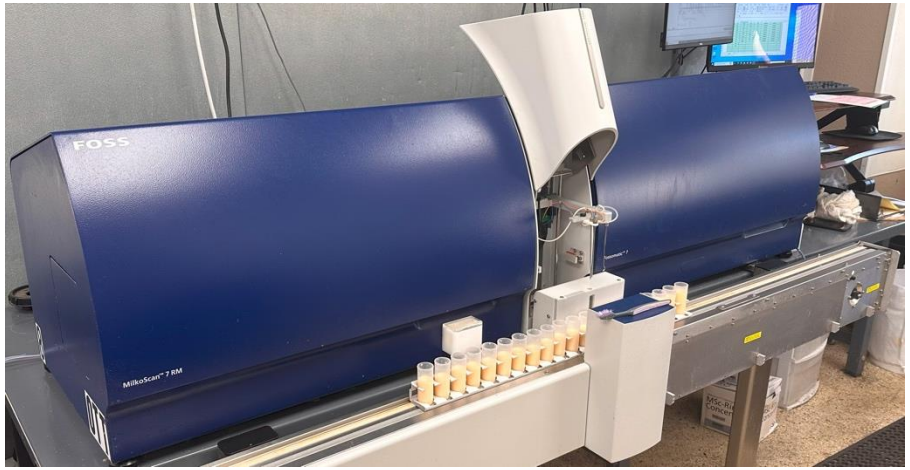
- Objective: Collect new data to update yield and component trait predictions

- 15 Holstein and Jersey herds across the US
  - Weekly sampling all milkings within a day

Lactation Factors Project



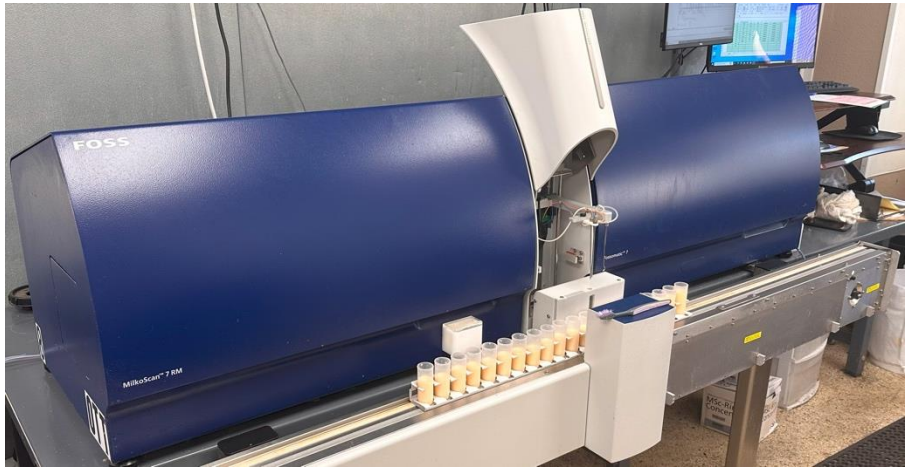
Milk Spectra

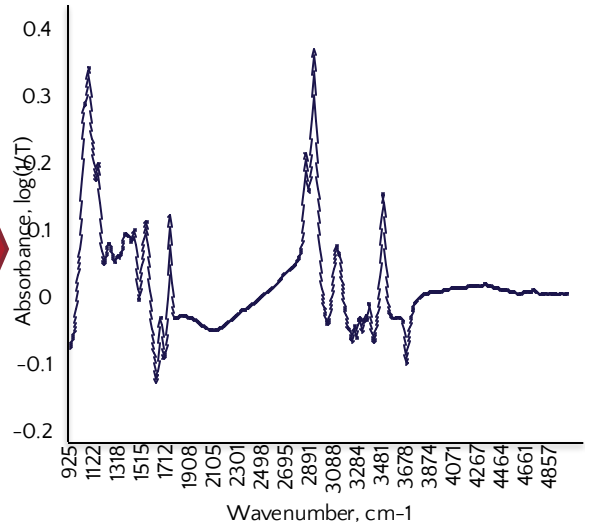


Milk Components:

- Fat
- Protein
- Lactose
- MUN

Milk Spectra





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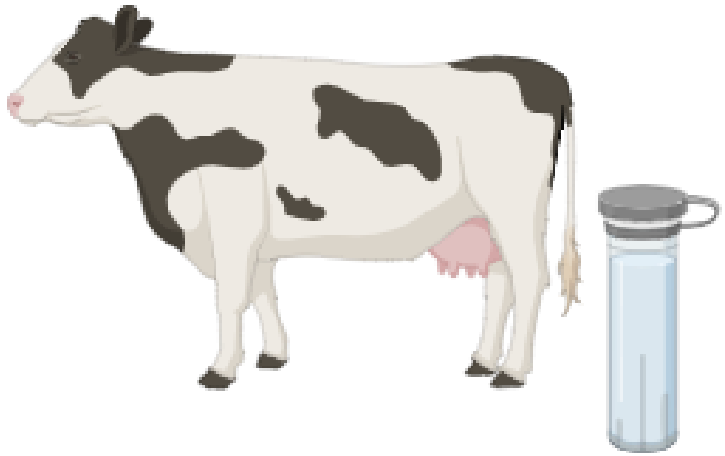
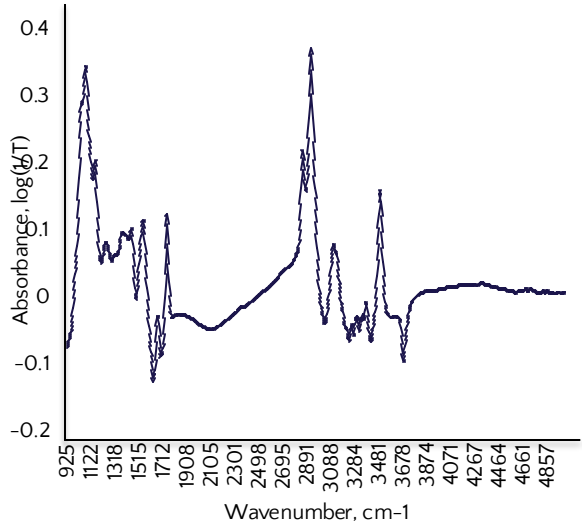
Milk-powered Management Tools

- Biomarkers of Health
- Milk Fatty Acids
- Fertility





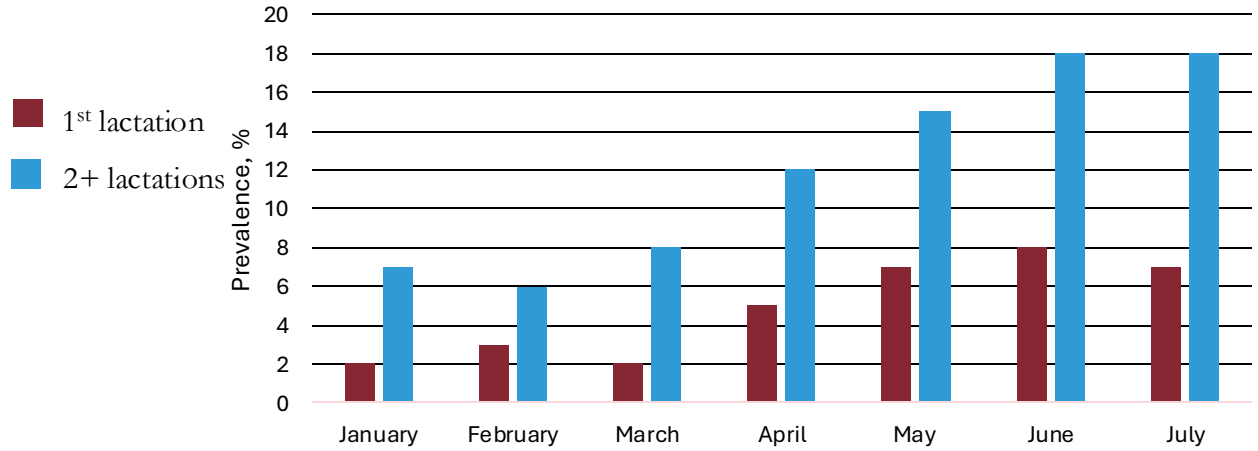
Biomarkers of health

- BHB, acetone, lactoferrin, citrate
- Early lactation risk of health disorders
  - Most useful at first test (< 30 days in milk)
- Useful alone or with other information as a tool

Cow	DIM	Milk BHB	Acetone
8429	10	0.06	0.07
5542	8	0.05	0.08
8420	14	**0.12**	**0.17**
2569	21	0.04	0.06

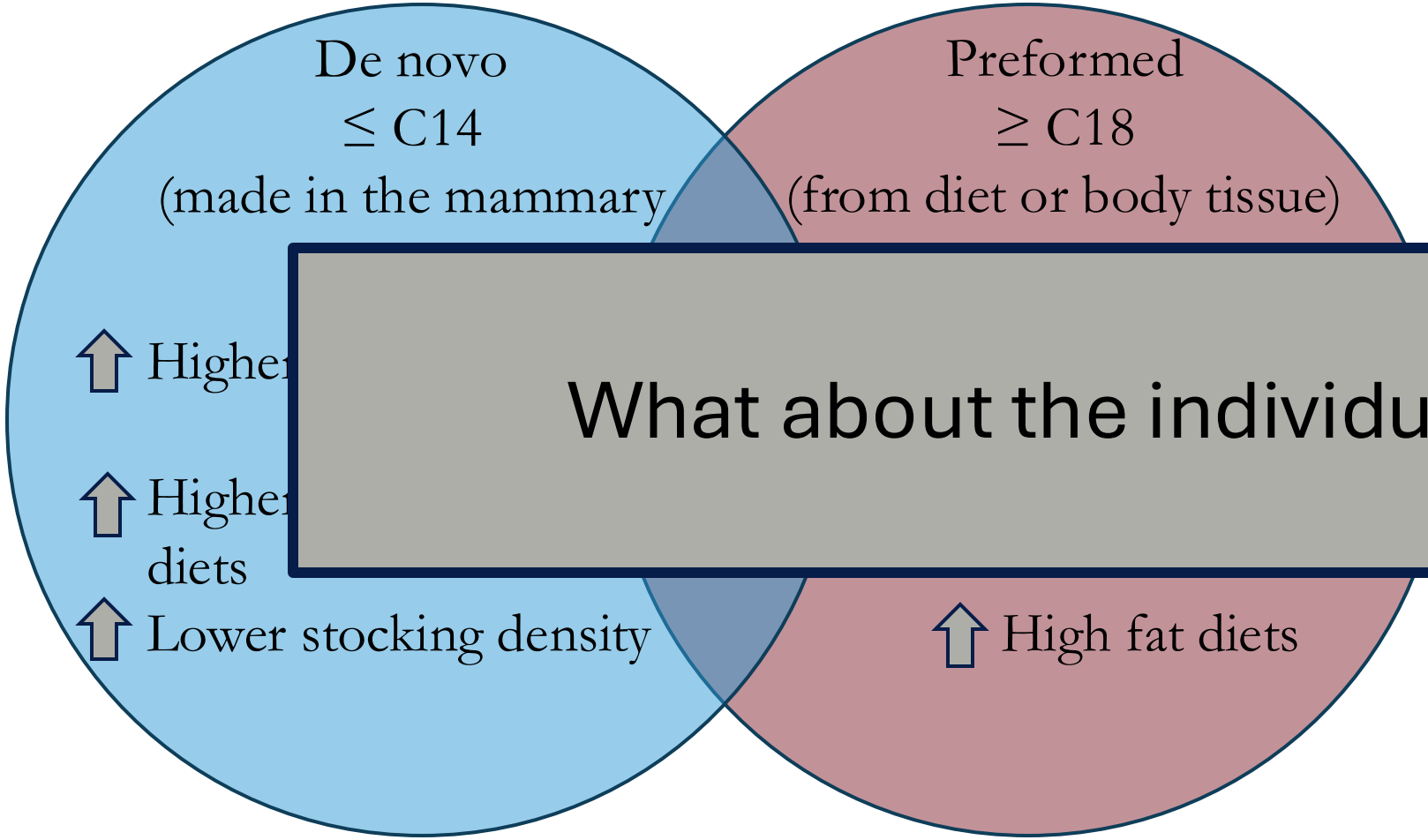
Biomarkers of health

- Useful with other information as a tool
  - Stage of lactation, lactation number, season, etc.
  - Benchmark herd or pen level trends over time
  - Guide transition cow management



KetoMonitor™
Measure Ketosis Prevalence in Your Herd

Fatty Acids- at the herd level



What about the individual cow?

In the Field: bulk tank has low de novo fatty acids

ty acids
starch
er

- Cows don't have adequate access to feed
- Sub-optimal transition cow management

Fatty Acids- individual cow

- Relationship to lactation yields and energy corrected milk yields

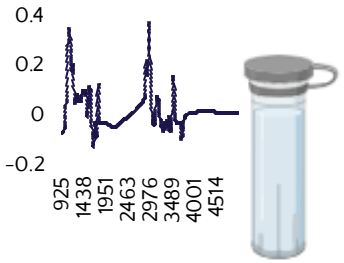
Variable	De novo Fatty Acid	
305-day Cumulative Milk Yield	↓	
Test Day Energy Corrected Milk Yield	Early Lactation ↓	Mid-Lactation ↑

Fatty Acids- individual cow

- Impact of breed
  - Jersey vs Holstein
- Relationship to postpartum health
- Prediction of transition success

Fertility

- Likelihood of conception/Fertility



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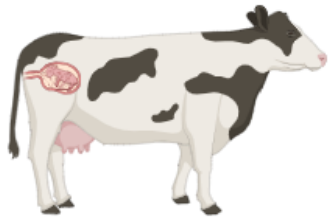
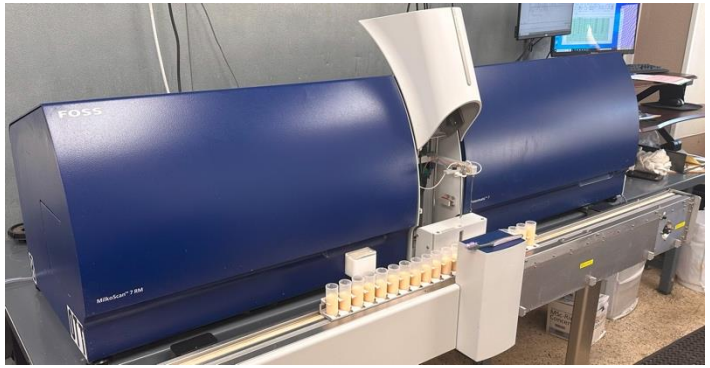


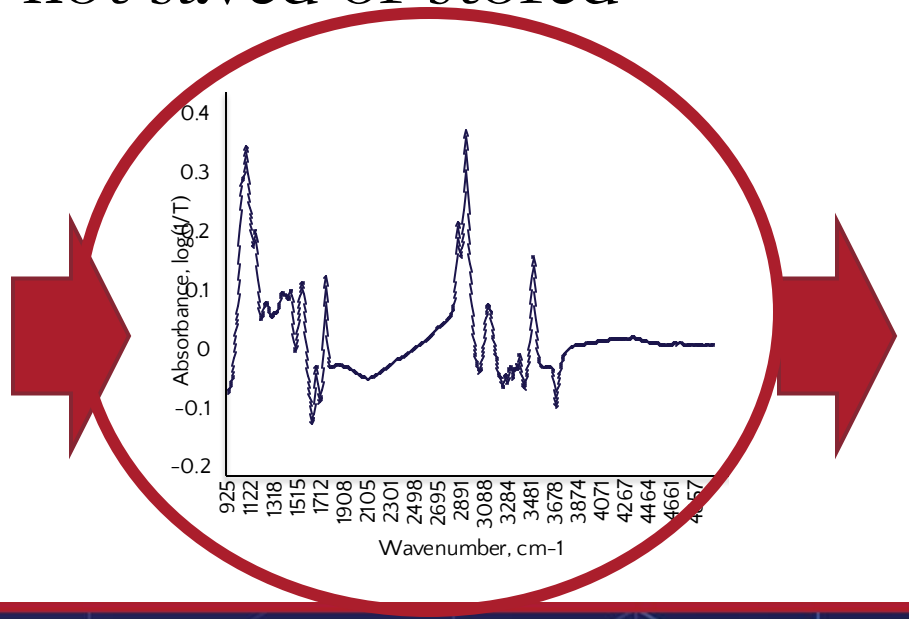
DIM 0 50 100 150

Ho et al., 2019
Ho and Pryce, 2020

Milk Spectra: the next frontier

- Developing new management tools requires access to milk spectra
  - Most spectral data is not saved or stored





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Milk Spectra: the next frontier

- Developing new management tools requires access to milk spectra
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- CDCB is working on a milk spectral database
  - Support research and applications to be used by producers

The Bottom Line

- Milk samples have great potential to provide more information for on-farm management tools

Thank you!
Questions?

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Lactation Factors Project: