## B-11 Decomposition and nutrient dynamics of leaf litter of some agro-forestry species

Thulani Amarasinghe, Ranjith Senaratne
(*Dept. of Crop Science, Faculty of Agriculture, University of Ruhuna, Mapalana, Kamburupitiya*)

Time of decomposition and nutrient (N, P, K, Ca and Mg) release pattern of leaf litter of *Acacia auriculiformis. Acacia mangium* and *Glyricidia sepium* were investigated using litter bag technique. Initial concentrations of P, K, Ca and Mg in *G.sepium* were 0.152, 1.78,3.39 and 0.33%, respectively which were considerably higher than those in the other 2 species. The concentration of polyphenol, a principal factor governing decomposition, was only 1.71% in *G.sepium* while it was as high as 7.24% and 7.56% in *A.auriculiformis* and *A.mangium*, respectively.

The leaf litter of *G.sepium* decomposed rapidly losing 73% of its initial mass by 30 days whereas the corresponding figures for *A.auriculiformis* and *A.mangium* were 29.9% and 49.2% respectively. Similar trend was evident with regard to release of nutrients other than K from the leaf litter. The % loss of N, P, Ca and Mg in *G.sepium* by 30 days was 49.2, 59.9, 57.5 and 80.1 while the corresponding figures for *A.auriculiformis* and *A.mangium* were 24,8, 50.8, 30.1 and 50.5 and 21.4, 40.8, 7.8 and 16.6, respectively. As regards K, more than 80% of its initial content was lost by 30 days in all species.

While leaves of *G.sepium* are efficient in supplying nutrients through rapid decomposition, there could be a substantial loss of nutrients if not applied at a time when the crop is actively taking up nutrients. Because of the rapid breakdown of the litter of *G.sepium*, it may not be as efficient as the other 2 species in conserving soil and water and suppressing weed growth.