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Effect of different rates of gliricidia green manure on soil chemical properties and the yield performances of Coffee (*Coffea arabica* L.) (Var. Catimor)

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Coffee is an important export agricultural crop among the beverage crops grown in Sri Lanka throughout the wet and intermediate agro climatic zones of Sri Lanka. A field experiment was established at the Export Agriculture Research Station, Matale in the Mid Country Intermediate Zone of Sri Lanka (IM3a) to evaluate the effect of four different rates (0, 10, 15 and 20 kg *Gliricidia*/plant/ year) of *Gliricidia* (leaves and tender stems) on improvement of soil chemical properties after 15th year of treatment application and long term yield performances of coffee. Soil samples were collected from 0-20cm depth and analyzed for available N (NH_4^+-N and NO_3^-N), Ammonium acetate extractable K and Mg content.

Effect of application of different rates has significantly increased the available N content in the soil. The highest available N content of 28 mg/kg was recorded with application of 20 kg *Gliricidia* while in control it was 17.89 mg/kg. Highest exchangeable K and Mg contents (372 and 380 mg/kg respectively) were also observed with application of 20 kg *Gliricidia*/plant/year, while in control it was only 66 and 180 mg/kg respectively. Soil organic matter content was improved up to 3.53% with application of 15 kg of *Gliricidia* from 1.40% in the control treatment. Yield data collected during year 2002-2009 (9th – 15th year after planting) showed the highest yield at the highest rate of *Gliricidia* application 20 kg/plant/year and it was 5365 kg/ha/year in 2002. After collar pruning in 2002, the highest yield of 4952 kg/ha/year in year 2009 in treatment of 20 kg *Gliricidia*/plant/year was recorded in the second bearing cycle. Therefore application of 20 kg of *Gliricidia* above gives higher effectiveness without application of any inorganic fertilizer in achieving higher sustainable yields of Catimor coffee as well as on build up of soil nutrient status.

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