implement inexpensive and adequately reliable sensor systems

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Reproductive performance in primiparous beef cows showing different growth patterns

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An experiment was conducted to analyse the influence of nutrition levels from heifers' birth to first mating on their subsequent onset of puberty, fertility rate and performance in primiparous cows calving at two years. Twenty-nine Parda de Montaña (Brown Swiss for beef production) heifers, born in autumn, were assigned to two nutrition levels during Lactation (0-6 months: L-High vs. L-Low) and Rearing (6-15 months: R-High vs. R-Low) periods. At 15.5 months heifers were treated with an intravaginal progesterone device (PRID, CEVA, Spain) and Ovsynch protocol, being inseminated 14 days later. A second IA at heat detection was performed in non-pregnant heifers. Blood samples were collected weekly during rearing and postpartum periods for progesterone analysis (Ridgeway Science, UK). Productive parameters were controlled from heifers' birth until weaning of their first calves (30 months). Understandably, both lactation and rearing nutrition levels influenced on average daily gains in the different phases, heifers being able to compensate the lower growth rates in previous phases, depending on the food availability. The age at onset of puberty was affected by the nutrition level offered during lactation (10.3 vs. 12.0 months, in L-High and L-Low, $P<0.01$) and rearing (9.8 vs. 12.5 months, in R-High and R-Low, $P<0.001$) periods. However, no differences were found in live-weights at onset of puberty (327 kg, corresponding to 56% adult live-weight in this breed), conception age (16.4 months) or fertility rate (89%). Primiparous cows' performance was not affected by the growth patterns registered. Only weight at calving (495.8 vs. 454.4 kg, in R-High and R-Low, $P<0.01$) and postpartum anoestrus (77.7 vs. 106.5 days, in R-High and R-Low, $P<0.05$) were influenced by the rearing nutrition level. These preliminary results would confirm the feasibility of advancing the first service from 21 to 15 months of age in beef cattle, provided that growth rates close to 1 kg/d in the rearing period are guaranteed.