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ABSTRACT

Effects of Genetic and Environmental Factors on Ultrasonic Estimates of Carcass Traits of Japanese Brown Cows

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Highlights

- The ensiled TMRs containing corn silage had good fermentative characteristics.
- An increased corn silage proportion in TMRs led to an increase in dry matter intake.
- TDN intake was highest in steers fed the TMR containing corn silage at 30%.
- The feeding of TMRs with higher corn silage resulted in slower ruminal fermentation.
- Corn silage is likely utilizable as a TMR stuff for fattening Japanese Wagyu steers.

This study was performed to investigate the effect of the inclusion rate of corn silage (CS) in ensiled total mixed ration (TMR) on dry matter intake (DMI), nutrient digestibility, and ruminal fermentation in Japanese Wagyu steers. Four ensiled TMRs, in which the crude protein (CP) and total digestible nutrients (TDN) levels were adjusted to be similar, were prepared with 0, 15, 30, and 45% CS, respectively. Four Japanese Wagyu steers during the fattening period were used in a feeding trial with the four dietary treatments of the ensiled TMRs in a 4 × 4 Latin square design. Increasing the inclusion rate of CS resulted in higher pH values and lower lactate production in the ensiled TMR, although all TMR silages showed good fermentative characteristics, such as low pH value and high lactate content. The DMI linearly increase when the inclusion rate of CS in the TMRs increased. There were differences in the apparent digestibilities of CP, non-fibrous carbohydrate, acid detergent fiber, and neutral detergent fiber. The TDN contents were greater in the ensiled TMRs with 15 and 30% CS. The feeding of TMRs with higher inclusion rates of CS gave rise to slower fermentation in the rumen. Corn silage should be utilizable as a TMR material, and its inclusion at approximately 30% in a TMR is a safe upper limit for Japanese Wagyu steers during the fattening period.