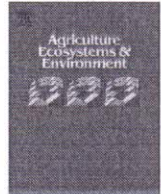




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## Increasing farmer's income and reducing soil erosion using intercropping in rainfed maize-wheat rotation of Himalaya, India



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### ABSTRACT

Humankind faces the need to achieve sustainable agriculture production, meanwhile increasing crop yields and reducing soil and water losses. Soil conservation through intercropping or crop canopy management is widely accepted as one of the ways of diversifying crop yields in rainfed agriculture in sloping landscapes. Field experiments were conducted between 2009 and 2014 to evaluate the effects of one or two rows of cowpea/okra intercropped with maize (planted either in 90 or 150 cm row spacing) on productivity, profitability, and resource conservation on 4% sloping crop land in the Himalayas. During five years of experimentation, a total of 110 runoff events were observed in the maize crop grown in rainy months of June to September. The results showed that by growing one row of cowpea in between two rows of maize (90 × 20 cm), no effect was observed on the productivity of rainfed maize. Productivity of the succeeding wheat crop was enhanced by 13% which resulted in a higher net return (117 US\$ ha<sup>-1</sup>) than in a maize-wheat system. This system also reduced runoff and soil loss by 26% and 43%, respectively, compared to only a maize cropping system. Regression analysis revealed as runoff in maize crop increases, grain yield of succeeding rainfed wheat crop decreases due to the less availability of soil moisture.