

## INTISARI

Pengelolaan air dan tanah yang tepat guna dapat menjaga ketersediaan air dan meningkatkan kemampuan tanah dalam menyerap dan mempertahankan ketersediaan air dalam tanah. Rekayasa pengelolaan tanah bertujuan untuk mengembalikan dan lebih meningkatkan kemampuan tanah dalam upaya konservasi air tanah. Sampel tanah diambil dari lahan persawahan di Dusun Paingan, Desa Maguwoharjo, Kecamatan Depok, Kabupaten Sleman memiliki tekstur tanah *sandy loam* dan Dusun Widoro, Desa Bangunharjo, Kecamatan Sewon, Kabupaten Bantul memiliki tekstur tanah *loam*. Komposisi campuran pupuk organik kascing dengan tanah sawah yang diteliti adalah 1:2,5 (29%), 1:2 (33%), 1:1,5 (40%), 1:1 (50%), 1,5:1 (60%) , 2:1 (67%) dan 2,5:1 (71%) dengan berat kering udara total benda uji sebesar 900 g.

Hasil uji permeabilitas *falling-head* menunjukkan seiring makin besar dosis pupuk, nilai koefisien permeabilitas meningkat. Nilai koefisien permeabilitas rata-rata saat kondisi air tersedia optimum pada tanah Bantul (dosis pupuk 40%)  $k = 6,28$  cm/jam, sedangkan pada tanah asli Maguwo (dosis pupuk 0%)  $k = 0,68$  cm/jam. Tinggi air drainase tanah Bantul dan tanah Maguwo meningkat seiring dengan penambahan pupuk organik. Tinggi air drainase pada saat air tersedia optimum untuk tanah Bantul  $h = 5,19$  cm dan tanah Maguwo  $h = 3,16$  cm. Total perkolasi tertinggi tanah Bantul pada dosis pupuk 40% yaitu 199,33 ml, sedangkan tanah Maguwo pada dosis pupuk 29% yaitu 182,33 ml.

Kata kunci : pupuk organik, perkolasi, air drainase, permeabilitas

## ABSTRACT

Proper soil and water management system can conserve water as well as increase the ability of soil to absorb the water and maintain the availability of groundwater. Soil management engineering aims to restore and enhance the ability of soil in conserving the ground water. The soil samples that were collected from the paddy fields at Dusun Paingan, Desa Maguwoharjo, Kecamatan Depok, Kabupaten Sleman had the soil texture *sandyloam*. Meanwhile, the samples from Dusun Widoro, Desa Bangunharjo, Kecamatan Sewon, Kabupaten Bantul had the soil texture *loam*. The compositions of kascing organic manure mixed with the soil that was investigated are 1: 1, 1.5: 1; 2: 1; 2.5: 1; 1: 2; 1: 1.5 and 1: 2.5 with the total air-dry weight of 900 g specimen.

The result of the falling-head permeability test showed that the more fertilizer dose was given, the higher coefficient of permeability value increased. The average coefficient permeability value of Bantul's soil (doses of fertilizer 40%) was  $k = 6,28$  cm/hours while the original Maguwo's soil (doses of fertilizer 0%) was  $k = 0,68$  cm/hours. The height of water drainage both the Bantul's soil and Maguwo's soil increased with the addition of organic manure. The height of the water drainage at the optimum water holding capacity time for Bantul's soil was  $h = 5,19$  cm and Maguwo's soil was  $3.16$  h cm. The highest percolation total of Bantul's soil at fertilizer dose 40% was 199,33 ml, while the Maguwo's soil at the fertilizer dose 29 % was 182,33 ml.

Keywords : organic manure, percolation, water drainage, permeability