

# Trees are best bets for rural food security

With the world's population expected to rise above nine billion, food security is becoming an issue, especially in regions like Eastern Africa. There, millions of farmers face declining soil fertility, climate change and lack of options. Trees, however, may help to provide future food security.



Crops under *Faidherbia albida* tree shade

Trees can provide food, such as fruits, nuts, and leaves, or indirectly through the sale of products, so trees can be an efficient way to improve food security.

"Working across field, farm and landscape scales, it is known that trees also play a key role in making efficient use of water and nutrients while maintaining soil carbon," says Fergus Sinclair, Systems Science Leader at the World Agroforestry Center (ICRAF), "this also develops a climate smart agriculture through the intensification and diversification of farm production, in a manner that leads to increases in agricultural productivity. Further they can also have knock on effects within farm systems (many interactions in a system). For example instead of using dung for fuel, farmers can alternatively use firewood as fuel and return the dung to farm as manure."

The potential of planting trees is demonstrated through the work of projects such as the Trees for Food Security Project (T4S) led by ICRAF and its partners. After four years it has already had an impact on the lives and farms of 23,000 small holder farmers in

Ethiopia, Rwanda, Uganda and Burundi.

T4S targeted two key agro-ecologies: highland humid and lowland semi-arid areas in Ethiopia and Rwanda. With information gained T4S was extended to similar agro-ecologies in Burundi and Uganda by selecting the most appropriate options for 30,000 farmers and their families.

Before selecting the right trees to plant, the farming systems were studied.

"It was an important activity that helped us to target the right interventions by supporting an optimum matching of species and management options to the sites and circumstances of the farmers," says Catherine Muthuri, a Research Scientist at ICRAF.

To enable researchers to understand how farmers made their decisions, it was necessary to consider the local physical conditions, the extension and marketing systems and local knowledge. The exercise also shed light on pertinent issues such as policies, institutions, governance and germplasm management. The studies also helped to develop a vegetation and species selection map for Burundi, as well as

*Credit: World Agroforestry Centre/Charlie Pye-Smith*  
methods for selecting trees for Rwanda and Ethiopia. Such preparatory work made it easier to implement T4S.

## Strengthening productive farming systems

T4S is succeeding because national research institutes such as the National Forestry Resources Research Institute, the Rwanda Agriculture Board, the Ethiopian Institute of Agricultural Research, and the Institut des Sciences Agronomiques du Burundi have worked together with development organisations like World Vision and CGIAR organisations such as CIMMYT and the International Livestock Research Institute.

Preliminary results show selling tree products have had immediate benefits such as better household nutrition and higher incomes for a number of families. A good example is Rwandan farmer Clemena Mukarugwira. She learnt how to graft and produce tamarillo (tree tomato) trees at the Karago Sector in Rwanda. Likewise women of the Elgon Women's Trust (ELG) in Uganda are now