



Oestrous Synchronization in Pleuriparous Dairy Cattle

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In dairy animals, fertility is one of the most complex measures of reproduction, being indisputably influenced by genes and environment. Although these two components act in concert, they synergistically mask the contribution of the other confounding selection strategies for fertility ultimately affecting reproductive performance (Beever, 2006). One of the strategies for improving pregnancy rates in the dairy cattle is by utilizing a synchronization program. Oestrous synchronization and artificial insemination (AI) can be used to maximize the reproductive potential of cows by incorporating superior genetic into their operations (Leitman *et al*, 2009). The oestrus detection rate on many farms is less than 50 per cent, being a very limiting factor to reproductive efficiency.

Many factors, such as housing, management and milk production level will affect the demonstration of oestrus. Cows not noticed in oestrus, have normal oestrous cycles and will respond well to ovulation synchronization programs (Wiltbank *et al*, 2002). In the present study, improving fertility by administering hormone in pleuriparous dairy cattle was demonstrated in Dharmapuri district.

MATERIALS AND METHODS

A total of 10 infertile cattle were selected for the purpose of disseminating oestrous synchronization technology to the livestock farming community at different parts of Dharmapuri district. Cattle belonged to different breeds namely Jersey and Holstein Friesian were considered for treatment. The body weight and age of the cattle ranged from 300 -350 kg and 5-7 years. A total of 10 number

of infertile cattle (Jersey-9 and Holstein Friesian-1) were considered for application of synchronization protocol. Selected animals were given a dose of deworming, supplemented with mineral mixture @ 35 g daily/animal and maintained with positive energy balance. The selected animals were re-examined after 20d and the synchronization protocol was adopted. Among 10 infertile cattle, 6 animals were anoestrus and 4 as repeat breeder. All the physiological parameters were in normal condition. Irrespective of breed, age, body weight and condition of infertility animals were selected for study. The animals were subjected to rectal examination. All the animals were received progesterone impregnated intra vaginal TRIU-B (comprises of 3 medicated rings (green colour) containing Progesterone IP 186 mg each and one additional ring (pink colour) with Progesterone IP 400 mg, Virbac India private limited) and GnRH @ 10 µg on day 0, PGF2alfa @25 mg on day 7, and GnRH @ 10 µg on day 9 intramuscularly. Cattle were observed visually for oestrous after treatment. The cattle were artificially inseminated after detection of oestrous signs. Pregnancy was determined by rectal examination 90d after insemination.

RESULTS AND DISCUSSION

It was observed that per cent exhibition of oestrous signs at various time interval was 30.0 at 12 hr, 11.76 at 18 hr, 20.0 at 24 hr and 50.0 at 48 hr after treatment. Percent conception rate was 90 (9/10). Among six anoestrus animals treated, five (83.33%) became pregnant and one (16.66%) could not conceive whereas among four repeat

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OESTROUS SYNCHRONIZATION IN PLEURIPAROUS DAIRY CATTLE IN DHARMAPURI DISTRICT



TRIU-B



Intravaginal insertion of TRIU-B



Hormonal Injection



Removal of TRIU-B



Artificial insemination after detection of heat



Examination of pregnancy on 90 days after insemination

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breeder animals, all (100 %) became pregnant. This technique improved conception rate by 30 to 35 per cent and reduced calving interval by 5-6 months and resulted in a conception rate of 90 per cent. Therefore, farmers were saved from maintaining unproductive animals for a long time and they earned more income due to more number of days of milk production. The major limiting factor for optimum reproductive performance on many farms is failure to detect estrus in a timely and accurate manner. A number of controlled or breeding programme have been developed for synchronizing groups of lactation cattle. Cows bred within 72-84 hr after PGF2 α injection, with improved techniques of different protocol with combination of gonadotropin releasing hormone and prostaglandin (Jordan *et al*, 2002) however in the present study GnRH was injected 7 days prior to PGF2 α treatment causes development of follicles of ovulation of the dominant follicle depending on the stage of the estrous cycle. The second GnRH was administered 48 hrs post PGF2 α (Paul and Prakash, 2005). In the present TRIU-B + GnRH + PGF2 α programme, GnRH was injected in all the cattle and PGF2 α was injected at an interval of 7d post GnRH. Animals observed in heat 3d post PGF2 α injection were inseminated. The protocol which described in this article was found to be cost effective and laborious. Oestrous synchronization is a useful technique in cattle practice as it allows the use of improved heat detection efficiency. The oestrous synchronization with TRIU-B along with artificial insemination eliminated the heat detection difficulty and improved fertility rate with reduction of inter calving period in dairy cattle and also improved the fertility. Though the described in this demonstration seems to be laborious but it is cost effective and also helps to manage the reproduction capacity of animal.

CONCLUSION

The oestrous synchronization study was conducted in ten infertile cattle in Dharmapuri

district. Infertile cattle were selected randomly from three villages on Pennagaram block. The animals received TRIU-B, Gonadotropin- Releasing Hormone (GnRH) on day 0, Prostaglandin F2 α on day 7, and GnRH on day 9 intramuscularly. Cattle were observed visually for oestrous after treatment. The cattle were artificially inseminated after detection of oestrous signs. Pregnancy was determined by rectal examination 90d after insemination. The Results of the present study revealed that oestrous synchronization with artificial insemination improved fertility in pleuriparous cattle under field condition.

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