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Importance of home gardens for the households' livelihood strategies in Mabua, South Africa
(Synopsis)

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Introduction

According to last years reports the farming system in Mabula consists of fields, homegardens, livestock and grazing land for cattle. The fields are located outside the villages and the homegardens are found in the village close to the houses. The outputs of the fields have lowered in the last five years, and since the homegardens are more intensively managed than the fields and most households have a homegarden surrounding their houses, it is assumed that the homegardens are becoming increasingly important to the villagers in terms of food security (Funder et al., 2001).

The homegardens usually consists of a maizeplot, a vegetable garden, fruit trees and a kraal for the livestock. Pigs and chicken are kept near the houses and may be considered as a part of the homegarden system (pers. com. Andreas de Neergaard).

During our fieldwork, we find it relevant to examine for whom and why the homegardens are important or not. Are people more or less reliant on vegetables produced by them today than they were in the past, or do they buy more products from outside? Do the homegardens besides providing food have other importances – for instance cultural issues?

The outcome of this project can help us assess whether and why homegardens are becoming increasingly important in Mabula. The project could be interesting for the villagers because it gives them a possibility to discuss management practices with other people interested in gardening. It also can be interesting for developing workers going in to the area, as it will tell them some of the livelihood strategies villagers in Mabula choose and why.

Objective

The objective of our fieldwork is to answer following main question:

What is the importance of homegardens for the households' livelihood strategies in Mabula?

By the term “importance”, we mean what role the homegardens have and how important this role is in terms of the livelihood strategies of the households. Importance is relative i.e. it has to be compared to something else. For example: how important is the homegarden compared to other activities of the family or is it more important for one household than for another.

“Livelihood” and “livelihood strategies” are by Chambes and Conway (1992) defined as: “a means of living, and the capabilities, assets and activities required for it.” and “The sum of all the different activities that people are doing in the context of their livelihood.” We focus on activities related to the gardens and on the role of the gardens in the household's ways of earning a living. We also consider plans for the future as a part of livelihood strategies.

To clarify how we are going to answer the main question, we have formulated five sub questions, which reflect what we think is important to look at. The first two questions deal with how reliant the households are on the homegardens. The third question deals with management of the homegardens, while the last questions consider the time perspective: the history and the future.

What is the importance of the homegardens for the households' economy?

Importance for the economy does not necessarily mean that the gardens generate income (we do not expect that). The homegardens can be important in providing food and thereby save money for other purposes.

What is the importance of the homegardens for the food security of the households?

The villagers do not have a market nearby and probably do not have the possibility of buying a lot of their food. Therefore, they are expected to be quite reliant on what they can grow themselves. We would like to know what part the homegardens play in providing food to the household and what other possibilities they have in providing food to the household.

How are the homegardens managed?

The importance of the homegardens is closely related to the management of the gardens. The management reflects the investment in the gardens (labour, time, money, skills) and decides the output of the garden.

Are the homegardens sustainable¹?

If the homegardens are important for the households, it is relevant to find out if they are managed in a sustainable way. We are going to focus on the management of soil fertility.

Has importance of the homegardens changed?

According to fieldwork last year, the homegardens are becoming more important in terms of food security. We would like to know what the people think about this question and if there are connected changes in management practices.

¹ Sustainability is here defined as a homegarden system where production can be sustained or increased over time without declining soil fertility.

Methods

To assess the importance of the homegarden to the individual household, we look at the household and homegarden as a connected system (fig. 1).

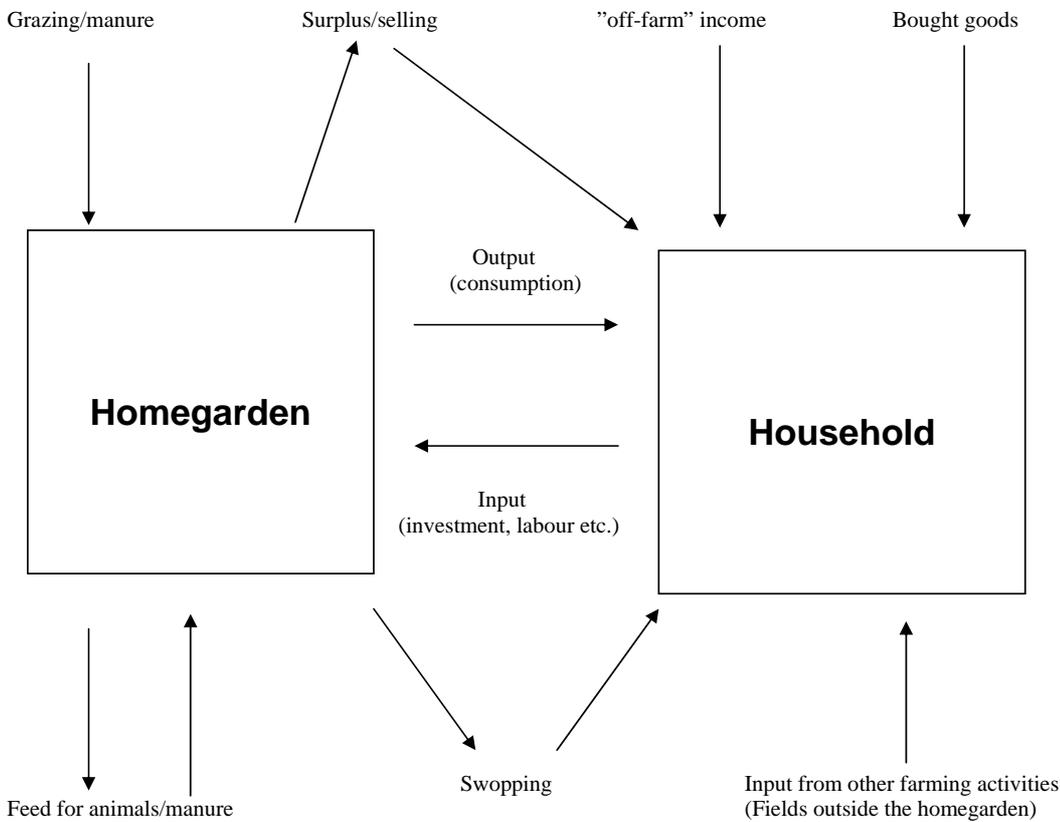


Figure 1: Flows between household and homegarden

By quantifying the flows between the homegarden and the household, we can assess the relative importance of the homegarden and compare different parameters to each other e.g. inputs of the homegarden compared to total inputs to the household, investments in homegardens compared to income etc. Furthermore, we can compare differences between different households.

We expect that the importance of the homegardens will be different for different households and that the importance can be connected to the management practices in different ways. However, the importance and maintenance is presumably also connected to tradition. Asking about practises in the past and plans for the future will cover this aspect.

We have decided to choose 8-12 households from the village for our investigation. These households should be chosen so we get a representative selection of the households. We would like to get a selection that represents different kinds of management practises. To get this we will use

PLAR² techniques where the villagers define, what good management is (Defoer et al 2000). When these factors are defined, we will together with a group of villagers categorise the homegardens in the village into three classes: well-managed gardens, average-managed gardens and bad-managed gardens. Then we make a random sampling of two to three households from each category and if possible two to three households without a homegarden as we find it interesting to know whether these households have chosen not to have a homegarden or if it is because they do not have access to one. Using both natural scientific and social scientific methods, we are going to carry out the investigation of the households and homegardens (appendix 1). The specific methods will be discussed in the following section.

Interviews:

Most of our information we will get from the households by interviewing the household members. To be able to compare the importance of the homegardens between different households we need to ask comparable questions. Therefore, we think the best method in this case will be to make a combination of questionnaires, to be sure to get all the information we want, and semi-structured interviews to be able to ask into detail on interesting topics. Doing this more informal talk, we also hope to be able to assess whether the people are satisfied with their garden and to find out if there are any issues, we have not assessed that the gardeners consider important. An advantage doing a questionnaire is that we can discuss all our questions with our interpreter to be sure that he/she understands our questions before we go and make the interviews.

We attend to do the interviews by splitting up in two groups with natural science students and social science students represented in each group. One person will ask the questions, another take notes and the third person will take care that all important questions is being asked. After the interviews, the answers are discussed among all Danish and South African students.

In addition to the planned interviews, we attend to participate in gardening work. Thereby we hope to get to talk to people in a more informal way. This is done both to be sure that we do not overlook any important details and to get a feeling of the daily work in the garden.

The interview guide (appendix 2) should be seen as an outline, which we are going to work on and discuss with our counterparts both before and during the fieldwork.

Natural-scientific methods:

We are going to make quantitative measurements in order to get some comparable data from the different gardens and to try to validate the information we get from the interviews. The methods in field we are going to use are:

Map drawing: We will draw the houses, gardens, rivers, roads, shops and slopes, to get an overview of the village. We will bring the map when categorising the homegardens with a group of villagers, to mark which homegarden belong to which house. After the selection of the homegardens, we can use the map to localize visually the placement of the homegardens compared to each other.

Soil tests: By measuring the organic matter content of the soil, we can estimate the amount of N mineralised over time. Plant available N is taken up by the plants immediately and there will be nothing left in the topsoil. 20-30 samples are taken from each garden, the soil is mixed completely

² Participatory learning and action research

and one soil test from each garden is then brought to Denmark for further analysis. The P and K content will be possible to measure in the field using chemical analysis.

Manure tests: One sample from each examined garden is brought to Denmark to analyse for total N content. From the estimated amounts of manure applied to each homegarden, we can then calculate the amounts of nitrogen applied to each homegarden.

Plant tests: From these tests, we can measure the amount of N, P and K taken up by the plants. We will carry out samples from 1-2 crops from 8-12 selected gardens. This is done by squeezing 15 leaves from each crop from each garden. The juice from the plants is used for the analyses. We are going to use the nutrient levels for estimating the output of nutrients from the soil and to assess whether the plants are nutrient limited.

Area measurement: Using a measuring stick we can work out the area of the gardens. The size of the garden could have an influence on the importance for the household in terms of size of output and diversity of crops in the garden.

Penetration and infiltration rate: The infiltration rate can be measured using two simple iron rings and it can help us estimate the degree of erosion. Furthermore we will observe for indicators of soil erosion e.g. rills, gullies, build-up against barriers and soil texture. The degree of erosion gives an estimate of nutrient loss and sustainability of the gardens.

The soil and plant tests can help us estimate the level of soil fertility. An estimation of input/output ratios can help us estimate whether their gardening practises are sustainable or not. We are aware that it can be problematic to estimate the input/output ratios. Our calculations will be based on estimates from information we get from the farmer.

Materials needed

- Spade
- Plastic bags for soil tests
- Transportable chemistry bag to analyse nutrient content in soil and plant samples
- GPS
- Iron rings (Infiltration rate).
- Camera
- Gifts (pencils, rubber, souvenirs)
- Etc.

Time schedule

Date	Fieldwork
17/01	Accommodation and briefing – Afternoon walk in villages and surroundings. Evening meeting and if possible, arrangement of group meeting with villagers the following day.
18/01	2 students make map drawing of village. The rest arrange group meeting with the villagers to define the factors important for good management. After definition, 2-3 villagers are found to be the ones to categorise the homegardens. After the meeting, the students make three categories from the factors agreed upon. All students plus the 2-3 villagers does a village walk to categorise all homegardens and the households having no homegarden. After categorising, a random sample of 8-12 homegardens/households is carried out by a selected villager.
19/01	All members participate in the first interview and the first soil and plant tests. 1 st field evaluation meeting, all students and staff participate. Group discussion.
20/01	Group A and group B make 1 interview and field test per group. Analysis of plant and soil tests in the evening. Direct observation. Discussion of results and adjustments to the methods
21/01	Group A and group B make 1 interview and field test per group. Participation in garden work. Analysis of plant and soil tests in the evening.
22/01	Group A and group B make 1 interview and field test per group. 2 nd field evaluation meeting, all groups and staff participate. Group meeting.
23/01	Discussion of results and adjustments to the methods. Participation in garden work or other activities and direct observations of the gardens in the village.
24/01	Group A and group B make 1 interview and field test per group. 3 rd field evaluation meeting, all groups and staff participate. Group meeting.
25/01	Group A and group B make 1 interview and field test per group. Participation in garden work. Analysis of plant and soil tests in the evening and group meeting.
26/01	All members participate in the last interview and the last soil and plant tests. Doing activities with locals. Analysis of plant and soil tests in the evening and group meeting.
27/01	Group meeting and return to Durban, accommodation and briefing

Literature review:

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APPENDIX 1

Research themes

Themes	Raw data	Sources of data	Methods	When	Analysis
Description of households	-Size -Gender issues -Labour -Education -Ownership -Sources of income - Total income -Sources of food -Total consumption -Income replacement value of crops	-Households -Market prize observation	-Questionnaire	-Field work	-Analysis of Questionnaire
Description of the gardens	-Size -crop species -animal species -Soil type (classification) -Slope -Soil organic matter -“Quality”(is the garden well managed)	-Gardens -Soil -Crops -literature on crops	-Map drawing of the village and the specific gardens -Direct observation Digging for soil profile -Soil test -Area measurement	-Field work	-SOM analysis -texture analysis
Management	-Distribution of crops -Crop rotation -Fertiliser management -Irrigation applications -Nutrient management -Productivity	-Households	-Questionnaire/ semi-structured interview -Interviews using PRA-techniques -Literature review	-Field work -Pre-field work	-Analysis of interviews and questionnaire
Sustainability	-Input of nutrients -Nutrient content of output -erosion -qualitative measures of input and output	-Gardens -Households	- Semi-structured interviews -Plant tests -Measurement of penetration and infiltration rate -nutrient content of manure	-Fieldwork	-Nutrient analysis of plants and manure -Analysis of management practices
Changes	-Management history -Why this form of management? -Satisfaction about the management	Households	-Qualitative interviews	-Fieldwork	-Analysis of interviews

Appendix 2

The interview is built up to cover all themes. The first description of the household is carried out as a questionnaire. The part about the garden and garden management is carried out in the garden, so that the gardener can show us the plants, the tools etc. We hope that this part can be done as a semi structured interview/conversation with the gardener, where we fill in the information we need, while talking about the practises in the garden. Drawing of the garden can be done together with the gardener and estimation of manure application, productivity etc. can be done by asking the gardener to show us e.g. buckets for carrying manure, bags for the harvest etc. Questions about income and ownership are placed after the management part, since it might be a bit too personal to start with. The last part of the interview about “changes” and satisfaction is done as a semi structured interview. The themes and questions are meant as an inspiration for the conversation. After the interview we are going to do the plant and soil tests, area-measurement and penetration/infiltration-rate measurement.

Questionnaire/interview Guide

Date:

Interviewer(s):

Respondent(s):

Other people present:

- **Description of household**

Members of the household	Education	job	Family status/relations

Who is responsible for the household/ head of the household?

What are his/hers responsibilities?

Who is responsible for the garden (the management part of the interview should only be done if he/her is present)?

- **Income**

What are the sources of income?

How much is the total income of the household per year?

How much is the share of different sources of income?

- **Ownership**

Are the homegardens owned by the people who live in the household?

Do they have other homegardens apart from the one belonging to the house?

Does the household own land apart from the homegarden(s)?

Do they farm the land?

What are the outputs from the farmland used for?

- **Consumption**

From where do you get food apart from the garden?

What do you get?

What are the costs?

How much of your total consumption do you get from the homegardens (find a way to estimate)?

- **Description of garden**

Crops (10 most important)	Planting time	Harvest time	What is it used for?

Other crops:

Other plants (fruit trees):

What do you use it for?

Livestock (species and number of each species):

What are the purposes of raising the livestock:

- **Management practises**

(Make a drawing of the garden and the crops present)

Is the soil different in different parts of the garden (show in the garden and on the drawing)?

Which parts of the garden are most fertile (show in the garden and on the drawing)?

What is important for a good management?

Crop rotation:

Are the crops planted the same place each year (make some kind of drawing or scheme of crop rotation)?

Why/why not?

Jobs in the garden during the year:

Month	Jobs	Hours per day	Who does the job?
January			
February			
March			
April			
May			
June			
July			
August			
September			
October			
November			
December			

From where do you get your seed?

What are the costs?

What tools are being used for the jobs in the gardens (show us)?

Does anyone from outside the household work in your homegarden?

Do you or anyone from the household work in other people's homegardens?

Fertilizer management:

What kinds of fertilizers do you use?

How much of each per year?

What are the costs?

Do you use any manure (if not mentioned)?

Why?

How much?

Is it possible to use human manure?

Why/why not?

(Are there any problems using manure in the homegardens?)

If they have legumes in the garden and why?

Weed management:

How do you control weed?

What are the common pesticides being used in the homegarden?

How much are the costs of using pesticides?

Do you have problems with weeds?

What happens to the weeds (do you use it in the garden or for the livestock)?

Irrigation:

What are the sources for irrigation water?

Do you have any problems getting access to these sources?

What applications of irrigation are used in the homegardens?

How often is it necessary to irrigate the garden?

How much water each time?

Productivity:

Crops	Harvest (amount)	Use of harvest (share)				
		Consumption	Swopping	selling	Food for animals	Other*

*What are the other uses?

For how many months are you reliant on the products form the garden?

What happens if you get a bad harvest?

Other:

Other costs connected to management of the garden?

- **Changes e.g. in:**
 - Management practices
 - Income/sources of income
 - Reliance on the garden

What would you like to change?

Why don't you do it?

- **Satisfaction e.g. with:**
 - Productivity of the garden
 - Management practices
 - other

Why do you have a homegarden?

Why do you manage the homegarden the way you do?