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ABSTRACTS

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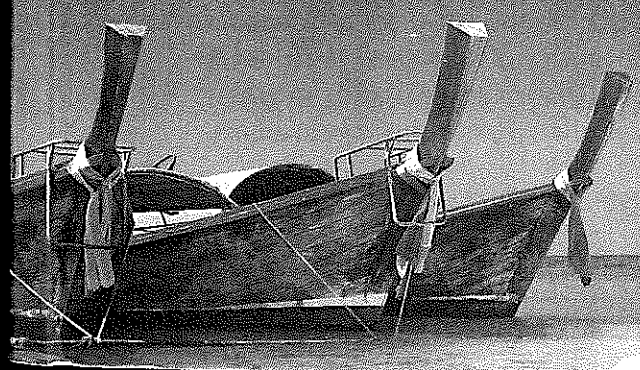

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Comparison of Two Synchronization Protocols for Timed Artificial Insemination in Acyclic Italian Mediterranean Buffalo Cows out of the Breeding Season

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ABSTRACT

The aim of the present study was to compare two synchronization protocols for timed artificial insemination (TAI) in acyclic pluriparous buffalo cows during the non breeding season. Two experiments were conducted to evaluate the ovarian follicular response and pregnancy rate. The cyclic status was evaluated by two transrectal ultrasonography performed at Day11 and Day 0. Buffaloes that in both investigations did not show the presence of a corpus luteum (CL) were classified as acyclic. Acyclic pluriparous buffaloes (n=34) were randomly assigned to Group 1 (G1) and Group 2 (G2), homogeneous for Days in Milk (81±27 vs 83±13, respectively in G1 and G2). In G1 (n=17) buffaloes received 12 μg of buserelin acetate i.m. (GnRH) on the first day of the synchronization protocol (Day 0), 0.524 mg of cloprostenol ($PGF_{2\alpha}$) on Day 7 and 12μg of buserelin acetate i.m. on day 9 (Ovsynch-TAI). In G2 (n=17) buffaloes received a progesterone-releasing intravaginal device containing 1.55 g of progesterone (P4) and 12 μg of buserelin acetate i.m. (GnRH) on Day 0. On Day 8 the P4 device was removed and 0.524 mg of cloprostenol ($PGF_{2\alpha}$) + 500UI of PMSG i.m. were administered. Finally, 12 μg of buserelin acetate i.m. were given on Day 10. Ten animals (5/group) underwent transrectal ultrasonography of the ovaries daily, from Day 0 to Day 11 in G1 and from Day 0 to Day 12 in G2, to determine the presence and diameter of the follicles, the dominant follicle (DF) diameter and the ovulation rate. Subsequently, fixed TAI was performed 20 hours after the last GnRH in all buffaloes. Ultrasonography was carried out 25 and 45 days after TAI to evaluate pregnancy rate and the incidence of late embryonic mortality (LEM). No differences were observed between G1 and G2 in the following parameters: DF diameter (mm) on Day 0 (9.5±1.9 vs 8.8±4.3), DF diameter (mm) on Day of $PGF_{2\alpha}$ administration (11.5±2.3 vs 10.6±1.6), DF growth rate (mm) between $PGF_{2\alpha}$ and last GnRH administration (1.6±0.3 vs 1.8±1.7), DF maximum diameter (13.2±1.9 vs 13.0±2.3 mm) and ovulation rate (80% vs 80%). However, in G2 pregnancy rate increased at 25 (29.4% vs 58.8%, respectively in G1and G2; P= 0.08) and 45 (23.5% vs 58.8%, respectively in G1and G2; P<0.05) days after TAI. In conclusion, it was demonstrated that, despite similar results in terms of follicular dynamics, growth and ovulation rate, the protocol G2 is the most efficient to improve fertility in buffalo out the breeding season.

Keywords: acyclic buffaloes, non breeding season, PMSG, TAI