
Conception rate of post-partum dairy water buffaloes (*Bubalus bubalis*) supplemented with progesterone after timed artificial insemination

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Abstract Progesterone is an endocrine hormone naturally produced by corpus luteum which persist throughout the gestation period to maintain pregnancy. Exogenous progesterone (P4) is generally used as hormonal supplementation for synchronization of ovulation and Fixed Time Artificial Insemination (FTAI). This technique involves the use of Controlled-Intravaginal Drug Release (CIDR) in combination with Ovsynch, an Ovulation Synchronization protocol, thus CIDR-Synch (Treatment 1, Control). The effects of P4 supplementation post-artificial insemination (AI) was investigated either by reinsertion of CIDR on day 5 and its removal on day 15 post-AI (CIDR-Synch+ Reinsertion, Treatment 2) or by administration of injectable P4 on day 5 post-AI (CIDR-Synch+ P4, Treatment 3). Determination of pregnancy through Pregnancy-Associated Glycoprotein Enzyme-Link Immunoassay (PAG-ELISA) test on day 30 and Transrectal Ultrasonography on day 40 post-AI, revealed significantly higher ($P < 0.05$) conception rates in Treatments 2 and 3 compared with Treatment 1. In addition, hormone assay performed from days 0 to 10 to determine the levels of P4 during the CIDR-Synch hormone treatment before insemination, yielded no significant differences ($P > 0.05$) among the three Treatments. However, P4 concentrations, on days 15 and 25 post-AI, were significantly higher ($P < 0.05$) in groups with supplementations (Treatments 2 and 3), compared with Treatment 1. No significant difference in P4 concentrations was observed between Treatments 2 and 3. The present study demonstrated the beneficial effects of administration of exogenous P4 after AI which improved conception rates in post-partum dairy buffaloes. The supplementation could have enhanced the endogenous P4 level to prepare the uterine environment for subsequent embryonic development and maternal recognition of pregnancy. The results highlight important reproductive innovation that minimizes the incidence of early embryonic loss, resulting in a higher efficiency of Timed Artificial Insemination Program in water buffaloes.

Keywords: Hormone supplementation, Post-artificial insemination, Pregnancy rate, Water buffaloes

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