



# On Farm Testing on Effect of Feeding Mineral Mixture and Hormonal Catalyst in Reduction of Calving Interval in Buffaloes

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## INTRODUCTION

The relationship between nutrition and reproduction is a topic of increasing importance and concern among dairy producers, veterinarians, feed dealers and extension workers. The interaction between nutrition and reproduction has long been known to have important implications for the reproductive performance. Sharma (2011) has reported that the differences in the feeding practices of dairy animals followed by the farmers account for most variation in reproductive performance between herds and among animals within herds. The level of feeding and the body weight of the animal affect fertility. The major cause of low reproductive efficiency in the buffaloes is relatively late onset of puberty and longer calving intervals. The losses due to prolonged calving intervals are summarized as follows: loss of milk, excessive additional feed cost and delay in replacement stock. Hence, high rate of reproductive efficiency in dairy animals plays a pivotal role in making dairy farming more profitable.

Minerals are important for all physiological processes in animals including reproduction. Mineral deficiencies and imbalances are often cited as causes of poor reproduction. It is evident that adequate amounts of minerals must be provided, but little is known about the effects of marginal deficiencies and imbalances. The same is true of excessive intakes of minerals which may indeed be harmful. The minerals are the essential nutrients bearing a significant role in the animal reproduction because their deficiency produces detrimental effect on the performance of the

livestock (Akhtar et al 2009). On mineral supplementation, improvement in the reproductive performance have been reported (Newar et al 1998). The present on farm testing was thus, undertaken to find out the effect of feeding mineral mixture and hormonal catalyst on reduction of calving intervals in Mehsana buffaloes so that dairy farmers can be made aware of these technologies.

## MATERIALS AND METHODS

An on farm testing was carried out in the different villages of Mehsana District during the period 2009 to 2013. Every year, twenty one animals were selected from different villages to carry out this study. All the animals were free from physiological and anatomical disorder and recently parturated. Animals were then divided in three groups of 7 animals each. The experimental treatments were Group 1, maintained under normal feeding and animal husbandry practices as per farmer's choice (control group); Group II, supplemented with mineral mixture @ 30 gm per day per animal; Group III, supplemented with mineral mixture @30 gm per day per animal plus hormonal catalyst (Prajana 3 capsules per day for 3 days). Area specific mineral mixture used in the study was prepared by Dudh Sagar Co operative Dairy, Mehsana. For feeding of the animals, green fodder (lucerne and oats) and dry fodder (sorghum and wheat straw) were used. The data were recorded monthly during the study period (Table 1).

## RESULTS AND DISCUSSION

The data (Table 2) revealed that in treatment group

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**Table1. Details of recording the data**

Year	Starting Period	Ending Period
First	1/11/2009	1/04/2011
Second	1/10/2010	1/04/2012
Third	1/09/2011	1/03/2013

**Table2. Effect of feeding mineral mixture plus prajana on the calving interval in buffaloes.**

Treatment Group	Duration of calving interval (Months)			Average for 3 years
	First year	Second year	Third year	
I	17	19	19	18.3
II	15	17	16	16.0
III	14	15	15	14.6

I where animals were kept as per farmer's choice of animal husbandry practices, calving interval was found to be longest ( 18.3 months) compared to other two groups. Such type of observations have been reported by Shah (2007) who found the optimal calving interval for dairy buffaloes to be 12-13 months but the variations in this study may be due to the feeding practices followed by the dairy farmers in maintaining the buffaloes. Moreover, at the village level, most of the farmers have kept animals for meeting out their daily requirement of milk and thus do not maintain animals scientifically.

It was evident from the study that when the mineral mixture as well as prajana capsules were fed to the newly parturated buffaloes under group II and III, the calving interval was found to be less than the animals kept in group I . This showed that the feeding practices being followed by the farmers in the area were deficient in minerals. It has been reported in the literature that the zinc element from mineral mixture improves conception rate and embryonic development in animal and is also known to be essential element for the onset of estrus, repair and maintenance of the uterine lining following parturition and normal reproductive function (Underwood and Suttle, 1999). Similarly, Maurer and Echternkamp (1982) noted that hormonal administration may affect the time of ovulation, fertilization rate, corpus luteum development, progesterone secretion and embryo survival. Hence, it can be said that farmers of the area must feed their animals as per the requirement of the various nutrients for maintenance, milk production and reproductive performance.

### CONCLUSION

The findings of present study revealed that the use of mineral mixture and hormonal catalyst in recently calved buffaloes shorten the calving interval. The calving interval in animals under group I, II and III was observed to be 18.3, 16.0 and 14.6 months, respectively. The inter-calving period of group III was lower than that of group I and group II animals. Thus, it was evident that feeding of mineral mixture and hormonal catalyst together helped in reducing the inter-calving period in buffaloes.

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