ESTRUS INDUCTION AND FERTILITY FOLLOWING SINGLE DOSE OF PROSTAGLANDIN F_2 ALPHA IN CROSSBRED COWS AND HEIFERS

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ABSTRACT

The present study was conducted on 12 crossbred cows and heifers. These selected animals were divided into two Groups, comprising of 8 cows in Group-I and 4 heifers in Group-II and treated with single dose of Lutalyse ($PGF_{2\alpha}$; Dinoprost thromethamine 25 mg) intramuscularly.

Out of 8 cows, 5 (62.5%) cows responded to the treatment in Group- I and out of 4 heifers, 3 (75.00%) heifers responded to the treatment in Group-II. The average time required for onset of estrus was significantly lower in cows (62.2+1.56 hrs) than heifer (64.66+1.76 hrs) after $PGF_{2\alpha}$ a injection. The average duration of estrus was 19.2+0.86 hrs in cows and 15.6+0.88 hrs in heifers. Fertility response is an important consideration in the efficiency of treatment. Fertility response was 50 per cent in Group-I and 100 per cent in Group-II. The result revealed that synchronization of estrus and fertility response after Lutalyse treatment was higher in crossbred heifers than crossbred cows.

Key words: Cattle, Estrus synchronization, Fertility response

During the past decade, considerable research has been conducted on the effects of various hormonal drugs in estrus synchronization. In order to effect easy and economic treatment, single intramuscular injection, using approximate dose of prostaglandin ($PGF_{2\alpha}$) or its potent analogues, was employed by several workers.

The present experiment was therefore proposed to undertake studies on estrus induction and fertility response following the single dose of prostaglandin $PGF_{2\alpha}$ in crossbred cows and heifers.

The 8 crossbred cows and 4 heifers showing regular cyclic activities and having active corpus luteum were selected for this study. The synchronization of oestrus was done by administrating injection Lutalyse (Dinoprost thromethamine 25 mg) intramuscularly.

Estrus detection was done by parading a bull daily in morning and evening along with the visual detection and also by using the electronic heat detector for accurate estrus detection. Animal exhibiting or detected in estrus were inseminated with progeny tested frozen semen. The pregnancy diagnosis was carried out by doing ultrasonography after 18 days of AI.

Out of 8 cows from Group-I, 5 (62.5 per cent) cows responded to the Lutalyse ($PGF_{2\alpha}$) treatment. In Group-II, out of 4 heifers 3 (75.00 per cent) responded to the Lutalyse ($PGF_{2\alpha}$) treatment. The oestrus response after $PGF_{2\alpha}$ (Lutalyse) injection was better in heifers than cows. The percent of animal responded to the treatment was in agreement with Pawshe *et al.* (1990) and Chauhan *et al.* (1994).

The average time required for onset of estrus after $PGF_{2\alpha}$ injection in crossbred cows (Group-I) was significantly lower (62.2+1.56) as compared to (Group-II) heifers (64.66+1.76). The present results are in conformity with earlier report of Kumar *et al.* (1996).

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In the present studies, the average duration recorded in the cows from Group-I and Group-II was 19.2+0.86 hrs and 15.6 +0.88 hrs. The duration of synchronization estrus in crossbred cows was higher than crossbred heifers. However, there was no significant difference in cows and heifer for duration of estrus.

The length of estrus recorded in the present studies was similar with earlier studies of Orihuela *et al*. (1983) recorded 15.4+4.9 hours in cows synchronized with PGF_2 alpha injection. Similarly, Pawshe (1990) reported that the length of synchronized estrus was 18.25+0.4 hours.

The fertility is an important consideration in the efficiency of treatment. Out of 5 cows, 4 cows (80.00 per cent) were confirmed pregnant at the synchronized estrus in a first insemination which were detected by ultarsonographic examination after 18 days of A.I. and remaining four cows which showing estrus signs after 21 days were inseminated on subsequent estrus which were detected non-pregnant by ultrasonography examination after 18 days of A.I. In Group-II, Out of 3 heifers, 2 heifers (66.66 per cent) conceived in synchronized estrus and remaining 2 heifers which showing estrus after 21 days, were inseminated on subsequent estrus which were detected confirm pregnant by ultrasonographic examination of 18 days after A.I.

However, after synchronization of estrus fertility response was higher in crossbred heifers than crossbred cows. The present findings are similar with earlier reports of Chauhan *et al*. (1985) and Dhande (1992).

Thus it was concluded that single dose of Lutalyse ($PGF_{2\alpha}$) is effective luteolytic agent in crossbred cows and heifers for synchronization of estrus and better fertility response.

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