Abstract

The use of green manure may contribute to reduce soil erosion and increase the soil organic matter content and N availability in coffee plantations in the Zona da Mata, State of Minas Gerais, in Southeastern Brazil. The potential of four legumes (A. pintoi, C. mucunoides, S. aterrimum and S. guianensis) to produce above-ground biomass, accumulate nutrients and mineralize N was studied in two coffee plantations of subsistence farmers under different climate conditions. The biomass production of C. mucunoides was influenced by the shade of the coffee plantation. C. mucunoides tended to mineralize more N than the other legumes due to the low polyphenol content and polyphenol/N ratio. In the first year, the crop establishment of A. pintoi in the area took longer than of the other legumes, resulting in lower biomass production and N2 fixation. In the long term, cellulose was the main factor controlling N mineralization. The biochemical characteristics, nutrient accumulation and biomass production of the legumes were greatly influenced by the altitude and position of the area relative to the sun.

Keywords

Agroecology, Atlantic Forest, leguminous species, N2 fixation, nutrient cycling.