

STUDY OF ESTRUS SYNCHRONIZATION IN CROSSBRED CATTLE AND BUFFALOES IN JAIPUR AND BHARATPUR DISTRICTS OF RAJASTHAN-PT-II

SHYAM BIHARI¹, L N VERMA² and P P ROHILLA³

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ABSTRACT

Present study evaluated pregnancy rate and estrus responses to treatment using the estrus synchronization protocol in crossbred cattle and buffaloes. Since, the study was carried out at field level, animals selected at random belonged to both the species, irrespective of parity, milk yield and body weight. The estrous synchronization protocol was evaluated using treatment with Receptal -2.5ml I/M and fixed time insemination (FTAI) was done 16-24 h post Receptal -2.5ml I/M injection. According to the protocol, the percentage of pregnant animals was observed to be 50.81%. The percentage of pregnant animals to first service resulting on application of protocol for crossbred and buffaloes were recorded 48.0% (12/25) and 52.77% (19/36), respectively.

Key words: Synchronization, Buffalo, Crossbred, Artificial Insemination, Estrus

Estrus synchronization is a useful technique in cattle and buffalo practice as it allows the use of fixed time AI or improved heat detection efficiency and also eliminates the practical problems of heat detection. The gonadotropin releasing hormone (GnRH) and prostaglandin (PGF₂á) method of estrous synchronization has proven to be very successful in synchronizing estrus in cattle and buffaloes^{1,7,8}. Although many studies have been carried out with PGF₂á alone^{3,12} or in combination with GnRH, the use of artificial

insemination technique has been successfully used in breeding farms for genetic improvement of animals. In buffalo there is difficulty in identification of estrus manifestations and for application of Artificial Insemination at the accurate time. The use of protocol that do not require the identification of estrus, allow for the increased use of A.I. at fixed time and are more efficient in cattle and buffalo for improving productivity. Administration of GnRH after PGF₂á injection increases the rate of synchronized ovulation in bovines has been verified by earlier researchers^{9,10}. It has been observed that when PGF₂á is administered on palpation of functional CL., about 60-70% of treated animals were detected in estrus within 4 days post PGF₂á injection¹³. An effort has been made in present study to evaluate estrous synchronization protocol in crossbred cattle and buffaloes in two districts of Rajasthan.

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1. Farm Manager, Krishi Vigyan Kendra (GVM), Sardarshahr, Churu-Rajasthan-331401
 2. Subject Matter Specialist (LPM) Krishi Vigyan Kendra, Tankarda, Chomu-Jaipur-303702
 3. Corresponding Author, Principal Scientist (LPM, Zonal Project Directorate, Zone-VI, Jodhpur, CAZRI Campus, Jodhpur.bihari82@rediffmail.com, Inverma84@gmail.com, pprohilla@yahoo.com

MATERIALS AND METHODS

Indian cattle and buffaloes belonging to different breeds namely; Crossbred and Murrah buffalo were considered for treatment and the study was conducted in two districts (Jaipur and Bharatpur) of Rajasthan during the period July 2013 to November 2013. The body weights of the cattle ranged between 250-350 and that of the buffalo ranged between 300-500 kg. Animals suffering from clinical reproductive problems like metritis, endo-metritis and cystic ovary were not included. Total 61 numbers of animals were considered for application of this protocol. For this protocol (Figure-1), 25 crossbred and 36 buffaloes were selected. After selection of animals, the following protocol for oestrus synchronization was applied. All animals were diagnosed for pregnancy via rectal palpation on day 60 post Artificial Insemination by an expert livestock technician.

Protocol for oestrus synchronization is as follow

- First we used dewormer and mineral mixture for 15-20 days before estrus synchronization.
- '0' days – Injected Receptal (GnRH)-2.5ml I/M.
- '7' days – Injected Lutalyse (PGF₂α) -1 ml VSM.
- '9' days – Injected 2nd dose of Receptal -2.5ml I/M.
- 10 days – Artificial Insemination (16-24 hrs).

*VSM: Vulvo-sub mucosal route

RESULTS AND DISCUSSION

It was observed that according to the protocol, 90.44% (55/61) crossbred and buffaloes were in heat after 16-24 hrs in 2nd dose of Receptal injection. It has been observed that cows

in early and late stages of the cycle tend to exhibit heat within 48-72h after Receptal administration. The result for percentage of estrus animals on application of above protocol for crossbred and buffaloes were 92% (23/25) and 88.88% (32/36), respectively (Table 1). The pregnancy rate achieved in relation to the usage of different protocols with fixed time artificial insemination in cows and buffaloes was observed to range between 30-50% by earlier workers^{2,10,11}. Ovulation and estrus activity after calving are delayed when the positive feedback effects of estradiol on release of LH from the pituitary are reduced due to various factors. The percentage of pregnant animals was 50.81. The results for percentage of pregnant animals to first service resulting on application of above protocol for crossbred and buffaloes were 48% (12/25) and 52.77% (19/36), respectively. The major limiting factor for optimum reproductive performance on many farms are unable to detect estrus in a timely and accurate manner. '0' days – Injection Receptal (GnRH) -2.5ml I/M. can be administered to cows and buffaloes, administering '7' days – Injection Lutalyse (PGF₂α) -1 ml IVM and '9' days – Injection 2nd dose of Receptal-2.5ml I/M to these animals under treatment. Estrus synchronization programs improve reproductive efficiency by reducing the length of breeding and calving seasons and increasing calf weaning weights. Artificial insemination technique can also be used more efficiently. Prostaglandin (PGF₂α) causes CL to regress during the responsive phase and a consequent decrease in the levels of progesterone leading to the development of follicles of the next wave⁵. In earlier reports it has been established that PGF₂α is effective in inducing estrus^{4, 6}.

Table 1 :- Ovsynch protocol after synchronization treatment in crossbred and buffaloes

S.N.	Species	No. of Animal selected	No. of Animals exhibited estrus (L.H.) Days	Percentage of estrus observed	Pregnancy confirmed	Conception rate (%)
1	Crossbred	25	25	100%	12	48%
2	Buffaloes	30	30	100%	15	50%
	Total	55	55	100%	27	50.81%

CONCLUSION

Ovsynch protocol based estrous synchronization technique can be a useful tool in the reproductive management of crossbred and buffaloes, especially at village level in unorganized animal rearing system. Using this technique animals can breed

under fixed time insemination; thus save time and money to go for repeatedly in same village to inseminate the single animal. Further silent heater animal can be inseminated in this manner. Overall success rate was observed to be 50.81% in the study.

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