

EFFECTS OF HAY INTAKE ON CALVES FED HIGH VOLUMES OF MILK

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Research to date has suggested that access to forage before weaning can limit rumen development in calves fed restricted amount of milk, but no research has yet addressed the role of forage on calves fed higher planes of nutrition. This study compared performance and rumen development of calves provided high volumes of milk with and without access to hay. At d 3 of age, individually housed calves were randomly assigned to treatment (either ad libitum access to chopped grass hay or no forage; n=15 calves per treatment, 10 heifers and 5 bulls). All calves were provided ad libitum access to water and starter throughout the study. All calves were offered 8 L/d of milk from a nipple bottle from d 3 to 35, 4 L/d from d 36 to 53 and 2 L/d for the next 3 d before weaning at d 56. Solid feed intake and growth parameters were monitored from d3 to d70. At d 70 males from both treatments were slaughtered and rumen pH and weight of ruminal contents with or without digesta measured. Overall DMI from solid feed did not differ between treatments before weaning. After weaning calves provided hay consumed less starter but more total DM (starter plus hay) than calves that had no access to forage. Over the experimental period (d 4 to 70), calves fed hay gained approximately 6 kg more than did control calves (58.14 ± 1.83 vs. 52.04 ± 2.03 kg, respectively). Hip and wither height, heart girth and body barrel at d 35, 56 and 70 did not differ between treatments. Rumen and reticulum weights with (7.99 ± 0.69 vs. 12.77 ± 1.29 kg; $P > 0.05$) or without (1.60 ± 0.09 vs. 1.89 ± 0.05 kg; $P > 0.05$) digesta were heavier in calves fed hay. Mean rumen pH was higher in calves fed hay compared with those fed no forage (5.49 ± 0.08 vs. 5.06 ± 0.04 ; $P > 0.002$). In conclusion, providing hay before weaning resulted in increased weight gain, rumen weight and rumen pH in calves fed high volumes of milk.