

On farm recording of novel traits – genetic parameters and recommendations

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Abstract<Times 14, bold>

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Breeding goals are revised worldwide according to the needs of farmers but also considering requirements from the consumers. Recently, farmers in Austria expressed their demand for further developments in the areas of metabolism, claw health and feed efficiency. The core challenge is to define desirable and measurable phenotypes for these traits which are easy and simple to record, but are heritable and repeatable as well. Within the Austrian project “Efficient Cow” various novel traits (direct and indirect) for measuring health, metabolism and efficiency were recorded on about 170 farms and about 5,500 cows. These novel traits include live weight, different body measurements, feeding information, body condition and lameness scores, as well as data from veterinarians, hoof trimmers and farmer observations on health. Based on these on-farm data, indicators for feed efficiency as well as genetic parameters for the various novel traits and their correlations to the traits in the total merit index are derived. Experience from recording of these novel traits during the project showed that a general recording will only be possible, if the management impact of these traits generates enough monetary advantage to the farmer to pay off the recording efforts. So these traits have to be measured without disturbance of the workflow and due to security reasons without direct contact between the technician and the animal itself. In Austria weighing equipment is installed only in a very small number of dairy farms, so the direct weight of heifers and cows is normally not available in a sufficient extent to use it in a population wide breeding value estimation. On the other hand, lameness and body condition are more or less common tools in herd management. Implementing them within a genetic evaluation scheme seems promising and possible. The challenge is to provide easy tools for farmers to record these traits and to use this information in management and as an early warning system as well as for breeding value estimation. Modern data capture and reporting tools like apps for the smartphone or web interfaces will be part of the answer. In addition to that viable indicators have to be developed, to provide the necessary information for these traits out of recording routine with as little additional cost as possible (e.g. MIR). The outline will focus on on-farm recording of novel traits like body condition score, body weight and lameness and discuss their genetic potential based on data from Austrian farms.

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Keywords: live weight, lameness score, body condition score, novel traits, genetic analysis