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Animal health and welfare state and technical efficiency of dairy farms: possible synergies

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Abstract

This study sought to investigate whether animal health and welfare state and changes were associated with technical efficiency in a sample of 34 Austrian dairy farms. Health and welfare were assessed twice using the Welfare Quality® (WQ) assessment protocol for dairy cattle. Following a baseline welfare assessment, farm-specific health and welfare planning was conducted on the farms. This included the identification, selection and implementation of measures in housing and management that aimed at improving health and welfare states. One year after implementation, farms were reassessed to evaluate changes in health and welfare states and consequences for farms' technical efficiency were analysed using the Malmquist index. Our results indicated that farms with a higher health state (WQ principle score 'Good health') achieved higher technical efficiencies. However, we could not show that changes in the welfare state within a one-year period affected technical efficiency: across all farms, technical efficiency remained stable and Malmquist indices (indicating efficiency and technological change) could not be explained by the different welfare scores. Nevertheless, our study showed data envelopment analysis to be a valuable method for analysing the relationship between animal welfare and farm success and our results indicate substantial potential synergies between these two aspects.

Keywords: *animal welfare, dairy cows, data envelopment analysis, Malmquist index, on-farm assessment, Welfare Quality®*