

SYNCHRONIZATION OF OVULATION IN REPEAT BREEDING CROSSBRED COWS

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ABSTRACT

Ovulation was synchronized (Ovsynch) in 10 crossbred cows using Gonadotropin Releasing Hormone (GnRH) and Prostaglandin $F_2\alpha$ ($PGF_2\alpha$) and the animals were inseminated at a fixed time. Another 10 cows served as control and were inseminated at detected estrus. The percentage of induced estrus was 100 per cent. The first service conception rate obtained for ovsynch group was higher than the control group (50 Vs 20 per cent). The overall conception rate was also higher for ovsynch group when compared with the control group (60 Vs 20 per cent). Synchronization of ovulation had improved the conception rate in repeat breeding crossbred cows.

KEY WORDS : GnRH, Mid heat, Artificial Insemination, Conception rate, Repeat breeding cows

INTRODUCTION

A protocol to synchronize follicular development (Using GnRH) and luteal regression (Using $PGF_2\alpha$) was developed by Thatcher et al. (1989). In a subsequently developed synchronized ovulation protocol, an injection of GnRH was given 7 days before giving $PGF_2\alpha$ followed by a second GnRH injection 48 hours later to $PGF_2\alpha$ administration and fixed time insemination at 16 hours after the second GnRH injection resulting in maximum conception rate. The aim of this study was to assess to the efficacy of these protocols in repeat breeding crossbred cows.

MATERIALS AND METHODS

Crossbred cows brought to the Gynaecology unit of Namakkal Veterinary college hospital were included for this study. Twenty crossbred cows on the day of estrus were selected and divided equally into two groups namely Group I (Control) and Group II (Ovsynch). Animals of Group I were inseminated during midheat and the animals of Group II were injected with 10 mg of GnRH analogue (Buserelin acetate, Receptal®, Intervet, UK) and 25 mg of $PGF_2\alpha$ (Dinoprost tromethamin, Lutalyse®, Novartis India Limited, India) Intramuscularly on day 5 and 12 of the estrus cycle, respectively. Then they received a second GnRH injection at 48 hours after $PGF_2\alpha$ treatment and artificial insemination (AI) was carried out at 16 to 18 hours after the second GnRH injection. All the inseminated cows were carefully monitored and those returned to estrus were rebred in the subsequent cycle. All the animals were examined per rectum on day 60 post – AI to confirm pregnancy.

RESULTS AND DISCUSSION**Onset of induced estrus**

The interval to oestrus after $PGF_2\alpha$ injection was 52.1 ± 2.39 (50 to 60) hours in ovsynch group. The onset of estrus in ovsynch group is in accordance with the findings of Stevenson et al. (1999) who reported 55 ± 4.40 hours interval. The onset of oestrus is almost synchronized in ovsynch group and this could be due to the presence of matured follicle in most of the animals at the time of $PGF_2\alpha$ administration resulting in the synchronous onset of estrus. This substantiates the fact that administration of GnRH will improve the precision of estrus as reported by Twagiramungu et al. (1995).

Percentage of induced estrous

All the cows in Group II exhibited heat signs and the induced estrus was 100 per cent.

Conception rate

The first service conception rate for control group was 20 per cent and none conceived in the second service leading to an overall conception rate of 20 per cent. The first service conception rate for ovsynch group was 50 per cent. One out of five cows conceived in the second service (20 per cent) leading to an

overall conception rate of 60 per cent. This 50 per cent first service conception rate is slightly higher than the findings of Pursley et al. (1997), Ambrose et al. (2000) and El-zarkouny et al. (2004) who obtained 40 , 40 and 45 per cent conception rates for Ovsynch protocol in dairy cows.

The higher conception rate obtained for ovsynch group could be due to synchronized ovulation of selected dominant follicle in response to first GnRH injection. These synchronized ovulation was possible because preovulatory follicles were at a similar stage of growth and were responsive to LH at the time of the second GnRH injection.

In this study, the overall pregnancy rate is 10 per cent increased when compared with first service conception rate. This concurred with the findings of Cordoba and Fricke (2001) who obtained first service and over all pregnancy rates of 41.2 and 54.9 per cent, respectively. Synchronization of ovulation had significantly improved the conception rate in repeat breeding crossbred cows.

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