

# **Re-assessing the importance of linear type traits in predicting genetic merit for survival in an aging Holstein-Friesian dairy cow population.**

## **Background**

Linear type traits were originally scored as a means of predicting functionality manifesting itself as greater cow longevity. Existing studies relating linear type traits to dairy cow longevity were generally restricted to young cows. Improved reproductive performance, however, is contributing to an aging cow population. Therefore, the objective of this study was to evaluate if the genetic correlations between linear type traits and survival in each parity changes as cows age.

## **Methods**

After edits, 152,894 lactation survival records (1st to 9th parity) were available from 52,447 Holstein-Friesian dairy cows, along with linear type trait records from 52,121 Holstein-Friesian dairy cows. A series of bivariate random regression models were used to estimate the genetic covariances between survival in different parities and each linear type trait.

## **Results**

The genetic correlations between survival in different parities varied from 0.42 to 1.00, with the strength of these genetic correlations being inversely related to the interval between the compared parities. The genetic correlations between survival and individual linear type traits strengthened across parities for three of the 20 linear type traits examined; rear udder height, teat length, and udder depth.

## **Conclusion**

Given that linear type traits are frequently scored in first parity and are genetically correlated with survival in older parities, they may be suitable early predictors of survival. The direction of the genetic correlations between survival and rear udder height, teat length, and udder depth did not change between parities; hence, selection for survival in older parities using these traits should not hinder genetic improvement for survival in younger parities.