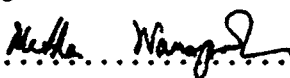


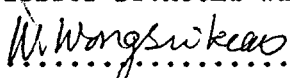
Thesis Title Effect of undegradable protein on rumen fermentation, milk yield and compositions in dairy cows.

Author Mr. Pittaya Palanit

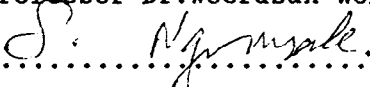
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Abstract

This experiment was conducted to evaluate the effect of undegradable protein on rumen fermentation, blood metabolite, feed intake, digestibility, milk yield, milk compositions and economical return evaluation. Six Holstein Friesian crossbred cows were divided into three groups and two cows for each group. The cows recieved 34, 38 and 42% undegradable protein (UDP) in the concentrate. The switch back experimental design was used in the experiment. There were three periods of the experiment and each lasted for 28 days. Ruzi hay was used as a roughage source. All cows were kept in the individual pens and received free choice of water. Results of using 34, 38 and 42% undegradable protein revealed that, there were no significant differences in the concentration of ruminal ammonia-nitrogen the values were 8.7, 6.9 and 6.5 mg%. The pH values were in optimal level

(6.6-6.8). Total volatile fatty acid (TVFA) concentrations were 89.1, 77.9 and 72.5 mmol/l and no significant differences were found. Blood urea-nitrogen (BUN) concentrations were found to be 11.7, 9.9 and 9.6 mg% ($P>.05$). The voluntary feed intakes of roughage (VFI) were 5.7, 5.6 and 5.8 kgDM/d ; 1.55, 1.54 and 1.6% BW ; 68.9, 67.4 and 70.8 gDM/kg BW^{.75}. Total dry matter feed intakes were 10.7, 10.6 and 10.8 kgDM/d ; 2.9, 2.8 and 3.0% BW ; 128.9, 126.8 and 131.5 gDM/kg BW^{.75}. Dry matter digestibilities (DMD) were 58.4, 63.4 and 71.7%, in the respective diets. Milk yield and 4% FCM were 8.3, 9.5 and 9.2 kg/d ; 7.6, 8.2 and 8.5 kg/d, respectively. Milk yield (4% FCM) was found to be highest in the group fed with 42% UDP ration. Milk compositions were obtained as follows : % fat (3.3, 3.3 and 3.4), % protein (3.6, 4.1 and 4.4), % solids not fat (8.6, 8.85, and 8.82), % total solids (12.03, 12.08 and 12.12), in the 34, 38 and 42% UDP rations, respectively. Eventhough there were no significant differences in milk compositions, but there were increasing trends in protein percentage and milk protein yield when the percentages of undegradable protein increased. The economical return was highest in 42% UDP ration using 4% FCM. Based on this study, the results revealed that when UDP in the concentrates increased, milk yield and milk compositions tended to be enhanced possibly due to higher availability of amino acids in the small intestine. Therefore, undegradable protein level should be considered in dairy ration formulations.