

Intisari

Penelitian ini bertujuan untuk mengetahui nilai laju infiltrasi dan hubungannya dengan karakteristik tanah pada berbagai penggunaan lahan dan kemiringan lereng di Imogiri, Kabupaten Bantul, Yogyakarta. Metode penelitian yang digunakan adalah survei lapangan, analisis data lapangan, dan analisis data laboratorium dengan pendekatan satuan lahan sebagai satuan pemetaan. Titik sampel pada penelitian ini berjumlah 35 titik yang diperoleh dengan metode penentuan titik sampling berupa metode *systematic sampling*. Pengukuran laju infiltrasi dan pengambilan tanah sampel dilakukan pada kedalaman 0-20cm. Pendekatan analisis statistika yang digunakan adalah rancangan bersarang (*nested design*) dan analisis regresi. Karakteristik tanah yang dianalisis adalah kadar lengas awal, berat volume, berat jenis, distribusi pori, bahan organik, dan tekstur tanah. Laju infiltrasi diukur menggunakan *single ring infiltrometer*. Pengamatan laju infiltrasi dilakukan selama 1 menit (5 kali), 4 menit (5 kali), dan 9 menit (3 kali). Hasil penelitian menunjukkan bahwa kemiringan lereng dan penggunaan lahan yang tersarang pada kemiringan lereng berpengaruh nyata terhadap laju infiltrasi. Rerata nilai laju infiltrasi yang diperoleh pada kemiringan sangat landai di sawah $0,065 \text{ cm.jam}^{-1}$, hutan $0,401 \text{ cm.jam}^{-1}$, tegalan $0,261 \text{ cm.jam}^{-1}$; kemiringan landai di sawah $0,073 \text{ cm.jam}^{-1}$, hutan $0,495 \text{ cm.jam}^{-1}$, tegalan $0,405 \text{ cm.jam}^{-1}$; kemiringan agak curam di sawah $0,0565 \text{ cm.jam}^{-1}$, hutan $0,5767 \text{ cm.jam}^{-1}$, tegalan $0,3780 \text{ cm.jam}^{-1}$; kemiringan curam di sawah $0,1680 \text{ cm.jam}^{-1}$, hutan $0,533 \text{ cm.jam}^{-1}$, dan tegalan $0,147 \text{ cm.jam}^{-1}$.

Kata kunci : kemiringan lereng, laju infiltrasi, *nested design*, penggunaan lahan

Abstract

The objective of this research aims to determine the soil infiltration rate and its correlation with soil properties in various land use and slope in Imogiri, Bantul, Yogyakarta with several approach methods. The technique of determining the sample point by systematic sampling method, obtained 34 sample point. The infiltration measurement and soil sample done at topsoil layer (0-20 cm). The statistical analysis approach of this research uses a nested design and linear regression statistical analysis. The analyses soil properties include soil moisture, bulk density, particle density, power free, organic matter, and soil texture. Infiltration rate was performed using single ring infiltrometer. Observation of infiltration was carried out of 1 minute (5 times), 4 minute (5 times), and 9 minutes (3 times). The result showed that slope level and land use variation significantly affected on soil infiltration rate. The average of infiltration in paddy dry field in flat slope was $0,065 \text{ cm.h}^{-1}$, forest in flat slope was $0,401 \text{ cm.h}^{-1}$, moor in flat slope was $0,261 \text{ cm.h}^{-1}$; paddy dry field in rolling slope was $0,073 \text{ cm.h}^{-1}$, forest in rolling slope was $0,495 \text{ cm.h}^{-1}$, moor in rolling slope was $0,405 \text{ cm.h}^{-1}$, paddy dry field in hilly slope was $0,0565 \text{ cm.h}^{-1}$, forest in hilly slope was $0,5767 \text{ cm.h}^{-1}$, moor in hilly slope was $0,3780 \text{ cm.h}^{-1}$, paddy dry field in steep slope was $0,1680 \text{ cm.h}^{-1}$, forest in steep slope was $0,533 \text{ cm.h}^{-1}$, and moor in steep slope was $0,147 \text{ cm.h}^{-1}$.

Keywords: infiltration rate, land use, nested design, slope level