Conservation Barrier Effects on Maize Yield, Runoff and Sediment Loss on a Shallow Soil in Haiti. (A06-shannon172151-Oral)

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Abstract:

The effects of conservation barriers on maize yield, runoff and sediment loss were tested on a 30 % slope in Haiti. Barriers of rock walls, contour canals, grass rows (Panicum maximum), Leucaena leucocephala tree hedgerows, paired tree and grass rows, and fertilized (P, K) tree hedgerows were compared to a no-barrier control. Barriers were spaced 4 m apart along contours. Trees and grass were pruned to provide mulch for the crop. Maize (Zea mays) was planted twice yearly for 17 seasons, starting March 1993. Beginning Season 15, P only was applied to all plots. In 2000, control, rock wall and fertilized tree plots were equipped with flumes and samplers to measure runoff and sediment loss. Maize yields declined in all but the tree barrier plots. Beginning season 4, highest maize yields were recorded with tree barriers in most seasons. Runoff and sediment loss in control were 100 mm and 1517 kg ha-1, respectively, in fall 2000, and 57 mm and 448 kg ha-1 in spring 2001. Tree and rock barriers reduced runoff by 41 % and 73 %, respectively, in fall 2000, and by 4 % and 53 % in spring 2001. Soil loss was reduced by 92 % and 90 %, respectively, in fall 2000 and 40 % and 69 % in spring 2001. Only tree barriers reduced runoff and sediment loss and sustained crop yield.

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