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**Aggregate-tensile strength in different soil structure identified by Profil Cultural method**

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Methods of visual assessment of soil structure allow a simple, quick and inexpensive assessment of structural soil condition. Profil Cultural (PC) has already been adjusted and tested in tropical soils, but there are limited studies that relate the structures assessed by PC with quantitative measurements of soil structure. Tensile strength of soil aggregates (TS) is considered as a useful parameter to evaluate structural changes associated with soil management. Our hypothesis is that soil structure quality evaluate by PC is related with TS. The objectives of this study were (i) to assess the TS of the different structures identified by PC and (ii) describe the relationship between PC and TS in an Oxisol after 24 years under different management systems. PC was used to assess soil structure in the following management systems: (1) no-tillage system with crop rotation; (2) no-tillage system with crop succession; (3) conventional tillage (disk harrow) with crop rotation; (4) conventional tillage (disk harrow) with crop succession. Undisturbed blocks were collected for each structure identified by PC (homogeneous morphological units) from which 40 aggregates were used to TS measurement. Comparisons between the management systems were performed using the confidence limits for the mean at 5% probability. Despite of the management system, structures classified as  $C_{\mu\Delta}$ , NAM (not altered by soil management, Bw horizon of Oxisols) and L (loose soil and small individual aggregates) had lower values of TS than structures that indicates a higher level of compaction like  $C\Delta$ ,  $C\Delta_{\mu}$ ,  $Fmt\Delta_{\mu}$ ,  $Fmt\mu\Delta$  and  $Fpt\mu\Delta$ . This result suggests that visual soil evaluation by PC method is directly related with TS. For the same structures ( $C\Delta_{\mu}$  and  $C_{\mu\Delta}$ ), no-tillage systems had significantly greater TS values than conventional tillage systems. High values of TS in no-till systems could be associated with higher values of soil bulk density.

**Key words:** soil compaction, no-tillage system, conventional system, visual evaluation