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SHORT COMMUNICATION

Induction of estrus and hormonal profile in buffalo treated with norgestomet ear implant

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ABSTRACT

A group of uniform healthy buffalo (n=10) and buffalo heifers (n=10) were induced to estrus and synchronized during breeding and non-breeding seasons, using Norgestomet ear implant (Crestar, Intervet). All the buffaloes and 70% heifers exhibited estrus, which attributed to 90 and 80% response during breeding and non-breeding season respectively. Seasonal condition and reproductive status of buffaloes are reflected in their respective endocrine profiles. After insertion of implant and injection of estradiol velerate, circulating estradiol levels showed marked elevation and also remained higher during estrus. All the experimental buffaloes subsequently became cyclic.

Key words: Anestrus, Buffalo, Induction of estrus, Norgestomet ear implant, Progesterone

Anestrus is the major reproductive disorder of buffalo causing heavy economic losses. Different progesterone preparation have been developed and tried through variety of route to improve the ovarian cyclicity (Agarwal *et al.*, 1988, Singh *et al.*, 1988 and Luthra *et al.*, 1994). Present investigation compares the efficiency of Norgestomet ear implant (Crestar) in anestrus and cyclic buffaloes and changes in circulating ovarian steroid profiles during estrus synchronization.

A group of healthy buffaloes (n=10) and buffalo heifer (n=10) were treated for induction/ sunchronization of estrus during breeding and non-breeding seasons respectively using crestar ear implant (Norgestomet-intervet, Holland). The buffaloes were selected by thorough clinical examination before insertion of implant. The implant was inserted subcutaneously on external surface of ear and 2 ml Estradiol Valerate was injected intramuscularly. The implant was kept in situ for 10 days. At the time of removal of implant, each buffalo was treated with 500 IU PMSG. Time taken for onset of estrus was decided on the basis of clinical examination, and external signs of estrus. Blood samples were collected at insertion of implant, at 24 hrs., 5th days, 10th day (day of removal of implant) 24, hrs. after removal of implant, at onset of estrus and on day 10 and 21, post-estrus to monitor ovarian activities. Serum was separated by centrifugation and preserved at -20°C till analysis for estradiol-17β (E_2) and progesterone (P_4) by standard RIA techniques of Robertson (1979) and Kubasic *et al.* (1984) respectively.

All the adult buffaloes and 70% heifers exhibited estrus. The overall response was 90 and 80% during breeding and non-breeding season respectively. Similar findings were also reported by Rao and Rao (1979) and Ravi and Ashokan (2000).

The levels of E_2 and P_4 were influenced by season as well as treatment (Fig. 1 and 2). Considerable elevation in E_2 level (upto 125.00±21.83 pg/ml) after insertion of implant in both the groups could be due to estradiol velerate

Fig. 1: Serum Progesterone levels in buffaloes treated with CRESTAR ear implant

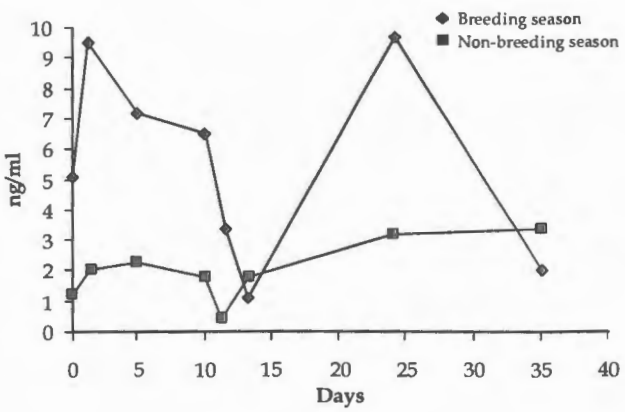

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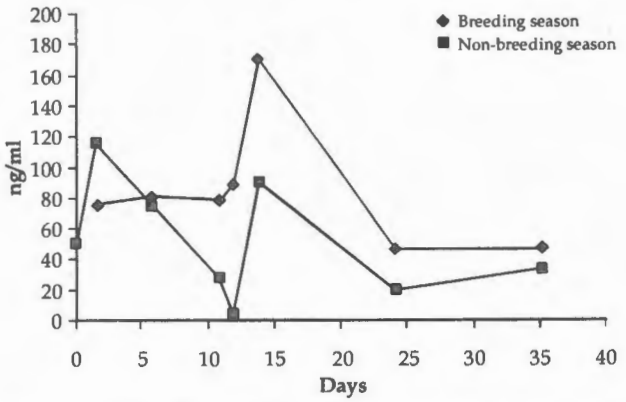
Fig. 2: Serum Estradiol levels in buffaloes treated with CRESTAR ear implant



administration. Aresh *et al.* (2000) also reported similar findings in cows.

Failure to decline in progesterone levels at estrus (Fig. 1) may be because the treatment schedule did not include $PGF_2\alpha$ administration. Progesterone levels fluctuated between 1.25 to 1.66 ng/ml on the day of induced estrus. Post-treatment serum E_2 and P_1 levels (day 10 and 21 post-estrus respectively), indicated establishment of cyclicity.

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