A Million Reasons Why Conformation Matters Study

Correlations Between Classification Scores and Economic Traits of Interest

U.S. Registered Holsteins
FOR MAXIMUM PROFIT
HOLSTEIN ASSOCIATION USA, INC.

Data

- Holstein Association USA official classification scores were used for linear classification data
- The first classification score for a cow assigned in her first lactation was used for analyses
- Official DHIA records were used for production and culling data
- Only cows born after 1/1/90 were included in analyses
- Only test dates after 1/1/00 were included in test day analyses

© Holstein Association USA 2022

Data

- Lactations starting between 1/1/00 and 8/27/21 were included in analyses
- For lifetime production analyses only first 6 lactations were included
- Only cows calving for first time before 1/1/16 were included in lifetime analyses
- Only animals with complete 305-day lactations were included in 305-day milk analyses
- All DHIA data was edited to remove biologically unlikely test day results

© Holstein Association USA 2022

Data

- Only 1st lactation records with age at first calving between 18 to 35 months were included
- Lactation records with milking frequencies >3 were removed
- After edits, 937,603 cows were available for analyses
- 5,496 unique herds were represented in the data set
- Cows were only included in the final analysis if there were at least 5 herdmates in their herd, year, and season of calving

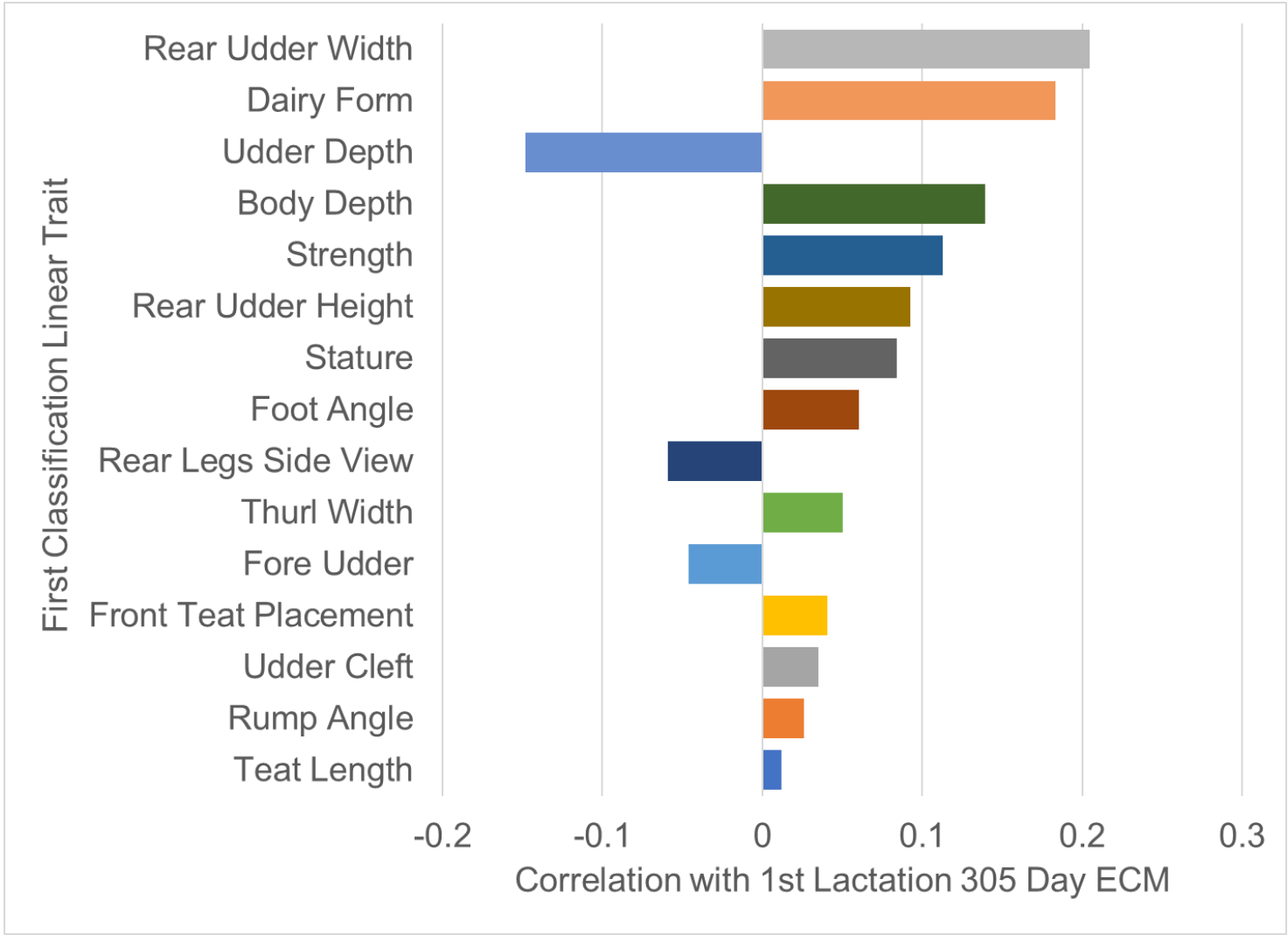
© Holstein Association USA 2022

Analyses

- Cows were categorized into quartiles for each trait with approximately the same number of cows categorized into each category
- The CORR Procedure of SAS 9.4® was used to calculate correlations between type and production traits
- The FREQ Procedure of SAS 9.4® was used for the percent of cows surviving to 6 years old analyses
- The MIXED Procedure of SAS 9.4® was used for modeling 1st lactation ECM, SCS, lifetime DIM, and lifetime ECM using a compound symmetry covariance structure. Subject was herd-year-season. Milking frequency was a covariate in the 1st lactation ECM model
- LSMeans are presented with statistical significance presented at $p<0.05$

© Holstein Association USA 2022

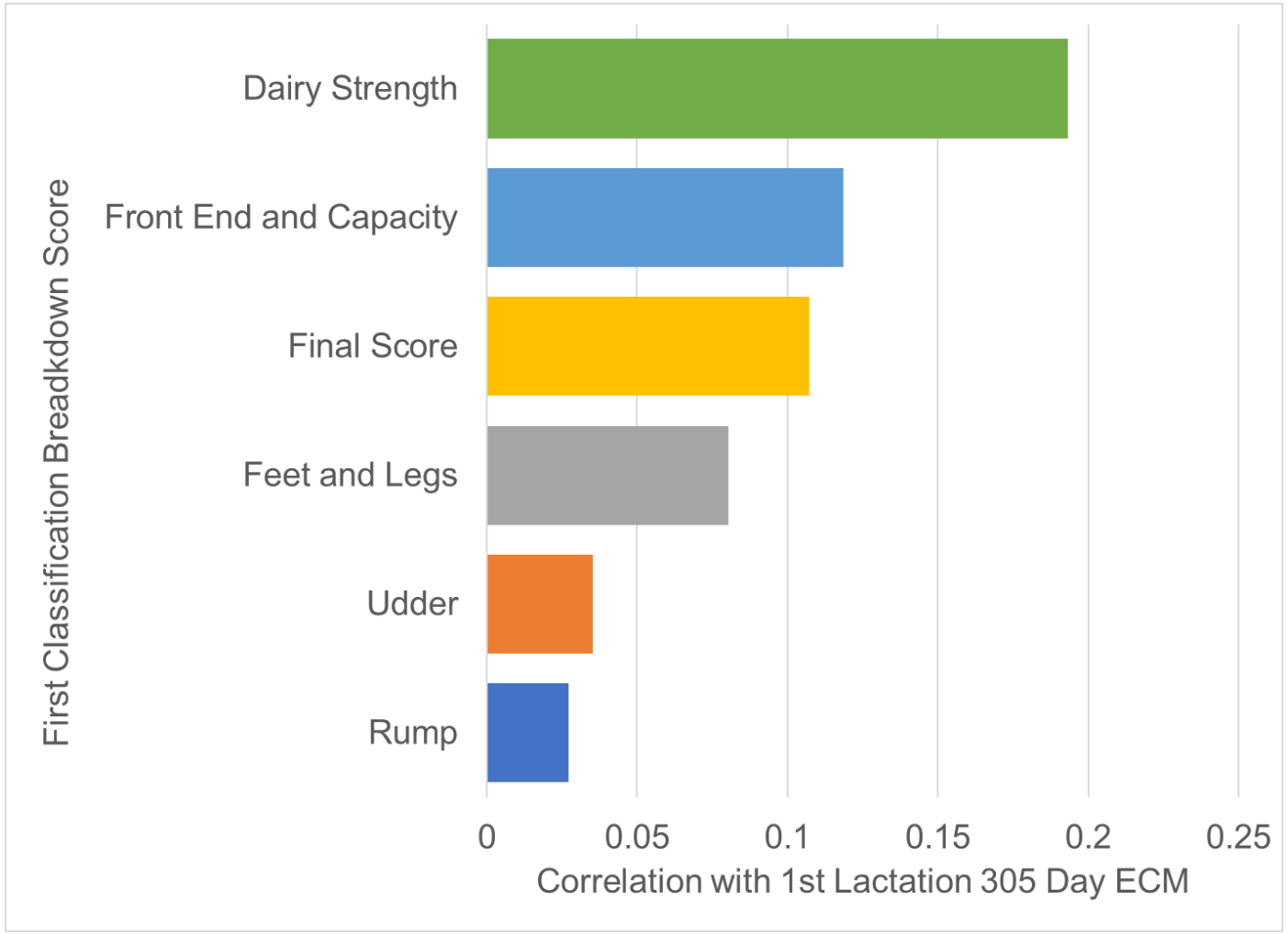
Correlations Between Linear Traits and 1st Lactation 305 Day ECM



U.S. Registered Holsteins FOR MAXIMUM PROFIT
HOLSTEIN ASSOCIATION USA, INC.

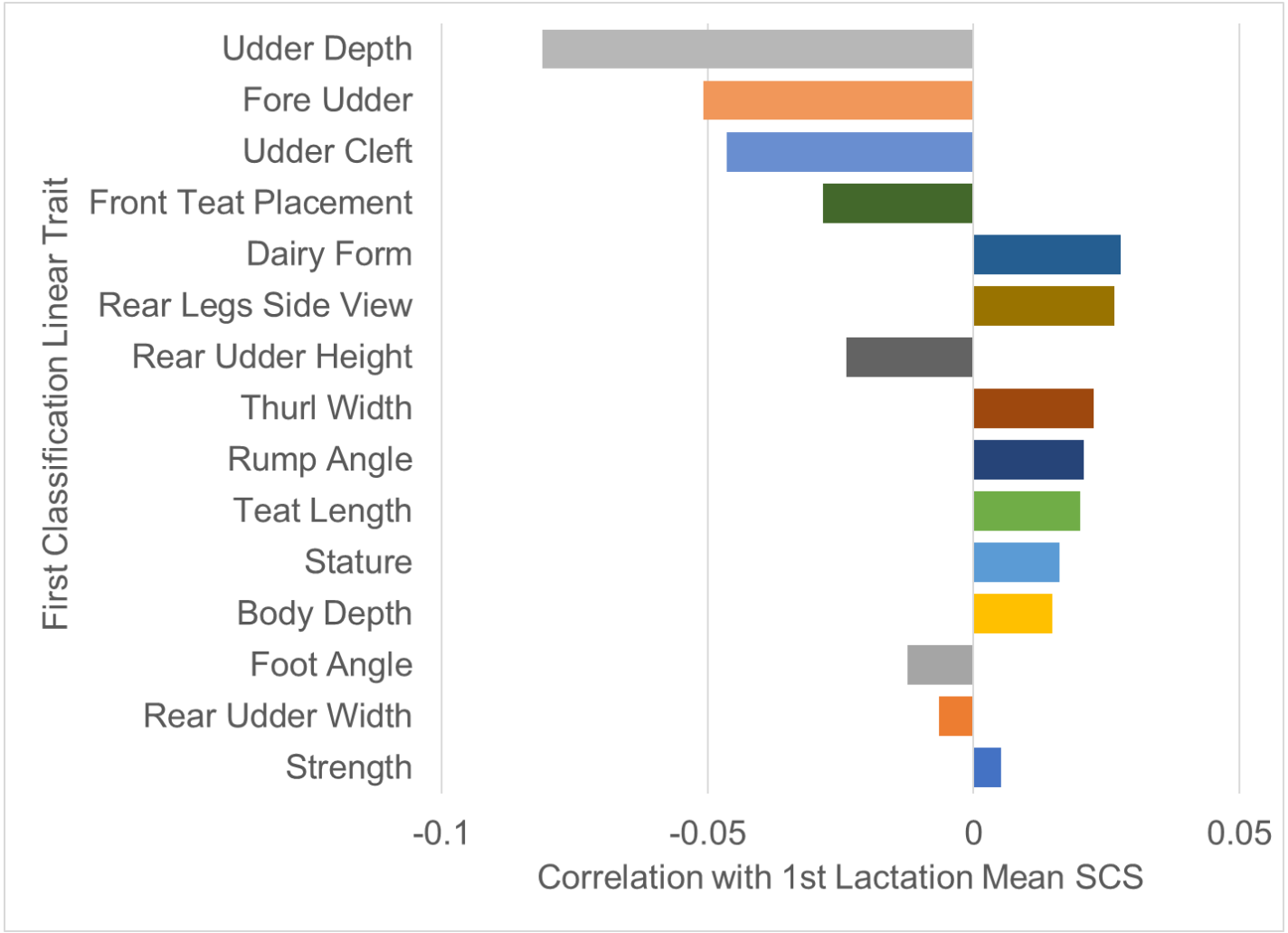
© Holstein Association USA 2022

Correlations Between Classification Breakdowns and 1st Lactation 305 Day ECM



© Holstein Association USA 2022

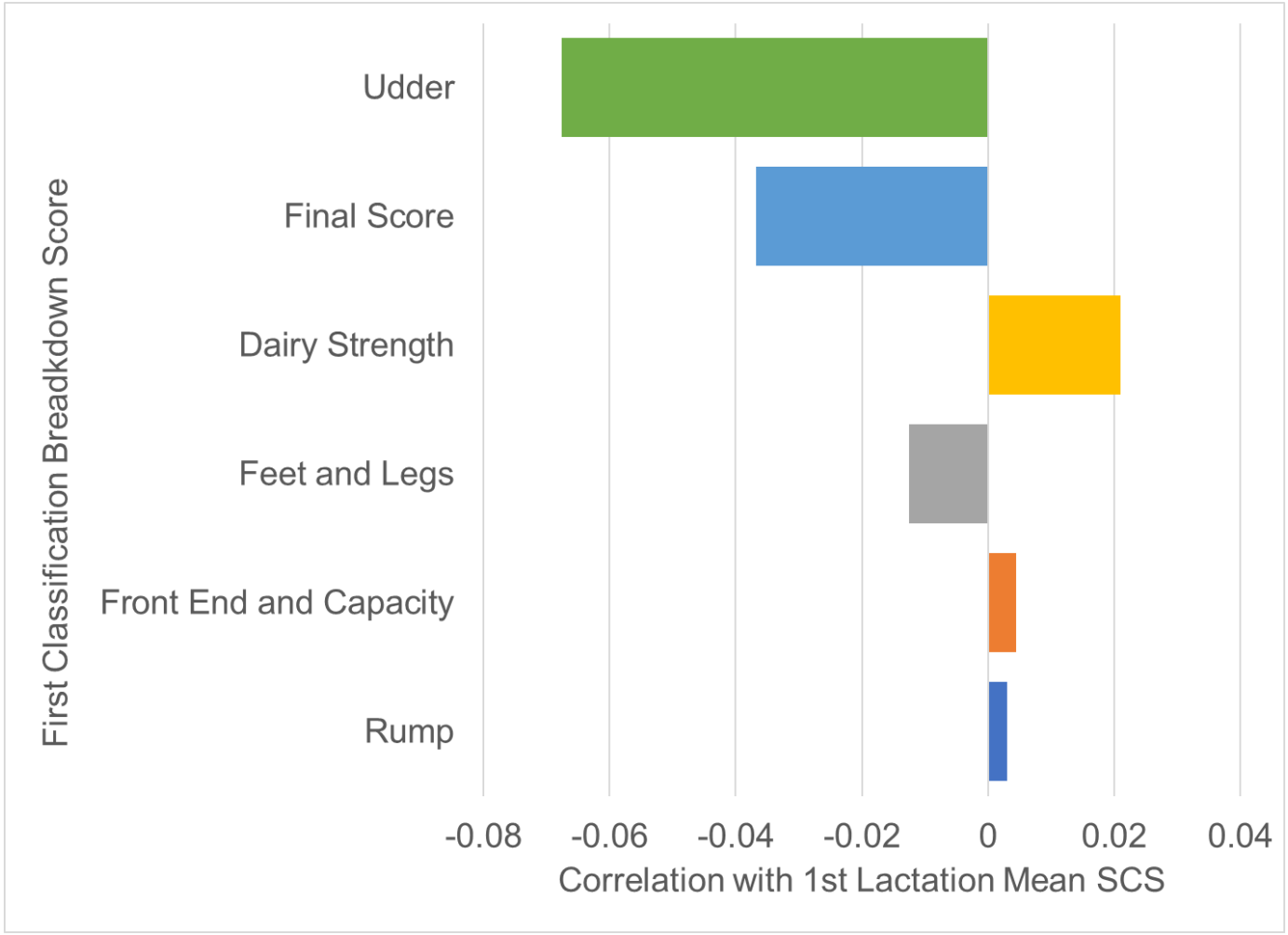
Correlations Between Linear Traits and 1st Lactation Mean SCS



U.S. Registered Holsteins FOR MAXIMUM PROFIT
HOLSTEIN ASSOCIATION USA, INC.

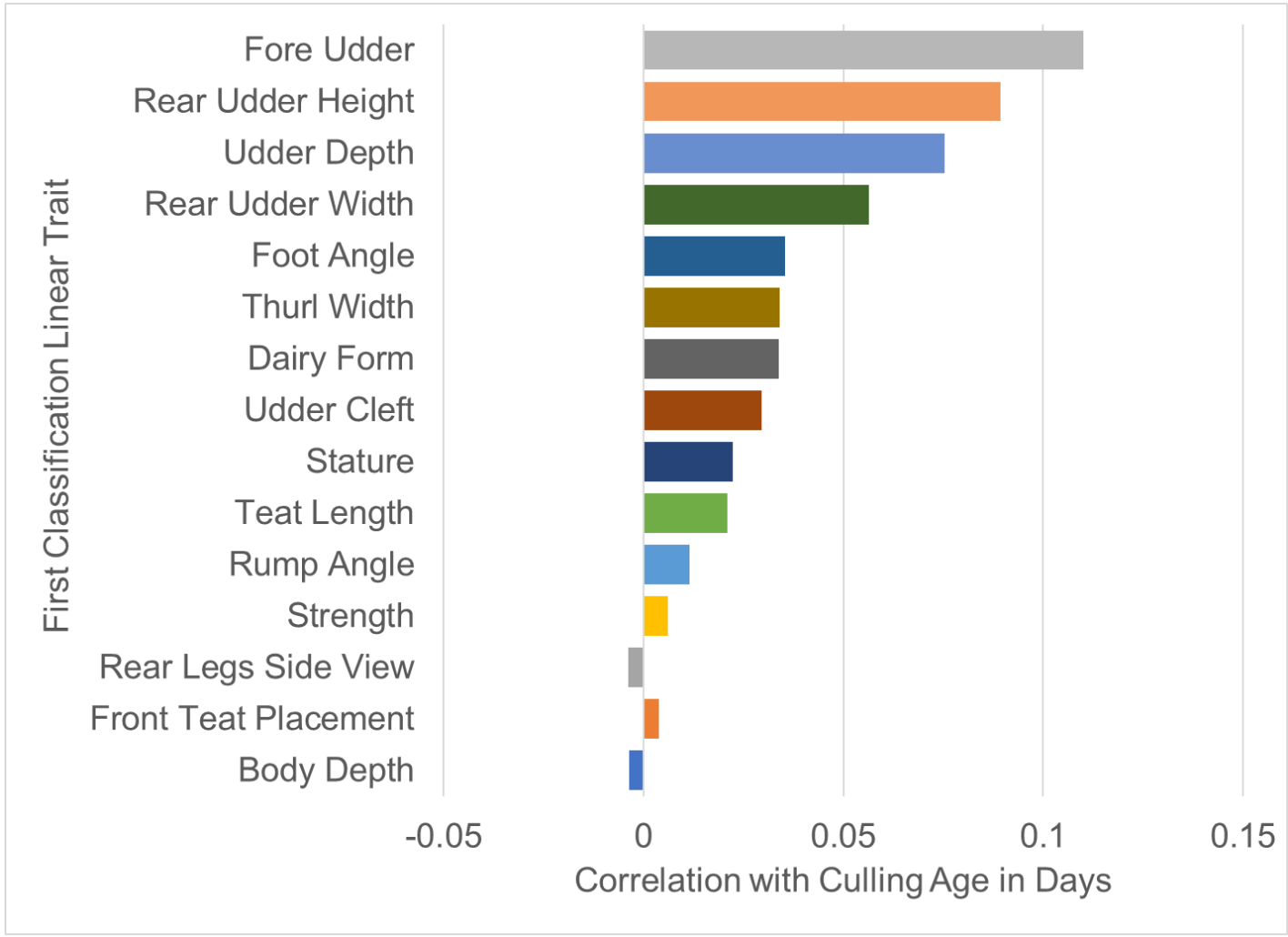
© Holstein Association USA 2022

Correlations Between Classification Breakdowns and 1st Lactation Mean SCS



© Holstein Association USA 2022

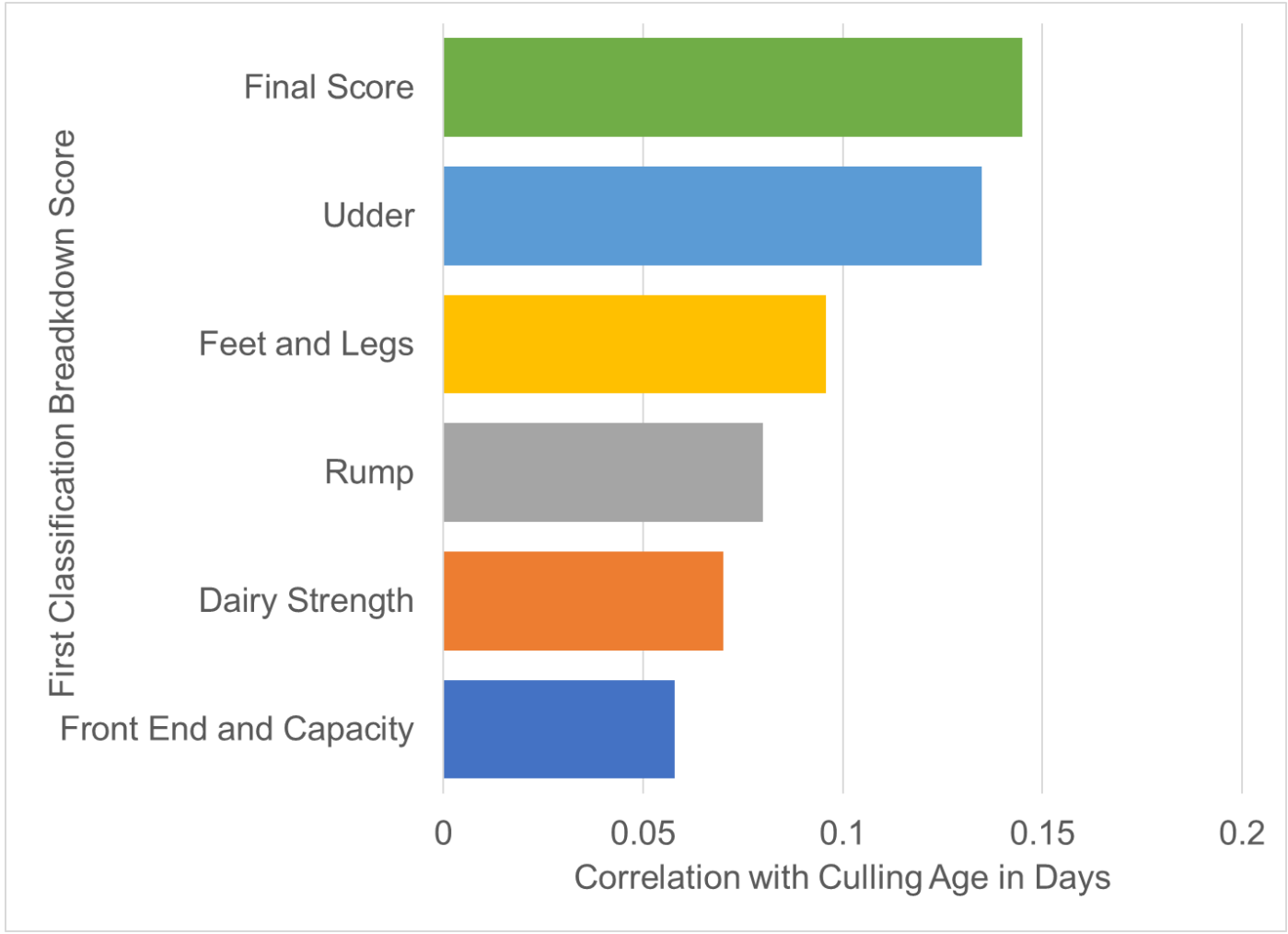
Correlations Between Linear Traits and Culling Age in Days



U.S. Registered Holsteins FOR MAXIMUM PROFIT
HOLSTEIN ASSOCIATION USA, INC.

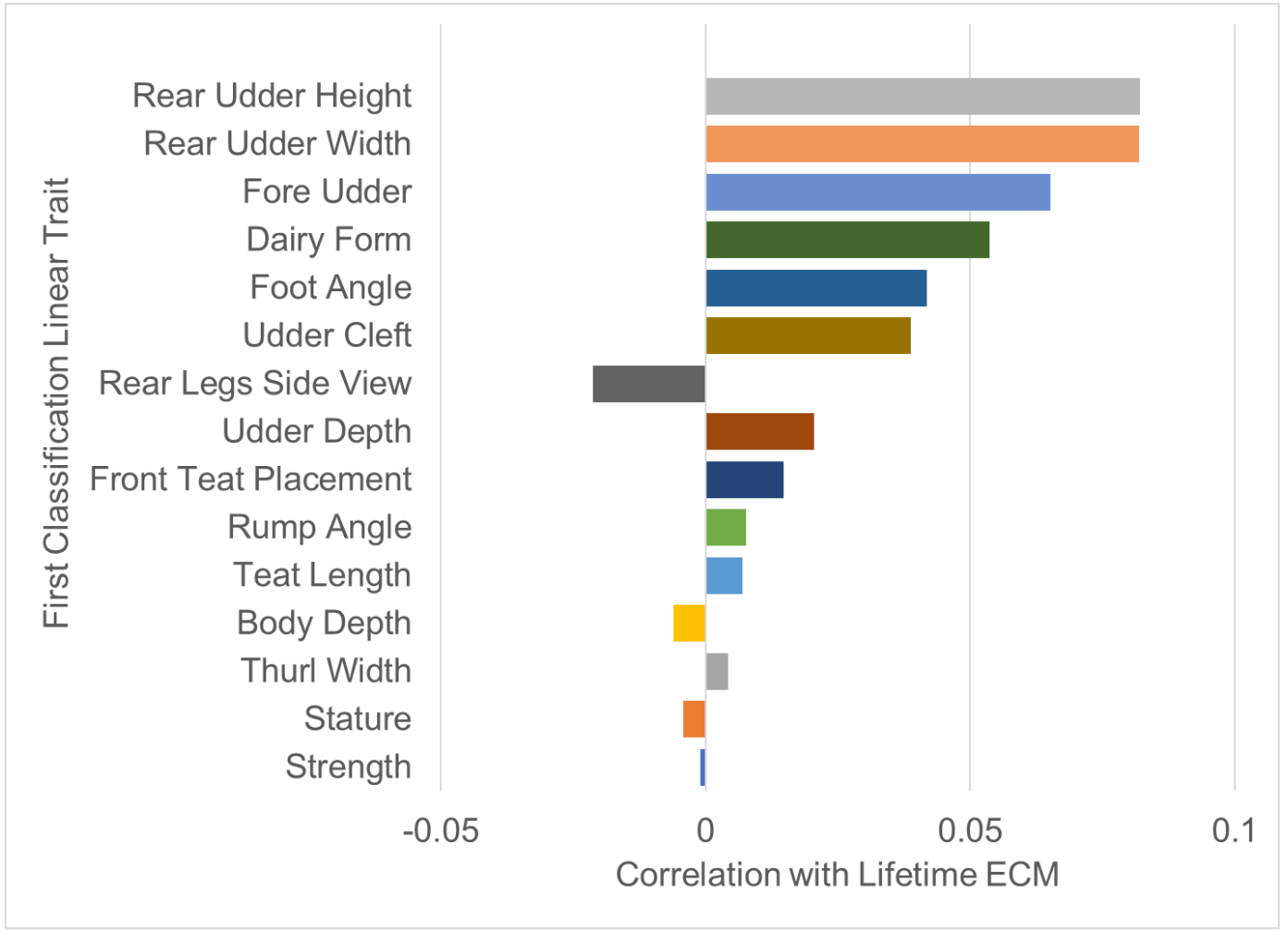
© Holstein Association USA 2022

Correlations Between Classification Breakdowns and Culling Age in Days



© Holstein Association USA 2022

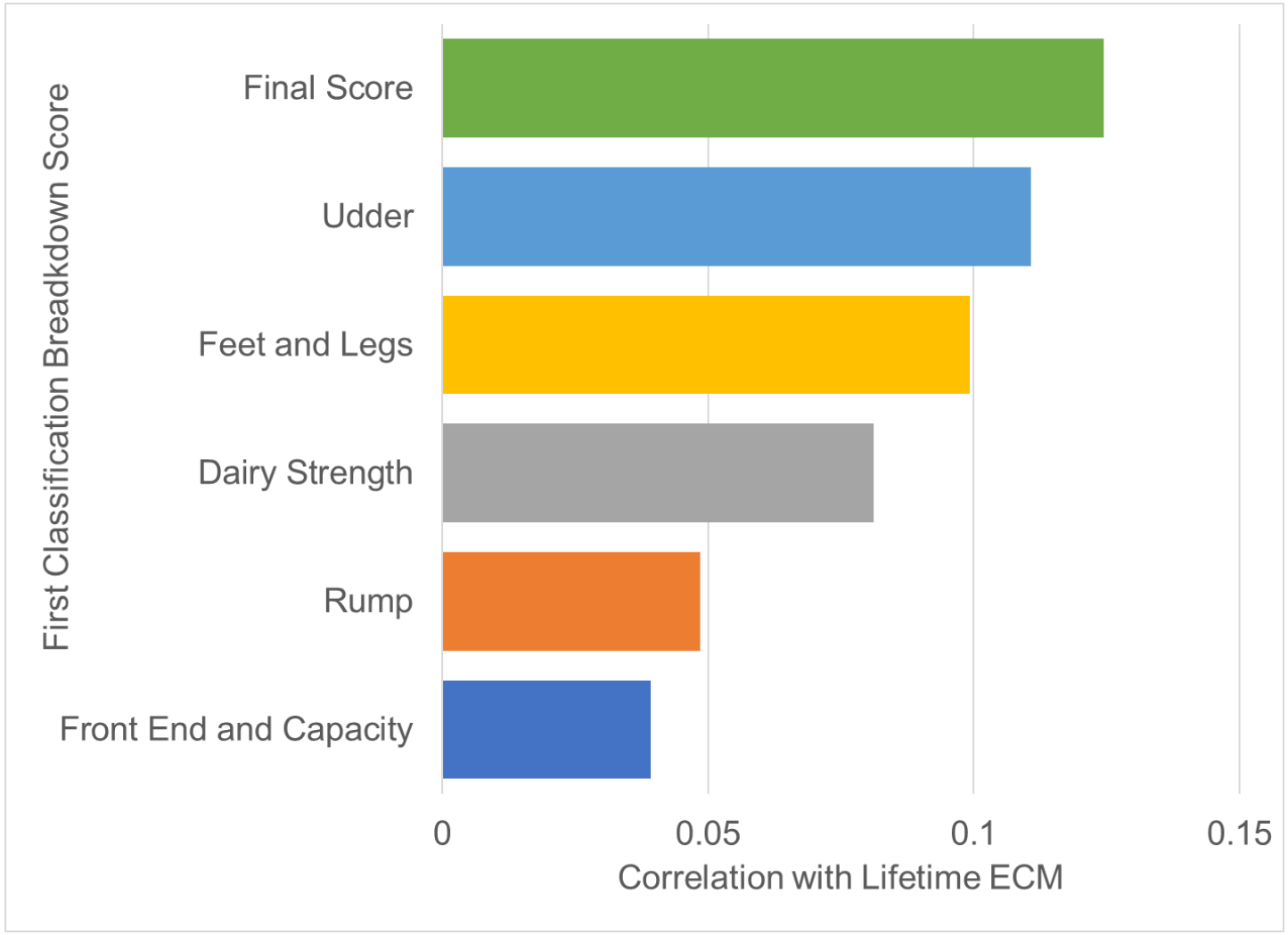
Correlations Between Linear Traits and Lifetime ECM



U.S. Registered Holsteins FOR MAXIMUM PROFIT
HOLSTEIN ASSOCIATION USA, INC.

© Holstein Association USA 2022

Correlations Between Classification Breakdowns and Lifetime ECM



© Holstein Association USA 2022