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Effects of organic fertilizer and the use and management on soil moisture and density of a Hapludults cultivated with guava fruit

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The systems use and management of soils cause major changes in the mass-volume relationships of the soil, affecting the behavior of water and nutrients available to plants and influencing crop yields. This work aimed to study the effects of use and soil management in the mass-volume relationships of soil cultivated with guava, sugar cane and occupied by native forest. The experiment was conducted in a Hapludults and the experimental design was completely randomized with four replications in plots. The factor levels were six main land use systems and soil management (application of residue processing industry in the orchard of guava in guava fruit 'Paluma'; mineral fertilization in guava 'Paluma'; application of residue dry weight of guava processing industry in guava fruit 'Paluma'; mineral fertilization in guava fruit 'Pedro Sato'; mineral fertilizers in sugar cane and native forest). The secondary factor levels were two sampling sites (canopy projection line of traffic and machinery). The applications of the products were held for five years from 2006 to 2010, the same period which saw the cultivation of guava 'Pedro Sato' and cane sugar. The use of mineral fertilizers, as well as the application of dry weight processing industry guava, ground or unground, the cultivate Paluma provided soil moisture and bulk density similar to that observed in native forest. The cultivate Pedro Sato resembled the cultivation of cane sugar, considering the variables studied. Considering the sampling position, it was found that the line traffic machine had a higher density, reducing the space available for the free passage of water and storage. This behavior is confirmed by correlation analysis between soil density and moisture measurements, which showed negative correlation ($R = -0.8187$), linear and significant ($Y = -0.0003 + 0.8499 \times R^2 = 0.67^{**}$).

Keywords: *Psidium guajava*, residue, soil density.

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