BEBERAPA SIFAT FISIK TANAH PERTANIAN AKIBAT SEDIMENTASI AIR IRIGASI TERDAMPAK TAMBANG PASIR SUNGAI SENOWO KABUPATEN MAGELANG

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ABSTRAK

Sungai Senowo terletak di sisi barat Gunung Merapi. Sungai ini melalui enam wilayah desa yaitu Krinjing, Keningar, Sumber, Mangunsoka, Dukun, dan Banyudono. Penambangan pasir di hulu Sungai Senowo menghasilkan sisa pencucian pasir yang mengalir ke hilir, sebagian masuk ke lahan pertanian melalui saluran irigasi. Tujuan penelitian ini untuk mengetahui beberapa sifat fisik tanah pertanian akibat sedimentasi air irigasi Sungai Senowo. Penelitian dilaksanakan dengan metode survei. Penentuan titik sampel dilakukan secara purposive berdasarkan jarak petak lahan pertanian dari Sungai Senowo. Pengukuran sampel air dilaksanakan di lapangan dengan mengukur TDS menggunakan TDS meter, debit aliran menggunakan metode apung. Pengambilan sampel tanah dilakukan sebanyak enam sampel tanah terusik dan enam sampel tanah tidak terusik menggunakan ring sampler setiap titik sampling diambil sampel pada kedalaman 0-5 cm, 5-10 cm, dan 10-20 cm. Sifat fisik tanah yang dianalisis di laboratorium meliputi tekstur, BV, BJ, porositas tanah, permeabilitas, dan agihan ukuran pori. Hasil penelitian menunjukkan nilai TDS air irigasi 163-190 ppm; debit aliran 0,1-0,8 m^3/s; tekstur tanah termasuk geluh pasiran dan geluh debuan; BV 1,24 – 1,63 g/cm^3; BJ 2,4 – 2,76 g/cm^3; porositas tanah 38% (jelek) – 53% (baik); permeabilitas 8,47-12,02 cm/jam (agak cepat); dan agihan pori tanah yaitu pori drainase cepat 15,98 - 35,07% (tinggi), pori drainase lambat 0,18% (sangat rendah) hingga 7,4 % (rendah); dan pori air tersedia 0,9% (sangat rendah) hingga 25,55 % (sangat tinggi).

Kata kunci: sedimen, sifat fisik, Sungai Senowo, tambang pasir

THE SOIL PHYSICAL PROPERTIES OF AGRICULTURAL LAND DUE TO SEDIMENTATION OF SENOWO RIVER IRRIGATION WATER IMPACTED BY SAND MINING IN MAGELANG REGENCY

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ABSTRACT

The Senowo River was situated on the west side of Mount Merapi. This river passes through six village areas: Krinjing, Keningar, Sumber, Mangunsoka, Dukun, and Banyudono. Sand mining at the upper stream of the Senowo River resulted in sand washing residue flowing downstream, with some entering agricultural land through irrigation channels. The objective of this study was to examine several physical properties of agricultural soil due to irrigation water sedimentation from the Senowo River. The research was conducted through a survey method. Sample points were purposively selected based on the distance of agricultural plots from the Senowo River. Water sample measurements were carried out in the fields, measuring Total Dissolved Solids (TDS) using a TDS meter and flow rate using a floating method. Soil samples were taken, consisted of six disturbed soil samples and six undisturbed soil samples at the each sampling point, at depths of 0-5 cm, 5-10 cm, and 10-20 cm. Physical soil properties analyzed in the laboratory included texture, bulk density, particle density, soil porosity, permeability, and pore size distribution. The research findings indicated TDS values of irrigation water is 163-190 ppm; flow rates of 0,1-0,8 m^3/s; soil textures categorized as sandy loam and silt loam; bulk density ranging from 1,24 to 1,63 g/cm^3; particle density ranging from 2,4 to 2,76 g/cm^3; soil porosity ranging from 38% (poor) to 53% (good); permeability ranging from 8,47 to 12,02 cm/h (moderately fast); and distribution of soil pore sizes: fast drainage pores from 15,98% to 35,07% (high), slow drainage pores from 0,18% (very low) to 7,4% (low), and available water pores from 0,9% (very low) to 25,55% (very high).

Keywords: sedimentation, physical properties, Senowo River, sand mining