

**B-138: Symbiotic nitrogen fixation of *Gliricidia sepium* in a mixed sward at two cutting heights**

Thakshala Seresinhe, Hema Sarathchandra

*(Dept of Animal Science, Faculty of Agriculture, University of Ruhuna, Kamburupitiya)*

In a field experiment, symbiotic nitrogen fixation of *Gliricidia sepium* was investigated. *G.sepium* swards were grown in association with *Panicum maximum* cv. VRI 435. Cutting heights were 10 cm for grass and for legume trees 100 and 150 cm above ground level. *Casia siamia* was used as reference plant to estimate symbiotic nitrogen fixation. Six months after establishment and after each harvest, the plots were fertilized with  $2\text{g N m}^{-2}$  ( $20\text{kg ha}^{-1}$ ) including 2%  $\text{N}^{15}$  enriched  $(\text{NH}_4)_2\text{SO}_4$ .

The annual dry mater yield of *G. sepium* was increased ( $p < 0.05$ ) at higher cutting height. These yield differences were mainly attributed to the higher rate of branching in trees cut at a height of 150cm. Irrespective of the cutting height

both *G. sepium* and grass mixed swards received larger proportion of nitrogen from symbiotic fixation due to the strong competitiveness of the associate grass in soil N uptake. Nitrogen derived from the atmosphere was favourably affected ( $p>0.05$ ) at higher cutting height (89% and 93% for 100 and 150 cm respectively). Cutting height had no effect on the shoot nitrogen content (3.01% for both swards). Therefore, annual nitrogen yield and the nitrogen yield from symbiosis followed the same trend as the dry matter yield.

These findings suggest that cutting height had no preferential influence on symbiotic nitrogen fixation of *G. sepium* while both swards benefited by the associate effect of grass.

Research grant from CARP and assistance given by the Atomic Energy Authority for analysis  $N^{15}$  samples are acknowledged.