SOIL QUALITY AT DIFFERENT DISTANCES FROM SHORELINES IN SAMAS COASTAL SANDY FARMLAND BANTUL, YOGYAKARTA

By : Teresia Sepia Intan Cahyani Putri
Supervised by : Susila Herlambang

ABSTRACT

Samas coastal sandy farmland is a marginal land with limitations on the soil including single-grain structure, poor water holding capacity, and low nutrients. The sandy farmland of Samas coastal stretches from south to north for 4 kilometers or more. This research aims to determine soil characteristics, soil quality index (SQI), and limiting factors of soil quality in coastal sandy farmland. This research uses a survey method. The determination of the sample point uses a purposive method determined based on the distance from the coastline, namely 1, 2, 3, and 4 kilometers. The soil quality assessment parameters are root depth, bulk density, porosity, percentage of silt and clay, C-organic, N-total, N-available, P-available, K-available, pH, and microbial count. Data analysis to determine functions and indicators is based on the Mausbach and Seybold (1998) criteria modified by Partoyo (2005). The determination of the assessment function is based on Karlen et al. (1996) and adjusted to conditions in the field. The results showed that the soil characteristics on agricultural land 1 kilometer from the coast had the highest sand content (62.041%) and C-organic (0.754%), N-total (0.307%), C/N ratio (2.456), and number of microbes (670×10^3 *cfu*/gram) are the lowest. The soil characteristics on agricultural land 4 kilometers from the coast have the lowest sand content (19.819%), and C-organic (1.297%), N-total (0.392%), C/N ratio (3.309), and the number of microbes (1910×10^3 *cfu*/gram) are the highest. The content of N-available, P-available, and K-available is high. The soil quality index has a higher value the farther the distance of agricultural land from the coast. At a distance of 1 kilometer from the coast, the soil quality has medium criteria with an IKT of 0.472, while at a distance of 4 kilometers from the coast, it has a good standard soil quality with an IKT of 0.774. The limiting factors in soil quality are porosity, NPD, C-organic, and N-available of soil.

Keywords: coastal sandy farmland, distance, soil quality, soil quality index