



CDCB Update

The National DHIA Leadership Sessions and 61st Annual Business Meeting
March 3-5, 2026. Savannah, GA.

DATA FUELS

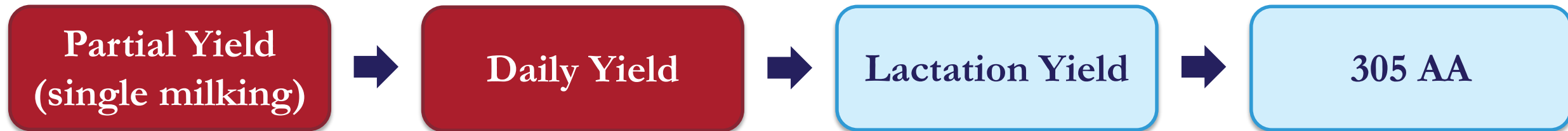
**GENETIC
IMPROVEMENT**

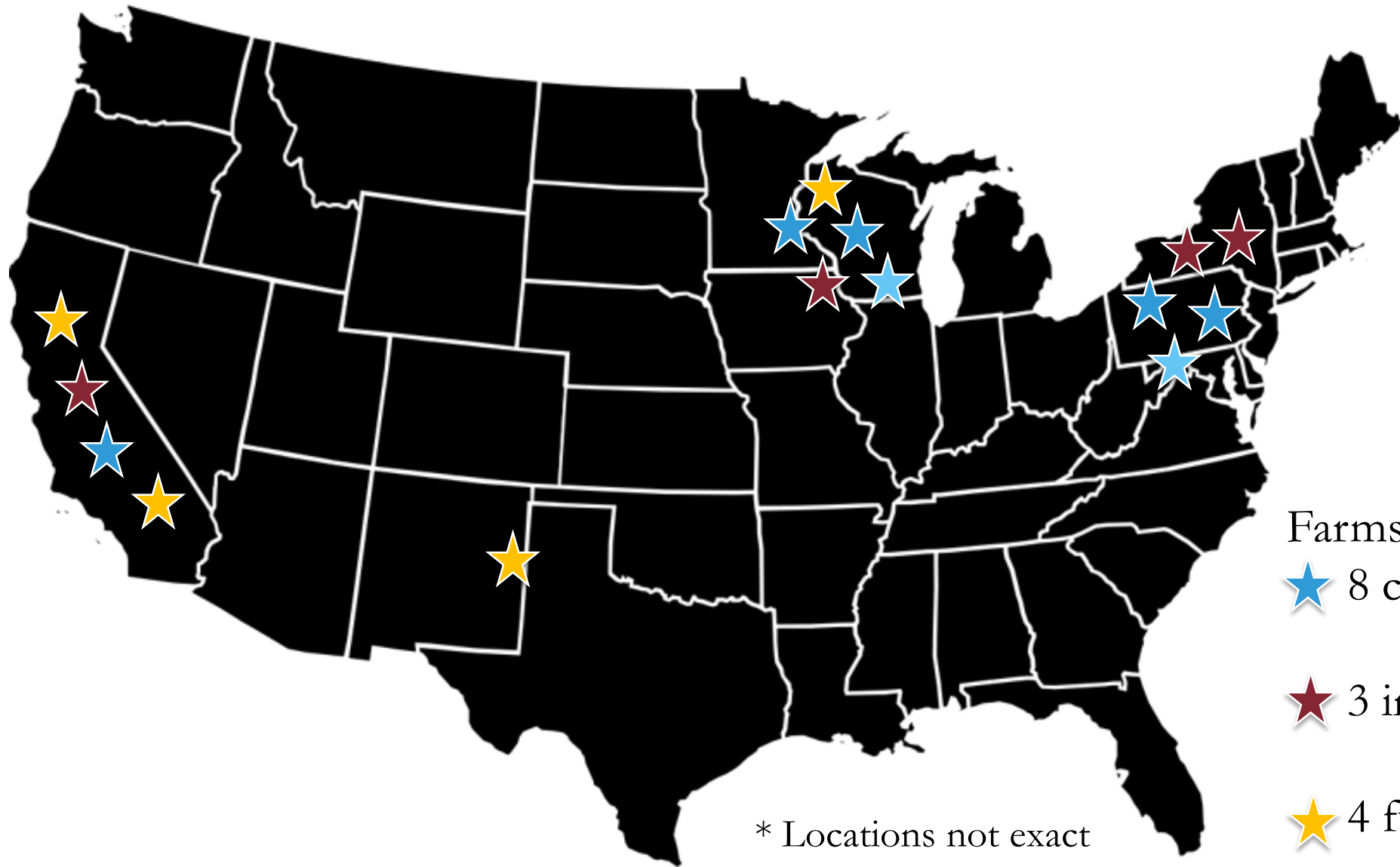


Lactation Factors Project Status

Lactation Factors Project

- ▶ **Objective:** Collect new data reflective of current U.S. dairy genetics and management practices to update the yield and component trait predictions





Farms:

★ 8 complete

★ 3 in progress

★ 4 future herds

* Locations not exact

Farm Demographics

	Holstein		Jersey	
Milking Frequency	2x	3x	2x	3x
Goal	4	5	3	4
Current	2	4	2	3

Project progress

October 2024
4 Farms

- **240,800 milk samples**
- Traditional components, casein, and fatty acids
- **9,000 cows**

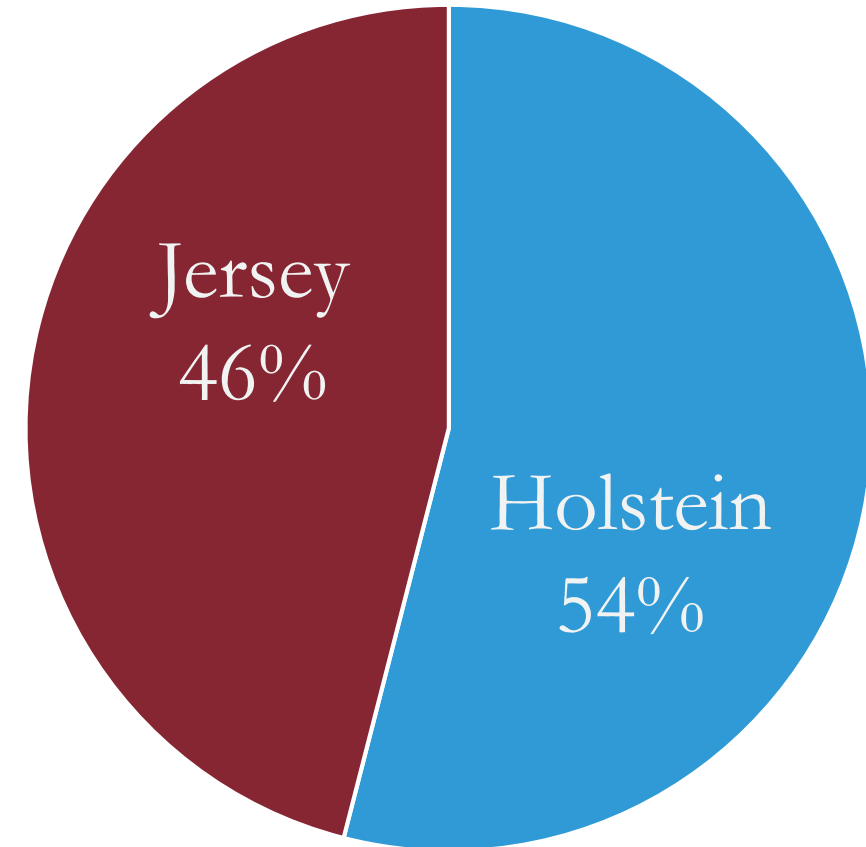


December 2025
11 Farms

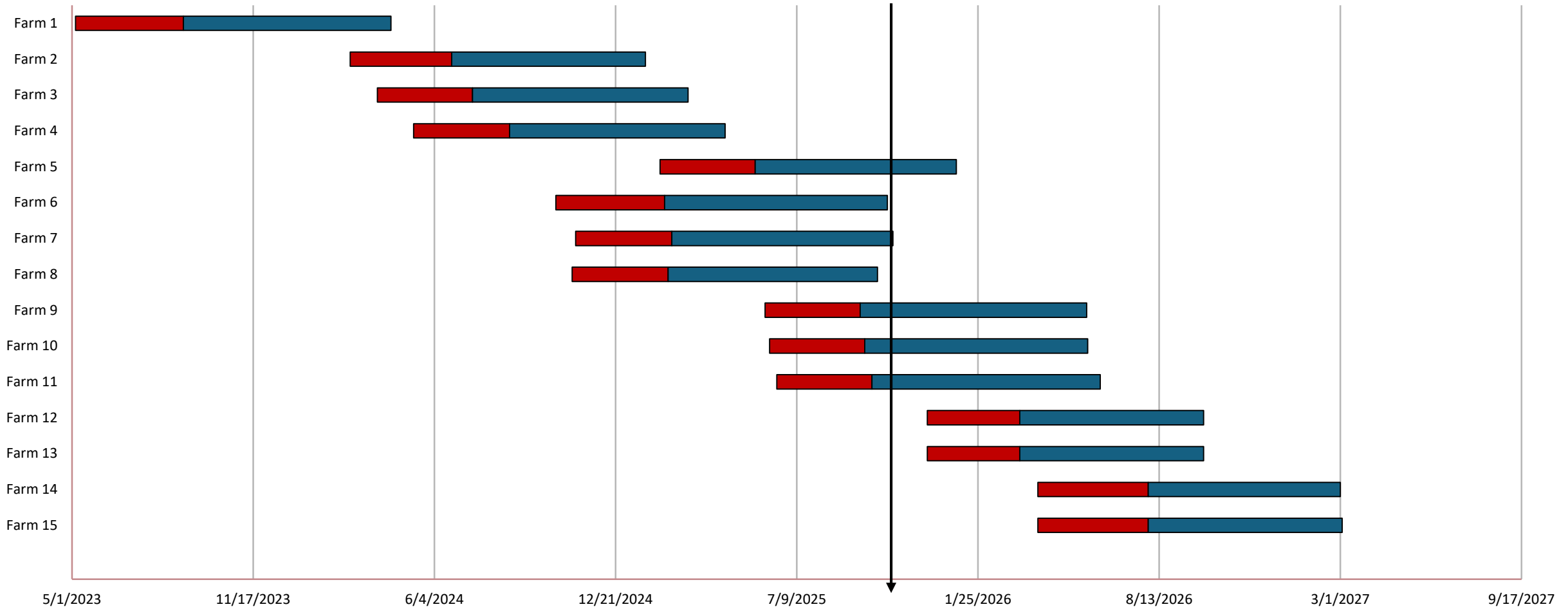
- **587,529 milk samples**
- Traditional components, casein, and fatty acids
- **26,337 cows**

Dataset Composition

- ▶ 11 farms (6 HO & 5 JE)
 - 8 complete
 - 3 in monthly phase
 - 0 in weekly phase
- ▶ Sample Totals
 - **587,529** samples
 - **26,337** cows



Enrollment Timeline



New Traits Under Development at CDCB

Calf Health Traits

- ▶ Resistance to Respiratory Disease (RSP)
 - Estimated heritability = 2.2%
 - Def. - Expected resistance of an animal's offspring to calfhood respiratory problems in a herd with average management conditions
- ▶ Resistance to Diarrhea (DIA)
 - Estimated heritability = 2.6%
 - Def. - Expected resistance of an animal's offspring to calfhood diarrhea or scours in a herd with average management conditions

Foundational Review of Fertility Traits

- ▶ What data is available?
- ▶ How do we edit/filter that data?
- ▶ Can we improve the models?
- ▶ Do the existing traits offer the best insight?

Daughter Pregnancy Rate (DPR)

- Predicts % of cows that will become pregnant in each 21-day cycle
- Positive PTA = higher fertility in offspring expected

Cow Conception Rate (CCR)

- Predicts a lactating cow's ability to conceive
- Positive PTA = higher fertility expected

Daughter Conception Rate (HCR)

- Predicts a maiden heifer's ability to conceive
- Positive PTA = higher fertility expected

Early First Calving (EFC)

- Predicts ability to alter female offspring's age at first calving
- Positive PTA = earlier calving (expressed in days)

First Service to Conception (FSC)

- Predicts a lactating cow's ability to conceive as an interval trait (days)
- Positive PTA = Fewer days to conception

Possible Changes

DPR formula to include VWP by herd-year and by lactation group. (proposed change)

Proposed changes center around computational efficiency, data management and edits, and some model changes.

Bull A

FSC PTA: 0.0

Daughter's
expected average:
55.67 days

Bull B

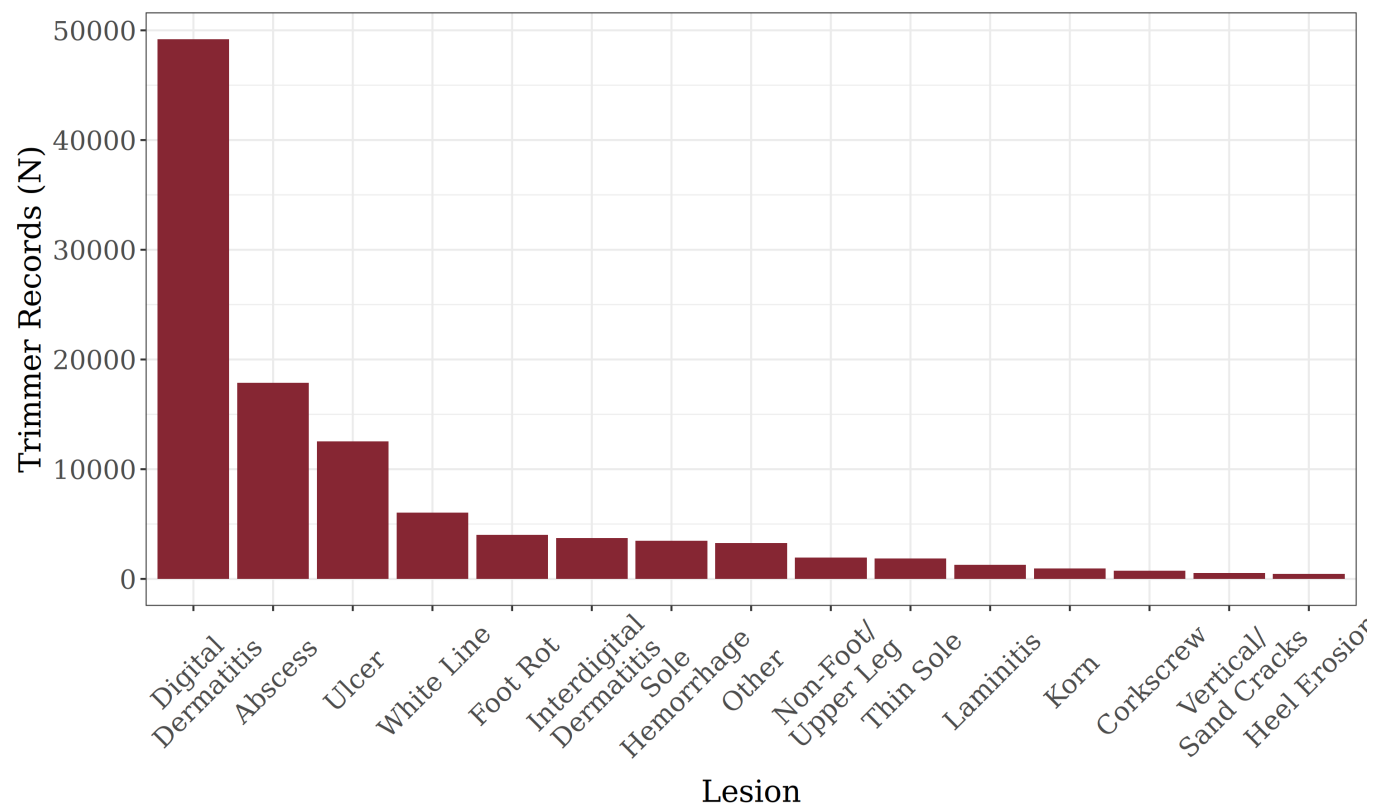
FSC PTA: +2.0

Daughter's
expected average:
53.67 days

Development of a Hoof Health Trait



- ▶ 100k lesion events from trimmer records
 - 686 herds
 - 131k cows
 - 262k parities
 - 2009 to 2024
- ▶ Will be modeled similarly to traditional health traits



Future Implementation of a Hoof Health Trait

- ▶ Plan is for initial release of two correlated hoof health traits: **Infectious** and **Non-Infectious** Lesions

- Ulcer
- White Line Separation
- Sole Hemorrhage
- Thin Sole
- Laminitis
- Vertical/Sand Cracks
- Corn/Fibroma
- Corkscrew
- Non-Foot/Upper Leg/Other

Infectious

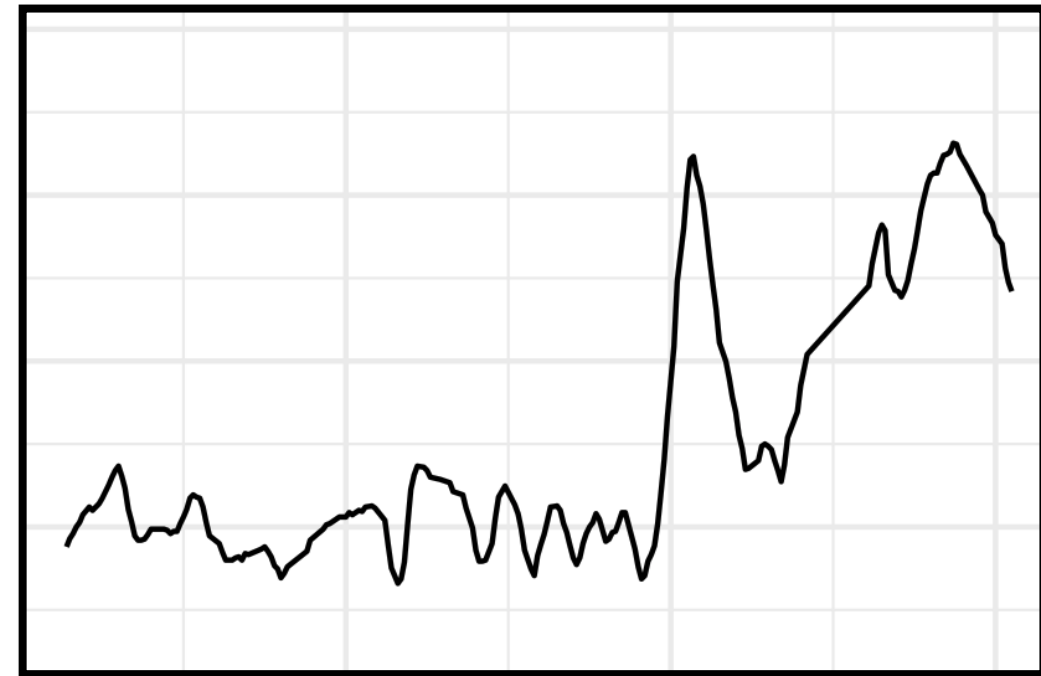
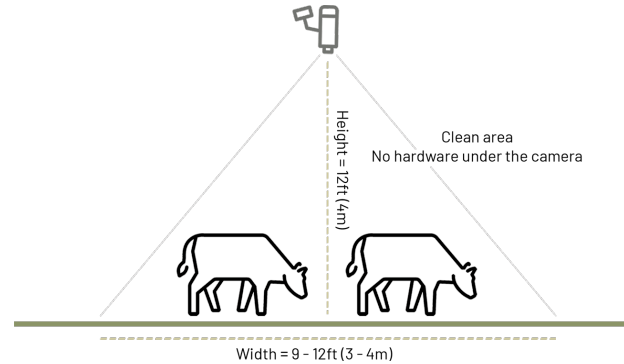
- Digital Dermatitis
- Abscess
- Interdigital Dermatitis
- Heel Erosion
- Foot Rot

Hoof Health Trait Groups

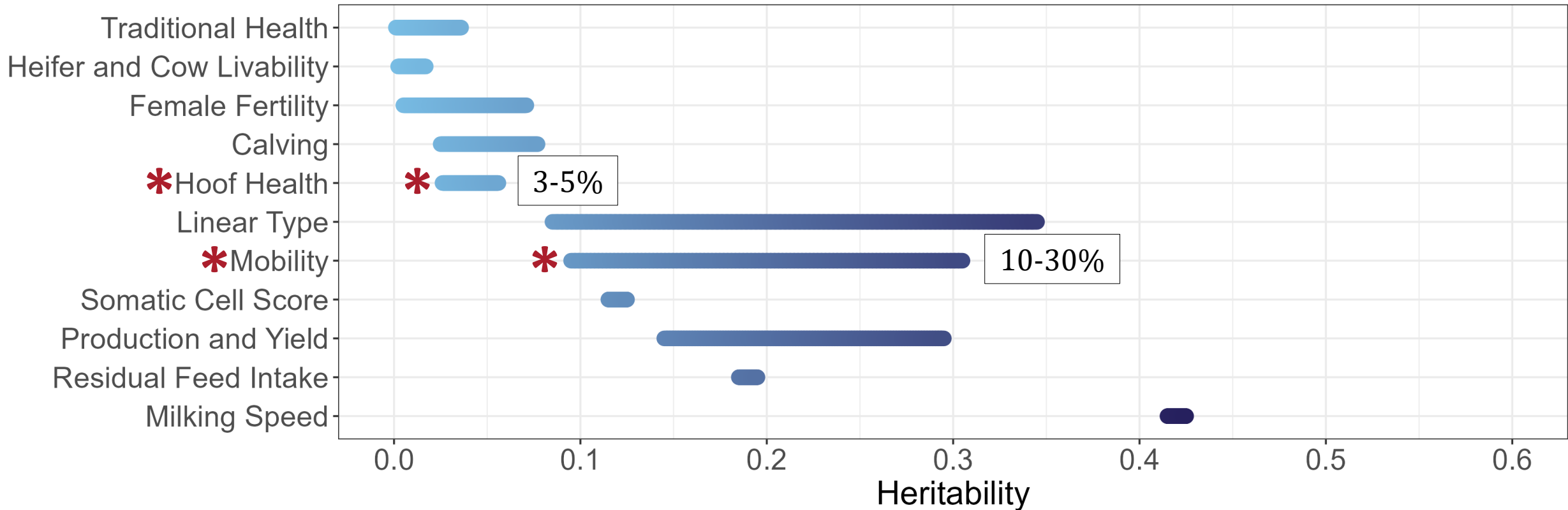
Non-Infectious

Daily Mobility Scores

- ▶ In R&D
- ▶ Scaled 1 (Healthy) - 100 (Lame)
- ▶ 6 participating commercial farms
- ▶ 63k cows with ~14 million daily mobility scores (and growing)
 - Also have: 600k trim events
- ▶ Daily data: high dimensionality!

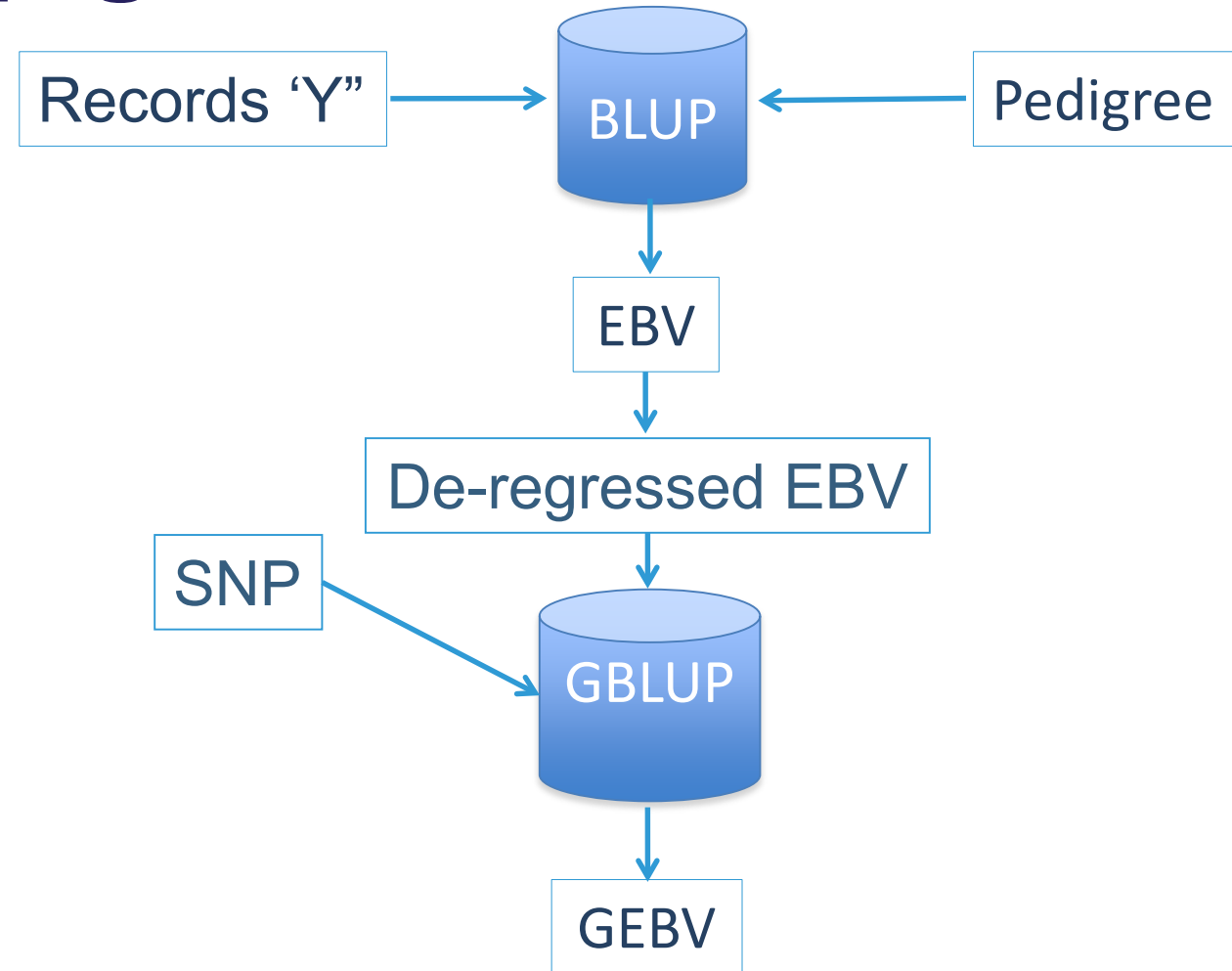


Hoof Health and Mobility are Heritable

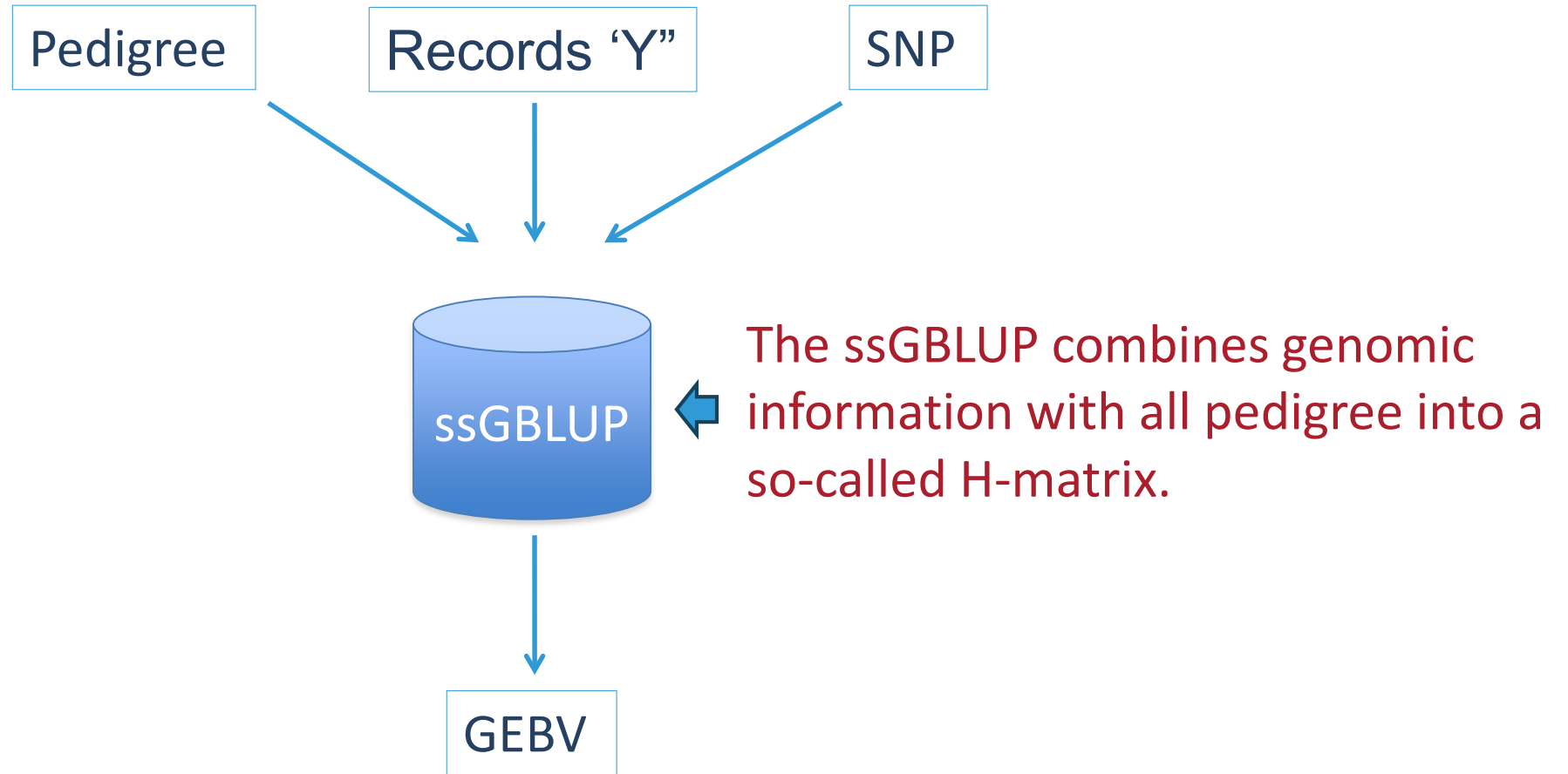


Single Step Evaluations

Multiple-step genomic evaluation



Single-step genomic evaluation



What will improve with single-step?

- ▶ Pre-selection bias
- ▶ Overestimation of GPTA
- ▶ Gains in accuracy
- ▶ Stability
- ▶ Software and solvers
- ▶ Operation Team's sanity

Check out the CDCB CowCast!

- ▶ The first episode features Dr. Kristen Gaddis talking about calf health.
- ▶ Available on CDCB's YouTube channel:
<https://youtu.be/4Sd0mDKfYT8>.



Acknowledgments

- ▶ U.S. dairy producers
- ▶ Member sectors and collaborators
- ▶ USDA AGIL
- ▶ CDCB staff

Questions?

Thank you for your interest!

joao.durr@uscddb.com

