

ABSTRACT

ANALYSIS OF DIFFERENCES AND RELATIONSHIPS BETWEEN SOIL ORGANIC CARBON AND SOIL PHYSICAL PROPERTIES IN VARIOUS LAND USES IN MANONJAYA SUB-DISTRICT, TASIKMALAYA REGENCY

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Agricultural activities involve the use of land for agrarian purposes. Intensive agricultural practices can lead to land degradation. Soil fertility and quality can be assessed by the content of organic carbon (C-organic) and the physical properties of the soil. This study aims to determine the differences and relationships between soil C-organic and soil physical properties under various land uses. The research was conducted in Manonjaya Sub-district and the Soil Laboratory of the Faculty of Agriculture, Siliwangi University, Tasikmalaya, from April to May 2024. The survey method was used with sampling carried out four times for each land use. The data analysis by Spearman's correlation test and ANOVA. The research results showed that soil C-organic positively correlates with porosity (0.587) and soil moisture content (0.863) and negatively correlates with bulk density (-0.717) and specific gravity (-0.542). Agroforestry land had the highest C-organic content with an average of 11.55%, while residential land had the lowest at 3.02%. Agroforestry land also had the highest soil porosity and moisture content at 59.90% and 9.04%, respectively, compared to other land uses. The highest bulk density and specific gravity were found in residential land at 1.42 g/cm³ and 2.28 g/cm³, respectively, while the lowest values were in agroforestry land at 0.79 g/cm³ and 1.97 g/cm³.

Keywords: land use, soil organic carbon, soil physical properties