Introduction

The Congo Basin is one of the most important areas in the world in terms of the biodiversity of its forests, which are not only supplying a variety of livelihood products (wood, medicines, fruits and spices), but also provide critical environmental services. However, human pressure, market intensification and persistent effects of the economic recession mortgage the preservation of the forests in the region. Agroforestry practices such as tree domestication are expected to contribute substantially towards forest protection and management, in combating growing rural poverty, reducing pressure on the forests and encouraging farmers to plant more trees in the farm landscape.

In spite of the recognised importance of forest products, tree cultivation is constrained by farmers’ propagation techniques and incompatibility with certain land uses. In addition, farmers cannot reap full benefits because of low marketing constraints such as seasonality of products, weak infrastructure, limited and conflicting market knowledge, lack of networks and associations and inappropriate and managing processes and storage methods.

In order to overcome these constraints, tree domestication research, implemented by the World Agroforestry Centre and partners in West and Central Africa (fig 1), builds on three pillars: (1) development of vegetative propagation techniques, (2) increasing economic and ecological productivity of agroforests and (3) improving marketing knowledge and skills for tree products (Tchoundjeu et al., 1999).

1. Vegetative Propagation

Studies have indicated that there exists considerable morphological (phenoletic) variability in fruit and kernel traits of, for example Dacryodes edulis (photo) and Irvingia gabonensis (Leakey et al., 2002). Vegetative propagation techniques, such as air layering or marcotting, rooting of cuttings and grafting, enable farmers to capture this intra-specific diversity and clone trees with favoured characteristics to meet domestic needs and market demands. A key element is the involvement of farmers in the development of these vegetative propagation methods so that they are simple, inexpensive and fit enough for use in rural communities (photo 2).

With marcotred trees fruiting after 2-3 years (photo 3), vegetative propagation can provide quick returns encouraging farmers to integrate more trees in their farming landscapes.

2. Agroforests

In response to falling cocoa and coffee prices and reacting to market opportunities, farmers have increasingly diversified their revenues by planting tree crops. By doing so, they increase and stabilise the returns from their land. Enriching existing agroforests with specific tree crops can permit all-year-round production. For example, in the complex cocoa plantations of Southwest Cameroon (photo 4), Irvingia wendlandii and Cassia africana are commercialised between January and April, while most other indigenous fruit trees as well as food crops are harvested between May and September, followed by the sale of cocoa in November to January.

Participatory tree domestication increases farmers’ options in propagation methods and species, and supports the development of diversified and more sedentary agroforestry systems. These systems can reduce pressure on the forest and help to rehabilitate degraded farmland.

3. Marketing

Indigenous trees grown on-farm contribute to farmers’ livelihoods in a number of ways. In addition to direct consumption, fruit, nuts and bark constitute an important source of income. Farm-level records on harvesting and selling of indigenous tree products demonstrate that households commercialise a variety of tree products at different times of the year (fig 3). The absolute income derived from these products is often small, but their importance has to be looked at in terms of timing and control over the revenues (Schreckenberg et al., 2002). Furthermore, opportunities for group marketing and for value-adding through the development of cottage industries exist.

Participatory domestication can considerably improve returns from indigenous tree products. Vegetative propagation techniques enable farmers to obtain uniform quality fruit in sufficient quantities and over an expanded productive season, fetching higher prices. However, for rural communities to benefit, the introduction of improved planting material should go hand-in-hand with research on post-harvest storage and processing of indigenous fruit (photo 5).

Conclusion

Tree domestication efforts in the region aim at conserving forest resources through their use. It is hoped that assisting farmers to bring more trees into the farming landscape and adding value to tree products will increase income-generating options to farmers and maintain biodiversity. Hence, tree domestication may be viewed as a sustainable livelihood strategy which re-enforces forest conservation activities and rehabilitates degraded land.

References