

Effects of concentrate and bypass fat supplementations on growth performance, blood profile, and rearing cost of feedlot buffaloes

ABSTRACT

This study investigates the effects of supplementation of the basal diet with concentrate and rumen bypass fat on the dry matter intake (DMI), growth performance, blood metabolites and hormonal changes, and the feeding cost of feedlot water buffaloes. Thirty-six healthy, three- to four-month-old male Murrah crossbred ($n = 18$) and Swamp ($n = 18$) buffaloes with a similar average initial body weight of 98.64 ± 1.93 kg were each randomly allocated into three dietary experimental groups. Buffaloes were fed with Diet A, which consisted of 100% *Brachiaria decumbens*, Diet B, consisting of 70% *Brachiaria decumbens* and 30% concentrate, and Diet C, consisting of 70% *Brachiaria decumbens*, 26% concentrate, and 4% rumen bypass fat for a period of 730 days. Feed intake was measured daily, while blood samples were collected for every eight months. Furthermore, body scores were noted prior to and at the end of the experimental period. The results showed that the average daily gain for buffaloes fed with Diet C was the highest. The DMI, BCS, FI, and FCR for the three groups showed significant ($p < 0.05$) differences, in the following order: Diet C > Diet B > Diet A. At the end of the two-year feeding trial, buffaloes fed with Diet B had significantly ($p < 0.05$) higher cholesterol levels than Diet A and Diet C. In addition, buffaloes fed with Diet C had significantly ($p < 0.05$) higher levels of serum total protein, growth hormone, and insulin-like growth factor-I hormone compared to Diet A and Diet B. On the other hand, buffaloes fed with Diet B and Diet C showed significant ($p < 0.05$) decrease in glucose levels. Supplemented diet improved the buffaloes' weight gain to achieve the market weight in a shorter period of time, thus, giving farmers a greater return. In conclusion, concentrate and bypass fat supplementations in the diet of water buffaloes improved the growth performance without adverse effect on the blood metabolites, which enabled better farmer profitability.

Keyword: Blood biochemical; Buffalo; Cost analysis; Growth performance; Supplementation