

USE OF OVSYNCH ± POST INSEMINATION PROGESTERONE (CIDR) FOR SUCCESSFUL CONCEPTION IN REPEAT BREEDER BUFFALO

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ABSTRACT

Sixteen repeat breeder buffalo were subjected to timed-insemination protocol (ovsynch) with or without supplementation of progesterone from day 5 to 18 post-insemination. The conception rate in ovsynch group was 37.5% and in ovsynch plus progesterone group was 75%. Thus, timed-insemination with or without progesterone can successfully used to conceive repeat breeder buffalo.

Keywords: Buffalo, CIDR, Conception, Ovsynch, Repeat breeder

Many etiological factors like prolonged estrus, delayed ovulation and luteal insufficiency lead to repeat breeding syndrome in dairy animals (Bage *et al.*, 2003). In fact, 40% repeat breeding cattle had embryonic mortality (Thatcher *et al.*, 1994). The use of progesterone supplementation during post-artificial insemination (AI) period had beneficial impact on pregnancy rate in repeat breeding Holstein cattle (Villarroel *et al.*, 2004). Hence, the present study evaluated the reproductive performance of repeat breeding buffalo following the administration of timed-AI protocol (ovsynch) with or without progesterone supplementation during the post-AI period.

Sixteen apparently healthy Murrah buffalo that had failed to conceive on three subsequent inseminations with good quality semen were selected for this study. The selected animals (350-450 kg b wt) were free from palpable reproductive abnormalities and were observed as cyclic on rectal palpation conducted at 11-day interval. Animals were under similar plane of nutrition and supplied with area specific mineral mixture for a period of 30 days prior to initiation of treatment. In ovsynch group (n=8), buffalo received GnRH analogue (10 µg, im.) on day 0 followed by prostaglandin F_{2α} (PGF_{2α}) administration (500 µg, im.) on day 7 and second GnRH (10 µg, im.) on day

9 followed by AI about 16-18 h after second GnRH. All the buffalo were re-inseminated 12 h later. In ovsynch plus progesterone group (n=8), in addition to ovsynch protocol as described, buffalo were inserted (per vaginum) a controlled internal drug release (CIDR) implant containing 1.38 g of progesterone from day 5-18 after post-AI. The buffalo were observed for non-return rate and pregnancy was confirmed pregnancy diagnosis 60 days later by rectal examination. All the animals were administered 0.1% KMnO₄ solution as intra-vaginal douche, hence no evidence of vaginitis was observed following CIDR removal.

Following hormonal treatment, about 50% (n=9/18) conception rate was recorded in repeat breeder buffalo. This suggested that timed insemination protocols can be used successfully for improving conception rate repeat breeder animals. Use of GnRH ensures timely ovulation of follicle as well as efficient progesterone support for embryonic development results in better conception in repeat breeding buffalo (Savalia *et al.*, 2014). Furthermore, estrous detection is a major problem in buffalo leading to repeat breeding due to AI done at wrong time, whereas timed-AI protocol used in present study might have resolved this problem leading to successful conception in repeat breeder buffalo. Moreover, timed-AI protocol ensures the release of a competent oocytes

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compared to ovulatory defects in repeat breeders (Bage *et al.*, 2003).

In ovsynch group, three buffalo were diagnosed as pregnant (37.5%, n=3/8). Out of remaining non-pregnant, two buffalo exhibited estrous signs on day 22-22 post-AI. In ovsynch plus progesterone group, six buffalo conceived (75%, n=6/8). The remaining two non-pregnant buffalo exhibited estrus within three days after CIDR withdrawal. The higher conception rate following the use of CIDR during post-AI period could be due to the fact that exogenous luteal support during the crucial period had a favorable effect on embryo survival and maternal recognition of pregnancy between days 5-18 post-AI (Villarroel *et al.*, 2004). Luteal insufficiency leading to conception failure is a major factor behind repeat breeding syndrome (Campanile and Neglia, 2007). In a previous study, the administration of CIDR leads to an increase in serum progesterone by at least one ng/ml (Friedman *et al.*, 2012).

In brief, ovsynch ± post insemination progesterone supplementation can successfully conceive repeat breeder buffalo, with higher success following the use of progesterone supplementation.

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