Association between an index of internal herd growth and welfare indicators
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The objective of this study was to evaluate the association between herd-level welfare indicators and an index of short-term internal herd growth, two tools available to Swedish farmers enrolled in the official milk recording scheme to give an overview of their herd. The index is based on number of inseminations, calvings and heifer calves, number of dead calves, heifers and cows and number of culled cows. The index is calculated per month and, hence, gives an overview of the short-term efficiency in the herd. The welfare indicators are measures of mortality, morbidity and fertility which have been shown to be associated with animal-based welfare measures or production economy. Herds with a continuously high efficiency (CHE) were among the 25\% with highest index for at least 4 month and had no month among the 25\% with lowest index during 2011 (351 herds). Herds with a continuously low efficiency (HLE) had at least 4 month among the 25\% with lowest index and maximum one month among the 25\% with highest index (724 herds). The difference between CHE- and CLE-herds was evaluated using Kruskal-Wallis equality-of-populations rank test. The CHE-herds had lower calf and cow mortalities and lower culling rates which was expected since number of deaths and culling are included in the index. More interestingly, CHE-herds also had lower proportion of heifers >17 months of age at first breeding, lower proportion of cows with a calving to first insemination interval >70 days, lower age at first calving and a shorter calving interval. Also, the estimated bulk milk SCC was lower in CHE-herds. CLE-herds had lower disease incidences and lower proportion of cows with a calving to last insemination interval >120 days. In conclusion, CHE-herds also had better values in most welfare indicators, including those associated to farm profitability, which demonstrate the importance of having control over all aspects of the production.