

Pregnancy per AI in Holstein Heifers Inseminated With Sexed Semen after Detected Estrus or Timed-AI

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Artificial insemination (AI) with sexed semen greatly increases the proportion of heifer calves born, but it is recommended for use in heifers inseminated after estrus detection because pregnancy per AI (P/AI) to timed-AI (TAI) protocols (e.g. Ovsynch) is not very high. Recently, we obtained very encouraging results with a modified 5-d TAI protocol in dairy heifers inseminated with conventional semen. Therefore, in the present study, we compared P/AI of heifers inseminated with sexed semen after detected estrus or TAI. Cyclic Holstein heifers, 14 to 16 mo, were assigned by age to receive either 2 doses of prostaglandin F_{2α} (PG; Estroplan, Vetoquinol Canada Inc.) 14 d apart (ED, n=116) or an intravaginal progesterone releasing insert (PRID; Vetoquinol Canada Inc.) for 5 d and PG at PRID removal (TAI, n=101). Heifers were estrus detected (3 times/d) for 7 d and AI ~12 h after estrus (ED group) or TAI 3 d after PRID removal (TAI group) with sexed or conventional semen from 4 commercially available sires (Alta Genetics). Heifers assigned to TAI received gonadotropin releasing hormone (Fertiline, Vetoquinol Canada Inc.) at AI. Ultrasonographic examinations were done in all heifers before treatment to confirm cyclicity, after TAI to determine ovulation, and at approximately 28 and 49 d after AI to confirm pregnancy. Estrus detection rate was 85% (99/116). Overall P/AI were 63% (64/102) and 69% (68/98) for sexed and conventional semen, respectively. ED heifers had numerically greater P/AI than TAI heifers (73 and 67% vs. 66 and 59% for conventional and sexed semen). The P/AI to sexed semen was 92 and 89% of P/AI to conventional semen in ED and TAI, respectively. Ovulations occurred within 24 h after insemination in 95 and 44% of heifers inseminated after estrus or TAI, respectively. Delayed ovulations, in TAI heifers, decreased the P/AI of sexed semen (9/18; 50%) compared to conventional semen (14/19; 74%). Seven heifers had a non-viable embryo at first pregnancy diagnosis; five of the seven (71%) had been inseminated with sexed semen. No further pregnancy loss occurred between 28 and 49 d in either group of heifers.

Implication: P/AI to sexed semen was 8 to 11% below conventional semen. Although AI after detected estrus increased P/AI, heifers subjected to TAI with sexed semen had acceptable P/AI.

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