Tropentag, October 7-9, 2008, Hohenheim

"Competition for Resources in a Changing World:
New Drive for Rural Development"

Integrating Resource Conservation Technology for Sustainable Agro-Ecosystems in Hill Farming System of Nepal

Romy Das, Siegfried Bauer

Justus Liebig University, Department of Project and Regional Planning, Germany

Abstract

Sustainable resource management is widely acknowledged as important strategy to combat poverty and environmental degradation in all the developing countries. Particularly, in mid hill regions of Nepal, its relevance becomes more prominent where agriculture is practised in sloppy and fragile land, aggravating the problem of soil erosion and loss of organic matter.

Management of soil organic matter in a way that it supports current as well as future long term food production is the key principle for sustainable agricultural practices. Resource conservation technologies for example, zero tillage; mulch tillage and minimum tillage are in line with this principle and shown better performance in most part of the world. Several researches in Nepal have proved that excessive tillage of the sloppy land for summer crop production during the pre-monsoon period which leaves soil loose and prone to high impact of rainfall, is the main casual factor of soil and nutrient loss in the hill agricultural system. It leaves soil loose and prone to erosion. Therefore, the present study attempts to perform economic analysis of minimum tillage as a feasible resource conservation technology in a typical mid hill farming system of Nepal.

The results of the cost benefit analysis for next 25 years of time horizon show that minimum tillage could be a financially attractive technology for maize cultivation in rainfed lands of the mid hill region. Since, minimum tillage is able to concerve a substantial amount of soil and nutrients, it has a long-term positive impact on the crop yield in comparison to the conventional tillage system. Short-term yield loss due to sudden reduction in number of tillage is compensated by the remarkable reduction in soil and nutrient losses coupled with lower labour cost for land preparation. The study has high policy implication for sustainable and resource-efficient agricultural production system in hill farming systems where marginality of resources has threatened the livelihood of the people.

Keywords: Cost benefit analysis, hill farming system, minimum tillage, sustainable agricultural practices

Contact Address: Romy Das, Justus Liebig University, Department of Project and Regional Planning, Senckenberg Strasse 3, 35390 Giessen, Germany, e-mail: romeedasnp@yahoo.com