INCIDENCE OF SHORT OESTRUS CYCLES IN NILI-RAVI BUFFALOES

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Summary

A study was undertaken to determine the incidence of short oestrus cycles and associated serum progesterone levels in Nili-Ravi buffaloes. Forty lactating buffaloes were kept under observation for oestrus activity for a period of sixty days. Blood samples from jugular vein from twenty buffaloes were used to determine associated serum progesterone levels during short oestrus cycles.

Incidence of short oestrus cycles was 15.5 percent (Nine out of fifty eight oestrus cycles) and most of the short oestrus cycles occured between first and second oestrus after calving. Lengths of short oestrus cycles ranged from 6 to 14 days. The most frequent length was 11 days. Serum progesterone levels were lower at oestrus and increased gradually attaining peak levels of 1.3 and 1.8 ng/ml on 7th day of 9 and 11 day short oestrus cycles. One buffalos exhibiting a short oestrus cycle of 12 days conceived which indicated that ovulation took place at the oestrus of short cycle.
(**Key Words:** Short Oestrus Cycles, Progesterone, Buffaloes)

Introduction

The rapid use of artificial insemination in livestock has increased awareness of oestrus cycle lengths which have been reported normally varying from 17 to 24 days in dairy cattle and buffaloes (Dobson and Kamonpatana, 1986). In cattle, most frequent oestrus cycle lengths of less than 17 days have been reported as 8 to 10 days (Macmillan and Watson, 1971; Odde et al., 1980). Information on length of short oestrus cycles in buffaloes is very limited. Present investigation was undertaken to determine the incidence of short oestrus cycle and associated serum progesterone levels in Nili-Ravi buffaloes.

Materials and Methods

Forty lactating Nili-Ravi buffaloes of varying lactations calved during late summer and autumn at Livestock Experiment Station, Bahadurnagar were selected and kept in semi covered sheds under routine feeding and managerial conditions of the farm. All buffaloes were observed for oestrus activity thrice at 06:00, 18:00 and 21:00 hours daily with the help of penile deviated teaser bulls for a period of sixty days. In addition a teaser bull with chin ball device was allowed to remain in the herd during night hours. The buffaloes detected in oestrus were inseminated twice at 12 and 18 hours after the onset of oestrus.

Jugular blood was collected from twenty buffaloes on the day of oestrus and then on alternate days, thereafter, till day 15 or the onset of oestrus in case of short length of cycle and continued for day 25 after short oestrus cycle. Serum was seperated by centrifugation at 3000 RPM for 15 minutes and stored at −20℃. Serum progesterone concentration was estimated following Radioimmunoassay solid phase technique. The sensitivity of the assay was 0.1 ng/ml. The intra and inter assay co-efficient of variance was 6.47 and 9.06 percent.

Results

Postpartum behavioural oestrus activity was exhibited by 38 out of 40 buffaloes after an interval of 76.16 ± 30.47 days (table 1). A total of 58 oestrus cycles were recorded during the trial period of which nine (15.5%) were found short in length (6-14 days). The most frequent length of short oestrus cycles was 11 days. All the short cycles were either first or second postpartum oestrus. One buffalo with short oestrus cycle of 12 days got conceived.

Serum progesterone levels recorded during two short and subsequent normal oestrus cycles are shown in figure 1 & 2. Progesterone levels were

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TABLE 1. POSTPARTUM OESTRUS ACTIVITIES IN EXPERIMENTAL BUFFALOES

Total no. of buffaloes	No. of buff. exhibited oestrus	Postpartum oestrus interval (Days)	Total no. of oestrus cycles	No. of short oestrus cycles	Percentage of short oestrus cycles
40	38	76.16 ± 30.47	58	9	15.5

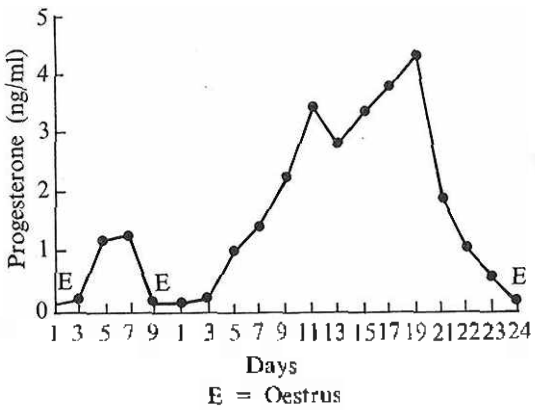

Figure 1. Serum Progesterone levels during 9 days short and subsequent normal oestrus cycle in a buffalo.

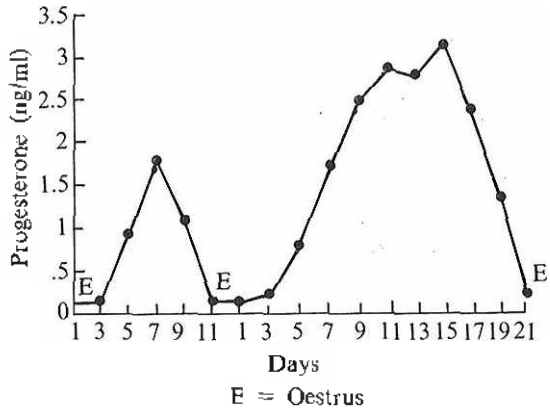

Figure 2. Serum Progesterone levels during 11 days short and subsequent normal oestrus cycle in a buffalo.

low at oestrus and increased gradually attaining a peak level of 1.3 and 1.8 ng/ml on 7th day in buffaloes showing 9 and 11 day oestrus cycles, respectively. These values decreased to basal levels on the subsequent oestrus. Progesterone profile of these two buffaloes during subsequent oestrus cycle was almost same. In one buffalo progesterone peak was attained on day 19 and in other on day 15 with total cycle length of 24 and 21 days, respectively.

Discussion

Little information is available regarding short oestrus cycles in buffaloes. However, Macmillan & Watson (1971) and Odde et al. (1980) reported an incidence of 18% and 7% for short oestrus cycles in cattle, respectively. Odde et al. (1980) also observed that 86% of short oestrus cycles were either first or second postpartum cycle.

Serum progesterone levels observed during short oestrus cycles in the present study correspond to that reported by Odde et al. (1980) and Ramirez-Godinez et al. (1981) in cattle and Barkawi et al. (1986) in Egyptian buffaloes. The serum progesterone profile observed during the subsequent normal oestrus cycles in the present study are similar to that reported by Abbas (1981) and Batra et al. (1979) in Nili-Ravi and Murrah buffaloes, respectively.

The source of progesterone during short oestrus cycles may be rusult of ovulation and corpus luteum formation. The conception of a buffalo at the oestrus of 12 day cycle supports the claim of Stevenson & Britt (1979) and Ramirez-Godinez et al. (1981), that ovulation took place at the oestrus of short cycles and production of progesterone during short oestrus cycles were from the resulting corpus luteum. The difference in progesterone profile between short and normal cycles may be due to luteal failure during short cycles. The possible reasons for this luteal insufficiency may be 1) lack of sufficient leutotrophin, 2) failure of the luteal tissue to recognize a luteotrophin and 3) the presence of a luteolytic agent as previously reported by Odde et al. (1980). However, endocrine mechanism involved in short oestrus cycles require further investigations.

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