Thidasri Anukanchanaweera 2011: Effects of Replacing Forage Detergent Fiber with Non-Forage Detergent Fiber from Cassava Residues and Soybean Hulls on Performance of Dairy Cows in the Tropics. Master of Science (Animal Nutrition and Feed Technology), Major Field: Animal Nutrition and Feed Technology, Department of Animal Science. Thesis Advisor: Associate Professor Jeerachai Kanjanapruthipong, Ph.D. 102 pages.

An objective of this study was to evaluate effects of replacing neutral detergent fiber (NDF) from forage fiber with non-forage fiber sources on performance of dairy cow under hot and humid conditions. Cross bred Holstein X Sahiwal (87.5 HF X12.5 SW) fed diet containing total NDF 27 %. Dairy cows ate diet containing NDF from rice straw as a control group. Diets replacing NDF from rice straw up to 25% with NDF from soybean hulls and cassava residues were fed to experimental groups. Dietary treatments contained a similar level of nutrients. Dairy cows fed diets containing NDF from soybean hulls and cassava residues fed lower amounts of NDF from rice straw than the control group ($p<0.01$). Dry mater intake (% body weight: $p<0.05$ and kg/d: $p<0.01$), net energy intake ($p<0.01$), average daily gain ($p<0.01$), 4% fat corrected milk ($p<0.05$) and milk composition ($p<0.01$) were highest for cows fed diet containing soybean hulls, compared to those fed diets containing cassava residues and containing NDF from rice straw. However, 4% fat corrected milk in cows fed cassava residues did not differ from that in the control group ($p>0.05$). Higher meal duration ($p<0.01$) and lower feeding frequency ($p< 0.01$), rectal temperature before afternoon ($p<0.01$) and after afternoon milking ($p<0.05$) were observed in cows fed diets containing soybean hulls and cassava residues. In addition, cows fed diet containing soybean hulls had longer lying duration than those fed diet containing cassava residues and containing NDF from rice straw ($p<0.05$). It can be concluded that dry matter intake and performance of dairy cows under hot and humid conditions can be increased on diet containing NDF from non-forage fiber sources.

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