



Penelitian ini dilakukan di daerah Dataran Kaki dan Dataran Fluvio Vulkan Kecamatan Kalasan, Kabupaten Sleman, Daerah Istimewa Yogyakarta dengan tujuan untuk : mengetahui distribusi cadas olah di daerah penelitian; mengetahui pengaruh faktor kedalaman muka airtanah, kadar bahan organik, teknik pengolahan tanah yang berupa kedalaman olah tanah dan pola tanam terhadap pembentukan cadas olah; dan mengetahui pengaruh keberadaan cadas olah terhadap kedalaman perakaran tanaman dan drainase di daerah penelitian.

Penelitian ini dilakukan dengan pendekatan satuan lahan yang tersusun atas satuan bentuklahan, satuan tanah, dan satuan pola tanam. Pengambilan sampel tanah dilakukan dengan metode *stratified purposive sampling*. Sampel tanah dianalisis di laboratorium untuk mendapatkan data : tekstur tanah, kadar bahan organik, kandungan ion Fe, Mn, dan porositas tanah. Data yang diperoleh dari pengukuran lapangan dan analisis laboratorium selanjutnya dianalisis menggunakan metode analisis deskriptif dengan membuat tabel dan metode analisis statistik untuk membuat persamaan regresi berganda.

Lahan dengan kelas kedalaman cadas olah dangkal terdapat pada dua satuan lahan yaitu V8 5 P₃ dan V8 9 P₃. Kelas kedalaman cadas olah sedang hingga sangat dalam terdapat di hampir semua bentuklahan dan semua jenis tanah. Ketebalan cadas olah dengan kelas ketebalan tipis terdapat pada dua satuan lahan yaitu; V7 9 P₁ dan V7 9 P₀. Ketebalan cadas olah dengan kelas ketebalan agak tebal sampai sangat tebal terdapat pada satuan lahan V7 10 P₂, V7 9 P₁, V8 3 P₃, dan V8 9 P₃. Faktor teknik pengolahan tanah, bentuklahan, bahan induk tanah, dan kedalaman muka airtanah merupakan faktor-faktor pembentuk cadas olah. Analisis statistik menunjukkan bahwa faktor yang paling berpengaruh terhadap pembentukan cadas olah adalah kedalaman olah tanah, kadar bahan organik, kedalaman muka airtanah, dan pola tanam.

Kata Kunci: Cadas Olah, Kedalaman Lapisan ketebalan Lapisan, Kedalaman olah Tanah, Pola Tanam

The research took place at the Volcanic Foot Plain and Fluvio Volcanic Plain of Kalasan, Sleman District, Special Province of Yogyakarta. The objectives of this research are: to study the spatial distribution of ploughpan in the study area; to study the influence of groundwater phreatic depth, organic matter, technical of plough i.e., depth of plough and pattern of plantation to development of ploughpan; to study the influence of ploughpan to depth of rooting and drainage in the study area.

The research was carried out using landunit approach that derived from three informations, i.e., landform units, soil units, and pattern of plantation units. Fields samples were taken based on stratified purposive sampling method. Some soil were analyzed in laboratory to determine: soil texture; organic matter; concentration of Fe, Mn; and soil porosity. The field and the laboratory data were analyzed descriptively using tables as well as statistically to perform multiple linear regression formula.

Some ploughpans in the landunit of V8 5 P₃ and V8 9 P₃ are classified as low depth. Most of landform and soil units are classified as medium to very high depth. Some ploughpans in the landunit of V7 9 P₁ and V7 9 P₀ are classified as low thickness. The thickness of ploughpans are classified as medium to very high thickness, it will be found in the landunits, i.e., V7 10 P₂, V7 9 P₁, V8 3 P₃, and V8 9 P₃. The factors of plough technical, landform, soil parent materials and groundwater phreatic depth are suspected to control the development of ploughpan. Statistical analysis shows that the strongest factor to control the development of ploughpan are depth of plough, organic matter, groundwater phreatic depth and pattern of plantation

Key words: Ploughpan, Depth of Layer, Thickness of Layer, Depth of Plough, Pattern of Plantation