Contribution of grasses to soil fertility and improved livelihoods

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Keywords: vegetable, grasses, soil fertility, gender, empowerment

Background and approach Vegetable farming is increasing in Nepal as it provides better economic returns than growing other crops, especially in areas that have easy access to markets. Vegetable farming demands intensive care and balanced supplies of nutrients. Therefore, farmers cultivate vegetables near their residence and because vegetable growing is more profitable, farmers allocate more resources, including organic manure, for its cultivation. In general, using more organic manure on vegetables means that less organic manure is available for non-vegetable crops and farms, unless alternative arrangements are made for producing more organic manure or manure of higher quality.

There is a risk that the soil fertility of non-vegetable farms belonging to households that have been growing vegetables for a long period of time may have deteriorated due to low use of organic manure. It is possible though that farmers may have produced some mechanisms to cope with this problem. A study was conducted in Paang village, Parbat district, Nepal, where the District Agriculture Development Office, with support from Sustainable Soil Management Programme, has carried out an action research programme to improve the livelihoods of the farming community through the integration of socio-economic and environmental activities. The general objective of the study was to assess the impact of vegetable farming on soil fertility and socio-economic aspects including the changes in gender role. The methodology used was (1) participatory rural appraisal and (2) soil sample analysis. Levels of significance were assessed by the t test.

Results The findings showed that soil fertility on non-vegetable areas had not been significantly affected by growing vegetables nearby, The lands growing and not growing vegetables were receiving 18,500 and 1,300 kg/ha more manure respectively compared to the amount applied before vegetable growing started. This arose because the households were producing more manure by using different strategies. A significant contribution to this increase had been made by the increased quantity of grasses in the community-managed forest and the use of crop weeds for animal bedding. Stall-feeding, improved housing of animals and use of urine were other contributing factors. Significant differences in soil fertility between vegetable growers and non-growers were not yet taking place, as the differences were only 0.005% for N, 12.7 kg/ha for P_2O_5, 4.6 kg/ha for K_2O and 0.10 for organic manure. Together with vegetables, yields of cereals were gradually increasing in both types of farms and this had contributed to the additional average annual household income of 5651 Nepalese rupees.

Appreciable changes had taken place in gender roles by households participating in vegetable cultivation and marketing, with women no longer limited to work inside households. They proved to be capable in the market place as well as on the land. The special ability of women to keep patience contributed to obtaining better market prices for their products. With their participation in marketing, women were found to have developed skills in salesmanship, gathering and using market information, developing seasonal crop calendars to fetch higher prices and some of them have built-up leadership capabilities. The households also experienced increased food security and enhanced family harmony.

Policy recommendations Integrated soil management has brought both economic and social benefits to vegetable growers without affecting the soil fertility on lands being used for vegetables and non-vegetables. Development agencies should look through the eyes of farmers and plan and implement activities holistically to enhance the sustainable livelihoods of farmers.