

ACTION OF EFFECTIVE MICROORGANISMS (EM) IN SOILS OF INTENSIVE AGRICULTURAL SYSTEMS IN BRAZIL

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Experiments carried out in 1995 clearly demonstrated that soil borne diseases are the most restrictive factors affecting crop production in Guaira, SP, Brazil. The high degree of soil compaction was proportional to the severity of diseases caused by *Sclerotinia sclerotinium*, *Fusarium solani* and *Rhizoctonia solanum*. Therefore, trials were installed in six farms with appropriate controls to determine the effects of EM as a substitute for conventional chemical systems, using a forest as a sustainable system for comparison. The soils were evaluated for biological and selected chemical and physical properties. The edaphic respiration was higher in the EM treated and forest soils, along with dehydrogenase activity and carbon biomass. The

polysaccharides were greater in soils of the conventional chemical no till farming systems. Matrix correlation analysis illustrated that microbial polysaccharides decreased significantly in relation to biological parameters used. There was no correlation between dehydrogenase activity and biological parameters in terms of soil recovery. The increase in biological activity induced reduction of polysaccharides can be associated to soil structural degradation and increase in the incidence of pathogens and diseases. This was also shown by the indices of soil compaction. The role of EM in enhancing soil quality is presented on the basis of these results.