Factors influencing trialing of agroforestry in smallholder farming in Zambia

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Introduction
Research has shown that agroforestry has potential to improve land productivity and increase crop yields to enable subsistence farmers move out of poverty. In addition, implementing agroforestry would reduce pressure on existing forests and curb forest destruction. However, despite research and extension efforts, not many farmers have adopted agroforestry technologies. In Zambia, agroforestry research started in the late 1980s and was introduced on-farm in 1992 and through extension in 1997. We investigated the influence of household and institutional factors on trialing and adoption of agroforestry technologies. Agroforestry has the potential to address land productivity, to increase crop, tree and fodder production, and address immediate food needs. It also has capacity to ameliorate the environment, and increase farmer’s incomes. Despite its potential, it has low adoption rates. These possibilities have persuaded various extension organisations to promote agroforestry.

Agroforestry technologies in Zambia
A number of technologies have been developed and promoted.

- Improved fallows
- Biomass transfer
- Fodder banks
- Woodlots
- Domestication and commercialization of indigenous fruits

Methods of data collection and analysis
Personal interviews of 388 smallholder farmers in four districts of Eastern Province during 2008.

Multi-stage sampling was used for selecting farmers, whereas purposeful selection was used for selection of districts and agricultural camps in consultation with head of village and agricultural personnel. Random selection was used to select villages and farmers within an agricultural camp.

Questionnaires with both structured and unstructured questions were used to collect data. Informal discussions were held with some key informants.

Data analysis used SPSS 15. Statistical methods included: descriptive statistics; chi-square test of independence and Logistic regression analysis. ANOVA was used for the separation of means for different crops, trees and fallows. Cross tabulations were derived. Discussion of results are therefore based on the logistic regression analysis.

Results

Household characteristics
- 60% of respondents aged 26-45 years, with 15% having no schooling and 63% primary education
- 91% depend on farming as livelihood source
- Average farm size of x ha and 78% of farmers cultivating by hand hoes
- Cattle and small ruminants?

Use of Agroforestry Technologies
- Trialing generally low but improved fallows and biomass transfer most common (Table 1)
- High rate of adoption among those who trialed a technology

<table>
<thead>
<tr>
<th>Agroforestry technologies (%)</th>
<th>Improved fallows</th>
<th>Biomass transfer</th>
<th>Woodlot banks</th>
<th>Fodder banks</th>
<th>Indigenous fruit trees</th>
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<tbody>
<tr>
<td>n=12*</td>
<td>91.7</td>
<td>55.2</td>
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<td>80</td>
<td>82.4</td>
<td>3.9</td>
<td>78.6</td>
<td>4.4</td>
</tr>
</tbody>
</table>

Factors influencing trialing of agroforestry in smallholder farming in Zambia

Factors limiting Trialing
- Lack of seed a key factor (Table 2)
- Lack of interest
- Lack of knowledge
- Visits by extension
- Radio as information source
- Owning a garden
- Club membership

Primary Extension Factors
- The main extension approaches that people respond to are peer pressure or what neighbours do regarding new practices
- The primary extension agents are family members and the camp officer

Conclusions
Trialing of agroforestry technologies is low but continuation rate after trialing is high. Various factors influence the decision to trial an agroforestry technology and to continue using it.

A key factor is lack of seed as it influences both the decision to trial and to continue both improved fallows and biomass transfer. Land owner interest in the technology is also important. Different factors need to be focused on at different stages in adoption. For example, extension is important at trialing stage but once farmers trial it becomes irrelevant. Factors that influence trialing need to be emphasized when designing extension programs.

The main issue is to get farmers to trial these technologies.

Literature cited


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For further information
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