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Influence of postpartum nutritional level on estrus behavior in primiparous Charolais cows.

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In mountain areas, beef cattle feeding systems mainly rely on forage resources. As feed stocks may be inadequate due to environmental constraints, animals may be underfed during winter periods. Under nutrition could affect female's reproductive performances and so economic viability of suckling farms. Estrus expression is a key component of reproductive performance, especially when artificial insemination is used. Two experiments (trial 1: n=14 and trial 2: n=16) were successively carried out using primiparous Charolais cows. Body condition scores at calving were 2.4 ± 0.13 in trial 1 and 2 ± 0.20 in trial 2 (scale 0-5). In each trial, two energy level diets (High vs Low) were applied from calving to turn out. Weight and body condition were regularly measured during the experiment. Cows were reared in groups (n= 7 or 8) in a loose-housing system from mid November to mid-May. Weight and body condition were regularly measured during the experiment. Reproductive efficiency was assessed through physiological and behavioral variables. Cyclicity was studied from plasmatic progesterone profiles. Estrus expression was analyzed from 24h/24h video camera records that were studied using The Observer® software. On average during estrus periods, social and sexual behaviors represent respectively $46\% \pm 14$, $54\% \pm 14$ of total interactions. Standing to be mounted represents only $3.7\% \pm 3.5$ of total interactions. Mean estrus duration (time between first and last standing to be mounted) is $7h \pm 6$. Mean estrus intensity, defined as the sum of all sexual behaviors during estrus period is 242 ± 157 . Mean duration of estrus is longer ($9h \pm 5$ vs $5h \pm 6$, $p < 0.05$) and intensity of estrus expression is higher (303 ± 182 vs 184 ± 100 , $p < 0.05$) in L than in H cows. This result might be explained by less time spent interacting with fellows in H cows as they spend more time eating than L cows.