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Influence of dam rearing on health and welfare in dairy calves

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Keywords
Calf rearing, foster cow, stress reactivity, calf health, antimicrobial drugs, cow-calf bonding, profitability

Aim of the study
The project focuses on dam rearing of calves as a sustainable strategy to improve health and welfare of dairy cattle by fulfilling their needs for natural sucking behaviour and cow-calf bonding. The project aims at evaluating the effects of dam rearing on health, behaviour and economic viability on-farm, conducted on-farm in Switzerland and Germany, focusing on (a) health, stress reactivity and social behaviour of calves in dam rearing systems including use of antibiotics and (b) economic viability of dam rearing.

Material and methods
Dairy farms providing cow-calf contact during rearing and a reference sample without cow-calf contact were visited two times each, distributed over both the hot and cold season. Health and behaviour of the calves was assessed using interviews with farmers, clinical examinations, project specific farms' health records ("Kälberkarte"), and behavioural tests.

Results and significance
There was no effect of the rearing system on calf mortality (with cow-contact: 4%, without cow-contact: 3%).
Total plasma protein of the calves increased with increasing duration of suckling, i.e. was affected by the rearing system. Based on the monitoring conducted by the farmers, symptoms of general condition, respiratory and to a lesser extend dermatology diseases were found less in calves reared with cow-contact. Gastro-intestinal symptoms were not affected by the rearing system. Clinical examinations showed less respiratory sounds in calves reared with cow-contact, but no difference in coughing scores. Incidence of diarrhea tended to be increased in autumn and winter, especially in calves reared without cow-contact.
From the behavioural tests we conclude that rearing with cow-contact reduced the cardiac but not cortisol stress response during isolation, and led to a more appropriate social behaviour compared to traditional rearing without cow-contact. Thus, contact to the dam or foster cows early in life may promote social learning in dairy calves that positively affects their integration into the dairy herd later in life.

Publications, posters and presentations
Buchli, C.; Raselli, A.; Bruckmaier, R.; Hillmann, E. Influence of calf–cow contact during rearing on social competence and stress reactivity in calves. Applied Animal Behaviour Science, *in revision*

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