

Response of four improved grass varieties for organic and inorganic fertilizers*S H R Priyadarshani* and Thakshala Seresinhe**Department of Animal Science, Faculty of Agriculture, University of Ruhuna, Mapalana, Kamburupitiya.*

The yield and quality of two fodder (*Panicum maximum* Jacq. – Hamil and *Panicum maximum* var. trichoglume– Green Panic) and two pasture grasses (*Pennisetum purpureum* NB 21 and *Chloris gayana*) were determined with organic and inorganic fertilizer applications. Fodder and pasture grasses were established in 2.5 m x 2.5 m plots one year prior to the experiment (4 varieties x 2 fertilizer treatment x 3 replicates). All plots were cut at a height of 5 cm above ground level and fertilized with inorganic (62.5 kg/ha of ammonium sulphate) and organic (12,000 kg/ha of cow dung; 25% DM, 1.3% N) manures prior harvests. The rate of application is equal to 50 kg N/ha/cut. Harvests were done at 6 weeks intervals and dry matter yield (DMY) and proximate composition (AOAC, 1980) were determined. Although not significant ($P>0.05\%$), all four grasses had higher DMY with inorganic fertilizer application as compared with organic fertilizer application. *Panicum maximum* var. – Hamil had the highest DMY with inorganic (7343 kg/ha/y) and organic (7007 kg/ha/yr) fertilizers respectively. The DMY of *Pennisetum purpureum* – NB 21 was the lowest (5722 kg/ha/y and 4898 kg/ha/y for inorganic and organic fertilizers respectively) among all the treatments. The DMY of *Panicum maximum* var. trichoglume had 7398.5 kg/ha/y and 6924.9 kg/ha/y with inorganic and organic fertilizers respectively. The DMY of *Chloris gayana* were 6462 kg/ha/y and 6245 kg/ha/y with inorganic and organic fertilizers respectively. In contrast crude protein (CP) content of *Panicum maximum* var. – Hamil and *Chloris gayana* were increased with organic fertilizer as compared with inorganic fertilizers application. *Chloris gayana* had the highest ($P>0.05\%$) CP percentages with organic (11.41%) and inorganic (10.23%) fertilizer applications. The lowest CP percentage was found in *Panicum maximum* var. – Hamil (8.83%) with inorganic fertilizer. Crude protein yield (CPY) was correlated positively with DMY and the highest CPY was observed in *Panicum maximum* var. – Hamil (743.59 kg/ha/y) with organic fertilizer. The results clearly show that organic fertilizer application could increase the yield and quality of grasses in a same way as inorganic fertilizers. Therefore, at subsistence level farmers could use more efficiently organic fertilizers (such as animal excreta, crop residue, green manure, agriculture by products, etc.) to improve pasture production.