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Augmenting fertility through ovsynch protocol in jaffarabadi buffaloes

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Abstract

The reproductive efficiency of the buffalo is lower than that of cattle. Both infectious and non infectious factors contribute to the long calving, especially because of anoestrus, repeat breeding and abortion. Pluriparous Jaffarabadi buffaloes (12) were divided into two groups. Control group was inseminated twice at 24 h interval during natural estrus with good quality frozen thawed semen. Whereas treatment group buffaloes were treated with ovsynch protocol. Treatment group were achieved significant higher pregnancy rate when compare to control group.

Keywords: repeat breeding, ovsynch protocol and Jaffarabadi buffaloes

Introduction

Silent heats and long calving interval have been recognized as a major cause of infertility and low productivity in buffaloes. The productivity in domesticated buffaloes is limited for reasons like inbreeding, feeding and health care, but the major problem seems to be infertility that is much higher than that in cattle (Abol-Roos *et al.*, 2000) ^[1]. Postpartum anestrus in buffaloes is responsible for long calving interval (Campanile *et al.*, 1992) ^[5]. Variable duration of estrus (4-64 h) and difficulty in predicting time of ovulation negatively influence the application of AI in buffaloes (Baruselli, 2001) ^[3]. Poor estrus expression and a prolonged inter calving interval compromise the reproductive efficiency of female buffaloes. These limitations are exacerbated during the hot season, when fertility decreases dramatically. Pregnancy rate decrease further because difficulties in detecting estrus. In order to improve reproductive efficiency, several protocols of estrus and ovulation synchronization have been developed (Rensis *et al.*, 2006) ^[11]. The use of GnRH seven days prior to synchronization of estrus with PGF₂ α altered follicular development and produced preovulatory follicles which were more homogeneous, more estrogen-active and more dominant with a greater size difference between the preovulatory and subordinate follicles prior to estrus (Wolfenson *et al.*, 1994) ^[12] than the untreated cows. The early luteal stage of the estrous cycle (day 5 to 12) was the optimal period for initiating the ovsynch protocol in dairy heifers (Moreira *et al.*, 2000) ^[9]. However, the present study was conducted to study the efficacy ovsynch protocol in Jaffarabadi buffaloes.

Materials and Methods

Pluriparous Jaffarabadi buffaloes (12) maintained in an organized farm were utilized for this study. All buffaloes were subjected to rectal palpation and ultrasonography to rule out presence of any palpable genital tract abnormalities. The buffaloes were divided into two groups. In control group (6), was inseminated twice at 24 h interval during natural estrus with good quality frozen thawed semen. In treatment group (6), were treated with intramuscular injection of a 10 μ g GnRH analogue (Buserelin, Receptal® VET, Intervet India Pvt. Ltd.) at Day 0 followed by 500 μ g of a PGF₂ α analogue (Cloprostenol, Pragma, Intas Pharmacueticals Ltd.) at Day 7, a second GnRH injection at Day 9, and TAI 16 h after the second GnRH injection using frozen-thawed semen from a superior-proven buffalo bull (GnRH – Day 7 – PGF₂ α – Day 2 – GnRH – 16 h – TAI). In both control and treatment groups, pregnancy was confirmed by ultrasonographically on day 45 post AI.

Results and Discussion

Poor estrus signs were observed in control group and ovsynch treatments induced estrus signs of diverse intensity with bellowing, frequent urination, swelling of the vulva, and a pink-

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colored vestibule in all buffaloes of this study. The buffaloes had a variable degree of uterine tone and their cervixes were open enough for easy passage of the AI gun during insemination. The percentage of ovulatory response was 20 and 100.00 per cent in control and treatment group, respectively. The conception rate for treatment group was 50% (3/6) which is significantly higher than control group 16.66% (1/6). An ultrasonographic image of a buffalo embryo at Day 40 of pregnancy is shown in Figure 1.

In previous studies, an ovulation rate of approximately 86% was recorded in cyclic buffaloes (De Araujo *et al.*, 2002) [7],

90% in cyclic and 50% in non-cyclic buffaloes (Ali *et al.*, 2007) [2] and 82-90% in cyclic cattle (Frike *et al.*, 1998) [9] following the first GnRH administration. Similarly, 51.4 % and 15.0 % pregnancy rate was recorded in cows and Swamp buffalo heifers (Chaikhun *et al.*, 2010) [6]. 33.3 % pregnancy rate was recorded in Murrah buffalo (Paul *et al.*, 2005) [10]. Similar pregnancy rate was recorded by Baruselli *et al.* (1997) [4] 55.7 % and 61.7 % (De Araujo *et al.*, 2002) [7] was recorded in postpartum pleuriparous buffaloes using ovsynch protocol.



Fig 1: Ultrasonographic image of 45 days old fetus

Conclusion

The study shows ovsynch protocol in Jaffarabadi buffaloes has a good pregnancy percentage (50 %) when compare to control group (16.66%). Hence ovsynch protocol may be tried for augmenting in fertility in Jaffarabadi buffaloes under farm conditions.

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