

Rapeepan Homhual 2009: Leucaena Utilisation for Forage Quality Improvement on Dairy Replacement. Master of Science (Agriculture), Major Field: Animal Science, Department of Animal Science. Thesis Advisor: Associate Professor Somkiert Prasanpanich, Ph.D. 67 pages.

A survey on leucaena feeding to lactating cows using their urine to investigate leucaena toxicity was done under 6 private dairy farms in Muaklek dairying area, Saraburi. The test result showed that mimosine and its derivative 3,4-DHP were not found in the urine samples but the derivative 2,3-DHP was detected at a low level. When different levels of fresh leucaena were supplemented to improve forage quality for dairy replacement with mature guinea grass under Complete Randomised Design (CRD) containing Control group supplemented an amount of meal concentrate without any leucaena, Group 2 with meal concentrate substitution of 3 kg of fresh leucaena and Group 3 with meal concentrate substitution of 5 kg of fresh leucaena. Weight change (37.25 ± 2.96 , 37.50 ± 5.80 and 37.25 ± 8.59 kg, respectively) and daily growth rate (620 ± 16.42 , 630 ± 17.71 and 630 ± 22.86 g/d, respectively) were not significantly different among treatments. Total dry matter intake per bodyweight was not statistically different among treatments, but daily dry matter intake was significantly different among treatments ($P < 0.05$). Blood metabolites in terms of blood glucose, blood urea nitrogen and triiodothyronine hormone after feeding were not statistically different among treatments, however, NEFA concentration was significantly different among them ($P < 0.05$). Urine test for leucaena toxicity during the experiment was found that the derivative 2,3-DHP was detected at a low level without any harmful incident of mimosine and its derivative 3,4-DHP on the experimental animals. Apparently, an economic return from the leucaena supplementation groups seemed to be more effective due to the lower cost of meal concentrate.

Student's signature

Thesis Advisor's signature