

ABSTRACT

Effects of supplemental β -carotene on colostral immunoglobulin and plasma β -carotene and immunoglobulin in Japanese Black cows

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Data from 26 Japanese Black cows were collected to clarify the effects of supplemental β -carotene on colostral immunoglobulin (Ig) and plasma β -carotene and Ig in the cows. Cows were assigned to control or β -carotene groups from 21 days before the expected calving date to 60 days after parturition. Supplemental β -carotene was provided at 500 mg/day in the β -carotene group. Supplemental β -carotene drastically increased plasma β -carotene concentrations in the cows from parturition to 60 days after parturition, and plasma β -carotene concentrations in the control and β -carotene groups at parturition were 202 and 452 $\mu\text{g}/\text{dl}$, respectively. Supplemental β -carotene had no effects on plasma IgG₁, IgA or IgM concentrations at parturition. Supplemental β -carotene increased colostral IgG₁ concentrations in the cows, but colostral β -carotene, IgA and IgM concentrations were not affected by supplemental β -carotene. These results indicate that supplemental β -carotene is effective to enhance colostral IgG₁ concentrations and plasma β -carotene concentrations in Japanese Black cows.

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