

Research and Extension

In collaboration with national and international institutions, TLC conducts research and field testing of practices and interventions before promoting them with farmers. The aim is to evaluate the agricultural, environmental and economic benefits of these practices and interventions, along with the practicality for their adoption by resource-poor farmers across a wide range of cultural and agro-ecological settings.

Areas of focus include:

- Propagation techniques for different species of indigenous and exotic trees.
- Planting trees and bamboo in different configurations: multi-purpose species on individual homesteads, farm boundaries and woodlots; communal planting on degraded hillsides, along stream banks and roads, and around schools, grave yards, and other communal areas.
- Natural regeneration of trees and woodlands to restore the biodiversity of the landscape and the multiple uses of indigenous trees.
- Agroforestry practices to enhance soil fertility and crop yields with secondary products such as fodder and wood for fuel and building material.
- Introduction of low-cost kitchen stoves to improve wood use efficiency (to reduce pressures on natural forests and trees), and to save labor by women and girls for collecting firewood from remote areas.
- Soil and water conservation measures, including vetiver hedgerows, gully reclamation, perennial tree crops, silt traps, raised footpaths, etc.
- Increased diversification of crops and livestock to enhance food security, nutrition, and economic returns under conditions of variable rainfall and climate change
- Conservation agriculture to reduce labor for physically demanding farm operations, to protect soils from erosion and degradation, to maximize rainfall effectiveness and infiltration, and to increase and stabilize crop yields on a sustainable basis to alleviate the growing threats of erratic rainfall and climate change
- Low cost irrigation with a focus on treadle pumps, drip kits, and gravity fed systems of stream diversion and water harvesting to increase food security, nutrition and incomes.
- Promotion of enterprises to enhance rural incomes with a focus on high value crops, fish farming, cage culture, bee keeping, mushroom production, eco-tourism, and agro-processing of crops such as cassava, groundnuts, fruits, and oil seeds.
- Reducing the incidence of common human diseases by providing potable water from covered shallow wells equipped with hand-pumps, and by the introduction of low cost eco-pit latrines to improve sanitation and general hygiene.

A brief description of these practices and interventions is provided under **Interventions** in the main menu which includes illustrations in the **photo gallery**. More detailed descriptions are provided in various field manuals, extension booklets and training kits, a sample of which are listed below. These are available from Total LandCare in Lilongwe and International Research & Development at Washington State University:

Field Manual for Treadle Pump Irrigation in Malawi. 2002. Produced by I.M. Hayes, Z.D. Jere, W.T. Bunderson, G. Cornish, and M.M. Banda. Total LandCare Publication No. 1, Lilongwe.

A Training Kit for Treadle Pump Irrigation in Malawi. 2002. Total LandCare Publication No. 2, Lilongwe.

A Training Kit for Agroforestry and Soil Conservation in Malawi. 2002. Malawi Agroforestry Extension Project, Publication No. 41, Lilongwe.

LandCare Practices in Malawi. 2002. Field manual produced by W.T. Bunderson, Z.D. Jere, I.M. Hayes and H.S.K. Phombeya. Malawi Agroforestry Extension Project, Publication No. 42, Lilongwe.

Best-bet Agroforestry and Soil Conservation Practices. 2002. A Booklet produced by Bunderson, W.T., Z.D. Jere, I.M. Hayes Malawi Agroforestry Extension Project, Publication No. 43, Lilongwe.

Tree Propagation and Outplanting. 2002. A Booklet produced by W.T. Bunderson, Z.D. Jere, I.M. Hayes. Malawi Agroforestry Extension Project, Publication No. 45, Lilongwe.

Common Agroforestry Species in Malawi. 2002. A Booklet produced by W.T. Bunderson, Z.D. Jere, I.M. Hayes. Malawi Agroforestry Extension Project, Publication No. 46, Lilongwe.

Conservation Agriculture in Southern Africa. Principles and guidelines for implementation. 2009. A booklet produced by W.T. Bunderson, Z.D. Jere, P. Wall, J. Chisui and R. Museka. Total LandCare and CIMMYT.

In addition, a sample of research results on various subjects is provided under this section. This will be expanded shortly.