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Revised

Impact of a timed-release FSH treatment from 2 to 6 months of age in bulls II: endocrinology, puberty attainment, and mature sperm production in Holstein bulls

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Abstract

The use of genomic testing in the cattle industries has renewed an interest in hastening bull puberty. In prepubertal males, FSH facilitates Sertoli cell proliferation and testis maturation. The aim of this study was to determine the effect of prepubertal administration of a timed-release FSH (delivered in a hyaluronan solution) on hormone secretion, puberty attainment, and mature sperm production in Holstein bulls in an AI center. Bulls (n = 29) were randomly assigned to one of two treatment groups based on birth date and pedigree. Beginning at 62 days of age (Day 62), bulls were injected im every 3.5 days with either 30 mg FSH (Folltropin-V; NIH-FSH-P1 units) in a 2% hyaluronan solution (FSH-HA, n = 17) or saline (control, n =12) until Day 170.5. Blood samples to assess FSH, activin A, and testosterone were collected prior to each treatment. Scrotal circumference (SC) and BW were measured monthly. Puberty assessment (ability to ejaculate $5x10^7$ sperm, 10% motile) was initiated at Day 244. Average mature daily sperm production (3x