Bachelor or Master thesis BIOVIT 2022/23

Topic/Title (English)

The following MSc theses are proposed (Kvigetilvekst)

1. Relationship between replacement heifer growth and subsequent milk production in Norwegian Red (effects in first and later lactations)

2. Relationship between replacement heifer growth and subsequent health, fertility, and longevity in Norwegian Red (a life history analysis)

3. The profitability of various growth profiles in replacement heifers from three months of age till first calving

Summary

The now finished NFR project 199448: The impact of calf and youngstock development on dairy cow health, production and profitability, or "kvigeforsøket" (Ragnar Salte, project leader) resulted in 3 PhD theses (Kristin Sivertsen Storli, Hilde Lyby Wærp and Jon Kristian Sommerseth), but there is still more material that deserves to be published. In 2017 the following article was published from the project: Storli, K.S., Klemetsdal, G., Volden, H. and Salte, R., 2017. The relationship between Norwegian Red heifers growth and their first-lactation test-day milk yield; a field study. J. Dairy Sci, DOI: **http://dx.doi.org/10.3168/jds.2016-12018.** Here, we utilized data for milk yield for a total of 350 heifers, though 3110 had been recorded with growth information. Not all heiders could be included because many were too young to have started lactation when Kristin Sivertsen Storli finalized her PhD thesis. Now, data for milk production will be available for most of the heifers through the Norwegian Dairy herd recording system, and we are interested in reexamining with more data whether an optimal average daily gain of 830 g/d from 10 to 15 month of age that optimized first-lactation milk yield of heifers in an average Norwegian dairy herd, still holds.

In addition, we can examine long-term effects of heifer growth on milk production (second and later lactations). This could be a short communication submitted to J. Dairy Sci. Moreover, at current, the cows will have data available for a series of other traits, the most important being health, fertility, and longevity. Associations between heifer growth and these traits should result in another paper. These results will be imperative for the replacement heifer strategy to be advised. The software for the analysis was written by Kristin Sivertsen Storli during her PhD. Data from The Norwegian dairy herd recording system (extracted by Bjørg Heringstad) will be efficiently processed by help of the advisors and Kristin Sivertsen Storli through her SAS programs.

While the former theses will be based on data in the field, the third proposal will utilize detailed data from the research carried out at NMBU. This thesis will be built around the second paper in Jon Kistian Sommerseths' PhD thesis where the economics will be built up on an individual cow basis rather than on the experimental group basis, as in the thesis. This will leave degrees of freedom for the error term, making the paper scientifically publishable.

Bachelor or Master thesis BIOVIT 2022/23

Language thesis (Norwegian and/or English)

Both

Bachelor or Master thesis

Master

Credits

30/60

Please contact

Gunnar Klemetsdal gunnar.klemetsdal@nmbu.no

Bjørg Heringstad

Jon Kristian Sommerseth (Tine)