

## Oestrous Signs of Lankan Indigenous Zebu Cattle After Oestrous Induction

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A total of 67 indigenous postpartum non-pregnant, non-cycling cows reared at Anamaduwa (Trial I, n=10; Trial II, n=10) and Bandagiriya (Trial I, n=31; Trial II, n=16) in the dry zone of Sri Lanka were treated with progesterone releasing ear implants (Synchromate-B) for 9 days. At the time of implant removal (day 9), i/m injection of 500-750 IU of PMSG or 250 µg of GnRH was given. Observations on behavioural changes, measurements on length and width of vulval lips, and vaginal temperature were obtained on the day prior to the hormonal treatment, at the time of ear implant removal and thereafter at 12h intervals, till 204h post implant removal (PIR). The intensity of vulval swelling, vulval reddening and vaginal discharge were scored from 0 to 5<sup>+</sup> where 0=no change, 1<sup>+</sup>=very low, 2<sup>+</sup>=low, 3<sup>+</sup>=moderate, 4<sup>+</sup>=high and 5<sup>+</sup>=very high.

The length and width of vulval lips on the day before the hormonal treatment (6.3±0.39cm and 3.6±0.28cm) and the time of implant removal (6.4±0.41cm and 3.6±0.27cm) were not significantly different. The maximum length (8.5±0.51cm to 8.7±0.46cm) and the maximum width (4.5±0.4cm to 4.7±0.37cm) of the vulval lips were detected at 48 to 84h PIR. Length and width of vulval lips returned to normal size at 168h PIR. Vaginal temperature did not change due to treatment, but temperatures were lower in the morning and in the evening (P<0.05).

Swelling of vulva commenced by 12h PIR, with the majority showing an intensity of 1<sup>+</sup> to 2<sup>+</sup>. Swelling intensity increased with time. The maximum intensity of swollen vulva (4<sup>+</sup> to 5<sup>+</sup>) was detected between 48- 84h PIR. Vulval reddening commenced by 12h PIR with the majority having an intensity of 1<sup>+</sup>. With time, the number of animals showing more pronounced vulval reddening increased. The maximum intensity (4<sup>+</sup> to 5<sup>+</sup>) was shown between 48 to 96h PIR. Vulva returned to normal appearance by 192h PIR.

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Vaginal discharge occurred in 85% of the animals during the observation period. At 12h PIR, only 9% of cows had vaginal secretion with an intensity of 1<sup>+</sup> to 3<sup>+</sup>. The majority of animals with the highest intensity (4<sup>+</sup> to 5<sup>+</sup>) were seen between 48 to 96h PIR. Mucus discharge during the 12 to 36h PIR was colourless, transparent and thin. During 48 to 96h PIR, it was colourless but thick and occurred in long strands. The results suggest vaginal discharge as a good indicator of oestrous in indigenous Zebu cattle.

Behavioural changes such as, sniffing the vulval region and urine of other animals (19%), head butting (28%) and licking and rubbing each other (12%) were first noticed at 12h PIR. The majority of animals (>50%) showed these changes during 36 to 72h PIR. Riding (18%), raising tail-head (24%), frequent micturition (3%) and standing to be mounted (4%), appeared first at 24h PIR. Nearly 50% of the animals showed riding behaviour during 48-72h PIR, but disappeared 132h PIR. The proportion of animals standing to be mounted was high during 48 to 84h PIR, and disappeared after 156h.

Based on the intensity of expression of oestrous, the animals were categorized into three groups, viz; strong, moderate and poor expression of oestrous. In the present study, 51%, 27% and 15% of cows had strong, moderate and poor expression, respectively while 7% did not show any signs of oestrous.

These findings suggest the existence of a pattern in the expression of oestrous in indigenous Zebu cattle. Vulval swelling and reddening associated with sniffing, head butting, licking and rubbing, commence early. These are followed by pronounced vaginal discharge and riding, mounting, raising tail-head, frequent micturition and finally standing to be mounted. A similar pattern in the oestrous behaviour in *Bos taurus* cattle, has been described by Esslemont *et al.*, (1985) and Esslemont and Bryant (1976).

## REFERENCES

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