## Water- and Tillage-Induced Soil Erosion in Small Plots on Steepland Soils in Nicaragua. (A06-cassel135934-Oral)

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#### Abstract:

Food production on farmed steep slopes enhances the deterioration of soil resources. The objective of this study was to establish water-induced soil erosion rates and tillage-induced soil translocation rates as affected by soil management of manually tilled volcanic soils in the El Pital Watershed in Nicaragua. Standard USLE runoff plots, 3 m wide and 20 m long, and running up and down slope, were installed in 1994 at two locations (La Lucha and San Marcos). The main component of the soil management treatments was the presence of contour leguminous hedgerows of Gliricidia sepium or Cajanus cajan. The control treatment had no hedgerows. Beginning in 1995, two crops, corn (Zea mays) and bean (Phaseolus vulgaris), were grown on the contour in all plots. Surface water runoff and soil loss from each plot were collected for 6 years. Soil translocation was estimated by measuring the movement of metal tillage erosion markers due to six manual tillage operations performed for the corn-bean cycle in 2000. The hedgerows reduced water runoff and soil loss. Annual water-induced soil loss ranged from 2 to >100 Mg/ha, the latter occurring for the control at San Marcos when Hurricane Mitch occurred in 1998. Down slope soil translocation in 2000 was 45 cm at La Lucha, the steeper site, and 3 cm at San Marcos.

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