

EFFECT OF MINERAL MIXTURE SUPPLEMENTATION IN POSTPARTUM CROSSBRED COWS WITH SPECIAL REFERENCE TO REPRODUCTIVE PERFORMANCE

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ABSTRACT:

Present investigation was conducted in the Guntur district of Andhra Pradesh, India. Seven villages were selected to identify 60 crossbred cattle in their immediate postpartum period. All cows were divided into two groups (Group I, Group II). Group I postpartum cows were fed with 60 gm of supplement of mineral mixture in their daily feed ration, whereas Group II (control) cows were fed only daily feed ration without additional supplementation of mineral mixture. The result showed that the mean onset of estrus was significantly ($P < 0.01$) lower in supplementation group (43.71 ± 1.25) as compared to non-supplementation group (65.02 ± 0.59). Similarly, intensity of estrus noticed was also higher in supplementation group than non-supplementation group. The service period was significantly ($P < 0.05$) lower in Group I (68.02 ± 0.11) when compared to Group II cows (85.13 ± 1.48), further service per conception was non-significantly lower (1.7 ± 1.22 Vs 1.9 ± 1.16) and conception rate was non-significantly higher (60.00 Vs 40.00) in Group I. In conclusion, provision of supplementation of mineral mixture with regular ration of feed, farmer can earn more profit from their dairy cows.

Keywords: Conception rate, Crossbred cows, Mineral mixture, Onset of estrus, Service period

INTRODUCTION:

Reduction in production and reproduction is mainly result of involuntary culling due to poor body condition score, decreased fertility and some metabolic diseases; eventually it affects economy of the farm from the livestock. Daily intake nutrition is fundamental for keeping animal health and body in good condition and facilitate to maintain their optimum production [1]. Out of all the essential nutrients minerals and vitamin play an important role in metabolism, lactation, reproduction and even for maintenance of fermentation by microbes in rumen [2]. Difficult for supplementation of area specific mineral mixture and vitamin in most of the part of India [3]. A survey work in various states, conducted by National Dairy Development Board indicated that Zinc, Copper, Sulphur, Manganese, and Cobalt were deficient in the ration of dairy livestock [4]. Hence, cattle and buffalo depend for their mineral and vitamins requirement on feed and fodders. Most of the feed ingredients available for feeding livestock are deficient in one or other mineral. So, present investigation was designed with mineral mixture supplementation in postpartum crossbred cows with special reference to reproductive behaviour in terms of first postpartum estrus, service period service per conception and conception rate.

MATERIALS AND METHODS:

Present investigation was conducted in the Guntur district of Andhra Pradesh, India. Seven villages were selected to identify 60 crossbred cattle in their immediate postpartum period. All cows were divided into two groups (Group I, Group II). Group I postpartum cows were fed with 60 gm of supplement of mineral mixture in their daily feed ration, whereas Group II (control) cows were fed only daily feed ration without additional supplementation of mineral mixture.

Feeding of supplementation of mineral mixture was started from day of parturition (calving) and reproductive parameters such as, onset of estrus (days), service period (days), service per conception and conception rate (%) were recorded in both the treatment and control group. On the day of onset of estrus, intensity of estrus also recorded (intense, moderate and weak estrus). The statistical analysis of the data was done as per the procedures described by **Snedecor and Cochran (1994)** [5].

RESULTS AND DISCUSSION

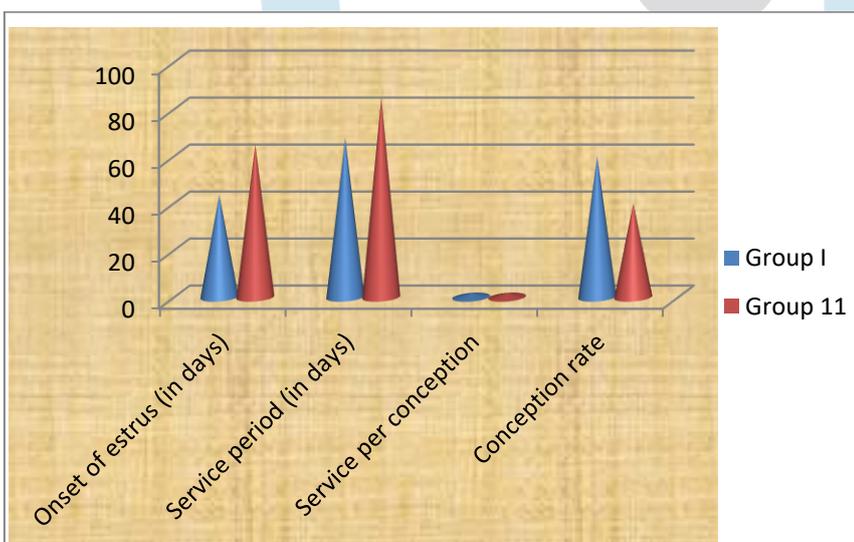
Reproductive parameters in Group I and Group II are shown in Table 1. The present investigation showed that the mean onset of estrus recorded in Group I and Group II were 43.71 ± 1.25 and 65.02 ± 0.59 , respectively (Table 1). Onset of estrus was significantly ($P < 0.01$) lower in supplementation group as compared to non-supplementation group. The present findings were corroborated with observations of **Mudgal et al. (2014)** and **Gupta et al. 2017** [1,6] also observed reduction in days to achieve first post-partum estrus in mineral mixture supplemented dairy animals. Similarly intensity of estrus also higher in supplementation group than non-supplementation group. In the present study service period was significantly ($P < 0.05$) lower in Group I when compared to Group II cows, further service per conception was non-significantly lower and conception rate was non-significantly higher in Group I. In the present study was in consonance with the findings of **Behera et al. (2012)** [7] who also found comparable result as they improved conception rate in mineral supplemented cattle. Similarly, **Sathish Kumar (2003)** [8] opined that reduced fertility and reduced or delayed conceptions are the prime signs of phosphorus deficiency and this can be overcome with proper phosphorus supplementation whereas, moderate deficiency may lead to repeat breeding condition and poor conception rate. Analysis of review of literature and findings of many researchers, it opined that more than 90 percent of mineral deficiencies exist at subclinical level in every farm reared cows [9]. Low animal productivity and

impaired reproductive behavior due to mineral deficiency and corrected these ailments through supplementation of various minerals [10].

Table 1: Reproduction parameters in treatment (Group I) and control (Group II)

Reproductive parameters	Group I (n=30) (Supplementation)	Group II (n=30) (Without supplementation)
Onset of estrus from postpartum (in days)	43.71±1.25**	65.02±0.59
a) Intense estrus (%)	70.00 (21/30)**	53.33 (16/30)
b) Moderate estrus (%)	20.00 (6/30)	30.00 (9/30)
c) Weak estrus (%)	10.00 (3/30)	16.67 (5/30)
Service period (in days)	68.02±0.11*	85.13±1.48
Service per conception	1.7±1.22	1.9±1.16
Conception rate (%)	60.00 (18/30)	40.00 (12/30)

Figure:1 Reproduction parameters in treatment (Group I) and control (Group II)



CONCLUSION:

It could be suggested that supplementation of mineral mixture along with regular ration offered in dairy cows improve their reproductive efficiency. In the context of field there was a repeatbreeding syndrome in many crossbred cattle due to deficiency of vital minerals, which indirectly increase the service period length. Feeding of mineral mixture could mask the silent estrus problem in crossbred which reared under field condition. Hence, provision of supplementation of mineral mixture with regular ration of feed, farmer can earn more profit from their dairy cows.

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Dr. Kurli Madhavi conducted the field trial in crossbred cattle at Guntur district of Andhra Pradesh. Dr. Vishnu Vardhan Chowdary and Dr. A. Thangamani drafted the manuscript. All the three authors are equally contributed for designing of work and manuscript writing.

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