

**Dr. Lukas Tremetsberger**

Animal health and welfare planning in dairy cattle – Effects on animals and farm efficiency

*Dissertation Universität für Bodenkultur Wien 2016*

### **Summary**

Animal health and welfare planning (AHWP) is considered an important tool for herd management which is based on the assessment of the health and welfare state followed by the implementation of changes in management and housing. Participation of all involved persons, farm-specific measures regarding management and housing, high levels of compliance with those measures, continuous review, and prompt adaptation are considered to be decisive. (Partial) improvements in health and welfare following the use of AHWP have been shown by several on-farm studies, especially in the context of mastitis and lameness.

However, studies on health and welfare planning that consider a more comprehensive view of welfare are scarce and the limited evidence available indicates that improvements may less likely be achieved. The first aim of this study was to review animal health and welfare planning approaches. Therefore, a review paper entitled “*Effectiveness of animal health and welfare planning in dairy herds: a review*” was published in 2015 in *Animal Welfare*. It includes a discussion on current knowledge for the evaluation of the success of health and welfare planning studies with respect to changes in health and welfare, farm economics and non-monetary benefits for the farmer.

The main aim of this study was to conduct animal health and welfare planning on 34 Austrian dairy farms and to evaluate changes in health and welfare after one year. After an initial assessment using the Welfare Quality® protocol, health and welfare area(s) were discussed, for which both the farmer and the researcher regarded improvement as important. Management practices and husbandry measures were chosen according to the respective farm situation. One year after interventions had been initiated, the average implementation rate of the measures was 57% and thus relatively high when compared with other studies. With 77% and 63%, high degrees of implementation were achieved related to cleanliness and udder health respectively. Intervention measures addressing udder health were mostly easy to incorporate in the daily routine and led to a reduced somatic cell score while this score increased in herds without implementation of measures. Also the decrease of cows with dirty teats was more pronounced when measures were implemented compared to control farms. The implementation rate regarding leg health (46%) was comparably low in the present study, and even when measures were implemented, leg health did not improve. Lying comfort, social behaviour and human animal relationship did not require interventions in most farms and were therefore seldom chosen as part of the health and welfare plans.

Based on the same sample of farms, the relationship between health and welfare state and technical efficiency was evaluated. Technical efficiency describes how inputs (e.g. land, feed) are used for producing output (e.g. milk). In the present study it was investigated using data envelopment analysis. Farms with higher levels of animal health according to the WQ principle “Good health” were also

## **IGN-Forschungspreis 2016 – L. Tremetsberger**

technically more efficient. Furthermore, the effects of changes in health and welfare states on changes in technical efficiency were analysed using Malmquist index models. However, improvement or deterioration of the health and welfare state did not affect the Malmquist index (i.e. technical efficiency change). In conclusion, the structured, participatory process of animal health and welfare planning appears to be a promising way to improve at least some animal health and welfare issues. It is called for further investigations to clarify how changes in animal health and welfare states might also be reflected in farm economics.