

Arthit Panyasak 2014: Effect of Restricted Feeding of Total Mixed Fiber (TMF) on Dairy Replacement Production. Master of Science (Animal Science), Major Field: Animal Science, Department of Animal Science. Thesis Advisor: Associate Professor Sornthep Tumwasorn, Ph.D. 77 pages.

This study aimed to investigate the effect of restricted feeding of total mixed fiber (TMF) on dairy replacement production. The completely randomized design was employed on 93.25 % Holstein Friesian crossbreds dairy replacement female from 63 heifers and divided into 3 groups each of 21 animals. The initial body weights of all heifers averaged 288.95 ± 42.25 kilograms and final weight averaged of 320.39 ± 3.11 kilograms under 3 months feeding period. There were 3 groups were fed with corn by-products silage, rice straw and concentrate at 10, 3 and 3 kg/head/day (T1; Control group), TMF, rice straw and concentrate at 8, 2 and 3 kg/head/day (T2) and TMF and concentrate at 14 and 2 kg/head/day (T3). All heifers received concentrate with 14 %CP throughout the period of the study. The result showed that heifers in 3 groups had no difference in body weight changes and average daily gain ($P > 0.05$). The body condition score change of heifers in group 3 had higher ($P < 0.01$) than those in groups 1 and 2 (0.64 ± 0.03 , 0.61 ± 0.03 and 0.38 ± 0.03 respectively). Total dry matter intake was found to be 7.33 ± 0.01 , 6.55 ± 0.01 and 5.36 ± 0.01 kgDM/head/day with 2.54 ± 0.01 , 2.27 ± 0.01 and 1.86 ± 0.01 % of body weight, respectively. Total dry matter intake of protein were found to be 0.64, 0.64 and 0.58 kgDM/head/day respectively ($P < 0.01$). The apparent digestibility of dry matter, organic matter, crude protein, neutral detergent fiber and acid detergent fiber of the three groups were in the same levels ($P > 0.05$). Heifer in groups 1, 2 and 3 have metabolizable energy of 1.55 ± 0.09 , 1.80 ± 0.09 and 1.89 ± 0.09 Mcal/kgDM, respectively and total digestible nutrient were found to be 45.02 ± 2.11 , 50.39 ± 2.13 and 52.50 ± 2.10 %, respectively, accordingly ($P > 0.05$). Blood glucose, blood urea nitrogen and triiodothyronine were found to be in normal range ($P > 0.05$). The estrus of commencement trail of group 3 was found to be the highest ($P < 0.05$). The total production costs per head of the three groups averaged 17,391.58, 17,359.42 and 18,148.35 baht/head ($P < 0.05$) and total production costs per weight change of the three groups were found to be 505.72, 631.94 and 583.55 baht/head, respectively ($P > 0.05$).

Student's signature

Thesis Advisor's signature