

Estimation of nutritional status of milking cows under small farmer conditions in Kamburupitiya area

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Abstract

Daily excretion of purine derivatives (PD) and creatinine by lactating cows fed four different rations were examined in a small farm at Kamburupitiya area during the period of six months. The four diets used were 1) mixture of natural forages –farm diet (FD) 2) FD + 675g DM /head/d low cost concentrate supplement –Gava Triposha (GT) 3) FD + 216g DM /head/d *Gliricidia sepium* tree fodder (TF) 4) FD+GT+TF respectively. In addition, effect of four diets on milk yield and composition were also studied. A Latin square design was used with four lactating cows (cross-bred Frisian cows, live weight 250 ± 12 ,; 150-160 days of 3rd lactation) and four feeding periods. The intake of organic matter and nitrogen increased with supplementation in association with higher dry matter intake. Milk yield was not increased due to supplementation but fat and total solids were slightly changed due to supplementation of GT+TF. The level of allantoin, uric acid, total PD and creatinine (mmol/l) in urine responded positively towards supplementation in response to higher nitrogen status of supplemented diets. The highest response was observed when farm diet was supplemented with GT+TF. The PD: Creatinine index (PDC Index) and estimated daily PD excretion (mmol/d) also responded significantly towards supplementation. The PDC index was lowest with farm diet (19) and increased with supplementation and reached the highest value of 32 with TF+GT diet. The estimated digestible organic matter intake (DOMI) was 0.69, 0.83, 0.98 and 1.17 kg/head/d respectively for FD, FD+GT, FD+TF and FD+GT+TF diets. According to the banding system based on PDC index and estimated microbial nitrogen production, under feeding condition was observed when only farm diet was fed to lactating cows. However, supplementation with TF or GT could enhance the microbial nitrogen production to reach the maintenance level of feeding. Supplementation both with GT and TF could boost the microbial nitrogen production to reach a satisfactory level of feeding.

The findings of this study suggest that supplementation of tree fodder and low cost concentrate mix (Gava Triposha) have a greater potential to improve the nutritional status of milking cows particularly under small farmer conditions.

Keywords: Tree Fodder, Microbial Nitrogen, Digestible Organic matter intake, Purins