

Efficacy of Dinoprost in induction / synchronisation of behavioural estrus in subestrus Murrah Buffaloes

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ABSTRACT

Twenty lactating Murrah buffaloes reared in semi intensive system under optimal conditions of feeding and management were selected for the study. The first group (n=10) received two injections of 5 ml (25 mg) Lutalyse (Dinoprost tromethamin) intramuscularly 11 days apart whereas, the second group (n=10) received the same volume of Normal Saline Solution at 11 days interval. The animals were thoroughly observed for signs of behavioural heat following treatment and bred with elite Murrah bulls at 72 and 96 hours after second injection of Lutalyse. Out of the 10 animals of the group first, 4 responded to the first injection whereas 8 animals showed behavioural estrus at 36 to 72 hours after the second injection. Two buffaloes failed to show behavioural estrus even after two treatments of Lutalyse but confirmed for estrus per-rectally at 72 hours following the second injection. Only two animals (20 %) of the control group exhibited behavioural heat during the period of study. The onset of behavioural estrus in control (20 %) and Prostaglandin treated group (80 %) differed significantly (P<0.05).

Key words: Buffaloes, Estrus, Prostaglandin

Several factors including breed, nutrition, season etc. affects the reproductive performance (Roberts, 1986) but seasonal influence on the fertility of normal cycling buffaloes (Tihar *et al.*, 1981) deserves serious concern. The reproductive performance has been considerably low in buffaloes due to anestrus and /or subestrus especially during summer months. Prostaglandin F_{2a} and its analogues have been widely used as luteolytic agent in bovines. The present study was conducted to evaluate the prostaglandin 'Dinoprost' (Lutalyse-Intervet, Holland) on induction / synchronisation of estrus in subestrus Murrah buffaloes during summer months so that optimum fertility and production is achieved during this period.

Twenty lactating Murrah buffaloes aged 4-6 years weighing 350-500 kg with a history of normal calving 4-6 months earlier were selected. The selected animals did not exhibit any visual signs of estrus after parturition and were considered to be in anoestrous condition. On repeated periodic examinations per-rectum, the animals exhibited follicular or luteal growth on either of their ovaries. The animals had apparently normal genitalia and confirmed non-pathological state on clinico-gynaecological examination. The study was initiated during summer season when the respective values of temperature and humidity varied from 40°C and 49.91% (morning) and 17.79%: (noon), which is considered as low breeding season for buffaloes.

The animals were divided into two groups. Group A (n=10) received 5ml lutalyse (25mg Dinoprost) i/m twice at 11 days interval whereas Group B (n=10) was administered with the same volume of Normal saline solution at the same interval. The animals were thoroughly observed for the signs of estrus following the treatments and breeding was done with elite Murrah bulls with known good fertility records at 72 and 96 hours after the second injection of Dinoprost.

Out of the ten animals treated with prostaglandin 8 (80%) showed behavioural estrus at 36 to 72 hours after the second injection whereas 4 (40%) buffaloes responded to the first injection of Dinoprost. Two

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buffaloes failed to show behavioural estrus following treatment. The animals of the control group barring 2 failed to show any signs of estrus during the period of study. The behavioural estrus in 2 animals of the control group may be due to careful observation of the signs of heat as the animals were cyclic but had silent or subestrus.

The results following the prostaglandin treatment in the present study compared fairly well with 83.3% estrus as recorded by Chauhan *et al.* (1982) and 71.4% recorded by Singh and Dabas (1998) following 36-90 h after the second injection of prostaglandin. However, the results are fairly higher than those recorded by Jacob *et al.* (1995) who reported 66.66% estrus turnout using 25mg Dinoprost. Even lower percentage (40%) has also been recorded by intrauterine administration of 5mg Dinoprost (Batt *et al.*, 1993). The differences may be due to difference in season of study, agro-climatic condition, species and breed of experimental animals used, dose and route of the drug administration.

Four of the 10 animals (40%) showed signs of heat 48-90 h following Ist injection of Dinoprost which may be due to the presence of a functional corpus luteum in these animals at the time of injection. The higher turnout of behavioural estrus (80%) following second injection of lutalyse as compared to that after Ist injection (40%) may be due to synchronisation of follicular wave following Ist injection and presence of a functional CL of cycle at the time of second injection in all the animals. Two animals (20%) though failed to show any behavioural sign of heat but had turgid uterine horns, presence of follicle on the right ovary and well-relaxed cervix at 72 h after second injection.

The present study suggests that the use of double injection regimen of Lutalyse 11 days apart followed by fix time breeding can significantly improve the reproductive performance of the animals especially during non breeding season and can be efficiently used in buffaloes with problem of silent and subestrus to augment better conception rate in the herd and increased milk production during lean period.

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