D-08: Establisment trials of Leguminous cover crops at Hantana grasslands

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Four Leguminous creeping perennials were introduced to evaluate their suitability for use as cover crops. Their intended purpose was to restore fertility of degraded soil, to retain soil moisture and to exclude weeds. The selected species were *Calapogonium mucunoides, Centrosema pubescens, Desmodium ovalifolium and Pueraria phaseoloides.*

This experiment was conducted at 4 sites in Hantana grasslands. Five experimental plots (4 m x 1 m) per site were laid out. Each of 4 plots comprised a single species while the fifth one was an equal mixture of the 4 test species. Half of each plot was covered by chicken wire and the remaining half was unprotected. This was done to determine effects of herbivory. status of soil chemical properties (Total N, P, organic matter, Ca, Mg and K) and N, P, K and polyphenolic content of the cover crop leaves were analysed at the end of one year growth.

It was found that there were no significant differences in nutrient contents among 4 sites at 10% probability level. However, due to the high acidity of the soil, poor establishment was observed in site 3 and 4. All species established well in the protected portions of the plots. This revealed that herbivory was a major impediment for cover crop establishment at Hantana. Results showed that *P. phaseoloides* and *C. pubescens* were *significantly* preferred ($p = 0.05$) as a browse by animals than *C. mucunoides* and *D. ovalifoliumi*. The N, P and K content of *Pueraria* and *Centrosema* leaves were *significantly* higher than *Desmodium* but not *Calapogonium*. However *Desmodium and Calapogonium* established well in both protected and open portions of the plots and were not affected be herbivory.

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