CHARACTERIZATION OF PHYSICAL PROPERTIES OF THE GRAVEL LAYER IN REDDISH BROWN EARTH SOILS (ALFISOLS).

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Presence of a gravel layer in certain mapping units of Reddish Brown Earth soils (RBE), the soils of the soil order Alfisols is a major limitation for agricultural use. This layer contains about 65% gravel and is well packed with illuvial clay particles. Therefore, it may impede water movement, root penetration and soil aeration. The objective of this study was to characterize soil physical properties of the gravel layer in relation to, the properties of other soil horizons in Reddish Brown Earths (RBE) to assess the degree of limitations imposed by this layer.

This study was carried out at Mahaweli System 'H' in well drained RBE soils. The properties characterized were saturated hydraulic conductivity (Ks), soil texture and the gravel content, bulk density and the depth to the gravel layer in the soil catena.

The results showed that the mean Ks of the surface layer was 2.19 cm/h and decreased to 1.37 cm/h in the gravely horizon showing its limitations for water flow. The bulk density and clay content increased from surface to the gravel layer which will limit root penetration and aeration capacity of the soil. The depth to the gravel layer was low in the upper part of the catena showing that shallow rooted crops are more suited for this area.