

IMPROVING PEST MANAGEMENT IN AGROFORESTRY ON SLOPING LAND

Locations Democratic People's Republic of Korea

Dates 01/07/2015 - 31/12/2020

Summary

Land in the Democratic People's Republic of Korea (DPRK) is predominantly mountainous with a high proportion of upland slopes. Agroforestry methods help to maintain sloping land and over 200 established Sloping Land User Groups (SLUGs) already apply these methods. To mitigate associated environmental risks of sloping land, to increase food security of SLUGs and progress slope stabilisation, this project will focus on improving existing management practices of the SLUGs and county tree nurseries, and increasing their knowledge about pest control.

The problem

Due to chronic food shortages in DPRK in the 1990s, people started to deforest and cultivate slopes, mostly using unsuitable methods, causing land degradation and soil erosion, thereby increasing the risk of flooding.

To address these problems, to make sloping land more sustainable and to increase food security, over 200 SLUGs have been established across nine counties as part of the Sloping Land Management (SLM) project and the current Sustainable Livelihood and Disaster Mitigation (SLDM) programme, initiated by the Swiss Agency for Development and Cooperation (SDC) and the Ministry of Land and Environment Protection (MoLEP). These SLUGs now apply agroforestry methods and have contributed to improving 2500 ha of sloping land. They are key to upscaling the approach and helping the SDC achieve its target of restoring 360,000 ha of sloping land by 2023, whilst simultaneously improving SLUGs' incomes.

Whilst SLUGs are active, they are not farmers by background and, therefore, knowledge gaps occur. To close these, support is needed to increase knowledge and develop skills in crop production, focusing on pest control practices and access to innovative pest control tools.

What we are doing

The overall objective of this project is to stabilise sloping land use and improve food security of SLUGs through the enhancement and optimisation of existing agroforestry practices, with a focus on pest control. In order to achieve this, identified knowledge gaps of SLUGs need to be closed, skills need to be gained, and tools and healthy tree seedlings need to be available.

CABI will work within the SDC's long-term, overarching programme in the areas of agroforestry and pest management practices.

Within agroforestry, CABI will focus on improving the efficiency of current cultivated sloping land areas through the use of integrated systems (integrated pest management (IPM) and integrated crop management (ICM)) with a focus on pest control practices. Any measures introduced will optimise the agroforestry system, minimise crop losses and will relieve the pressure on larger cultivated areas, reducing the need to expand into erosion-prone areas. Disaster prevention can also be enhanced through the availability of healthy tree seedlings – CABI will support this by sharing knowledge and expertise in pest control.

Key activities of CABI to help optimise outputs and food crop yields include:

- Support the development and production of the local biopesticides (*Trichoderma, Beauveria*) for use in the nurseries to help control soil pests, and improve production of better tree seedlings
- Deliver tailored IPM packages for implementation in tree nurseries, helping to control pest levels
- Designing and implementing a series of pest management trainings for regional and local level stakeholders and MoLEP staff
- Develop different technical publications and operating guidelines for integrated pest management in consultation with project stakeholders
- Facilitate development of evaluation methodology, including indicators in pest management

Results so far

Results so far have included, capacity building in the survey, isolation, identification and screening of fungal biocontrol agents for soil pathogens and insect pests. As a consequence, the production of a *Trichoderma* biopesticide against seedling diseases in nurseries has progressed well and for the first time, a *Trichoderma* product 'made in DPRK' was applied in central nurseries and agroforestry land of SLUGs. Preparations for another product, the insect killing *Beauveria* against white grubs, have also been successful.

Additionally, effective and feasible sets of IPM practices have been developed, with project partners, for the management of damping-off and white grub in nurseries, and the management of Asian corn borer in SLUG food crops. These practices were introduced at pilot level in county nurseries and SLUGs, accompanied by training events, demonstrations and information materials.

The project implementation was not only important at field level, it also played a crucial role in building the capacity of partner organisations in sustainable pest control and, in particular, technical skills for low-technology biopesticide production.

With the importance of sustainable pest control, biopesticides and IPM to improving the outputs of nurseries and agroforestry systems, further activities for future cooperation have been proposed.

Donors Swiss Agency for Development and Cooperation (SDC)

Partners Ministry of Land & Environment Protection, DPR Korea

CABI Project Manager

Manfred Grossrieder






https://www.cabi.org/what-we-do/cabi-projects/