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The effect of preservation method of barley, maturity of grass silage, and type of protein supplementation on sensoric milk quality in organic farming

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Three continuous production experiments and three short term cross over experiments were carried out in Northern Norway to investigate different feeding strategies for dairy cows in organic farming. This paper focuses on the effects on sensoric milk quality. Half of the 32 Norwegian red dairy cows in the production experiments were fed 40% (HC) concentrates (on energy basis per year) and the other half 10% (LC). Twelve cows (HC) participated in the short term cross over experiments.

The experimental factors in the continuous production experiments were barley preservation method (P1), grass silage maturity (P2) and type of protein supplement (P3), and in the short term cross over experiments barley preservation method (C1), type of protein supplement (C2) and time for fishmeal feeding (C3). In all experiments the cows were offered grass silage *ad libitum*, restricted amounts of cereals and protein feeds, and mineral and vitamin supplements.

The sensoric quality of milk was in general high. In the production experiments, milk from cows in HC had slightly higher quality than from cows in LC (significant in P2, $p = 0.04$). Neither the preservation method of barley (dried or ensiled with molasses), maturity of grass silage or type of protein supplement (fishmeal or peameal) influenced the sensoric milk quality significantly. Also in the cross over experiments no effect of the studied factors was found in milk flavour and odour. Early harvested grass silage gave significantly lower FFA contents than grass silage cut at normal time (P2) and FM gave significantly lower FFA concentrations than peameal (P3).

These results indicate that organic farmers with different feeding regimes can produce milk of first class sensoric quality. Also the content of FFA has been low in all experiments (except C1). However, feeding regimes containing low levels of concentrates may reduce milk taste slightly.