Managing Contour Hedgerows for Alley Cropping. (A06-shannon103558-Oral)

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Abstract:

Effects of Leucaena leucocephala hedgerow management on maize (Zea mays) yields, N use efficiency and soil organic C and N were tested in an alley cropping experiment in Haiti. Time of pruning and pruning use were tested in 3 x 3 factorial with a control (rock walls) in a randomized complete block with 3 replicates. Maize was planted twice a year from 1993 to 1999. Hedgerows were cut to 50 cm height 2 to 3 times each cropping period. Prunings were either removed from the plots, applied as mulch or incorporated at planting. Hedgerows were pruned at planting and again at 30 days after planting (DAP), 40 DAP, or 30 and 60 DAP. Organic C and N were measured on soil samples collected at 0-5, 5-10 and 10-20 cm depths. Inorganic N and CO2-C were measured following a 30-day incubation in 1L jars at 25 C. Soil application resulted in greater surface soil organic C and N, higher potential C and N mineralization and higher maize yield than the control or pruning removal. Incorporation of first prunings gave similar results as surface application. Three-cut regime gave higher maize yield and better % N recovery but lower pruning yields than two cuts. Soil application of prunings sustained maize yields. Three prunings during the season may be needed to maintain high crop yield.

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