

Summary

With the purpose of quantifying the vertical distribution of morphologic traits of the root system of *Brachiaria humidicola* it was made a study in a pasture implanted on a Planossol in the campus of the Rural Federal University of Rio de Janeiro, in Seropédica, RJ, Brazil. The data were obtained through a method of excavation and sequential extraction of soil monoliths. The recovered roots were classified manually in three size classes by diameter: thick, medium and fine and quantified in relation to dry mass, total length and superficial area. The results indicated that those parameters were distributed according to a decreasing exponential pattern in function of depth of rooting within the sampled profile section (0 - 0.7 m). Fine roots almost explained the totality of the length and the area of the root system and more of the half of the accumulated dry mass, concentrating on first 0.2 m of the profile. The sampling method used coupled to digital image processing; it was shown sufficiently sensitive to detect variations in the vertical distribution of the three root size classes studied.