References on participatory testing and evaluation of agroforestry practices
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Compiled by Steven Franzel, ICRAF, P.O. Box 30677, Nairobi. My comments are in italics. Let me know if you know of other works that should be included in this list. Copies of ICRAF articles and chapters are available from myself or Mercy Mwangi (m.mwangi@cgiar.org). Books need to be ordered from the publisher. Publications from CIMMYT, CIAT, or other organizations need to be ordered directly from them; addresses are given below. If possible, provide your email address with your request so that we can send you the papers by email. * indicates that the paper is new or has been updated since the last issue of this reference list in July, 1999.

1. General references

Coe, Richard (compiler) 1999. Checklist for protocols for experiments with farmers. Prepared by participants of a workshop on participatory experimentation, African Highlands Initiative, Nairobi, 28 June – 3 July 1999. Trials with farmers require considerable planning and available checklists of topics for on-station trials are not adequate for planning trials with farmers. This checklist provides details on what should be considered in background and justification, objectives, methods and implementation plan.

Coe, Richard. 1998. Participatory on-farm experimentation in agroforestry: experiences and the role of biometrics. Invited paper presented at the XIXth International Biometric Conference, Cape Town, South Africa, 14-18 December 1998. This paper argues that in most cases, new methods for design and analysis in participatory agroforestry experimentation are not needed; rather, well established ideas and methods are available but are often not used.


*Franzel, S. Coe, R. Cooper, P., Place, F. and Scherr, S.J. Assessing the adoption potential of agroforestry practices in sub-Saharan Africa. Submitted to Agricultural Systems. Paper outlines ICRAF’s approach to assessing the feasibility, profitability, and acceptability of agroforestry practices. Includes discussion of types of on-farm trials and methods for assessing adoption potential and defining the boundary conditions of practices.


McNamara, Nora and Morse, Stephen. 1996. Developing on-farm research: the broad picture. On Stream Publications Ltd. Cloghroe, Blarney, Co. Cork, Ireland. Fax 021-385798. (Book) Collaborative work between Wye College and an NGO in Nigeria. Chapter headings are The Diocesan Development Services, The Introduction of on-farm research in Igalaland, Nigeria. Results of the farmer level agricultural innovations and response program, Lessons learned, and Conclusions. Price is 10 pounds. Little on agroforestry, but of interest because it discusses collaboration between academics, so emphasis is put on analysis and quantitative data, and an NGO, so emphasis is put on grass roots
development activities.


Shepherd, K.D. and Roger, J.H. 1991. Approaches to on-farm testing and evaluation of agroforestry technology. Working paper no. 67. ICRAF, Nairobi. 31 pp. This paper focuses on special problems and complexities of on-farm agroforestry experiments. A main theme is that biophysical questions should be investigated in experiments that have a high degree of control by researchers and that statistically rigorous experiments may not be appropriate for answering socioeconomic questions.

Stroud, Ann. 1993. Conducting on-farm experiments. CIAT, Apartado Aereo 6713, Cali, Columbia. 118 pp. This manual focuses on researcher-designed, farmer-managed trials. Chapter headings include Planning an on-farm experiment program, designing on-farm experiments, trial management decisions, implementing experiments, and data collection. There are many practical examples of problems encountered in on-farm trials and how to solve them.


2. Methods

2.1 Farmer participation in selecting treatments for on-farm trials


*Roothaert, R. and Franzel, S. Farmers’ preferences and use of indigenous fodder trees and shrubs in Kenya. Submitted to Agroforestry Systems. This paper reports on a survey in which farmers explained their preferences among indigenous fodder trees and ranked them in importance and selected species that they wanted to test in on-farm trials.

2.2 Farmer and site selection

Gedeno, Gemechu. 1986. Selecting representative farmers and sites for on-farm experiments. Farming Systems Newsletter No. 27. CIMMYT, Nairobi, Kenya. 6 pp. *Discusses problems, their causes and possible solutions in selecting farmers and sites.*

Guinand, Yves. 1996. A method to help select farmers for on-farm agroforestry trials, based on wealth ranking. AFRENA Report no. 102. ICRAF: Nairobi. 32 pp. *A practical set of guidelines for defining the wealth categories (income groups) that exist in an area. You can thus find out the wealth status of farmers you are working with in on-farm trials and how representative they are of the community. The method is also useful for selecting farmers for on-farm trials from the categories you are interested in targeting.*

2.3 Farmer assessment: guidelines and methods

Ashby, J.A., 1990. Evaluating technology with farmers: A handbook. CIAT Publication no. 187. Apartado Aereo 6713, Cali, Columbia. 95 pp. *Chapters include When to conduct farmer evaluations, social dynamics of farmer evaluations, establishing a collegiate working relationship with farmers, communication skills, farmer selection, setting up farmer evaluations, the evaluation interview, and group evaluations. The single most useful guidelines that I know of on farmer assessment.*


*Franzel, S. 1996. Developing a questionnaire for a formal survey of rural households. ICRAF Explains the steps to take in developing a questionnaire. The last thing to do (not the first!) is to dream up questions to ask! Before this you need to clearly state your objectives, the hypotheses you want to test, and the information required to meet your objectives and test your hypotheses. Then it is time to draw up your questions!*


in deciding whether to use a technology. Examples of other references in this list using decision tree modelling include Darnhofer (1996), Swinkels and Franzel (1997), and Peterson (1999).


Heinrich, G.M. 1992. Strengthening farmer participation through groups: Experiences and lessons from Botswana. On-Farm Client-Oriented Research Discussion Paper No. 3. ISNAR. 31 pp Examines the formation of farmer research groups for planning and conducting on-farm research. Chapters include group operations and outputs, benefits of the group approach, and management issues.


Walters, B.B., Cadelina, A., Cardano, A., and Visitacion. 1999. Agricultural Systems 59 (1999) 193-214. Most adoption studies focus on characteristics of individual farm households or farms; this study focuses on characteristics of villages in Philippines which influence why some villages participate in development activities more readily than others. Includes a useful checklist of general questions to guide investigation of a village’s history and how that history may influence adoption.

2.4 Economic assessment: guidelines and methods


Swinkels, R., Franzel, S., & Shepherd, K. 1994. Economic analysis of on-farm improved fallows in western Kenya. ICRAF Training Note: Case study handout. 13 pp. Spells out in considerable detail how to do an economic analysis on improved fallows and where all the data come from.

*Wesseler, J. and Waibel, 1995. H. Participatory farm planning: A guide to fruit tree based farming systems development. GTZ/Philippines-German Fruit Tree Project, 1995. 88 pp. Chapters include Participatory farm analysis, Quantitative methods of farming systems analysis, and Proposed farm plans. The discussion of economic analysis of multi-year tree crops is particularly useful.

2.5 Collecting labor data

Franzel, S. 1997. Collecting data on labor use in on-farm trials. ICRAF 8pp. *Evaluates the advantages and disadvantages of four different methods of collecting labor data and includes several data forms.*


2.6 Methodology notes (These are one—page descriptions of a particular method. The descriptions are kept short in hope that more people will be interested in reading them!)


3. Degrande, A., 1999 What has gone wrong? Removing sites from analysis in on-farm trials.

4. Phiri, D. and S. Franzel. 1999. Where are your on-farm trials? Example of a chart showing biophysical and socioeconomic features of different areas where on-farm trials are located.

3. Evaluation of agroforestry practices: examples based on on-farm research (B denotes biophysical analysis, E denotes economic analysis, F denotes farmer assessment, and G, gender analysis)

3.1 Fodder trees

Darnhofer, Ika, 1996. Ethnographic decision modelling of the adoption of Tagasaste, a fodder tree, and oats-vetch among farmers in the highlands of Ethiopia. Draft paper. 47 pp. *This paper provides an example of the use of decision trees in modelling the adoption process.*


3.2. Hedgerow intercropping/contour hedges


Fujisaka, S. 1993. A case of farmer adaptation and adoption of contour hedgerows for soil
conservation. *Experimental Agriculture* 29:97-105. This case study from the Philippines includes biophysical assessments, analysis of labor use, and assessments from farmers who were familiar with the technology but did not adopt. **B, F**


### 3.3 Improved fallows

**DeGrande, Ann, 1999.** Farmer assessment and economic evaluation of shrub fallows in the humid lowlands of Cameroon. Submitted to Agroforestry Systems. Assesses farmers’ testing and expansion of improved fallows using *Cajanus cajan*. Economic analysis and farmers’ assessment are very positive; wider dissemination requires a targeted extension approach and an effective strategy for seed supply. **B,E,F,G**


**Franzel, S., Phiri, D., and Kwesiga, F.R. 1999.** Assessing the adoption potential of improved tree fallows in Eastern Zambia AFRENA. working paper no. 124. Nairobi: ICRAF. This paper describes the type 2 and type 3 trials being conducted on improved fallows and presents results and a section on an adaptive research and dissemination network composed of researchers, NGOs, extension services and farmer groups. **B,E,F,G**


Peterson, J.S. 1999. Kubweteletza Nthaka: Decision trees and improved fallows in the Eastern Province of Zambia. University of Florida/ICRAF. Draft. This paper models and explains the decisions that male and female farmers make in deciding whether to plant improved tree fallows. While both males and females are actively planting improved fallows, their reasons for participating and not participating are somewhat different. **F,G**
*Phiri, D., Franzel, S., Mafongoya, P., Jere, I., Katanga, R., and Phiri, S. 1999. Who is using the new technology? A case study of the association of wealth status and gender with the planting of improved tree fallows in Eastern Province, Zambia. Describes a wealth ranking exercise in which community members identify the different wealth groups in their communities and determine each household’s wealth status. Both women and men were found to be planting improved fallows in similar proportions. There was a strong association between wealth and planting improved fallows but substantial numbers of poor households were planting them. F, G

Place, F and Mwanza, S. 1995. Cost-benefit analysis of improved fallows in eastern Zambia. This is a good example of cost-benefit analysis based on on-station trials. E


3.4 Tree planting for timber and firewood


*Ramadhani, T., R. Otsyina, and S. Franzel, Improving household incomes and reducing deforestation; the example of rotational woodlots in the Tabora area, Tanzania. Draft. Assesses the uptake of woodlots by tobacco farmers to meet their fuelwood needs and improve soil fertility. Estimates are made of the forest area saved by growing woodlots instead of purchasing wood from the forest. B, E, F


Tyndall, Brad, 1996. The socioeconomics of Grevillea robusta within the coffee land-use system of Kenya. AFRENA paper no. 109. ICRAF. Nairobi. Includes farmer assessment of advantages and disadvantages of grevillea and alternative species, crop yield loss and economic analysis of grevillea when planted along a maize field, and a multivariate adoption model examining factors affecting farmers’ decisions to plant grevillea. B, E, F, G

3.5 Live fences and windbreaks

Ayuk, Elias. 1996. On measuring the economic importance of live hedges to household economies in Central Plateau of Burkina Faso. ICRAF, Nairobi. Compares the costs and returns of live fences to dead fences, which farmers currently construct from wood and crop residues. E

decision process and factors affecting adoption of live hedges. Also includes quantitative assessments of farmers’ perceptions of the advantages and disadvantages of live hedges and their criteria for choice of species. F, E


3.6 Analyses of other or multiple technologies


Bekele, Taye. 1996. Adoption of hedgerow intercropping and two upper-storey species in Western Kenya. M.Sc. thesis, Dept. of Forestry. Swedish Univ. Of Ag. Sciences. 80 pp. Describes adoption process among farmers who had participated in farmer-designed, farmer-managed trials. Includes survey of neighboring farmers to see if they had also tested the species. F

Franzel, S., Ndufa, J.K., and Obonyo, C. 1996. Farmer-designed agroforestry tree trials: Farmers' experiences with newly introduced tree species in Western Kenya. ICRAF. 16 pp. This paper describes the results of a farmer-designed tree trial and has examples of the kinds of qualitative and quantitative analyses that can be conducted in type 3 trials. B, F, G


Obonyo, O.C. 1995. Report of the group meetings held with farmer designed agroforestry tree trial farmers of Kisumu, Vihiga, and Siaya Districts. National Agroforestry Research Station, Maseno. 10 pp. This document reports on farmer meetings held to evaluate the tree species included in the trials. F

Place, F. (Compiler) 1995. An ex-ante impact analysis of selected agroforestry technologies in the SALWA network. ICRAF. 16 pp. Includes economic analyses of live fences, fodder banks, park lands, and hedgerow intercropping, based mostly on data from on-station trials. E

van Duijl, Erika, 1997. Monitoring women’s tree planting in Kabale District, Uganda. A study of farmers’ preferences among tree species and planting niches. ICRAF. 48 pp. This study focuses on farmers’ experiences with four species and includes review of tree-planting activities of women in Kabale and tree planting constraints.

4. Impact assessment

Place, F. 1997. A methodology for a participatory approach to impact assessment: implications from village workshops in Eastern Province, Zambia. ICRAF. 1997 Describes two village workshops in which farmers expressed their views on the likely impacts of improved fallows on their farms, households, and villages, and how these impacts might be monitored.

*Kristjanson, P., F. Place, S. Franzel, and P.K. Thornton, Assessing Research Impact on Poverty: Starting with farmers. Food Policy. In press. Describes examples of farmer workshops from five countries to find out farmers assessments and expectations of impacts from technologies they are testing and using.

5. Institutionalizing participatory research
