

Initiatives for Sustainability in Mountain Agriculture Plantations

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Sustainability of mountain agriculture such as tea cultivation has become a crucial issue to maintain socio economic stability. In Sri Lanka, 4% of the population depends on tea industry and 71% of food import bill is paid by tea export earnings. Low productivity, threats from climate change, increasing cost of production and lack of human resources have caused a sense of instability in the industry. New interventions are essential to find solutions to problems created to keep the industry viable. Impact of three research interventions' i.e. soil rehabilitation, terrace cultivation and wild tea production are reviewed as tools for the long-term sustainability of mountainous tea plantations in Sri Lanka.

Soil rehabilitation of planting grasses for a period of 18-24 months has found to increase organic carbon content, soil microbial biomass and water holding capacity by 28%, 26% and 9% respectively, while reducing soil bulk density by 5%. These were the results of a survey, representing all tea growing areas, conducted during 2014-16, of rehabilitated and non-rehabilitated tea fields. Converting steep tea lands into terraced fields would help to retain the soil fertility, mainly by reducing the soil erosion and organic matter removal. In a study conducted in Hantane, Sri Lanka in 2014, soil erosion was found to be 2.5ton/ha/yr and 22.4ton/ha/yr respectively for terraced and tea fields with steep slopes. Meanwhile terraced lands increased water holding capacity and Soil organic matter percentage by 81% and 42% respectively compared to the steep tea lands. However, there was a less improvement in physical properties due to terracing in a study conducted in Talawakelle in 2014. Made tea produced from untamed, old tea plants, known as wild tea has a niche market, especially among Chinese tea drinkers. Economic returns can be obtained by converting abandoned or low productive tea fields in tea plantations as source for wild tea production. This would be a win-win situation for the tea fields in natural forest boundaries. This was revealed in an analysis of wild tea produced from a 130 year old, unpruned tea estate in Erathna, Sri Lanka. These three initiatives found to be providing long term beneficial effects for sustainability of this mountain agriculture system.

Key words: tea; soil rehabilitation; terracing; wild tea; water holding capacity