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## FARMER ADAPTATION AND ADOPTION OF CONTOUR HEDGEROWS FOR SOIL CONSERVATION

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*Abstract: After farmer-to-farmer training, farmers at an upland research site in the Philippines adapted and adopted contour hedgerows over a period of four years. They developed hedgerow establishment methods that required less labor, eliminated grasses too competitive with crops, stopped planting trees initially intended to produce green manure, and planted species with possible direct cash returns. The different systems equally and effectively controlled soil erosion, although grazing of neighbors' cattle on hedgerows was a problem.. Farmers who learned about the technology but did not establish contour hedgerows on their farms had higher proportions of flat land and/or off or non-farm income opportunities.*

### 1. Introduction

Research on reducing soil erosion in the sloping uplands has evolved from mechanical means i.e., bench terraces [Hudson 1971, UACP 1987] through alley cropping in which tree biomass is used to cover and protect soil in addition to improving soil nutrient cycling [Huxley 1986, Kang and Wilson 1987, Young 1986 1987], to the use of contour hedgerows that may or may not include trees [Abujamin et al. 1985, ASOCON 1990, Fujisaka 1989a, Hudson 1990, Tacio et al. 1988], and even to the use of hedgerows planted to a specific grass [Grimshaw n.d.; Smyle and Magrath 1990]. Recent research has also examined farmers' indigenous soil conservation methods [MacKay 1990, Ramirez 1988], multiple functions of hedgerows [Kuchelmeister, 1989], and, as in this paper, roles that farmers can and should play in developing agroforestry or soil conservation technologies [Getahun and Njenga 1990, Pahlman 1990, and Rocheleau n.d.].

### 2. Site Description

Claveria, in Misamis Oriental Province in the Philippines, is an on-farm research site of the International Rice Research Institute (IRRI) and the Philippines' Department of Agriculture (DA) 390 to 550 m above sea level. Soil erosion is a problem in large part because 59% of the cropping occurs on lands with slope >15%. Soils are Oxic dystropepts ranging from clays to silty clay loams; these are acidic (pH 4.5-5.8) with low available P (1.3-4.7  $\mu\text{g g}^{-1}$ ), low CEC (6-12 meq 100  $\text{g}^{-1}$ ), high Al saturation (11-51%), low to moderate organic matter (3.16%), and low exchangeable K (113.1  $\mu\text{g g}^{-1}$ ). Rainfall occurs in 5 to 6 wet months (>200 mm month<sup>-1</sup>) and 2 or 3 drier months (< 100 mm month<sup>-1</sup>). Average rainfall is 2200 mm year<sup>-1</sup> with greatest rainfall from July to December.