Nann Winn Soe 2013: Effects of Dietary Energy Sources and Protein Levels on Performance, Carcass Quality and Production Cost of Kamphaeng Saen Beef Cattle. Master of Science (Animal Nutrition and Feed Technology), Major Field: Animal Nutrition and Feed Technology, Department of Animal Science. Thesis Advisor: Associate Professor Suriya Sawanon, Ph. D. 92 pages.

Two experiments were carried out to study the effect of dietary energy sources and protein levels on performance, carcass quality and production cost of Kamphaeng Saen beef cattle. In the first experiment, sixteen Kamphaeng Saen young bulls (initial body weight 212.81 ± 29.79 kg) were used to study the effect of concentrate feeding levels with different crude protein (CP) levels. The young bulls were fed *ad libitum* access to para grass (*Brachiaria mutica*). Two factors; concentrate feeding level (1.0 and 1.5 % BW) and CP level (14 and 16 % CP) were used according to 2×2 factorial in Complete Randomized Design (CRD) with an initial BW covariate. The results showed there was no significant interaction between two factors. Higher concentrate feeding level (1.5 % BW) showed a significantly increase ($P < 0.05$) in weight gain (WG), average daily gain (ADG), feed conversion ratio (FCR) and dry matter intake (DMI). However, increasing the CP levels had no effects on growing performance and DMI. Although total feed cost was higher in 1.5% BW concentrate feeding group than 1.0%, total feed cost per gain was not much different (28.26, 30.35 baht) between two concentrate feeding levels. Proper level of supplementary concentrate feeding could be efficaciously utilized by growing cattle fed on low-quality grass.

The second experiment was started soon after the first experiment was done by using the same cattle from the first experiment. 2×2 Factorial in Randomized Complete Block Design (RCBD) with two factors; different energy sources cassava chip (c) and cassava chip plus ground corn (cc) and different crude protein levels (12 and 14 % CP) were used to study the effects on the performances, carcass quality and production cost of 24 finishing Kamphaeng Saen beef steers. The results showed that cTMR feeding had better finishing performance (final BW 514.00 > 493.75 kg), higher income (carcass income 46,964 > 44,122 baht) and cheaper price (feed price 7.52 < 7.60 baht/kg) than that of ccTMR feeding without affecting on meat quality. TMR with the 14% CP has enough potential to show higher finishing weight (final BW 514.25 > 493.50 kg) and carcass weight (WCW 293.29 > 281.79 kg and CCW 291.29 > 278.22 kg) but higher feed cost (total feed cost 9,138.30 > 8,586.90 baht per head and total production cost 41,868.30 > 40,636.90 baht per head) than 12 % CP. However, feed cost per gain was no difference and profit tended to be higher in 14 % CP feeding group. Nevertheless, cassava chip has enough potential to be used as an energy source in TMR for feedlot cattle because of its cheaper price and market availability.

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