Animal Reproduction

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Fertility programs for lactating dairy cows: a novel Presynch + Timed-AI program (ESALQ-Synch) produces similar reproductive outcomes as Double-Ovsynch

Carlos Eduardo Cardoso Consentini [1,2], Tattiany Abadia [3], Juan Pablo Acosta Galindez [1], Ana Luiza Muller Lopes [1], Natalia Vieira [1], Fernando Machado [3], Ernane Campos [4], Milo Charles Wiltbank [2], Leonardo de França e Melo [5], Roberto Sartori [1]

[1] ESALQ/USP - Department of Animal Sciences, University of São Paulo (Piracicaba, SP, 13418-900 Brazil), [2] UW-Madison - Department of Animal and Dairy Sciences, University of Wisconsin-Madison, (Madison, WI, 53706, USA), [3] Céu Azul Farm - Céu Azul Farm (Silvânia, GO, 75180-000, Brazil), [4] Rehagro - Rehagro (Lavras, MG, 37200-000, Brazil), [5] UFG - School of Veterinary and Animal Sciences, Federal University of Goiás (Goiânia, GO, 74690-900, Brazil)

Resumo

Fertility programs were implemented for the 1st postpartum timed-AI (TAI) in 798 (primiparous and multiparous) lactating dairy cows, evaluating 2 presynchronization (presynch) strategies and 2 TAI protocols, in a 2×2 factorial design. Weekly, cows were enrolled into 1 of 4 groups (Ovs+Ovs, Ovs+OvsP4/E2, PreP4/E2+Ovs and PreP4/E2+OvsP4/E2). On d-17 (34 ± 3 days in milk), the Ovs presynch initiated with 10 µg buserelin acetate (GnRH), and cows received 0.5 mg cloprostenol (PGF) on d-10, and 10 µg GnRH on d-7. The PreP4/E2 presynch initiated on d-17 with a used 2 g P4 implant. On d-10, implant was removed and 0.5 mg PGF and 1 mg E2 cypionate (EC) were given. For TAI protocols, Ovs was Ovsynch: d0: 20 µg GnRH (double-dose), d7: PGF, d8: PGF, d9.5: 10 µg GnRH, and d10: TAI (16 h after GnRH). Cows submitted to OvsP4/E2 received on d0: 20 µg GnRH (double-dose) and a 2 g P4 implant, d7: PGF, d8: P4 implant removal, PGF and EC, and d10: TAI. For all cows, expression of estrus until TAI was evaluated and ultrasound was performed on d-17, d0, d7 and d17. The GLIMMIX procedure of SAS 9.4 was used for analyses (P≤0.05). The presence of CL on d-17 (average = 68.8% [549/798]) was similar among treatments and parity. Presence of CL on d0 of TAI protocols was high, and Ovs as a presynch slightly increased the proportion of cows with CL (95.5 [381/399] vs. 90.7% [362/399]). However, at the first PGF of breeding protocols, there was no effect of presynch, and 98.5% (786/798) of the cows had at least 1 CL. Ovulation after d0 was greater in cows submitted to PreP4/E2 than Ovs (71.9 [287/399] vs. 64.1% [256/399]), and those ovulating had greater P/AI (51.0 [277/543] vs. 41.6% [106/255]). Overall, multiple ovulation after TAI was low and similar between TAI protocols and presynch strategies (7.2% [54/751]). Expression of estrus in OvsP4/E2 protocols was greater than Ovs (69.3 [273/394] vs. 41.6% [168/404]), and an interaction was detected, in which cows not expressing estrus ovulated more after TAI in Ovs compared to OvsP4/E2 protocol (93.2 [220/236] vs. 77.7% [94/121]). Cows expressing estrus had greater P/AI in both Ovs (58.3 [98/168] vs. 42.0% [99/236]) and OvsP4/E2 (57.5 [157/273] vs. 24.0% [29/121]), but there was an interaction, and cows not showing estrus had greater P/AI on Ovs compared to OvsP4/E2 (42.0 vs. 24.0%). There was no interaction between presynch and TAI protocol on P/AI on d32 (48.2, 49.7, 53.3, and 52.8% for Ovs+Ovs [Double-Ovsynch], Ovs+OvsP4/E2, PreP4/E2+Ovs and PreP4/E2+OvsP4/E2 [ESALQ-Synch], respectively), and no differences on pregnancy loss between days 32 and 60 (average = 17.8% [68/383]). In summary, the two presynchronization strategies and both TAI protocols, despite differences in pharmacological bases, induced similar and well-controlled ovarian dynamics, high synchronization, and excellent fertility outcomes, providing 4 outstanding options of high fertility TAI programs.

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