



## **Better trees on-farm in Africa II**

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PHOTO: H. KEIDING, 1973



*Root cutting of Pinus patula in a nursery, Kenya*

## Better Trees on-farm in Africa II

How can the input supply of tree seed and planting material to the small scale African tree planters be improved?

### **On-farm tree planting and tree seed supply**

Trees on farms are part of agriculture. Tree planting by smallholders occurs as a mix of forestry, agriculture and horticulture, i.e. as part of agroforestry in its broad sense. Although scientific documentation is still lacking, it is generally considered evident that tree planting on farm in Africa has been increasing rapidly for a while and is expected to continue (FAO 2001).

The success of tree planting depends on the quality of the planting material as well as its tending. Tending is directly dependent on the skills of the individual farmer and the availability of inputs such as water, manure and pesticides. The quality of the planting material depends on whether the farmer has access to good material, but also depends on whether the farmer has an incentive to invest in better planting material.



## Policy Conclusions

- *Transaction costs should be reduced* by promoting smaller seed enterprises as part of a commercial commodity chain in a market that encourages the operation of small, competitive seed and seedling retailers.
- *Markets should be developed* by supporting more efficient local and regional retail markets and facilitation of production of a wider range of suitable species of high genetic quality, based on promotion of appropriate standards and norms.
- *Breeding material should be made available* by providing input to private seed retailers from publicly supported breeding and conservation programmes
- *New seed systems should be implemented.* The elements of new models for decentralised and privately operated tree seed systems have been developed and are ready to be put into operation for the benefit of the many smallholders growing trees on their private lands.

This policy brief provides suggestions to enhance market functioning in support of improved farmer access to good seed and planting material.

Good material means in this context, whether it matches the growing conditions of the planting site and the purpose of the planting (see figure 1). The farmer should thus have the possibility to select the right species and within the right species to choose the best variety for his or her purpose. Input supply systems to African farmers are in most places notoriously weak (World Development Report 2008).

In search for solutions to this problem Danida commissioned Forest & Landscape Denmark (FLD) in co-operation with the World Agroforestry Centre (ICRAF) to undertake a study of lessons learnt from past experience with seed supply to small-scale farmers as a basis for recommendations to future developments (Graudal & Lillesø, 2007). The study summarizes findings from the tree seed sector as well as the agricultural sector over some 50 years. See Policy brief no. 6-2009.

### Obstacles and solutions

During the many years and many locations of implementation of national tree seed programmes five major obstacles have been identified:

- Cost-efficient distribution of tree seed over large areas to different users – entire countries; in particular the limited ability of the formal and informal sectors to reach smallholders with quality seed.
- Definition and agreement of the various public and private actors in tree seed procurement.

- Development and implementation of national rules and regulations, and guidelines and extension services, that support appropriate tree seed procurement.
- Tree planters are not attaching monetary value to quality tree seed and markets are often distorted by free seed and seedlings without consideration of genetic quality.
- Smallholders have limited incentive to invest in better species and varieties due to their limited participation in markets for tree products.

Public institutions (which were endowed with the knowledge and carried responsibility for production in the early years) often had high transaction costs, which frequently led governments and donors to privatise or abandon public production of tree seed. The basic assumption behind this was that the technology was simple, and that good practise in seed supply to small farmers could be undertaken by communities and NGOs. However, this assumption has proved to be false, and the resulting widespread distribution of free but inferior seed has been detrimental to the adoption of good practise.

The latest thinking on crop and tree seed systems, may serve to create efficient input supply chains capable of reaching smallholders with good quality material.

The overall objective of creating efficient input supply chains should be to improve livelihoods and cash incomes for smallholders. In this process a large degree of privatisation will be conducive for creating a demand based supply. However, privatisation should be carried out with the overall objective in mind. As it has been realised for crop seed systems, private companies will not automatically start producing and selling

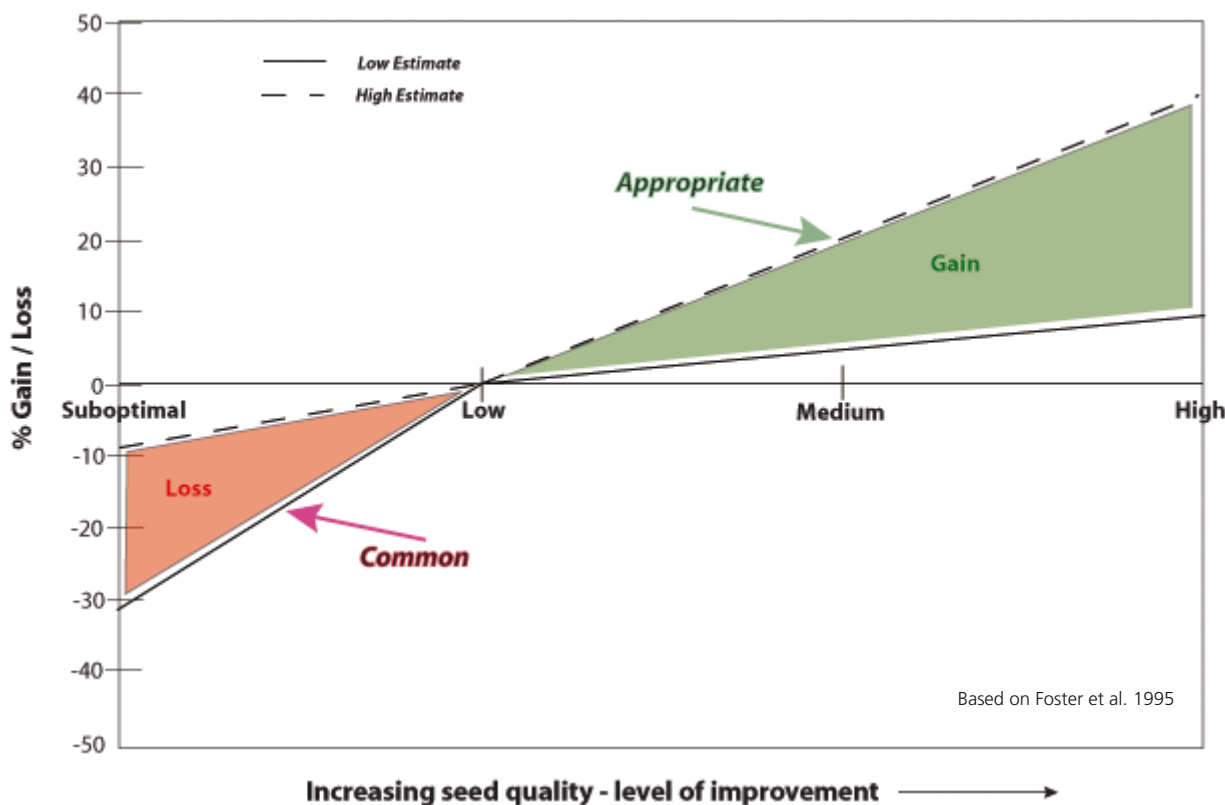


Figure 1. The importance of seed quality and possible gain from domestication for and by small-holders. The figure illustrates the relation between intensity of domestication and economic gain from improved volume production. The level of seed quality increases from left to right. Under-performing seed quality places many tree plantings in the 'red area', instead of the 'green area', where they ought to be. Domestication intensity is a choice based on the importance of the species under domestication. The number of planters who benefit from domestication depends on the efficiency of input supply systems.

seed to smallholders because high transaction costs are involved in servicing poor smallholders.

Public support is therefore required in order to improve the economic environment for private sector participation and the strategies for support must be based on careful evaluation of the industry's development potential. In many cases the national tree seed centres hold an important part of the expertise to help evaluate the sector and to assist in implementation of strategies.

The analyses of the trends in tree planting and in tree and crop seed supply systems over the last forty to fifty years (Graudal & Lillesø, 2007) show that four major developments are required:

#### 1. Transaction costs should be reduced

Efficient seed and seedling supply, to serve small-scale tree planters, is only likely to be achieved if considered as part of a commercial commodity chain (see figure 2) in a market that encourages the operation of small, competitive seed and seedling retailers. Smaller seed enterprises may be capable of investing in building retail trade systems and supplying seed at competitive prices, because they have lower overheads. Such commercial development should be supported, by creating a conducive environment, including appropriate

standards and norms, like 'Quality Declared Seed' and 'Truth in Labelling'.

#### 2. Markets should be developed

Severe market distortions caused by free seed and seedlings often of inferior quality need to be removed. The distribution of free seed and seedlings should be replaced by more efficient retail markets and facilitation of production of a wider range of suitable species of high genetic quality.

Seed markets need to be further developed at the local level by issuing 'good norms' and by promoting regional markets. Such development requires impartial public norms. International and national research organisations may promote regional programmes and marketing strategies for entrepreneurs in order to spread marketing risks and promote economies of scale.

#### 3. Breeding material should be made available

Publicly supported breeding and conservation programmes should provide input to private seed retailers. International and national research organizations could help increase returns on investment in breeding and source establishment - producing foundation seed for the private sector. Public funding is required, and investments in 'sources' must be made profitable by linking up with a sufficiently large customer base.

#### 4. New seed systems should be implemented

The elements of new models for decentralised and privately operated tree seed systems have been developed and are ready to be put into operation for the benefit of the many smallholders growing trees on their private lands.

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The series of policy briefs on Better Trees on-Farm in Africa suggest ways and means to improve the input-supply and value chains of Agroforestry in Africa.

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## Input supply and value chains in smallholder agroforestry

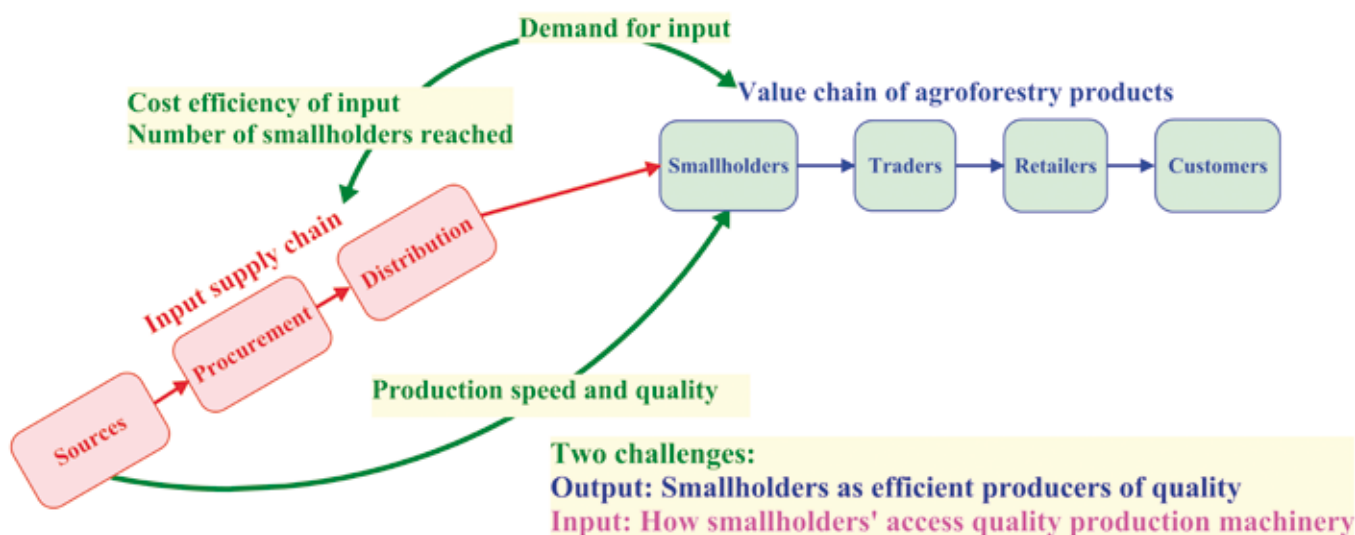


Figure 2. Input supply and value chains in smallholder agroforestry. Improvements - and losses - in the input supply chain are multiplied in the value chain

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