

## B-63 Soil water retention characteristics of immature brown loam soils

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Immature Brown Loam (IBL) soils cover approximately 205,000 ha and are distributed in the wet and semi-wet intermediate zones of Sri Lanka. The objective of this study was to characterize the water retention relationship of this soil. Soil core samples were obtained from a soil profile of IBL soils from Aranayake area. Water retention relationship was measured using a sand box and pressure plate apparatus. In addition, soil texture and organic carbon contents were measured. The soil profile description identified 4 major soil horizons (Ap, AB, Bw and C). The field capacity which was estimated as the water content at 10 kPa were 0.47, 0.25, 0.35 and 0.30  $\text{cm}^3/\text{cm}^3$  for Ap, AB, Bw and C horizons respectively. The permeant wilting point (water content at 1500 kPa suction) was 0.29, 0.16, 0.19 and 0.14  $\text{cm}^3/\text{cm}^3$  for the same horizons. The weighted average of available water was 152 mm/m depth of soil which was classified as medium availability. As most of the plantation crops are cultivated under rainfed conditions in IBL soils it has medium suitability for rainfed agriculture. The soil clay content was 17.6%, 20.8%, 13.6% and 9.1% for Ap, AB, Bw and C horizons respectively, showing clay migration and deposition in the AB horizon. The organic carbon content decreased along the soil profile from 1.15% of the Ap horizon to 0.11 of C horizon. This clearly shows the positive effects of organic matter in increasing available water in soil.