Welfare of calves on farms with cow-calf contact compared to early separation using the Welfare Quality® protocol

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INTRODUCTION

Within the transdisciplinary project COwLEARNING we compared the welfare of calves on dairy farms with cow-calf contact (CCC) rearing and farms practicing early separation (ES) as part of a sustainability assessment. We hypothesized that welfare is better in calves on CCC farms than in those on farms with ES.

METHODS

- 50 farms in Austria (Tab. 1)
- **Welfare Quality®** protocol for dairy calves[1]
- 3 trained observers
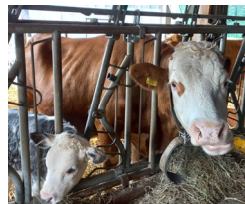
Tab. 1: Number of visited farms and range (mean ± SD) of the herd sizes regarding number of calves ≤ 6 months and of cows

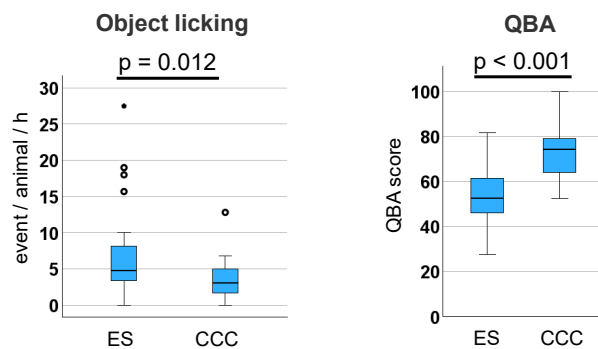|	N° farms	N° of calves per farm	N° of cows per farm
ES	25	3-24 (11.8 ± 5.83)	14-63 (35.0 ± 13.54)
CCC	25	2-23 (9.3 ± 5.21)	10-82 (29.8 ± 17.91)

RESULTS – Behaviour

Fig. 1: Number of object licking (left) and score for the qualitative behaviour assessment (QBA, right) on ES and CCC farms

- For CCC farms:
  - **Less Object licking** (Mann-Whitney U Test, Fig. 1)
  - **Higher QBA** Scores (t-test, Fig. 1)
- **No differences** in the **other 10 behaviours** (agonistic, cohesive, abnormal behaviour, play)
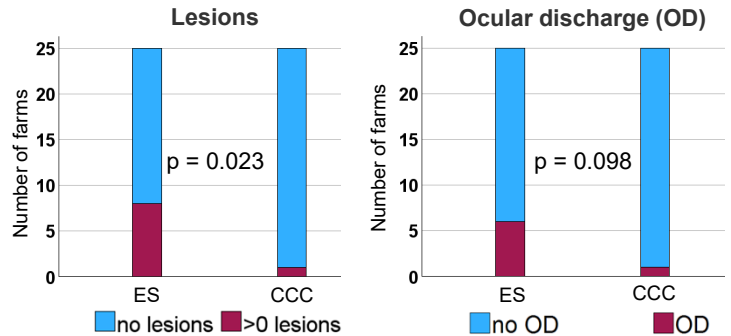
RESULTS – Physical indicators

Fig. 2: Number of ES or CCC farms where no or at least one calf has lesions (left) or ocular discharge (right)

- For CCC farms:
  - **Fewer** farms with calves with **lesions** (Fisher Exact Test, Fig. 2)
  - **Tendency** towards **less** farms with calves with **OD** (Fisher Exact Test, Fig. 2)
- **No differences** in the **other 11 physical indicators**

Tab. 2: Prevalences of clinical parameters in % affected animals: Median (range) [number of farms with prevalence > 0]

	ES	**CCC**
Body Condition Score	0 (0-13) [3]	0 (0-27) [2]
Cleanliness	0 (0-44) [5]	0 (0-60) [4]
Hairless patches	10 (0-63) [15]	5 (0-71) [13]
Lesions	0 (0-66) [8]	0 (0-7) [1]
Swellings	0 (0-66) [3]	0 (0) [0]
Nasal discharge	0 (0-33) [4]	0 (0-14) [7]
Ocular discharge	0 (0-94) [6]	0 (0-10) [1]
Hampered respiration	(0) 0 [0]	0 (0-9) [1]
Diarrhoea	12 (0-94) [15]	13 (0-50) [13]
Lameness	0 (0) [0]	0 (0-11) [1]
Overgrown claws	0 (0-12) [2]	0 (0-5) [1]
Cough	8 (0-58) [13]	0 (0-43) [8]
Sneeze	0 (0) [0]	0 (0-13) [1]

No occurence of ear infection, bloated rumen and umbilical infection

DISCUSSION

There was **high variation between farms** in both rearing systems, confirming the importance of management and quality of care independent of the rearing system. Further, the sometimes **small numbers of calves** per farm and the potential **selection bias** especially in the ES farms (convenience sample of farms) may have affected the results.

Higher QBA scores and lower expression of object licking in calves with CCC indicate **positive effects of CCC rearing** on **affective states**. This might indicate that calves' needs can be satisfied better when they are reared with contact with cows. Other studies also found lower behavioural disorders and longer play behaviour, an indicator for positive affective states, in calves with CCC[2,3,4]. In terms of **health**, the results also point to some **benefit** in line with previous studies[5].

[1]Gratzer et al., 2010. *On-farm welfare assessment in dairy calves and heifers*. Deliverables D2.32 and D2.33, subtask 2.4.4, EU Food-CT-2004-506508.
[2]Veissier et. al., 2013. Applied Animal Behaviour Science. 147, 11–18. [3]Fröberg and Lidfors, 2009. Applied Animal Behaviour Science 117, 150–158.
[4]Waiblinger et. al., 2020. Journal of Dairy Research 87, 144–147. [5]Beaver et. al., 2019. Journal of Dairy Science 102, 5784–5810.