

# Estrus Synchronization in Exotic Herd at Livestock Experiment Station, Bhunikey (Pattoki), District Kasur–Pakistan

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## ABSTRACT

Estrus synchronization was carried out in an exotic dairy herd at Livestock Experiment Station, Bhunikey (Pakistan) during the month of July with an idea to reduce the shortage of milk from April onward. A total of 31 exotic cows were used in this study including 17 Holstein-Friesian and 14 Jersey cows. Estrus synchronization in these cows was done by the exogenous administration of Prostaglandin- $F_{2\alpha}$  (Estrumate-ICI, 2 mL, intramuscularly) after rectal examination to exclude the chance of pregnancy. Out of 31 exotic cows used in this study, 10 Friesian (58.8%) and eight Jersey (57.1%) cows showed the signs of estrus after the first injection of Prostaglandin- $F_{2\alpha}$  and were bred through artificial insemination. The remaining 13 exotic (7 Friesian & 6 Jersey) cows were administered with the second injection of Prostaglandin- $F_{2\alpha}$  at 11 days interval after the first injection and were bred through artificial insemination 72-96 h after the second injection. All the cows were checked for pregnancy by rectal examination at two months interval after artificial insemination. As a result of this, estrus synchronization programme, only five (29.4%) Friesian and one (7.1%) Jersey cows became pregnant. Very low pregnancy rate in this programme in exotic cows might be due to the severe hot and humid season during the course of the study. It can be concluded that estrus synchronization in exotic cows was not encouraging during hot and humid season.

## INTRODUCTION

Estrus synchronization means to bring a group of animals in a same stage of estrus cycle so that they may come into estrus and ovulate at the same time. It is good managerial tool for programmed breeding, hence leading to programmed feeding and easier management of the cows being at the same stage of gestation. Finally, the calving will also be easy and convenient due to expected date of calving spread over a shortest possible period.

Estrus synchronization can be achieved in two ways. One that has been rather widely used is lysis of corpus luteum by administration of Prostaglandin ( $PGF_{2\alpha}$ ) or its synthetic analogue on 5-17 days of the estrus cycle. The cows will return to estrus within 3-5 days (Salisbury *et al.*, 1978). Second method is administration of progesterone or chemicals (progestational compounds) that stimulate the action of progesterone. They inhibit the estrus and ovulation in cows when used for 16 days in feed, drinking water, subcutaneous implants, topical application and vaginal pessaries. Estrus occurs within 2-6 days after their removal/withdrawal (Beardon & Fuquay, 1980).

In this study, the estrus synchronization was carried out to bring a large number of cows in milk at given time at Livestock Experiment Station (LES) Bhunikey (Pakistan), where shortage of milk starts from April onward. This study was conducted with an idea that this shortage of milk can be overcome by using estrus synchronization program in exotic herd during the month of July.

## MATERIALS AND METHODS

A total number of 31 exotic cows were used in this study, including 17 Holstein-Friesian and 14 Jersey, during the month of July. Estrus synchronization in these cows was done by the exogenous administration of Prostaglandin- $F_{2\alpha}$ . It is synthetic analogue of prostaglandin structurally related to  $PGF_{2\alpha}$  containing Cloprostenol sodium (BP) Vet. 263  $\mu\text{g}$  equivalent to cloprostenol 250  $\mu\text{g}/\text{mL}$ , manufactured by ICI Pakistan Limited. It is also called racemic Cloprostenol. Its dose in cow is 500  $\mu\text{g}$ , i.e., 2 mL intramuscularly. Rectal examination was done prior to administration of Estrumate to exclude the chances of pregnancy. The cows coming into estrus after 1<sup>st</sup> injection of Estrumate were bred through artificial insemination. The cows, not showing the signs of estrus after 1<sup>st</sup> injection of Estrumate, were administered with the 2<sup>nd</sup> injection of Estrumate on 11 days interval after the 1<sup>st</sup> injection and were bred through artificial insemination blindly 72-96 h after the 2<sup>nd</sup> injection. All the cows were checked for pregnancy by rectal examination at two months interval after artificial insemination.

## RESULTS AND DISCUSSION

The results of the estrus synchronization in exotic cows at LES, Bhunikey are given in Table I. Out of 31 exotic (17 Holstein-Friesian & 14 Jersey) cows used in this study, 10 Friesian (58.8%) and eight Jersey (57.1%) cows showed the signs of estrus after the 1<sup>st</sup> injection of

**Table I. Estrus synchronization in exotic cows**

Name of exotic breed	Holstein-Friesian	Jersey
Number of cows used	17	14
Cows in estrus after 1 <sup>st</sup> injection of Estrumate (%)	58.8	57.1
Cows given 2 <sup>nd</sup> injection of Estrumate (%)	41.2	42.9
Cows found pregnant (%)	29.4	7.1

Estrumate and were bred through artificial insemination. The remaining 13 exotic (7 Friesian & 6 Jersey) cows were administered with the 2<sup>nd</sup> injection of Estrumate at 11 days interval after the 1<sup>st</sup> injection and were bred through artificial insemination blindly 72-96 h after the second injection. As a result, only 5 (29.4%) Friesian and 1 (7.1%) Jersey cows became pregnant.

Santos *et al.* (2000) administered 0.5 mg of cloprostenol intramuscularly to each of 80 crossbred (Nelore x Charolais) beef cows with palpable corpus luteum. Amongst these cows, 87.5% exhibited estrus within 48-72 h, 75% did not return to estrus at 22 days post insemination and 67.5% became pregnant. Similarly, Lopez (2000) injected 500 µg of cloprostenol intramuscularly to each of 636 Friesian heifers after palpation of corpus luteum. Second dose of the injection was given 11 days apart. Out of 636 heifers, pregnancy was confirmed in 44.8%. Apart from using intravulvo-submucosal route for

Lutalyse injection in cows. Triveni *et al.* (2000) also administered 25 mg of Lutalyse intramuscularly in 12 crossbred cows at 10-12 days of the estrus cycle resulting into 83.3% of the cows into estrus.

In this study, the cows coming into estrus and subsequently the pregnancy rate were very low as compared to the above mentioned studies of different workers. It might be due to the severe hot and humid season during the course of the study. It can be concluded that estrus synchronization in exotic cows at LES, Bhunikey was not encouraging during hot and humid season.

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