

*Spotlight*

## Digitization and farm animal welfare



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The welfare of farm livestock is a talking point everywhere. Many production conditions—including those for meat, milk and eggs—are subject to criticism. This leads to enormous challenges affecting the future of modern farm animal enterprises. Additionally, only a healthy and contented animal can perform well and profitably. But we also cannot forget the economics of livestock farming: animal welfare should help livestock, and the farm business too. This must not necessarily represent a contradiction. In this respect, digitization as general term for precision farming, smart farming and agriculture 4.0 can play a key role. Here, we look at the possibilities with dairy cattle management as an example.

Modern dairying with automated milking, feeding and animal observation systems makes completely new demands on the livestock farmer, but also offers new production and marketing opportunities. Only 21% of dairy cattle achieve the phase of highest lactation performance, a majority of cows being culled before this stage because of health problems. This results in high costs.

Within their research programme »Animal welfare and economic efficiency in future-oriented dairy cow production – evaluating different strategies and their economic effects«, the chairs of Agricultural Engineering and of Farm Business Management at Neubrandenburg University of Applied Sciences have targeted the identification of animal welfare strategies for different sizes of dairy farms. These strategies are to be applied and evaluated on the basis of both animal welfare and economic returns. Assessing the status quo at beginning of research and comparing this with the situation following introduction of the procedural steps enables farming enterprises to be vertically compared. Assessment of key financial figures also permits horizontal comparison. Based on these comparisons, statements can then be made as to whether application of strategies aimed at increasing animal welfare indicates association between economic and procedural success and size of enterprise.

Current results from our project indicate weaknesses in animal welfare in three from four farms that have been investigated so far. The most serious of these feature faults in the flooring structure and cubicle condition within housing. Additionally, the investigation clearly shows that cows are seldom offered additional comfort aspects such as outside runs and integral brushing systems. First results from cost analyses show that the animal welfare strategies could lead to substantial costs of up to 10 c/kg milk produced. The investigation is to be expanded within the remaining project period to cover 30 farms. Analysed thereby will be the advantages of the strategies in terms of animal welfare and lifetime production as well as in the marketing of the milk, all of which can contribute towards compensating for the increased costs of production.

The aim is to develop from these investigations guidelines for research and the assessing of key figures so that farm enterprises of different sizes can classify and calculate possible practical strategies. Transfer to practical application thus plays a decisive role.

Automation and digitization continue to move forwards. However, it is often unclear which measure is the really practical one for the farm business in question whilst offering sustainable added value for the farmer. Interaction of industry, research and farming will continue to be very important in the application of digitization in animal welfare improvement whilst simultaneously ensuring future competitiveness of the farm business.



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