Tropentag, September 14-16, 2010, Zurich

"World Food System —
A Contribution from Europe"

Survival and Growth of Selected Agroforestry Tree Species under Farm Conditions in Western Kenya

Johannes Dietz

World Agroforestry Centre (ICRAF), Eastern Africa, Kenya

Abstract

Many projects seek to use agroforestry and other reforestation practices to rehabilitate degraded and abandoned sites. Yet recommendations are often based on species screening trials that are conducted in optimal conditions by researchers. There is good reason to expect that the performance of recommended trees would be inferior under field conditions, leading to project failure. At the same time, projects often dogmatically promote the use of indigenous species, asserting that they will perform better because they are adapted to local conditions, without verifying their assumptions. There is good reason to doubt the appropriateness of this recommendation, particularly when rehabilitating degraded lands.

This study aimed at assessing the survival and growth of tree seedlings under a range of management conditions which are realistic to occur in Western Kenya. Emphasis was on capturing a representative range of realistic farm conditions and the seedlings' responses rather than using controlled 'greenhouse' conditions for predicting their true performance in the field. The choice of tree species and the degree of care and management intensity applied to the seedlings was left to the farmers to decide. 144 trees of two different species were planted at each of 227 eligible farms using *Albizia coriaria, Grevillea robusta, Markhamia lutea* and *Senna siamea*. The survival and growth of the seedlings was monitored after 3, 6, 12 and 18 months.

Soil parameters explained the growth only very poorly while their impact on initial survival was higher. Generally, the species differed significantly in their response to management practices while a trade-off between survival and growth rate was also observed irrespective of the variability of external influences. The data provide evidence for result-oriented recommendations of suitable tree species as well as realistic scenarios for farm-based reforestation/afforestation projects.

Keywords: Agroforestry, Kenya, land rehabilitation, reforestation, tree survival

Contact Address: Johannes Dietz, World Agroforestry Centre (ICRAF), Eastern Africa, PO Box 30677, 00100 Nairobi, Kenya, e-mail: j.dietz@cgiar.org