

Tree Crop Assessment in Small-scale Farms - Cost Effectiveness and Participation

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Abstract

Research took place in Kenya on the socio-economic and socio-cultural role of trees in small-scale farms. A new method for regional data assessment and evaluation has been developed. This method includes new communication tools which allow a more time-efficient data collection ensuring best data quality. The method is based on a network of communication tools which support each other with information. The economic data is cross-checked with the farmers for its reliability. The farmers being the first beneficiaries of the research receive this data in the form of Farm Plans. They can use it for economic planning and financial presentation of their farms. The new method is time and cost saving.

1 Introduction

The destruction of natural virgin forests in the tropics and subtropics continues. Thus, the local population loses opportunities to gather forest products other than timber. After removing the tree vegetation it is usually impossible to farm the existing soils on a sustainable basis with annual food crops alone. With increasing population pressure and decreasing availability of good land, farmers are no longer able to leave cropped soils fallow periodically. Furthermore, the degradation and abandonment of lands results in increasing pressure on those few forest systems that remain intact. More and more subsistence farmers cultivate crops on unsuitable marginal land (DEWEESS, 1993).

Trees can help to establish more sustainable systems on already cultivated land. According to ICRAF (1997) they have two functions on farms and in landscapes: they provide products that can be marketed for cash or used domestically, such as wood for fuel, fodder, fruits, food and medicinal products. Additionally, trees also provide services within agroforestry systems that increase crop yields and environmental resilience, such as soil conservation, enhanced nutrient capture and cycling, efficient water-use, shade and boundary delineation.

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Governments of many developing countries, supported by international organisations, promote an intense tree crop cultivation as a long-term approach to improve people's welfare and to protect intact forests. *"The plight of tropical forests has caused intense international concern during the past two decades. Attention has focused chiefly on resource degradation, declining biodiversity and the effects of decreasing forest resources on the global climate. Less international attention has been devoted to the implications of diminishing forest resources for local people who depend on forests for their livelihoods, although national governments in many countries have developing programmes that address the twin concern of poverty and environment"* (FORD FOUNDATION, 1998, 1).

One goal of German development co-operation is to improve the promotion of tree crops in tropical countries in order to support sustainable agriculture in small-scale farming systems. Supporting this goal, GTZ (1997, 2) explains: *"In the past, extensive work with considerable achievements has been done to improve the situation in the tree crop sub-sector. Between 1976 - 1991, GTZ implemented 104 projects with a tree crop component costing over DM 825 million. ... it was found that almost all projects could achieve their aims in the technical aspects of tree cropping ... but most failed to achieve the expected trickle down effects and the wide adoption of the development extension packages among the farmers...."* The overall problem identified by this project is the inadequate utilisation of tree crop resources in farming systems. The goals are to increase farm incomes with considerable increase of the utilisation of the tree crop potential (GTZ 1997, 2-3). During its early phase, ITFSP demanded extensive information about the socio-economic and socio-cultural role of trees in different farming systems in Kenya.

Research on agronomy of small-scale farming systems has been conducted to achieve development aims and has so far concentrated on subsistence and staple crops. There is a natural demand to focus on these crops in order to produce enough food and cash crops, to protect people from famine and to create sources of income. The view on the agricultural potential of tree crops for these small farms has been introduced via the agroforestry approach. However, alternative products and cost advantages of trees and their market opportunities are not yet well known by the small-scale farmers and remain little used (DEWEES, 1993). It seems the small-scale farmer often understands trees to be a by-product, good for subsistence, border demarcation or an easy supply of firewood etc. (ICRAF, 1997). Gross-margin analyses of tree products from small-scale farms are scarce because of very high time and resource requirements. These analyses are generally very time consuming and thus expensive. Ordinary small-scale farmers rarely keep regular farm records. All information has to be collected during interviews. Human factors like forgetfulness and palliation influence accuracy. Therefore different tools for data collection should become combined and direct measurements should be done on-farm. A large number of farms need to be investigated for a regional estimation. This also makes costs explode.

Basic data on the socio-economic and socio-cultural situation of small-scale farmers, and on the different technical aspects of using tree crops in their farming systems are available. Unfortunately these are incomplete and in forms which are often not easily comparable to each other. Arnold and Townson (1998) assessed the potential of forest product activities to contribute to rural incomes in Africa and found *"until recently information about actual production, trade in and demand for, products produced at a household and small enterprise level has been mostly situation specific and restricted to a particular point of time"*. It is difficult to draw from them clear conclusions and recommendations. Most information is available from field studies initiated by development aid projects. These studies usually serve their clients' interests. They are prepared to answer specified questions. The number of farms investigated for these studies is often less than ten. There is no adequate and uniform methodology for data collection. Consequently, site-appropriate and field-tested concepts for the assessment and evaluation of the role of tree crops in farming systems are not available. Thus planning for and implementation of tree crop promotion suffers from a lack of suitable on-farm data. There is demand for a time and cost effective method for in-depth farm analyses on a regional basis. This method should also allow easy repetition by users and be adaptable to various situations.

2 Materials and Methods

The method used in this research is also an important output by itself. This fieldwork methodology is a praxis-oriented approach focusing on the objectives of the research which were developed to serve the client-farmers. Under the author's umbrella other researchers were introduced to the methodological approach and contributed to its development through regular use and analyses of the tools used. Every researcher covered different research objectives. The common goal for all researchers involved was given by Integration of Tree Crops into Farming Systems Project. This was the project's request for broad information about socio-economic and socio-cultural data from small-scale farms with an emphasis on the role of trees.

The farmers and the local field workers have been the most important sources of information for this research. They also helped to develop the methodological approach through comments and open discussion. A number of Kenyan and international organisations and institutions contributed to the research, mainly through logistics and know-how regarding the local conditions. Different key persons from the local communities have provided their knowledge and experiences to this study. Local leaders, representatives and important local business people and farm managers were involved. They organised group meetings and contacts with private farmers and contributed to the research with their rich knowledge about people, events and technical aspects. Their acceptance of the researchers and their project was always the 'door-opener' to the villages' communities.

All researchers agreed on a mutual set of tools for data collection under the author's methodological approach. In practice, the methods and tools employed were regularly reviewed and fine-tuned. Feedback, both daily within the research groups as well as with the farmers and local extension workers, became a major work method and ensured the quality of collected data as well as helped to improve the used tools. The research was therefore a process of learning from each other, which was a highly enjoyable and welcome approach as farmers, extension workers and researchers pointed out.

Once the administrative agreements were finalised, the researchers met to reconcile scientific interests. This involved an introduction of the participatory philosophy and methodology to the research partners. Specific tools which served both parties' interest in research information were mutually selected. Fieldwork always started with farmer group meetings, led by the author who introduced and involved the particular researcher. Further individual farmer visits followed.

A logistical network supporting all the researchers with an internal feedback system was developed during one and a half years of research. This created a common understanding amongst the researchers thus the tools were further developed. The results and improvements from these analyses have been regularly shared and commonly discussed. They build the base of the author's methodological approach. The economic data from research in Nyeri, Machakos and Mwingi Districts have been followed up by the author. The farmers who were already involved in this research were visited again by the author for detailed economic investigations. Farm Plans were developed, handed over and evaluated. Remaining questions on the utilisation of trees were investigated during meetings with Tree Keepers¹ and other knowledgeable interview partners. In this way the researcher received a well-rounded picture on the situation of trees in farms which was underpinned with data from the regional economic assessments.

The philosophy of agricultural economy has been developed in western world conditions. Thünen (1826), Aereboe (1905 and 1917) and Brinkmann (1914, 1922) developed the structural approaches to socially-determined economical research in agriculture. Tools for data generation, their analyses and interpretation, however, differ widely between developed and developing countries as agricultural and social conditions are very different. Gittinger (1982), Doppler (1985) and Wolff and Engelhardt (1998) describe approaches to regional evaluations in developing countries. They pay attention to the high number of small-scale enterprises either with rudimentary records or with none

¹A Tree Keeper is a person with superior knowledge on the cultivation and utilisation of trees. Such a farmer often owns a wide range of different tree species or specialises in particular tree products. This knowledge is usually inherited from parents over generations and combined with new information from agricultural courses and individual studies and experiments. Tree Keepers are well known in their home region and enjoy a very good reputation because of their experience with trees and success as farmers. They are often consulted by villagers for technical advice and improved planting materials. Many Tree Keepers run their own nurseries successfully. Some of them also teach fellow farmers regular courses.

at all. The technical aspects of data collection and analysis in these approaches are clear and used in praxis. For best results, however, a change in attitudes amongst researchers is required. They should ideally work and live in the rural countryside. This is supposed to enable the researcher to draw correct conclusions about social aspects and to put economic data in the right context. For this reason, the author's approach has been developed predominantly in the field together with the farmers.

Subsistence farmers in Africa, Asia or Latin America do not necessarily aim for profit maximisation but focus on other goals such as production of sufficient daily food, acceptance in and welfare contribution to the community, sufficient time to relax and cultural activities etc. Monetary valuation of some these goals is difficult.

Collection of information and data for individual farm assessments and for regional studies under the conditions of developing countries require different approaches from the ones used in western countries. Doppler (1991) suggests open approaches which evaluate farms and the region as a complex. With that, the researcher gets a comprehensive picture of the system he/she appraises which is better than one which focuses only on a few farms or only on regional observations. Information about the natural conditions of the location, the farms' equipment in terms of production, production techniques, marketing structures, economic returns and social structures ought to be combined. Information can be collected through the accumulation of farmers' and key informants' knowledge, analyses of secondary data sources and single farm assessments. For the latter, the more intensive and reliable the economic farm data is, the better the regional assessments are. Such detailed farm analyses are time and cost intensive and are restricted to a small number of analysed farms (five to ten per study) or they concentrate on certain aspects only, such as special crops or farming practices. An overall regional system analysis approach including a broad sample of intensive farm case studies is offered by this research.

3 Assessed Farming Systems

The first objective formulated for this research was to determine the socio-economic status and socio-cultural role of tree crops in different farming systems in Kenya. A data assessment approach was developed during fieldwork. The results of this approach are gained through economic data of the analysed farming enterprises and verbal information from the farmers and local leaders.

The major selection criterion for research sites followed the geographical system defined by Jätzold and Schmidt (1983). This selection was determined by climatic and logistic factors. The classification strategy of "Farming Systems in the Tropics" by Ruthenberg (1971) is clearly orientated by agricultural indicators. For this reason Ruthenberg's system has been selected for guidance in its description of the agricultural conditions of the research regions.

Farms in three different agro-ecological zones were explored for this study during 1996 and 1997. The first case study shows two locations in Nyeri District in the Kenya highlands with very market-oriented crop production. The examples from the Machakos District are characterised by organic farming and harsh market conditions in one of the two places studied. The situation is remarkable in terms of the good climatic conditions and the farmer's own performance in one location of the third study area, Mwingi District, and is in contrast to the second visited location there, where life is extremely hard.

Almost all farms which were intensively analysed in this study are under permanent cultivation. Their farming systems are characterised by "(1) a permanent division within the holding between arable land and grassland, which is seldom or never cultivated; (2) clearly demarcated fields; and (3) a predominance of annual and biannual crops" (RUTHENBERG, 1971, 99). The R value for these farms exceeds 70. That means, all investigated farms are under permanent cultivation and fallow periods are scarce. The utilisation of trees in these regions differs widely and is shown in Table 1. It shows the key economic indicators and gross return for all farm activities and tree cropping as a percentage calculated for 1996 as well as the realised net income from tree products' sale.

Table 1: Relations of Gross Returns Realised in the Farms and the Share by Trees (1996)

Location name	Sample size	Average farm's gross return (in US \$)	Average trees' gross return only (in US \$)	Percentage trees' gross return from total	Percentage net income realised with tree crops
Mahiga (Nyeri District)	33	1,922.26	1,051.07	54.68	71.05
Mathira (Nyeri District)	29	2,572.68	431.66	16.78	14.56
Lumbwa (Machakos District)	31	1,816.50	253.79	13.97	14.06
Kavyuni (Machakos District)	29	1,707.56	409.81	24.00	54.71
Ngalange (Mwingi District)	32	1,404.72	203.20	14.47	2.33
Nzeluni (Mwingi District)	32	2,656.36	984.11	37.05	45.99

In Mahiga location farmers give coffee and tea a very high priority. They are seen as cash maturates. Farmers in Mathira concentrate on highly specialised vegetable production. Their tree specific gross return is realised with tea and coffee only. Organic farming is very common in Lumbwa and people produce staple food crops like maize for

commercialisation. Fruits and other products from trees are mainly used for home consumption. In a generally poor area such as Kavyuni, the agricultural and transport to market conditions are worse than in Lumbwa. Therefore Kavyuni farmers specialise in fruit production. It is a social fairness that the local fruit market has been left to them being their only chance to realise a little income.

Ngalange location suffers under very harsh conditions so fruit trees are of little importance there. The minor income from trees comes from timber sale and baskets made from the bark of the Baobab. In contrast is Nzeluni - the most promising area in terms of tree promotion. Nzeluni farmers are highly experienced in tree cultivation and orchard development. They have established well functioning market systems for their products.

More details and extensive explanation of data and analysis of the specific conditions in the research locations can be requested from the author.

4 The Farm Plan

The author developed his Farm Plan on the basis of farm analysis and farm planning methods which are used in economical investigations into rural enterprises. A Farm Plan, in terms of this research, is an economically determined document of all activities carried out on a particular farm. It is a technique for extensive gross margin calculations of small-scale farms. The Farm Plan summarises the situation of an investigated farm on a monetary basis. The success of the particular farming activities is shown with the help of economic figures in the so-called farm datasheet which is part of the Farm Plan. The time period used here is one year, including a different number of agricultural seasons according to climatic conditions. The year of investigation for this research was 1996. These Farm Plans help the owners in decision-making about farming activities. They also allow governmental and support projects' decision makers to draw economical and political conclusions about investigated regions. They are comprehensive and informative and result in overall regional descriptions based on accurate data. During field research the National Kenyan Agricultural Bank offered credits to some of those farmers who owned a consistent Farm Plan.

The 186 Farm Plans which have been developed by the author are used on a practical level and represent the most important database for rural economic appraisal in this approach to regional evaluations. These assessments describe the economic potential and social situation of the investigated regions. The basis for these assessments is a number of representative farms and general information given by farmers during different group meetings. The Farm Plans are embedded in other data and information collection and evaluation techniques. They help to process this information which leads to the above mentioned regional assessments.

There are some special features of the Farm Plan in the way that it is used here. It is characterised by its time efficiency because of its being embedded in a set of tools which support each other. This time efficiency allows the elaboration of a sufficient number of farms which is the basis of correct regional descriptions. The data within this Farm Plan is very accurate because of the special method of collection used and the document's simplicity. This allowed us to work with many different farmers, even with those who had never the chance to gain a high level of literacy. The Farm Plans were therefore evaluated and corrected together with the farmers and the farmers' input influenced the data accuracy enormously.

The Farm Plan is developed with the computer programme Excel and contains three separate data sheets. These are: 'FARM DATA', the summary of the analytical data, 'CROPS', the cultivating activities and 'ANIMALS', the livestock keeping. The Farm Plan shows gross output of crops, total costs of crops, gross margin of crops and gross value of animals for the whole farm. For the crops it also contains gross and net cash income.

The rightful owners of the Farm Plans are the farmers themselves. The researchers' or development workers' most important target should therefore be to create a simple document easily understandable by the beneficiaries. All terms in the document are bilingual, in English and the local tribal language. The Farm Plan is printed on a large sheet of paper up to 50cm x 75cm in size and laid out in a very user friendly style so making it easy to use.

The best way to cross check data quality is to ask the farmers about their opinion of the results in their Farm Plan. A precondition for that is the farmer's understanding of the document so proper training and explanation of the plan was offered. The two major goals of this training are the farmer's understanding of the Farm Plan and the cross checking of data accuracy. The training creates a simple expertise about book-keeping amongst farmers. They learn basic economic terms and become able to interpret their own Farm Plans. Besides this document they also receive a simple table on a single page which aims to support them in further planning of their farming activities. This table is called the Farm Record Chart. Finally, discussions in the group and on an individual basis about the content of the Farm Plans work as troubleshooting against mistakes in the Farm Plans.

5 Tools for Data and Information Collection

Information for this research was obtained by interviewing farmers individually, with the help of an open keyword guideline and by participating in group discussions. During the group discussions and individual meetings, conventional and participatory methods of data collection and analysis were used. Both kinds of methods are described in literary sources. The main ones used in participatory methods are: Chambers and Ghildyal

(1985): "The Farmer-First-and-Last Model" and Chambers (1983): "Putting the Last First". These books have had a major impact on the research's attitude and made the farmer in the centre of all efforts. The "Rural Appraisal: Rapid, Relaxed and Participatory", also by Chambers (1992), led to the proper method of participatory-oriented research. The different tools for field research have been studied and taken from Case (1990), Farrington and Martin (1993) and Theis and Grady (1991). These sources have also given important hints on how to handle the tools in different possible situations (see also Ford et. al. 1992). Schönhuth and Kievelitz (1993) supported the overall understanding of these tools and their relation to each other, within the framework of development using the participatory approach. Nagel et. al. (1992) has mainly been used to learn appropriate ways of how to adapt the tools to specific conditions and how to analyse and develop them. The tools for fieldwork have been selected according to the specific needs for information, adapted to the research demands and improved whilst being used.

Albrecht et. al. (1989, 165) give five basic methods of acquiring information during agricultural field research:

- evaluation of secondary materials from written or verbal sources;
- observation and description of the survey area;
- questioning people through various interviewing techniques;
- direct measurements together with the target group;
- trials as field experiments.

In practice, all these methods were used during the field research. The target was to analyse current situations and to select and fine-tune tools for a systematic survey of farming systems. Within this assessment, the elaboration of the situation of tree crops was a focused example. Different tools were selected according to the specific information needs. They were adapted to the research demands and improved through use. Quantitative data was collected through interviews with open keyword guidelines and the development of Seasonal Monetary Calendars. Beside group and individual discussions, the tools used to identify information on more qualitative aspects of specific farming characteristics were Maps, Historical Talks with Village Elders, Seasonal Tree Calendars, Farm Walks and techniques for identification of Tree Keepers. These tools have been used in different combinations during group meetings and individual discussions. Group and individual meetings are themselves specific tools which create a framework for more detailed investigation.

The feedback sessions with the farmers had a special function. They had a very important effect on the quality of research results and supported the farmers with training on book-keeping. During these meetings the analysed data was presented to farmers and handed over in the form of Farm Plans. The farmers' comments corrected or improved the quality of the data.

The flexible combination of tools with regard to local specifications as well as the adoption to different information requirements is a fundamental basis of the approach. All tools need to be used in a logical combination to ensure the method's success. Out of the many possible tools, only the tested and adapted ones are described here. The way to combine them is described in the next chapter.

6 The Tools Network

A methodical network can be used to describe, plan, monitor and evaluate any kinds of systems. These systems can consist of people, objects, ideas or states of affairs, which are connected in any way. The author defines the specific character of the Tools Network:

The Tools Network is a system of different communication instruments for data and information collection, analysis and evaluation. These are conventional instruments e.g. guideline-oriented interviews and tools for participatory communication e.g. visualised group discussions with participation-oriented decision making about its content. The network's target is the socio-economic and socio-cultural assessment of a farming system and the improved educational standard of involved participants (governmental and non-governmental organisations, researchers, extension field workers and farmers).

The target of combining tools in a network is to increase their efficiency and to improve the quality of information received. Every single part or tool of the author's network has its own functions. There is a need to survey data and information as well as to create awareness. Some tools function in terms of trust-creation and some have an important training component. The human factor of mutual acceptance and trusting co-operation is, however, the most important influencing factor in the quality of the results. The analyst should therefore maintain the attitude of accepting ordinary farmers as equal partners in research as this is as or more important than technical knowledge and experience in the employment of tools.

Figure 1 is a diagram showing the relationships between the tools used for this research. This model simply shows how the different tools influence each other and how they focus on an assessment of any area. This network is explained in a technical way, but not forgetting the human part of the approach.

The central target of this network is the socio-economic and socio-cultural description of the farming system in a particular region. All tools contribute towards this assessment with information. The interest of Integration of Tree Crops into Farming Systems Project in this research meant there was a bias towards tree crops. However, the whole approach can be easily adapted either to analyse farming systems in general or to focus on any other specific activity, such as animal husbandry or the impact of staple food

crop production or the role of vegetables etc. The user will always get a well-rounded picture of the investigated farming system, based on economic data and verbal information and evaluations. The quality of information is not only a matter of accuracy, but also depends on an open attitude towards the people living in the research region. Their honest responses can verify the standard of information quality. The tools by themselves allow such a trusting relationship.

The Farm Plans are also placed in the centre of the network because their most important role is to be a correct database for further regional analyses and for the farmers' self-evaluation. Their two major sources of information are all the tools conducted on the farms and the Seasonal Monetary Calendar. The first are namely the Farm Walks, the Farm Maps and the Interviews about Farming Activities. A prerequisite for the Farm Plans used for regional analyses and data estimation is their data quality. This has to be

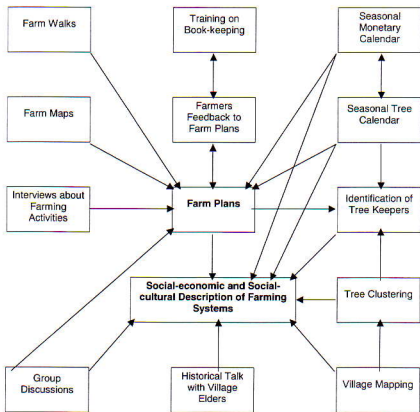


Figure 1: Technical Network of Tools for Regional Assessments

evaluated by what is done by the farmers, the only true informants on this matter. The data evaluation is an important process carried out under the researchers' guidance. It takes place during the training on book-keeping and farmers' feedback sessions when the Farm Plans are handed over to the farmers. Farmers have to be advised on simple book-keeping techniques to enable them to interpret their documents. Once they know to read the Farm Plan, farmers use it to give feedback on its content.

The tools which are used at the farms collect data on all farming activities, cross-check the reliability of this data, create a positive private relationship with the particular farmer as a basis for common working and support the farmer with technical advice. The collected data from each farm is the basis of developing a particular Farm Plan. There is also information based on social facts that comes out during the individual meetings. This information contributes directly to the regional assessment and in some extent to the Farm Plans. For example the social and age structure of a region can be examined using this information.

The second Farm Plans data source, the Seasonal Monetary Calendar, is developed during a group meeting. Data collected here is evaluated by the meeting group and is therefore very trustworthy because of the process of data evaluation by the meeting groups. Its results are linked into the Farm Plans and so it is directly involved in the regional assessment. The Seasonal Monetary Calendar has a major impact on the time efficiency of the approach.

Information about the farmers' evaluation of certain trees is used as starting position for the Tree Clustering. It comes from already developed Farm Plans and from the Seasonal Tree Calendars. With this tool, Tree Keepers are selected who grow significantly more trees than others. The tool also helps to weight the importance of certain trees within the farming system. Both the Seasonal Tree Calendar and the Tree Clustering are important to characterise the role of trees in the area, to find potential approaches to tree promotion and to determine the demand for support of regional tree cultivation.

Different group discussions process various information about the farming systems in general and on tree growing practices in particular. Information is also gathered about socio-cultural aspects. In principle these discussions are two-way and often develop improvement approaches adapted to the local conditions. There are two tools usually used during first group meetings in a kind of research introduction to the area. Village Mapping gives a proper overview of the location and later on provides Tree Clustering and the regional assessment with information. The Historical Talk with Village Elders is helpful to understand the long-term development of the area's farming system. This view into the past has an important impact on designing sustainable approaches by using positive experiences and avoiding previous mistakes.

Within the Tools Network is a great source of top quality data. Local development support projects can use this information for planning and evaluation activities, their

staff and other extension workers get to know their clients better - the farmers - and their living conditions. Government authorities are also able to adjust their policies according to the farmers' needs. However these tools will definitely fail if the researcher is not ready to listen, reciprocate and answer the farmers' questions. If the Farm Plans were to be developed by the researcher but not delivered in full to the farmers, so they can give feedback, this powerful tool would become impotent - cut off from the most important factor that insures the high quality of the information - the farmers' feedback to the researcher.

Three major efficiency categories are valid for this approach:

- ◆ the high quality of the data
- ◆ the time saving component
- ◆ both the above lead to cost reduction, compared with previous assessments of farming systems dominated by small-scale farms.

All three quality categories influence each other therefore they have to be understood completely. The high quality of data and information is a major contribution to this approach. It contains institutionalised systems of feedback and data cross-checking. The most important factor of data control is the farmers' evaluation of their own Farm Plans. As was explained earlier, these evaluations are done for every single document developed for each analysed farm. The complete basis of economic data and statements used for further analyses is cross-checked for its reliability.

Improved time efficiency is strongly correlated with the Seasonal Monetary Calendar. Two elements of this tool especially help the process in terms of saving time. These are the duration of individual interviews with farmers about their farming practices and economic returns and the time taken to develop a Farm Plan. Whereas the first is easily proven with the help of regular notes taken by the author during the interviews, the latter depends on the author's work experience.

The economic analysis of a farm requires detailed investigations on costs spent on inputs and prices realised with products. In addition to these figures, information on market places, transport feasibility, costs for transport and marketing etc are necessary. Costs, prices and marketing conditions fluctuate a lot during the course of the year. A good interview on a farm's economy depends on all this information. The conventional approach to interviewing farmers about their farming practices is therefore very time consuming. The author spent from three to four hours interviewing each farmer using this conventional approach.

The question is, how does one analyse a sufficient number of farms in an acceptable time and with limited financial resources? The Seasonal Monetary Calendar offers basic data on farming and marketing activities in a region. With the implementation of the

Seasonal Monetary Calendar, the author saved up to one hour per individual interview on farm data collection. Finally, during the investigation of the six research locations, more than 90 work hours on interviewing have been saved. In practice, this tool allows the researcher to investigate three to four farms per day instead of only two. With that, it is possible for a two person research team to analyse 60 farms during a month, including the follow-up of the complete approach. Under the conventional system only a maximum of 30 farms was realistic, not forgetting the improved quality standard which can be achieved with the Seasonal Monetary Calendar.

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Bewertung von Baumkulturen in kleinbäuerlichen Betrieben - Kosten sparend und partizipativ

Zusammenfassung

Eine Feldforschung zur sozio-ökonomischen und sozio-kulturellen Bedeutung von Baumkulturen in kleinbäuerlichen Betrieben fand in Kenia statt. Dazu wurde eine neue Methode zur Datenbewertung entwickelt. Diese Methode beinhaltet neue Instrumente zur Kommunikation, welche eine zeitsparende Sammlung von Daten bester Qualität erlauben. Die Methode basiert auf einem Netzwerk von Kommunikationsinstrumenten, die sich gegenseitig beim Informationsgewinn unterstützen. Die erhobenen Daten werden mit den Bauern auf Richtigkeit geprüft. Dazu erhalten die Bauern, als wichtigste Nutznießer der Erhebungen, Betriebsstatistiken. Sie können diese für Ihre wirtschaftlichen Entscheidungen oder für die Präsentation ihrer Betriebe nutzen. Die neue Methode ist Zeit und Kosten sparend.

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