

ISAE 2019

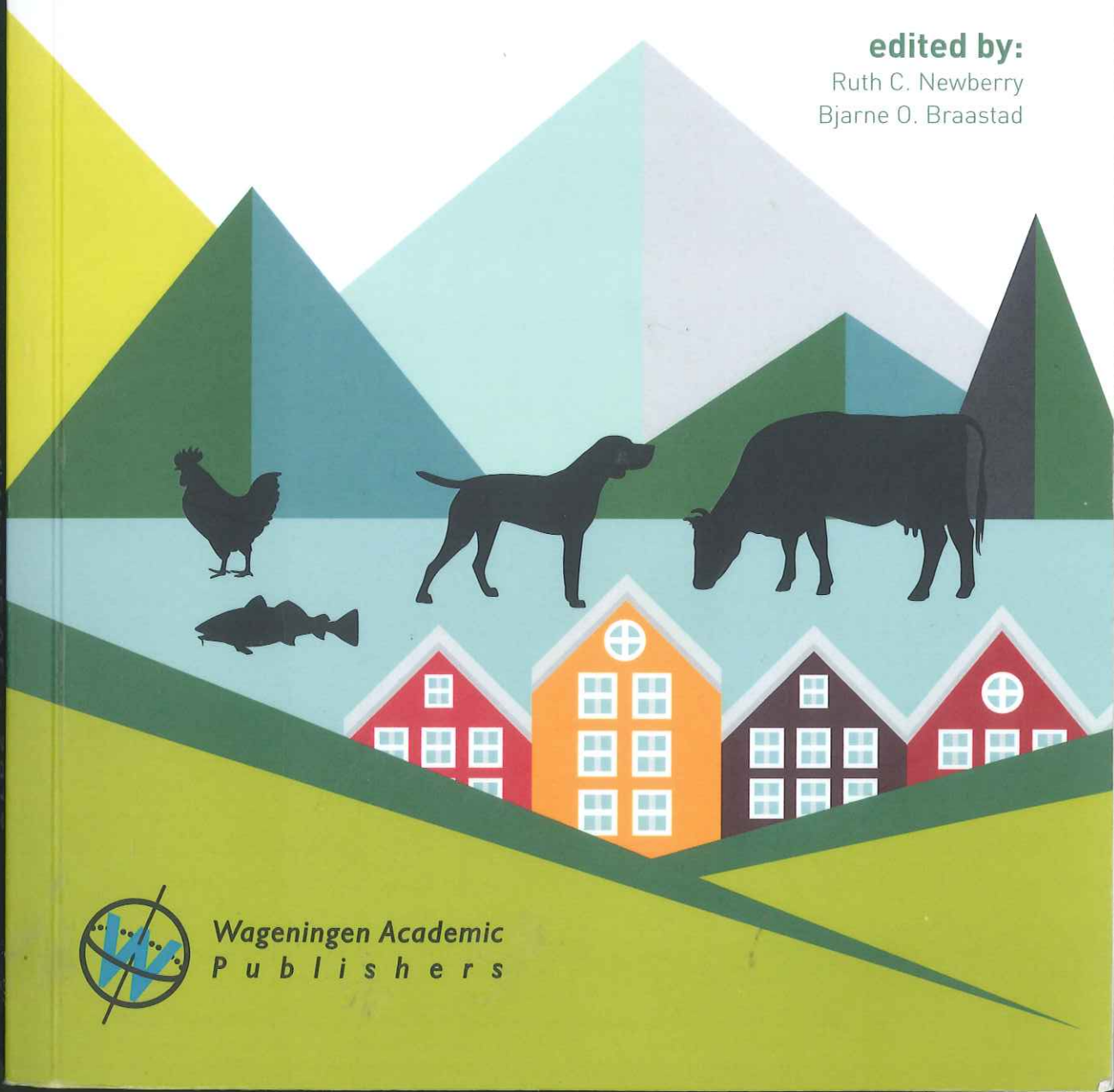
Bergen, Norway
5th-9th August, 2019

Proceedings of the
53rd Congress of the ISAE

ANIMAL LIVES WORTH LIVING.

edited by:

Ruth C. Newberry
Bjarne O. Braastad



Wageningen Academic
Publishers

Effect of cow-calf contact on motivation of dairy cows to access their calf

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It is common practice to separate dairy cows and calves within a few hours after parturition. When cow-calf contact is allowed a bond develops, even in absence of suckling, but little is known about how suckling affects the strength of this bond. The aim of this study was to assess the motivation of dairy cows with different levels of cow-calf contact to access their calf. We hypothesised that cows directly separated from their calf would work less hard to get access to their calf compared to non-suckled and suckled cows routinely kept with their calf. Thirty-four Holstein Friesian cows were randomly assigned to one of three treatments: (1) separated from their calf within 2 hours postpartum ($n=11$); (2) allowed to spend nights with their calf but fitted with an udder net to prevent any suckling ($n=11$); or (3) allowed to spend nights with their calf and the calf was able to suckle ($n=12$). Nightly cow-calf contact lasted from approximately 18:30 h until 06:30 h. Cows were trained to push a weighted gate to access their calf. Testing was undertaken once daily immediately following the afternoon milking at approximately 18:00 h. The weight on the gate was increased by 9 kg each day until the cow failed to push open the gate or reached the maximum weight of 90 kg. If a cow was unsuccessful in pushing the weighted gate, she was retested at that same weight for 2 additional days. Kaplan-Meier survival curves were used to analyse the maximum weight pushed by the cows in each treatment group. Video was used to record latency to make nose contact with the calf and duration of licking the calf during the test. Behaviour was analysed using a mixed model accounting for repeated measures. Separated cows worked as hard (median=18 kg) as cows with an udder net (median=27 kg, $\chi^2=0.98$, $P=0.32$) to access their calf, but worked less hard than suckled cows (median 45 kg, $\chi^2=6.30$, $P=0.01$). The latency to make nose contact with the calf was not different between separated cows (mean \pm SE, 29 \pm 16 s) and udder net cows (30 \pm 9 s, $F=0.00$, $P=0.97$) or suckled cows (20 \pm 6 s, $F=0.53$, $P=0.47$). Once reunited, separated cows licked their calf (36 \pm 10 s) more than suckled cows (15 \pm 2 s, $F=7.56$, $P=0.01$), but did not differ from the udder net group (21 \pm 7 s, $F=2.90$, $P=0.10$). These results indicate that dairy cows' motivation to access their calves is greatest when cows are suckled, and that cows are still motivated to access their calf even when fitted with an udder net or separated at birth. The greater motivation of suckled cows to access their calf could be explained as a stronger bond between cow and calf rather than urge for relief of udder pressure, as all cows were tested right after milking. Overall, the calf is a valuable resource that dairy cows are willing to work for.