

## Effects of surface cover and soil characteristics on infiltration capacity in Japanese cypress plantation

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To investigate the infiltration capacity in unmanaged Japanese cypress (hinoki) plantations, the rainfall experiment with an oscillating nozzle rainfall simulator in less thinned hinoki plantations in central and western parts of Japan (Mie and Yamaguchi), and the statistical analysis among the infiltration capacity, vegetative cover and soil characteristics were conducted. The infiltration capacity measured at 14 points in Mie site varied from 5.0 to 252.6 mm/h, significantly increasing with vegetative cover (0-100%) and decreasing with bulk density (0.91-1.54 g/cm<sup>3</sup>). The bulk density showed a negative correlation to the vegetative cover, suggesting that the soil compaction by raindrop impact can be decreased by the cover and the root networks of understory vegetation may form the void in the soil, leading to the higher infiltration capacity. In Yamaguchi site, the infiltration capacity at 7 points ranged from 41.8 to 187.6 mm/h, decreasing significantly with the bulk density (0.50-1.35 g/cm<sup>3</sup>). The bulk density was found to be decreased, but not significant, with vegetative cover. At the points with no vegetative cover, i.e. bare surface, the bulk density varied significantly and showed a positive correlation to gravel contents percentage (11.5-64.9%). This suggests that the absence of soil matrix rather than root networks may cause the higher bulk density, resulting in weak positive correlation between infiltration capacity and bulk density.