Sloping Agricultural Land Technology (SALT)

Summary

Sloping Agricultural Land Technology (SALT) is a simple, applicable and proven technology to control soil erosion while improving soil nutrients and crop productivity in the hilly areas, especially sloppy lands that are prone to soil erosion and landslides. In SALT, there are dense hedgerows of fast-growing perennial nitrogen-fixing trees or shrubs planted along the contour lines to trap sediments, check water runoff, retain soil fertility and eventually stabilize the slope and terraced land. Nitrogen-fixing trees act as a soil binder, fertilizer generator and source of livestock feed.

Climate change challenges addressed

Due to climate change, the pattern and intensity of rainfall have become unpredictable. Increasing erratic rainfall tends to erode fertile top-soils as a result of water runoff and landslides. Along with fertile soil, biological diversity, including fodder and firewood trees, is impacted. The soil left over is less fertile therefore reducing the crop productivity. It has a severe effect on food security and livelihood of farmers living in the hills.

Contribution to Climate Change Adaptation	Co-benefits	Target groups	Supporting conditions
❍ The erosion of fertile soil during the rainy season has been reduced ❍ Less fertilizers required due to the use of nitrogen-fixing legumes ❍ Terrace formation increases moisture content	❍ Increased food productivity and security through the use of sloppy and marginal land for cultivation ❍ The easy availability of fodder plants in their lands has encouraged farmers to expand the number of livestock and increase income. ❍ Beautification of the topography of the land which was left barren and dry earlier.	❍ Poor and Small-scale farmers living in the hilly region	❍ No practice of open grazing ❍ Small scale farmers with sloping land will be required for promoting this technology
Measures	**Inputs**	**Time frame**	**Costs**
❍ Orientation about SALT is given and fodder & forage seeds of different species such as Epil-epil (Leucaena diversifolia), Mendola (Tephrosia candida) and Bhatmase (Fleminigia congesta) distributed ❍ A-frame is determined and contour lines are determined ❍ Nitrogen-fixing trees are planted in double rows (20 cm spacing) along the contour lines ❍ Cereals and vegetables are cultivated in between the strips of hedgerows	❍ Labor ❍ A-frame ❍ Technical assistance ❍ Seeds of fodder & forage ❍ Vegetable seeds and seedlings	❍ From field preparation to planting, it will take around 2-3 days.	❍ SALT is a very low-cost and cost-effective technology. Farmers can get seeds from District Forest Office or agrovets. Each kg of seeds can cost around NPR. 1,000. Farmers themselves can harvest the seeds for up-scaling in the next season and they can also sell the seeds to other farmers.

Case study

SALT technology was introduced in Lekhani village of Udayapur district through a farmers' group, which constitutes a total of 22 poor farmers from ethnic minorities. Their settlement lies in a hilly region with steep and sloping terrain. In total, 22 farming families have adopted this technology successfully and they are motivated to upscale in other areas as well. Farmers have observed the reduced incidence of soil erosion and stabilization of slope forming terraces following the application of SALT technology. Farmers have been growing maize, finger millet, vegetables, etc., in the strips between two hedgerows.

Gender Considerations

SALT is a gender-friendly technology in a sense that women no longer have to travel far for collecting forage and fodder for their livestock, having access to it nearby their house or farm.

Conflict sensitivity

In the absence of livestock feed, farmers allow open grazing where livestock could end up grazing on others' cropland causing a dispute between farmers. SALT technology has been helpful to manage such conflict as forage and fodder can be managed in the farmer's own farm.

Advantages of the technology

SALT is a low-cost and efficient technology developed for hilly areas and can be replicated in other hilly areas. The effect can also be seen in a short period. Soil fertility can be enhanced through the integration of leguminous fodder and forage. Besides, additional income can be generated from agricultural lands, which are usually left barren or abandoned due to sloppy terrain. Farmers can also engage in commercial livestock production through the availability of fodder even during the dry season.

Constraints of the methodology

Determining contour lines along the slopes is time consuming. This also requires technical knowledge and sometimes can be tedious for farmers. Farmers can be more interested in planting fruits along contour lines, instead of leguminous fodder.

Contact and further resources:

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