Visual judgement bias of dairy cows housed with or without their calves

Wednesday, 2nd August - 10:35: Behaviours as Indicators of Positive Welfare (Ruminants) (Bolero hall) - Oral

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There is growing interest in managing dairy cows with their calves. Cow-calf contact is expected to promote positive affective states, but this requires empirical testing. Judgement bias (JB) is the gold-standard assessment of affective states in animals; visual JB tasks have been used in calves, but the type of visual cue may affect JB. This study aimed to assess the emotional state of dairy cows with full-time (23 h/d), part-time (10 h/d), or no calf contact (separated at birth), using a colour- or shape-based visual JB task. Fifty dairy cows were trained to approach a positive image on a screen (rewarded with food) and to avoid a negative image (else punished with waving bag). Once learned (>80% correct in 20 trials, over 2 consecutive days), cows were presented with 3 ambiguous images (each presented once among 4 positive and 3 negative images, repeated over 4 days), and their approach responses recorded. For colours (10 full-time, 9 part-time and 11 no-contact cows), positive and negative images were a solid red or white background; ambiguous images were shades of pink. For shapes (8 full-time, 6 part-time and 6 no-contact cows), positive and negative images were a white circle or cross on a black background; ambiguous images were overlayed circle and cross that were increasingly gray. Cows discriminated colours quicker than shapes (6.5 and 9.0 ± 0.7 days, respectively; $P < 0.01$). Approaches to ambiguous colours followed a generalization curve (81.0, 33.1 and 5.0 ± 3.7 % near-positive, middle and near-negative images, respectively) but not approaches to ambiguous shapes (31.9, 25.7 and 21.9 ± 4.8 %, respectively), suggesting colours over shapes should be used in visual JB tasks for cattle. Approaches did not change over days, indicating no learned responses. Part-time cows approached fewer ambiguous colours than full-time and no-contact cows (32.5, 45.8 and 41.5 ± 3.8%, respectively; $P = 0.05$), but there was no difference between full-time and no-contact cows, and no interaction between treatment and ambiguous colours. Our colour JB results show a pessimistic bias (negative affect) in cows with part-time calf contact, possibly due to daily calf separations. Conversely, cows with full-time or no calf contact may show an optimistic bias (positive affect) due to extended calf contact or no expectations for calf contact, respectively. Future research should explore how different cow-calf contact systems, such as dam- versus foster-cow contact, affect the emotional state of cattle.

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BOOK OF ABSTRACTS

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