

EFFECT OF CIDR AND PGF_{2α} TO AUGMENT FERTILITY IN REPEAT BREEDING HOLSTEIN FRIESIAN CROSSBRED COWS

A.VIJAYARAJAN¹ AND S.MEENAKSHISUNDARAM²

Veterinary University Training and Research Centre, Dindigul- 624 004
Tamil Nadu Veterinary and Animal Sciences University, Chennai-51

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ABSTRACT

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The aim of this study was to evaluate the effect of CIDR and PGF_{2α} to improve the conception rate in repeat breeding Holstein Friesian crossbred cows under field condition. The study was conducted on 56 Holstein Friesian crossbred cows. The selected animals were divided into group I (n=28) and group II (n=28). Group I animals were served as control and were inseminated during natural estrus and animals in group II were treated with an intravaginal P4 device (CIDR) for 9 days and PGF_{2α} was given intramuscularly 24 hrs prior to CIDR removal. Fixed time Artificial insemination was carried out at 48 and 72 hrs after CIDR removal. The overall conception rates obtained was 25 per cent in group I animals and 60.71 per cent in group II animals treated with CIDR and PGF_{2α}.

KEY WORDS: CIDR, PGF_{2α}, Crossbred Cows, Repeat breeder, Conception Rate.

Early embryonic death is the main cause of pregnancy failure in cows. The incidence of repeat breeding, a major factor involved in reduced fertility, varies, ranging from 18 to 24% (Stevenson *et al.*, 1990). About 40% of the repeat breeding cows experience early embryonic losses (Thatcher *et al.*, 1994). Several factors have been suggested to be responsible for reduced conception rate including management practices, genetics, diseases, physiological disturbances, anatomical defects, feeding practices, estrus detection errors, embryonic mortality (Heuwieser *et al.*, 1997) and heat stress (Badinga *et al.*, 1985). The objective of the present study was to evaluate the effect of CIDR and Prostaglandin PGF_{2α} to improve the conception rate in repeat breeding Jersey crossbred cows under field conditions.

Fifty six apparently healthy pluriparous Holstein Friesian crossbred cows which was failed to conceive in three or more consecutive inseminations with good

quality semen were selected for this study. The experimental animals were 3 – 5 years old, weighing around 300-350 kg and were found free from palpable abnormalities of reproductive tract on gynaecological examinations conducted at 10 days interval. The selected cows were randomly divided under two experimental regimens as experiment Group I and Group II. Twenty eight and twenty eight animals were utilized for experiment I and II, respectively. Animals in Group I (n= 28) served as control and were inseminated during natural estrus. Cows that failed to conceive in the first service were rebred in the subsequent estrus. Animals in Group II (n = 28) were treated with an intravaginal P4 device (CIDR) for 9 days and PGF_{2α} was given intramuscularly 24 hrs prior to CIDR removal. Fixed time artificial insemination was carried out at 48 and 72 hrs after CIDR removal. Cows that failed to conceive at the induced estrus were rebred in the subsequent estrus.

In the present study, conception rate for control group in the first service was 14.29 per cent (4/ 28). Three out of 28 cows conceived in the second service (10.71 per cent) leading to an overall conception rate of 7.0 per cent. In the treatment group, conception rate in first service was 50.0 per cent (14 / 28). Three out of 28

¹Associate Professor and Head, Veterinary University Training and Research Centre, Dindigul

²Professor, Livestock Production and Management, Madras Veterinary College, Chennai

cows conceived in the second service (10.71 per cent) leading to an overall conception rate of 60.71 per cent. Animals received CIDR and PGF_{2α} in the treatment group increases the overall conception rate to 60.71 % (17/28) when compared to the conception rate of 25.0 % (7/28) in control group. Mohammed *et al.* (2007) also observed the similar findings.

Dobbins *et al.* (2006) confirmed that there is a significant increase in pregnancy with timed artificial insemination at 66 h compared with 48 or 72 h after prostaglandin F_{2α} (PGF_{2α}) injection. However authors obtained significant increase in pregnancy rate of 60.71 per cent with timed artificial insemination 48h and 72h after prostaglandin F_{2α} (PGF_{2α}) injection. Furthermore, Larson *et al.* (2006) reported that the peak estrus response following after synchronization by CIDR protocols occurred 48 to 60 h after removal of CIDR, and injection of prostaglandin which was correlated to the present study. The percentage of cows in estrus for 58-60 hours was higher (77.50%) than 32-34 h after removal of CIDR. This could be due to the peak activity of estradiol which prepare for subsequent ovulation. Similar results were also reported by Zelinski *et al.* (1980) and Busch *et al.* (2008) who suggested that cows that exhibited estrus after removal of CIDR may have attained concentrations of estradiol necessary to effectively prepare follicular cells for luteinisation. Ando *et al.* (2005) reported that every cow showed estrus response 2 to 4 days after CIDR removal. Furthermore, Rasby *et al.* (1998) reported that 80.0% of beef heifers treated with CIDR for seven days exhibited estrus 1 to 3 days after CIDR removal. In addition, Flores *et al.* (2006) found that 56.0% of cows synchronized using CIDR-PGF_{2α} exhibited estrus during the first 3 days of the breeding season.

It is concluded that overall conception rate obtained was significantly higher in repeat breeding Holstein Friesian crossbred cows treated with CIDR and PGF_{2α} under field condition as compared to the control group.

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