

u^b

UNIVERSITY
OF BERN



EAAP

European Federation of Animal Science



AMERICAN SOCIETY OF ANIMAL SCIENCE

August 28-30 2024

Bern, Switzerland



BOLFA & ICFAE

Biology of Lactation
in Farm Animals

International Conference on
Farm Animal Endocrinology

Proceedings

of the joint conference BOLFA & ICFAE



ISBN: 978-3-03917-093-7

DOI: 10.48350/198657

Editors: Josef J. Gross, Rupert M. Bruckmaier
Veterinary Physiology, Vetsuisse Faculty
University of Bern
Bremgartenstrasse 109a
3012 Bern, Switzerland

This work is licensed under a Creative Commons
Attribution 4.0 International Licence
<https://creativecommons.org/licenses/by/4.0/>

Text © The Authors

Cover Image by Thomas Bruckmaier

110

Pros and cons of cow-calf-contact systems in dairy farming - can we use established indicators?

Kerstin Barth

Institute of Organic Farming, Johann Heinrich von Thünen Institute, Federal Research Institute for Rural Areas, Forestry and Fisheries, 23847 Westerau, Germany

kerstin.barth@thuenen.de

Introduction Interest in cow-calf contact (CCC) systems has increased dramatically in recent years and a scientific opinion from EFSA (Nielsen et al., 2023) recommends their wider implementation as the system that best meets the needs of the animals. In addition to the high demands on animal observation, the change in management and the necessary structural adjustments, the effects of CCC on milk yield and milking are the biggest challenges for farmers. This is especially true in systems where calves are reared by their own mother. In addition to the large amounts of milk consumed by the calves, there is also the impairment of milk ejection, which can also lead to a depression of milk production until the end of lactation (Barth, 2020). However, this impairment does not occur equally in all animals, suggesting that other factors besides calf suckling must be involved. Since blood oxytocin measurements are difficult to obtain under practical conditions, other methods must be investigated to assess the degree of udder emptying. Evaluating fat content in the strippings could be one option (Jenni et al., 2024).

Materials and Methods Of a total of 50 German Holstein dairy cows, 34 (number of lactations: 2.5 ± 1.64 lactations) were kept with their calves and 16 (number of lactations: 1.9 ± 1.06) were kept without contact during the first 3 months of lactation. Thereafter, none of the cows were suckled. All animals were milked twice daily in a tandem milking parlor. Stripping samples were collected during one evening milking at three time points (8 ± 3.7 , 59 ± 2.1 , 108 ± 2.0 DIM) and analysed for fat content.

Linear mixed models were used to investigate the effect of suckling (yes/no) on the fat content in strip milk on the first and second sampling day. To take the repeated measurements into account udder quarter nested in cow was included as random effect. Furthermore, fat content was used to classify the status of udder emptying. According to Jenni et al. (2024) a fat content of strip milk lower than 4% was defined as incomplete milking.

Results There was a significant interaction between sampling day and the effect of suckling ($p=0.017$) causing a significant lower fat content in the strippings of suckled than not-suckled cows at the second sampling day (-3.59% , S.E.: 0.945 , $p<0.001$). By the third sample, there were no differences between treatments. The same result was obtained when considering the degree of udder emptying as a function of fat content: While 95% of the evaluable strippings of the non-nursing cows showed complete quarter emptying on the second sampling day, this was only the case for 72% of the cows with contact to their calf. However, there was a large variation among the cows in the contact group, which only decreased after the calves were weaned and separated (figure 1).

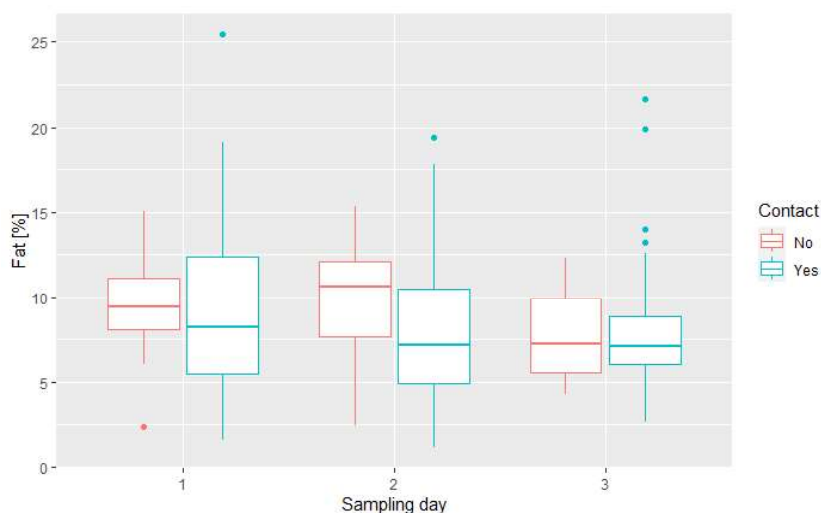


Figure 1: Fat content of strippings from cows that suckled their calf (contact = yes) or did not suckle their calf (contact = no) during the first three months of lactation (sampling day 1 and 2) and on day 3 when no cow was suckling a calf.

Conclusions Although the average fat content in the strippings of cows nursing their calf can still be very high, the influence of calf suckling on the degree of udder emptying was still evident.

References

- Barth, K. (2020) Effects of suckling on milk yield and milk composition of dairy cows in cow-calf contact systems. *J Dairy Res* 87(S1):133–137
- Jenni, B., Wellnitz, O., Bruckmaier, R. M. (2024) Estimation of udder emptying based on milk constituents of strip samples after milking. *J Dairy Sci* (in press) DOI: 10.3168/jds.2024-24692.
- Nielsen, S. S., Alvarez J., Bicoût D. J. et al. (2023) Welfare of calves. *EFSA Journal* 21(3):e07896.