

A. Steinwigger, P. Ertl, T. Guggenberger, J. Häusler and W. Starz (2017): **Analyses of different beef production systems regarding their net contribution to human food supply and arable land occupation** (in German). *Züchtungskunde*, 89, (3), 205-218

Summary

A further increasing competition between animal feed and human food supply is expected in the future. In this regard, especially beef production is discussed critically. In the present study, the net food production and the arable land occupation of different beef cattle systems were studied. The data were taken from results of a published beef cattle fattening research project where the performance of Simmental heifers, steers and bulls were compared at different concentrate feeding intensities (high, low, extensive) using grass silage, or corn silage at high concentrate supplementation.

In grass silage groups the net contribution to human food supply (LKE, human-edible inputs/human-edible outputs) for gross energy and crude protein decreased with increasing concentrate input. The lowest LKE were found in the corn silage groups. Under current conditions the average LKE of the experimental groups was 0.29 (0.16–0.56) for energy and 0.44 (0.21–0.87) for protein. As the values were significantly below 1, the results indicate a negative net food production. However, it has to be considered that the protein quality of the output was 1.5 to 1.9 times higher than that of the input. As a result of combining protein quality with LKE, extensively fattened heifers and steers increased the value of protein available for human consumption. With increasing feeding intensity the nutrient supply from arable land increased in the grass silage groups. The highest arable land requirements were found in the corn silage beef cattle systems.

Keywords: cattle, fattening, ruminants, feed versus food competition, human-edible feed conversion efficiency, arable land, food security

Zitat (Deutsch):

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