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### **Agricultural management practices assessment to improve the environmental and social impacts of sugarcane production system in São Paulo State (cod. 486)**

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The sugarcane production system has agronomic characteristics with relevant impacts on crop management. It is considered semi-perennial crop, because can reach ten cuts with no need for renewal of the canefield. Plants handle their crops by up to five cuts on average. With the advent of the Green Protocol signed between Government and Sugarcane Industry (UNICA and Orplana) and the advantages of mechanization, the São Paulo sugarcane industry began a journey of changes from manual harvest production to mechanized sugarcane production system. This process has brought many consequences and impacts, both positive and negative for the sector. The aim of this paper is to show the impacts of change from manual to mechanized sugarcane production systems in São Paulo State. So numerous visits have been made to the mills and to the Green Protocol signatory associations, besides meetings for data collection. In conclusion, one central question could summarize the scenario: what are the impacts of mechanization and harvesting of raw sugarcane process for the environment and society? Among the positive impacts on environment dimension, includes: end of straw burning, reduction of the use of water for washing the cane, reduction of emissions of greenhouse gases, area systematization. Among the negative impacts on environment: increased pest due to changing the biological condition, increased soil compaction, increased consumption of diesel etc. For producers flaws in cutting, slope, small areas, falling crop productivity, correct amount of the straw into the soil for each region of the state, bring more severe consequences. Mitigation of strenuous work, the provision of adequate labor, increased worker's compensation, were positive social impacts identified. With increased mechanization of harvesting sugarcane there was a considerable gain in improving the air with the decrease of fires for the purpose of harvesting. SMA data - Environment Department from São Paulo State shows that in 2006/07, early harvest Green Protocol, the percentage of sugarcane harvested raw was 34.2%, ie, 1.11 million hectares; the last 2013/14 season this percentage reached 83.7%, which is 4.03 million hectares. It is noteworthy that the increase in area with sugarcane was 263%, while the area with burning fell by 173%, ie, 0.78 million hectares. The amount of harvesters of sugarcane in the field increased from 753 to 3,056 units between the harvest of 2006/07 and 2013/14. With the collected data we conclude that the fast change of mechanization of sugarcane harvesting brought serious impacts in production, many of them could be minimized or avoided if this breakthrough had been made with the policies or strategies to support the producers, since technical recommendations to suggestion of new production arrangements in the field. Especially for small farmers, whose the cost of this process are the most difficult part of this adjustment.