

Original Research Article

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## Effect of GnRH on 5<sup>th</sup> Day of Post Artificial Insemination for Fertility Augmentation in Repeat Breeder Dairy Cows

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### ABSTRACT

#### Keywords

Conception rate, Dairy cow, Fertility, GnRH, Non-infectious repeat breeder

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The objective of study to compare the conception rate in repeat breeder dairy cows after using injection of GnRH (Ovulanta)@ 20 µg intramuscularly on 5<sup>th</sup> day of artificial insemination (AI). Non-infectious cows were randomly divided into two groups Group I (no treatment) and Group II (GnRH on 5<sup>th</sup> day of post AI). At the time of AI, mean serum glucose concentration recorded 58 and 61 mg/dl in Group I and II. All the cows were screened for pregnancy diagnosis on day 45. The pregnancy percentage observed in Group I and Group II were 10 and 20 % respectively. From the study we concluded that the GnRH on 5<sup>th</sup> day of post AI was not enhancing the reproductive performance up to the mark in field condition.

### Introduction

To treat reproductive disorder and to improve fertility in bovines a GnRH or its agonist has been used commonly in field condition. In dairy cows reproductive efficiency is not optimal, so for improving it with use of artificial insemination (AI) and conception rate some strategies must be focused. GnRH injection leads to LH secretion which causes leutinization and then progesterone secretion. So to prevent embryonic death due to luteal insufficiency GnRH treatment is beneficial (Sheldon and Dobson 1993). Injection of

GnRH during mid-luteal phase after insemination induces sufficient release of LH and FSH to increase the life span of corpus luteum by counteracting luteolysis through disruption of normal follicular growth and secretion of estrogen, thereby permitting maternal recognition of pregnancy to occur (Willard *et al.*, 2003).

### Materials and Methods

The dairy cows were selected for the experiment maintained on individual dairy farms. Selection was strictly based on at least

repeated by three AI attempt. At the time of AI white side test performed to identify whether cow was infectious or non-infectious repeat breeder. In the present experiment only non-infectious repeat breeder cow were selected. At the time of AI, blood was collected to estimate serum glucose concentration.

Artificial insemination was performed as per AM-PM rule with only one in attempt. In Group I (n=10) no treatment was given to cow after AI and Group II (n=10) cows receive GnRH @ (20 µg intramuscularly) on 5<sup>th</sup> day of post AI.

After 45 day of post AI, Ultrasonographical examination performed to screen out conception rate.

**Results and Discussion**

The dairy cows were selected for the experiment was strictly in non-infectious type. All cows were maintained on individual farmers place. Selection was strictly based on at least repeated by three AI attempt. Before start of experiment all cows were screened out for health check and to check any reproductive abnormality by ultrasonographical examination. All cows were supplemented with dewormed and supplemented with daily mineral mixture. At the time of AI mean blood serum glucose 58 and 61 mg/dl in group I and II recorded respectively. The findings are similar to Guzel and Tanriverdi (2014) where he reported blood glucose level in repeat breeder cow was 65.00±6.27 mg/dL. In group I, no treatment was given to cows who receive

AI before 5 days and in Group II injection GnRH (Inj. Ovulata 20µg) administered intramuscularly. After 45 days of AI, pregnancy diagnosis was carried out. In the present experiment, in Group I (1 out of 10) 10% and in Group II (2 out of 10) 20% pregnancy recorded.

These findings were comparable with Howard *et al.*, (2006), who compare the conception rates in dairy cattle administered gonadotropin releasing hormone 5 days after AI and recorded 26.7% conception rate and concluded no effect of treatment as conception rates did not differ between GnRH and saline groups (26.7% GnRH versus 24.3% saline). In another study, Chandra Prasad and Ananda Rao (2014) conducted trial on murrhaa buffaloes with administration of burselin acetate (GnRH) on different days after insemination and reported that 37.5% animals conceived with use of receptal 5ml (0.021mg) of on day 5 of oestrus cycle. While Ahmed *et al.*, (2010) conducted study on repeat breeding buffaloes as clinical perspective with use of GnRH on day 5<sup>th</sup> of post AI and recorded 61.54% conception rate. So these finding not in accordance with present findings. Similar opinion of Arnett *et al.*, (2002) reported that administration of GnRH on day 5 or 6 after estrous was found to alter follicular dynamics induce luteal tissue development and increase progesterone concentration up to day 13 resulting in increased pregnancy rate and with finding of Pandey *et al.*, 2016 who recorded 50% of conception rate when injected GnRH at 10 µg intramuscularly on 5<sup>th</sup> day of AI. So these findings are not accordance with the present study.

**Table.1** Effect of GnRH injection at day 5 after AI and conception on repeat breeder cows

Sr. No.	Groups	Conception rate
1	Group I (n=10, No treatment)	(1/10) 10%
2	Group II (n=10, GnRH Treated)	(2/10) 20%

The injection of GnRH on 5<sup>th</sup> day of post AI can improve the reproductive performance in field condition when compared to up to no treated animal but not up to the mark.

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