

## Effects of bovine somatotrophin (bST) on ovarian function in post-partum beef cows

LP Andrade, SM Rhind, IA Wright, SR McMillen, PJ Goddard and TA Bramley

*Reproduction, Fertility and Development* 8(6) 951 - 960  
Published: 1996

### Abstract

The effects of bovine somatotrophin (bST) on ovarian follicle development and function and associated gonadotrophin profiles during the first nine weeks post partum were investigated in beef cows. Thirty-two cows (Shorthorn x Galloway) in moderately low body condition (BC) at calving were fed to maintain BC thereafter. At Weeks 2, 4, 6 and 8 post partum, animals were injected with 320 mg bovine somatotrophin (bST) (T, treated; n = 17) or with the carrier oil only (C, control; n = 15). Ovulation occurred in 4 of 17 T cows and 0 of 15 C cows ( $P = 0.10$ ) by nine week post partum. Treatment with bST did not affect the numbers of small (3-8 mm in diameter) or large (> 8 mm in diameter) follicles or the granulosa cell populations but enhanced the oestradiol ( $P < 0.05$ ) and insulin-like growth factor-I (IGF-I) content ( $P < 0.01$ ) of large follicles by nine weeks post partum. It did not significantly affect the testosterone concentrations of large follicles. Circulating concentrations of growth hormone (GH) and IGF-I were higher in T cows than in C cows ( $P < 0.001$ ) but were unrelated to gonadotrophin profiles or gonadotrophin receptor concentrations in the follicles. At Week 8, plasma insulin concentrations were higher in T cows than in C cows both before ( $P < 0.05$ ) and after ( $P < 0.05$ ) glucose injection. It is concluded that GH may play an important role in mediating the effects of nutritional state on ovarian function during the post-partum period, possibly through alteration of intrafollicular IGF-I concentrations.