

B-72: Characteristics of some problem soils of Sri Lanka

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Problem soils such as saline, alkaline, acid soils, and iron toxic soils occur in Sri Lanka. Results of an investigation to study the chemical and physical properties of 8 of these soils are reported.

Eight soil samples from fields where plant growth was poor were studied. These were from Polonnaruwa, Hambantota, Matara (Nilwala basin), Kandy and from Sevenagala areas.

Results indicate high sodium, in inland salt affected soils at Thalpotha in Polonnaruwa, while low organic matter, nitrogen and high salt content are the characteristics of coastal saline soils from Hambantota. High acidity, low exchangeable bases and low phosphorus contents characterize the acid sulphate soils at Matara in the Nilwala basin. High acidity and low exchangeable bases are characteristics of soils in mid-country, marginal tea lands at Galaha. Nutritional deficiencies and high amounts of calcium occur in some soils, in addition to these.

Properties in these problem soils range as follows:

pH 2.7 to 10.2, CEC 8.5 to 28.2 (me/100g of soil), exchangeable phosphorus 0.1 to 6.7 (mg/100g of soil), total nitrogen 0.08 to 0.37%, organic matter 0.51 to 4.01%. Among the exchangeable bases, sodium varies from 0.43 to 13.58 (me/100g of soil), potassium between 0.80 and 1.09, (me/100g of soil) calcium from 0.21 to 22.07 and magnesium between 0.02 and 5.18 (me/100g of soil).

These adverse soil characteristics cause problems for plant growth. These soils can be ameliorated by appropriate treatment or by cultivating suitable crops or crop varieties depending on soil characters.