

## The effect of habituation of dairy herd replacements to the milking parlour prior to calving on flinch, step and kick responses on days 1, 7, 14 and 21 post calving

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### Introduction

Wicks *et al.* (2003) reported that milk production and somatic cell counts were improved when heifers were introduced to the milking parlour for 3 weeks prior to calving. The objective of the current analysis was to estimate the influence of habituation to the milking parlour on milking behaviour of first lactation heifers on days 1, 7, 14 and 21 post calving.

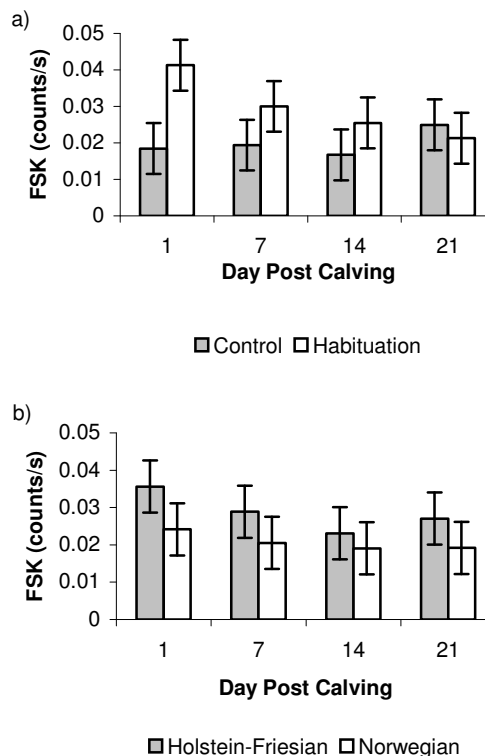
### Material and Methods

The effects of habituating heifers to the milking parlour prior to calving were investigated using fifty-four spring calving heifers (32 Holstein-Friesian and 22 Norwegian (NRF) dairy cattle). The average genetic merit of Holstein-Friesian and Norwegian replacements were 35.9 (s.d. 5.79) PTA<sub>2000</sub> and 11.7 (s.d. 2.17) Total Merit Index respectively. Animals in the Habituation group were introduced to the milking parlour (20-point rotary herringbone parlour) 3-weeks prior to calving, whereas Control animals were introduced to the parlour post-calving. Prior to calving, heifers were housed in two groups in adjacent cubicles within the same building. Behaviour records (including flinch, step and kick) were recorded from real time video recordings of the entire milking process for both AM and PM milkings during the first 3 weeks of lactation. Repeated measures REML analysis was used, the fixed effects included week of lactation, breed, treatment and their interactions.

### Results and Discussion

Results of total flinch, step and kick (FSK) responses from complete milkings including both AM and PM sessions showed that day post calving ( $P<0.001$ ), treatment ( $P<0.01$ ), AM versus PM milking ( $P<0.01$ ) and the interactions between day post calving and treatment ( $P<0.01$ ), and breed and treatment ( $P<0.05$ ) were significant. For counts per second, day post calving ( $P<0.05$ ), breed ( $P<0.01$ ), treatment ( $P<0.001$ ), and the breed by treatment interaction ( $P<0.05$ ) were significant. The total number of FSK per milking and the rate of FSK/s declined with increasing day post calving. On day 1 post calving the average number of FSK/s was 0.0299, while by day 14 it was 0.0231 FSK/s ( $P<0.05$ ). While overall, habituation treatment heifers had higher FSK responses per s (0.0295 FSK/s) compared with control group heifers (0.0199 FSK/s), the difference in FSK behaviours between control and habituation treatments was only significant on day 1 post-calving, by day 7 there was no significant difference in FSK responses (Figure 1 (a)). Figure 1 (b) illustrates that for both Holstein-Friesian and Norwegian dairy herd replacements FSK per second declined with day post calving. On average Holstein-Friesian dairy herd replacements had a greater number

of FSK per second (0.0286 FSK/s) compared with Norwegian heifers (0.0207 FSK/s) ( $P<0.01$ ).



**Figure 1** Change in rate of Flinch, Step and Kick (FSK) Responses per second for a) control and habituation treatments, and b) for Holstein-Friesian and Norwegian dairy herd replacements with day post-calving

The habituation of heifers to the milking parlour before calving has been shown to increase milk production and reduce somatic cell counts (Wicks *et al.* 2003). The higher number of FSK responses in habituation heifers (current study) on day 1 post calving may have been due to the introduction of an additional unfamiliar stimuli (i.e. cluster attachment), habituated heifers being used to having their udder and teats wiped but not cluster attachment. Bremmer (1997) reported that the prepartum rubbing of teats and udders reduced the reaction of heifers to the preparation of teats for milking, but increased the level of adverse reactions to cluster attachment. Alternatively due to a non-linear relationship between tameness and reactivity (both very tame and very fearful animals kick less) (Bremmer, 1997), it is possible that habituated heifers had higher FSK responses as the inhibition caused by fear was reduced.

### Conclusion

Un-trained heifers were less tame (more fearful), therefore displaying less FSK responses than the partially tame habituated heifers

### References

- Bremmer, K.J. (1997). *Proc of the NZ Soc of An Prod* Vol. 57 pp 105-108.  
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