Assessing cow behaviour when New Zealand anoestrous dairy cows are treated with intravaginal progesterone inserts

Objective

To quantitatively assess cow behaviours during progesterone device insertion, and compare cows treated with DIB inserts to those treated with CIDR inserts.

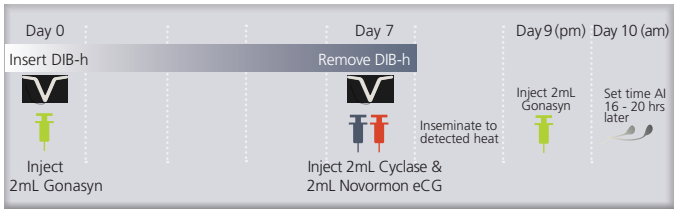
Study design

1060 non-cycling cows from 10 commercial dairy herds in the Waikato region were enrolled in the Study. The Study was conducted in Spring 2013 and overseen by Veterinarians from five rural Veterinary Practices.

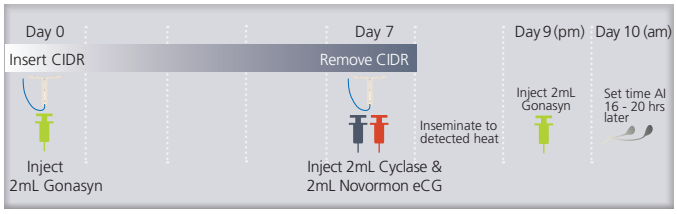
To be eligible for enrolment in the Study, cows had calved at least 25 days prior to treatment and not shown signs of oestrus during premating heat detection (beginning 35 days prior to the planned start of mating (PSM)).

Ten days prior to PSM the enrolled cows were randomly assigned to one of two treatment groups:

1. DIB-Synch Plus (DIB-h + GPG + eCG)



2. CIDR-Synch Plus (CIDR + GPG + eCG)



If cows were observed in heat after device removal and prior to the set time artificial insemination (STAI), they were inseminated to this detected heat. All remaining cows in both treatment groups were inseminated to STAI approximately 16-20 hours after the final GnRH injection.

During the treatment period, cow behaviours were assessed by a technician at milking, as visual observations of straining or defecating. Technicians were blinded to treatment group as they were not present when the progesterone devices were inserted on any of the farms.

Two technicians undertook the visual observation visits in all 10 of the herds, during three afternoon milkings, on day 0 (the pm milking after the device was inserted), day 1 and day 3 after treatment.

All of the cowsheds were a herringbone design, enabling the technician to observe an entire row of cows being milked, to identify and record the tag number of cows that lifted their tails to strain (hunched posture, unsuccessful attempt to defecate) and/or defecate while they were being milked. Each row of cows was observed from the time the row was packed in for milking and clusters attached, until the alternate row was packed in.

Each row was thus observed for a period of 7-10 minutes on 3 milking occasions, totalling 21-30 minutes per cow. This is equivalent to 0.3% of the total time that a cow has a progesterone device inserted during the 7 day treatment.

Results

Straining observations

The percentage of cows straining in each treatment group at each of the milking visits is shown in Figure 1. Cows treated with the CIDR progesterone insert were observed straining significantly more than cows treated with the DIB insert.

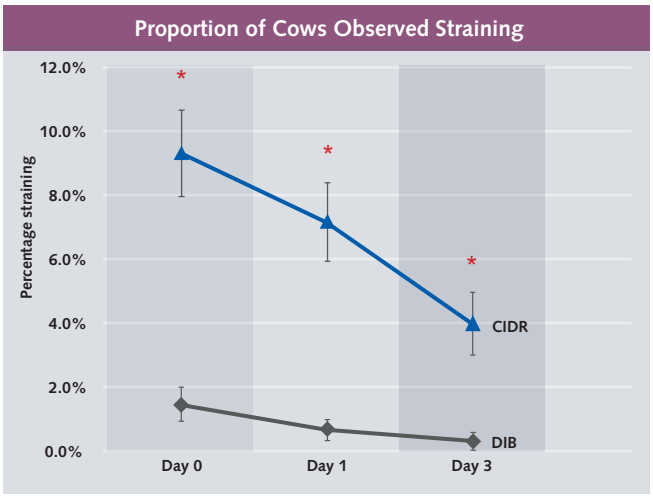


Figure 1. Percentage of cows observed straining by technicians at afternoon milking visits on 3 days.

*Indicates data points are significantly different ($p < 0.001$).

Defecation observations

The percentage of cows defecating in each treatment group at each of the milking visits is shown in Figure 2. Cows treated with the CIDR progesterone insert were observed defecating significantly more than cows treated with the DIB insert, during 2 of the 3 milking observation periods.

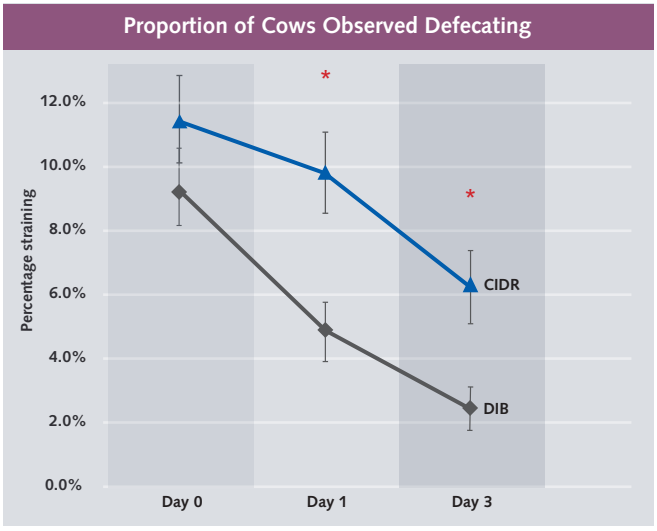


Figure 2. Percentage of cows observed defecating by technicians at afternoon milking visits on 3 days.

* Indicates that data points are significantly different ($p \leq 0.002$).

Across all treatments, younger cows were significantly more likely to be observed straining than older cows. Lower body condition score cows were more likely to be observed straining or defecating than higher body condition score cows.

Pregnancy rates

Pregnancy rates were compared between the treatment groups. There was no significant difference in pregnancy rates to STAI, 4 week, 6 week or 12 week in-calf rates between cows treated with the DIB-h insert or the CIDR insert.

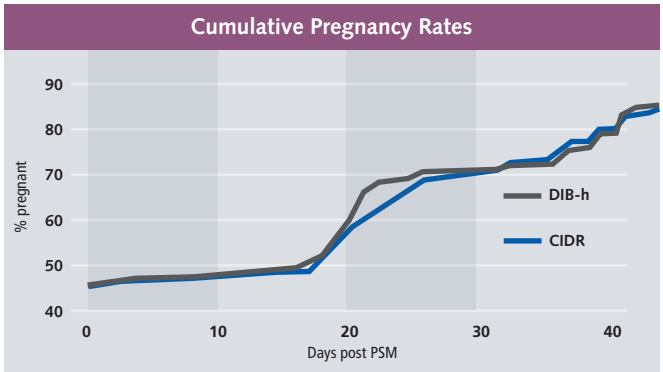


Figure 3. Cumulative pregnancy rates for DIB-h and CIDR treatment groups.

Discussion

Specific cow behaviours that are commonly associated with farmer perceptions of cow discomfort during the period of insertion of a progesterone insert were observed in this study. Other behaviours including tail flicking, stepping or stamping with hind feet, and kicking cups off during milking time were not recorded during this study.

There were significant cow behavioural differences observed between the treatment groups. The CIDR treated cows exhibited a higher incidence of straining at all three observation time points, and higher incidence of defecating at two of three observation time points, compared to the DIB treated cows.

Reduction of defecation in the cowshed improves hygiene during milking time. This is of benefit from a food quality perspective, for mastitis prevention, and for human health and safety. The reduction in the lifting of tails (to strain or defecate) also improves operator well-being during milking. Improved cow comfort is of benefit to cow welfare.

A further study is required to determine if improved cow comfort during anoestrus treatment impacts favourably on cow productivity or appetite, and hence, possible improvement in farm profitability.

Conclusions

This study demonstrated that cows appear to be more comfortable when treated with a DIB progesterone insert compared to a CIDR insert, as shown by a reduction in straining and defecation during the treatment period.

Products used in this study

DIB-h (A10832)

Gonasyn (gonadorelin) (A10642, RVM)

Cyclase (cloprostenol) (A10490, RVM)

Novormon eCG (A10641, RVM)

CIDR (A04559) – Registered to Zoetis NZ Ltd

DIB, Gonasyn, Novormon and Cyclase are manufactured by Syntex S.A. The products are distributed in New Zealand by registrant AgriHealth NZ Ltd.

Animal Ethics Committee approval RAEC No 13045.

Reference

Young, L et al. Using quantitative observational research to assess cow behaviour during treatment with intravaginal progesterone inserts on New Zealand dairy farms. Proceedings of the XXVIII World Buiatrics Congress 2014, page 132.