



## Clinical Efficacy of Gonadotropin Releasing Hormone in Treatment of Repeat Breeder Cattle-A Field Study

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### SUMMARY

The study was conducted to determine the effect of GnRH (Buserelin Acetate) administration as a therapy for repeat breeding syndrome in cows. A total of fifty repeat breeder cows with regular estrus cycle, clear vaginal discharge and suffering from ovulatory dysfunction were selected. White side test was carried out to exclude the possibility of sub-clinical genital infection in these animals. The repeat breeder cows which were found to be in estrus and presented for artificial insemination were divided randomly into two equal groups (n=25). Animals of treatment group received 20µg of single intramuscular dose of Gonadotropin releasing hormone (Buserelin Acetate) at the time of artificial insemination. Animals of control group were inseminated at estrus without any treatment. The overall conception rate was significantly higher in treatment group (60%) than control group (4%). Hence the study concluded that using GnRH for non-infectious cases of infertility under field conditions gives encouraging results.

**Key words:** Conception rate, GnRH, Infertility, repeat breeder cow, Reproduction

### INTRODUCTION

A repeat breeder cow is defined as any cow that despite normality in cyclicity and health status of its genital tract fails to conceive after three or more successive artificial inseminations (A.I.). This condition is a source of serious economic impact and frustration to the farmer, as it contributes to increased culling rates and longer calving interval and is a major challenge for the field

veterinarians. The incidence of repeat breeding in cattle ranges from 4.26 per cent (Narladkar *et al.*, 1994) to 42.4 per cent (Bhosrekar, 1973) in different herd groups. There are various etiological factors responsible for repeat breeding in cattle of which delayed ovulation is one of the major cause. The effects of GnRH treatment at A.I. on fertilization rates and embryonic

mortality may be related to timing of ovulation and progesterone secretion by corpus luteum. McDougall *et al.* (1995) reported that an LH surge could be induced by treatment with GnRH. Several studies have reported that GnRH administration has positive effect on follicle recruitment, ovulation and development of large luteal cells of the corpus luteum. Therefore, the use of GnRH as a 'holding' injection on the day of insemination to improve the chances of successful pregnancy in repeat breeder cows, particularly with ovulation defects, has been a major indication for the treatment of such animals. Hence, the present study was undertaken to evaluate the effect of GnRH administration on conception rate in repeat breeder cattle under field conditions.

### MATERIALS AND METHODS

The present study was carried out by utilizing the repeat breeder animals of Veterinary College, OPD and nearby Government Veterinary dispensaries of Bidar Taluka of Karnataka state. Fifty repeat breeder cows presented to Artificial insemination centres during 2015-16 were included in the study. Heat detection was done by gynaeco-clinical examination. White side test was performed to exclude the possibility of subclinical genital tract infection. The cows with regular oestrus and ovulatory dysfunction were selected. The animals were randomly divided into two

groups consisting of twenty-five animals each. Animals of Treatment group were given 20µg of single intramuscular dose of Gonadotropin releasing hormone (Buserelin Acetate) at the time of A.I. The animals of control group were inseminated in estrus without any treatment. Follow up of all the animals was performed up to three inseminations. Pregnancy diagnosis was performed by per rectal examination after 60 days of A.I.

### RESULTS AND DISCUSSION

Although the use of GnRH in treatment of repeat breeders had been an old phenomenon, its use and efficacy in field conditions is apt and economical which prompted the author to undertake the present study. The results of the study are outlined as under. In the treatment group, fifteen out of twenty-five cows were found to be pregnant with an overall conception rate of 60% upto the third insemination, twelve animals out of these conceived upto first insemination (48%), while two in second insemination (8%) and one in third insemination (4%) (Table 1). In the control group only one cow conceived in the second insemination with an overall conception rate of 4%. Our results are similar to the findings of Nakao *et al.* (1983) and Rangnekar *et al.* (2005). Our results are better than those obtained by Peters (2005) and Amridis *et al.* (2009) but lower than the

**TABLE 1:** Therapeutic efficacy of Gonadotropin releasing hormone in treatment of repeat breeder cattle

Group	No. of treated Animals	Insemination Number			Pregnancy %			Overall Conception %
		Cycle I	Cycle II	Cycle III	Cycle I	Cycle II	Cycle III	
GnRH	25	25	13	5	48.00 (12)	8.00 (2)	4.00 (1)	60.00 (15)
Total of untreated animals (control)	25	25	25	24	0.00 (-)	4.00 (1)	0.00 (-)	4.00 (1)

Figures in parenthesis indicate the number of observations

findings of Selvaraj and Kumar (2001) and Kharche and Srivastava (2007). The variation in conception rates may be due to different doses of GnRH, type of GnRH analogue used and some other unidentified factors. Thus, on the basis of the present study it can be concluded that GnRH administration at the time of A.I. resulted in significant improvement in conception rate in repeat breeding cattle.

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