Short communication

SYNCHRONIZATION OF ESTRUS WITH DOUBLE DOSE OF $PGF_2\alpha$ IN COWS

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Synchronization of estrus is one of the alternatives for the control and manipulation of reproduction. Synchronization of estrus with prostaglandin ($PGF_2\alpha$) and its potent analogue has been reported to be much beneficial in cattle breeding program. $PGF_2\alpha$ had been shown to improve conception rate in cross bred cows (Senthil Kumar *et al.*, 2007, Pattnaik *et al.*, 2010). Utage *et al.* (2011) reported that Crestar ear plant + $PGF_2\alpha$ induced estrus in buffalows by 83.33 per cent. The mode of action of $PGF_2\alpha$ in animal with respect to control and manipulation of reproductive cycle, involves regression of corpus luteum.

MATERIALS AND METHODS

A total 10 cows free from major systemic and reproductive disorder were selected from Gorakshan Sanstha, Akola. Gynaeco-clinical examination of each experimental cow was carried out at the time of selection. The selected cows were treated with Injection of Lutalyse 25 mg intramuscularly on day zero and repeated on day eleven. The treated animals were closely observed for estrus in morning and evening .The cows exhibited estrus after 2nd dose of $PGF_2\alpha$ were inseminated 12 hrs after the onset of estrus with frozen semen and pregnancy diagnosis was carried out after 3 months from the date of Artificial Insemination. Data was analyzed by using standard statistical procedures (Snedecor and Cochran, 1994)

RESULTS AND DISCUSSION

Response to $PGF_2\alpha$ treatment

Total 5 (50 percent) and 9(90 percent) cows responded to treatment after 1st and 2nd dose of PGF_2a, respectively. The result obtained for estrus response after 1st dose of PGF_2a was in close agreement with the finding of Mane *et at* (1992). However the response after 1st PGF_2a dose was not in concurrence with Jadhao(1999) and Patil(2000) who recorded 80 and 91.67 per cent estrus response, respectively. The estrus response after 2nd dose of PGF_2a was in close agreement with Kumar *et al.* (1996). The difference observed for the estrus response after 1st and 2nd dose of PGF_2a may be due to functional status of corpus luteum on the ovary at the time of PGF_2a injection.

Time required for onset of Oestrus (hrs)

The mean time required for onset of estrus observed was 62.40 ±4.49 and 56.67 ± 3.62 hrs. after 1st and 2nd dose $PGF_2\alpha$ respectively. The result obtained for time required for onset of estrus was in close agreement with Jadhao (1999) and Patil (2000) whereas Mishra *et al.* (2011) reported higher time (89.62 ± 1.59 hrs) induction interval in suboestrous cows. However result obtained in present study was not in agreement with Tegegne *et al*.(1989) who recorded the time required for onset of estrus was 31.8 Hrs in Brahman cows. The difference in time required for onset of estrus may be due to breed difference.

Duration of estrus (hrs)

The mean duration of estrus observed was 16.80 ±0.80 and 17.33 ± 0.66 hrs after 1st and 2nd dose of $PGF_2\alpha$ with aggregate mean was 17.14 ± 0.50 hrs. The aggregate mean for duration of estrus observed in present study was similar with the observation recorded by Pawshe *et al.* (1991) who recorded 18.25 ± 0.04 hrs estrus length in crossbred cows; Elving *et al.* (1975) observed 16.9 ± 1.1 hrs estrus duration, , Tandle *et al.* (1997) observed duration of estrus period was 16.71 ± 1.38 hrs. However the duration of estrus is not in agreement with Krishnakumar and Chandrahasan (2009) who recorded duration of induced estrus of 30.60 ± 1.30 hrs.

Conception Rate

The conception rate in the present study was observed 44.44 per cent which was in close agreement with Gupta *et al.* (1978) who reported 37 per cent conception rate after injecting 500 mg of $PGF_2\alpha$ in 9 lactating Haryana female and Chatterjee *et al.* (1989) reported 50 per cent conception rate after 25 mg of $PGF_2\alpha$ (Dinofertin) administration intramuscularly to 10 sub estrus cows. However some workers have reported low conception rate. Mane *et al.* (1992) reported overall conception rate 33 per cent after 25 mg injection of Dinofertin in 12 subestrus Red Kandhari cows. Alan *et al.* (1993) reported 30 per cent conception rate in Heifers by using Luprositol at early stage of diestrus. The variation observed in conception rate after $PGF_2\alpha$ administration at 11 day apart may be due to intensity of estrus, nature of service (A.I. / N.S.), method and interval for heat detection, different managemental practices, season, doses, route of administration and nature of $PGF_2\alpha$ used.

In conclusion administration of double dose of $PGF_2\alpha$ 11 days apart induces better estrus response and conception rate.

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