Improving Smallholders' Access to Good Planting Material - Improving Input Supply Chains in Kenya

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Hypothesis

Small-scale nurseries can be efficient producers and distributors of quality seedlings if they receive appropriate support (in terms of knowledge and access to seed sources, marketing and business training etc.).

Introduction

In Kenya, as well as in the rest of Eastern and Southern Africa, the input supply for tree seeds consists of a range of actors. Traditionally National Tree Seed Centres (NTSCs) have had the task of supplying seed for tree planting but have now been replaced by other actors such as NGO´s.

In order to create a stable system that lasts after interventions end, economical sustainability must be achieved, i.e. nurseries need to be able to operate as a business, not rely on financial output from external sources. Ideally the demand of tree seedlings by smallholder farmers should be large enough for a "push" strategy to be adopted, where the "correct" germplasm is being distributed. However, the current situation is more uncertain in terms of demand and a "pull" effect is regulating the market. To be successful, nurseries have to adapt to the demand situation and supply the species in demand.

Objectives

- Assess the current status of small-scale nurseries
- Assess the financial profitability of small-scale nurseries
- Analyze factors influencing profitability of small-scale nurseries
- Determine the role of different actors and their effectiveness in supporting a sustainable input supply chain
- Assess the potential of small-scale nurseries to supply species in demand among agroforestry farmers.

Methods

- Questionnaire survey among 554 tree nurseries in Central Kenya
- Key informant interviews of organisations promoting tree planting in Central Kenya
- Development of an econometric model (Ordinary Least Squares linear regression analysis) based on the equation:

$$Y = \beta_0 + \beta_1 * X_1 + \beta_2 * X_2 + (\beta_n * X_n) + e$$

where Y is the dependent variable, β´s are regression coefficients, X´s are the explanatory variables and e is the residuals. The model was used to predict factors influencing profitability.

Conclusion and recommendations

- Small-scale nurseries are sustainable as providers of germplasm for agroforestry farmers
- By providing training in nursery management, business and marketing nurseries can develop to sustainable business enterprises providing higher quality germplasm of the species in demand
- NGO´s and other organisations should provide training to already established nurseries instead of providing subsidized seeds to their own nurseries

Results

Assess the current status of small-scale nurseries
Nurseries are widely distributed in the study area and production levels range from a few hundred seedlings to hundreds of thousands. Ninety-eight percent of the nursery owners think that nursery operations is a good business. The experience level is high (around 10 years) and nursery operators are interested in further training in nursery management and marketing.

Analyze factors influencing profitability of small-scale nurseries
The econometric model show that the following factors have a significant influence on profit:

Positive (with increased value)	Negative (with increased value)
Production volume	Age
Diversity of species	Distance to water source
Years of experience	
Training received	
Own garden for budding/scions	

Assess the financial profitability of small-scale nurseries
Many small-scale nurseries are making a good profit with contribution ratios over 38%. The average profit per year is 3.200 USD which represents a lot of money in the area. Group nurseries started by NGO´s have lower profits and sometimes negative contribution ratios but still operates because NGO funding cover their transaction costs.

Determine the role of different actors and their effectiveness in supporting a sustainable input supply chain
Many NGO´s or other tree planting organisations are disrupting the market for tree seedlings with subsidized prices for seeds and seedlings, which makes competition hard for small-scale nursery enterprises. Many organisations are interested in forest restoration, using indigenous species, and pay less attention to the demand and needs of agroforestry farmers.

Assess the potential of small-scale nurseries to supply species in demand among agroforestry farmers
Small-scale nurseries supply the species in demand by farmers, e.g. fast growing timber species and fruit trees. They are widely distributed in the area and can supply the most rural areas with planting material.