

## EFFECT OF CHARRED BIOMASS ADDITION ON FERTILITY CHARACTERISTICS OF SOIL

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### Introduction

Agricultural soils in the Chemmani series of Jaffna peninsula have meager soil fertility characteristics because of their alkaline pH values, low nutrient content diminutive soil organic carbon contents and low cation exchange capacity. We hypothesized that charred biomass additions will help ameliorate some of these fertility problems. The study objectives were to assess the effects of firewood based charred biomass addition alone and in combination with inorganic fertilizers on soil fertility characteristics of soils of Chemmani series of Jaffna peninsula.

### Methodology

The top soil layer (0-15) was sampled from uncultivated lands in Arali belonging to Chemmani series, followed by the removal of plant debris. Soil sample was air dried and sieved through 2mm sieve prior to physical and chemical analysis of soil. Table 1 shows few selected physical and chemical properties of soil. Charred biomass was produced from firewood. Firewood was heated in a conventional kiln about 450-500°F and removed to metal tray from kiln when reached red hot stage. Water was sprinkled on the live coal and it was allowed to cool. Finally charred biomass (CB) was ground to fine texture and analyzed (Table 2).

Table 1: selected properties of soil used for study

Characters	Arali
Texture	Sandy clay loam
Sand (%)	61.74
Silt (%)	10.2
Clay (%)	28.06
pH (1:5 / soil: water)	8.2
EC (dS/m)	0.358
Total N (mg/kg)	616
Available N (mg/kg)	7
Available P (Kg/ha)	33.3
Available K (Kg/ha)	702.13
CEC (c mol (+) / Kg of soil)	9.5
Organic matter (%)	0.862