



## **Analysis of different management systems for water and soil conservation in experimental plots of “macauba” (*Acrocomia aculeata*) in Araponga (MG, Brazil)**

João Batista Lúcio-Correa (1), Kelly Cristina-Tonello (2), Encarnación V. Taguas (3), and Herly C. Teixeira-Dias (4)

(1) IF Sudeste MG/ Campus Rio Pomba, Rio Pomba, Minas Gerais – Brazil (batistacefetrp@yahoo.com.br), (2) Engenharia Florestal, Universidade Federal de São Carlos/ Campus Sorocaba-São Paulo, Brazil (kelly@ufscar.br), (3) University of Córdoba, Agronomist and Forest Engineering School, Rural Engineering, Córdoba, Spain (evtaguas@uco.es), (4) Departamento de Engenharia Florestal, Universidade Federal de Viçosa, Viçosa – Minas Gerais, Brazil (herly@ufv.br)

In Brazil, the conservation of water resources and agricultural soil are key environmental and economic aspects to maintain land services and the quality of life people in rural and urban communities. The macaw - *Acrocomia aculeata* (Jacq.) Lodd. (Ex Martius) - is a Brazilian native oleaginous palm, whose potential has been highlighted in the scientific community due to its high economic potential and its recent advances in crop farming. This study aims to quantify the runoff in macaw plantation, comparing different techniques of crop management for a period of one year (from September 2012 to August 2013). The data from this study were collected in the Experimental Farm of the Federal University of Viçosa (UFV) located in the municipality of Araponga, MG, Brazil. The seedlings took place in February 2009, in holes, spaced 5X5 in an area of 1.7 ha (680 plants) with a slope of 25%.

Rainfall was monitored through three pluviometers with expose area of 162.86 cm<sup>2</sup> whereas the impact of different management systems on runoff was measured by using 10 plots of 63 m<sup>2</sup> each: 3 treatments with three repetitions plus the control plot. Each plot presented four macaw plants. The treatment one (T1), was formed by macaw plants without using any soil conservation technique; the treatment two (T2) consisted of macaws with a contour cord with 40 cm wide by 30 cm deep, located between the plantation lines; for the treatment three (T3) beans were planted forming vegetation strips; the control (T0) was represented by a portion without macaws plants, with spontaneous vegetation growing throughout the plot, which was not used any soil conservation technique.

T2 presented the lowest values of runoff during the twelve months and at the same time, the greatest requirements of initial rainfall for runoff generation. In contrast, T3 showed the highest volumes of runoff for the study period, with a small reduction with the exception of January and February 2013, when the bean plants were well-established. The use of contour cords as a control method of surface runoff and erosion showed the maximum effectiveness.

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