

### **Effect of different rates of gliricidia green manure on soil chemical properties and tissue nutrient content of coffee**

Coffee is an important export agricultural crop among the beverage crops in Sri Lanka, which is extensively grown in the wet and intermediate agroclimatic zones. A field experiment was conducted at Export Agricultural Research Station, Matale in the mid country intermediate zone of Sri Lanka to evaluate the effect of application of different rates of gliricidia loppings as green manure on soil chemical properties and tissue nitrogen content of coffee. Rates were 0, 10, 15 and 20kg of Gliricidia (wet) mulch/plant/year. Soil samples were collected 4, 9 and 15 weeks after application of gliricidia from depths of 0-10cm, 10-20cm. And 20-30cm. Application of gliricidia leaves increased available nitrogen under all the rates irrespective of the soil depth. Four weeks after the application of gliricidia loppings, soil mineral nitrogen content increased significantly at 20-30cm, with the supply of 20kg of gliricidia. Exchangeable potassium content also showed a positive response with the rate of application of gliricidia. The application of 10, 15 and 20kg increased soil exchangeable potassium significantly in all the depths. The values at 0-10cm. Depth were 320.72, 320.27 and 343.75mg/kg respectively, while in control it was 66.62 mg/kg. The application of 15kg of Gliricidia gave highest soil organic carbon content of 3.53% on the top layer(0-10cm), which was significantly different from the control (1.40% ) The application of 20kg of Gliricidia increased soil Magnesium content significantly at 0-10 cm (380mg/kg) compared to the control (180mg/kg). Application of Gliricidia leaves enhanced soil pH. This was most

evident with 9 weeks after the application of 20kg at 0-10cm. Soil depth where the increment of pH was from 4.91 to 5.74. Application of 10kg gliricidia enhanced the tissue nitrogen content of coffee leaves up to 3.28% while in control it was only 2.75%.