SOCIAL AND FARM FORESTRY INFORMATION COLLECTION

SOFEM 2002

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ACTIVITY 3.4.2:INFORMATION COLLECTION FROM FARMERS AND EXTENSION AGENTS

Introduction

The Information section, being one of the components of the social Forestry Extension Model development Project (SOFEM), aims at collecting information on social forestry extension, synthesizing and disseminating it to the farmers, extension agents and other related organizations. The main out put expected has been to ensure that information on farm forest establishment is shared among the people and related institutions. The information collection activity has been undertaken over the project period as one of the aspects contributing to the achievement of the section's mandate. The main objective of this activity was to document the farmers' and extension agents' social forestry views and experiences, package them and share the information collected with other relevant organizations.

Gradual Changes in the Implementation Process

This activity was implemented in two stages with changes and amendments being adopted at the second stage as deemed necessary.

Stage A

At this initial stage when the activity begun, the implementation plan involved:

- Development of a format for information collection from both farmers and extension agents.
- Introducing the format to the divisional extension agents and explaining the details on what information to collect, and how to fill the information into the information collection sheets. After all necessary discussions and amendments, the DFEOs were in turn expected to do the same to their Field Technical Agents.
- Distributing the information collection sheets to both the Project TAs and the Forest department TAs working within the project target area.
- Technical agents to collect information and fill it in the information collection sheets after which they submit it to the information section staff through the DFEOs.
- Information section staff to compile the information and package it as a report or pamphlet as per its relevance and practicability.

This plan was implemented as outlined and after several discussions among the section's staff, an information collection sheet was formulated, tested and approved in the section's committee for use. Explanations and discussions were also made among the section's responsible staff (Japanese staff included) with the DFEOs as planned. The information collection sheets were distributed to the TAs who collected information during their routine extension activities among the target farmers. The format of the information collection sheets composed of information such as name of informant, location, and type of information and details of the information. This format was mainly targeting indigenous knowledge and information from farmers but the extension agents were allowed to give their own ideas as well. A space for an illustration or photograph of the activity or idea was also provided in this format.

The target information to be collected was clearly highlighted as social forestry information directly or indirectly related to tree planting, management and utilisation.
The format of the information collection sheet used to collect information at this initial stage of the activity is as shown below.

Farmers'/extension agents' ideas collection sheet

Name of farmer / source_____ Division_____-
Location:_____ Latitude/Longitude S_____ E_____
Sub-location_____ Agroclimatic zone_____
Name & position of extension agent_____
Date_____

Category of information
☐ Tree planting ☐ Nursery ☐ Seeds ☐ Trees utilisation ☐ Improved stoves
☐ Water harvesting ☐ Agriculture ☐ Others (_____)

Title of information_____

Illustration or photograph of the information	
Detailed description of information	

By the end of year 1999, a total of 32 information collection sheets had been filled. The format was still considered to be at the pre testing stage for the purpose of formulating a better method of collecting social/farm forestry information. While perusing the collected information sheets, it was noted that most of the extension agents (DFEOs and TAs) had not understood the format and the information needed. This could also have happened as a result of the extension agents having misunderstood instructions given or lack of understanding on the side of the farmer in relation to information needed on social/ farm forestry. About 15 of the filled information sheets were considered to have irrelevant information because they were filled like the usual farm forest establishment record books and sheets used by farm forest establishment (extension) section of the project. Further discussions were held with the DFEOs and TAs to ensure that they understand the difference between this activity and their usual farm forest monitoring activity. The activity then continued and at the end of year 2000, a total of 40 information sheets were filled and submitted. During this time, the Kitui information staffs were directly involved in the information collection activity in the field.

However, in the course of the activity, it was realized that most of the farmers were only providing indigenous information on medicinal and edible uses of trees. Hence, it was decided to make new changes to the format while documenting the obtained information. This led to the development of the second stage of the implementation process of information collection activity. The need for formulation of this new format was also considered necessary because it was found difficult to feed back this information to the technology development of the project for validation purpose. The section did not have the capacity to research on this.

Result and discussion of information collected

There are different species of trees, shrubs and even lianas that are highly valued by local people in Kenya for their medicinal and edible values. Some of these trees are becoming extinct because of over exploitation without any conservation measures being undertaken. Even those available are not known to the young generation. Different communities especially those in semi arid and arid areas have used some indigenous trees, shrubs and herbs widely to supplement their own food (vegetables and wild fruits), dry season fodder for livestock as well as medicine and environmental conservation. Though most of these species have been recognized as having multiple uses, their full potentials have not been explored. This could be attributed to the fact that their present uses are based on the local indigenous knowledge with little or no scientific validation.

In the process of enhancing adoption of new technologies in all sectors of the economy, indigenous technologies have been ignored. However, due to low socio-economic, cultural and literacy levels, most of the local people in arid and semi-arid lands still rely much on the traditional indigenous technologies. It is therefore important that these technologies be integrated into research and extension so as to generate their multiple effects in improving the livelihood of the local communities in developing countries. Researchers in different sectors of the government and non-governmental organizations should consider indigenous knowledge on the use of the local trees, shrubs and herbs as a treasure, which can be promoted by developing socially acceptable and clinically healthy products/technologies.

Local communities in varying regions have their own indigenous knowledge and uses of the species occurring naturally in their locality. In this report, the traditional and other uses of different indigenous species in Kitui District are highlighted as per the information provided by farmers and extension agents. This information was obtained as in the course of collecting indigenous knowledge and ideas on social forestry in three divisions of Kitui district namely Kabati, Central and Chuluni where the Social Forestry Extension Model Development (SOFEM) Project has been operating since November 1997. Since this information has not been scientifically validated the author of this report and the Project does not advocate practical application unless one has personal complete trust in herbal medicine and has access to an experienced herbalist who can advice on the dosage. Altogether, herbal drugs and pesticides have been known to many communities all over the world and have been useful even in developing artificial medicines. With careful use, they have less adverse effects (if any) on the environment.

The purpose of documenting this information is to package it for possible future use. The main targets for dissemination of this information are individual researchers, research institutes and universities. These could be mostly those dealing with forests, animal and human health among others. It is only through research work that these trees and shrubs can be analyzed to determine the essential chemical components, appropriate mode of use, their safety for both human and animal use and the dosage incase of drugs to be developed. The collaboration of industrialists is

very important and it is only through their devoted participation that the results of research can reach to the communities giving this information.

The information collected indicated that the local people have been using different tree species to treat various sicknesses in human beings, livestock and poultry. A summary of the information collected at this stage of the activity is presented in this report.

Tree Species	Parts Used/Mode of Utilisation	Sickness Treated & Dosage
Euclea divinorum (mukinyai)	Roots pounded by use of mortar/stones and mixed with water	Solution taken to loosen hard stool
Erythrina abyssinica (Kivuti)	Inner bark powdered and mixed with roots of *Ricinus communis* and Kaundu	Treating diarrhoea in cattle
Tamarindus indica (Kithumula)	• Solution of boiled roots • Fruits • Boiled leaves extract	Treats swelling of the body Pneumonia (uwau wa Kati) Malaria (Nyunyi) by massaging
Acacia gerrardii (Muthi)	• Solution of boiled bark • Dried and powdered root covers	Chest pains Wound treatment
Zanthoxylum chalybeum (Mukenea)	Extract from boiled roots	Chest pains, 1 glass for 3 days (adult), ¼ glass per 3 days (7-15 yrs children)
Strychnos henningsii (Muteta)	Solution extracted from steamed leaves	Treating malaria ½ glass for two days (above 15 yrs), ¼ glass for 2 days (below 15 yrs), 1 x 2 teaspoons for 1-2 yrs old babies. Steaming is also done to babies.
Aloe kedongensis (Kiluma)	Extract from leaves	Treat chicken
Acacia nilotica (Musemei)	Inner peel of the bark	Chewing the inner peel treats chest pains
Croton megalocarpus (Muthulu) and Carica papaya	• Roots of both mixed and boiled • Pawpaws	Venereal diseases Treating children with oedema
Maerua decumbens (Munatha) & Terminalia brownii (Muuku)	Solution from boiled roots	Bathing with the solution to treat malaria and body swelling

Combretum molle (Kiama) & Sena siamea	• Mixture of boiled leaves extract	Treating chicken
Euclea divinorum & Combretum molle	• Roots	Venereal diseases
Azadirachta indica	• Boiled leaves solution	Stomach ache
Terminalia spinosa (Spinosa) & Zanthoxylum chalybea	• Boiled mixture of root covers	Yellow fever
S. Henningsii} L camara (Mulyavindi) Z. Chalybeum (Mutuiu)}	• Extract of boiled roots	Malaria Pneumonia Coughing

Tree species	**Parts used /Mode of utilisation**	**Sickness treated /Dosage**
Aloe kedongensis (Kiluma) and pepper plant	The leaves of Aloe are crushed /smashed then mixed with pepper	Treatment of New castle in chicken
Carica papaya (Paw paw)	The sap is extracted and applied on the tongue	Pneumonia
Synadenium pereskiifoliuum (Kyatha)	Sap extracted from branches or stem	Sap applied on sick glands in livestock
Croton macrostachyus (Mutundu)	Extract from washed and smashed leaves	The sap extracted is applied on skin affected by ringworms.
Pigeon pea	A piece of stem burned in to charcoal and powdered	The powder is applied on burned skin.
Tinospora caffra (Ithunzu)	Sap extracted from the bulb root that has been softened through burning.	Sap is applied on affected ear.
Biden pilosa (Black jack)	Sap extracted from smashed leaves	Sap applied on affected eyes.
Agave sisalana (Sisal) leaves	Extract from leaves	Extract applied on fresh wounds or cuts.
Katongí / Kamamililya	Sap extracted from smashed leaves	Wounds
Ocimum basilicum (Mutaa)	Leafy branches are attached on house walls	Mosquitoes' and fleas' repellent

Aspilia mossambicensis (Oliv) willd. (Muti)	Sap extracted from smashed leaves	Wounds
Mwalula, Nzonzoia and commiphora baluensis (Mutula)	Leaves of the three tree species are ground and sap extracted.	Treatment of a certain fever (Nuni)
Eucalyptus camadulensis (Musanduku)	Leaves mixed with the faeces of a deer and ground using mortar and pestle then mixed with water and boiled	Chicken pox One tea spoonful is taken and the rest of the body washed using the solution
Terminalia brownii (Muuku)	Extract from boiled leaves and bark	Yellow fever One tea spoonful taken and the rest of the body washed with the solution

Tree species	**Parts used /Mode of utilisation**	**Sickness treated /Dosage**
Piliostigma thorningii (Mukolokolo)	Inner part of bark	Chew to treat coughing
Acacia nilotica	Inner bark	Chew to treat coughing
Syzygium guava (Muvela) *and Ocimum basilicum* (Mutaa)	Leaves of both plants are grounded using Mortar and pestle then water is added and sap is extracted	One cup of the sap is taken after every 6 hours to treat diarrhoea
Acacia gerradii (Munina)	Extract from boiled bark	Chicken with bile disease is given the extract.
Mukuli	Leaves	Rubbed leaves are smelled for treatment of common cold and sneeze
Ficus natalensis (mukuyu)	Latex (Milky sap) from stem or branches)	The sap is applied on aching teeth
Ocimum suave (Mukandu)	Leaves are grounded and mixed with little water	The extracted solution is used for treatment of constipation and diarrhoea

Other uses

Ficus natalensis

-During the dry season, the roots of this tree species are used to quench thirst.

-Latex from this tree is used to prepare poison for arrows.

Stage B

It is important to note that this activity stagnated for some time during the year 2001 due to delays by the concerned team in deciding how to package and disseminate the information. Staffing problem also became a hindrance to the implementation of this activity even after the decision on how to package the information was reached. It was also realized that the information on medicinal and edible uses of indigenous trees and shrubs was lacking research back up hence could not be disseminated to farmers anyhow. The only possible target for disseminating such information would be health related research institutions. As a result, a new guideline for information collection system was formulated with more specific objective and types of information needed. The former information collection sheet was also amended in order to make it possible to collect specific information on farm forest establishment and management that are more relevant to the project.

Objective of the new guideline

This guideline information collection system was aimed at contributing to enhanced farm forest management as well as development and verification of appropriate technologies through various information dissemination activities. This would also ensure a smooth flow of extension information among related institutions and farmers.

Contents of information

To achieve the stated objective, information collected from farmers and institutions such as KEFRI and Forest Department in relation to farm forest establishment and management as well as transfer of appropriate technologies should be shared with related institutions and extension agents in time.

Source of information

These could include farmers, groups, communities, companies, authorities, related institutions and other stakeholders.

Class of information

a) General information from the field

This information is collected by the extension agents during their daily field activities and it is includes whatever they recognise as valuable, a new movement or transformation in forestry. Examples of such cases of information are:

- Well-adopted and modified farm forest management technologies.
- Good traditional technology on farm forest establishment/ management.
- New technologies developed by the local people on conservation and utilisation of tree resources within the farmlands.

b) Pressing information from the field

This refers to critical information that needs quick attention. Such an example would be a clear sign of an outbreak of tree pests and diseases. This may require a different method of implementing the available social forestry knowledge and techniques.

c) Technical information

This includes information on practical or innovative outcome of technology development and verification. This could also market supply and demand information on wood and other forest related materials, the prices among others.

d) Information on specific challenges
This type of information may vary and will be decided by the project or institute information staff as needed from time to time.

Implementation

The information collection activities will be implemented in several steps
a) Collection and submission of information
Extension agents will collect information that has relation to any general and pressing issues arising during their field activities and submit the information to the information section. From time to time, the information section staff will also need to hold discussions with the extension staff and visit farmers to collect more information when ever necessary.

The useful information for collection may include successful models of farm forests, a good case of intercropping, and a good example of farm forest management and effective farmer-to-farmer extension method.
The extension will need to follow a good time schedule for collecting specified information. Such could be:

- April to June: Successful models of farm forest, problems and expectations of the farmers in relation to farm forest establishment and management.
- July to September: Good example of well-managed farm forest.

b) Order and custody of the information
The information staff will first examine submitted information and synthesise what is relevant.

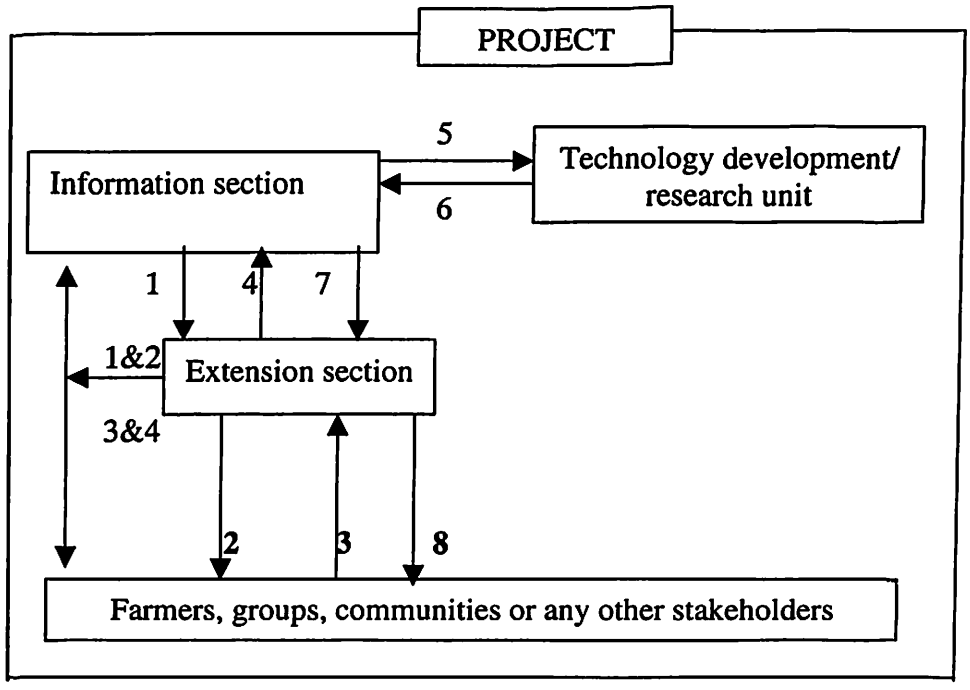
c) Information committee
The committee will have the role selecting necessary information and plan on how the same should be stored, packaged and disseminated to the appropriate target. The members of this committee will include staff from KEFRI, FD, JICA and related institutions.

d) Use of information
The useful information as approved by the information committee will be appropriately packaged and issued for use as extension materials hence the information will be shared with farmers and other interested institutions.

Chart of information system

The information section should ensure that this information collection system is closely related and net worked with other project activities without which the information collected would be irrelevant. The chart below shows a possible interrelationship that can be established between any information activities involving the local people/other project stakeholders and other project technical activities. This is a recommendation that can be considered for application by any project not only SOFEM.

A suggested information collection flow chart



Steps involved

1. Information staffs discuss their intentions with the extension agents.

2. The extension agents approach the farmers.
   Steps1&2 combined refers to the approach of farmers by both information and extension agents as a team.

3. Information collection by extension agents.

4. Submission of information to the information staff.
   Steps3&4combined refers to collection of information by the two groups combined as a team.

5. Information section synthesise information collected and share it with the technology development section (this may also refer to other research institutions to which the information may be relevant).

6. Technology section/research institution feed back their opinion/research verification results to the information staff.

7. Steps7&8 could be undertaken separately or combined to feed back the research results to the stakeholders involved and from then the information flow chart continues.

The sample of information collection sheet as modified in the guideline is as shown below.

Information collection sheet
Title of activity/ information:
Name of source: Division: Location:
Sub-location: Name of Extension agent: Date:
Intention by source:
☐ General ☐ Pressing ☐ Innovated ☐ Specify challenge

Content:
Detailed Explanation:
Centre Director's Comments:
District Forest officer's Comments:

The new information collection sheet was pre-tested, presented to the project implementation committee and approved for information collection. However, due time constraints the use of this sheet was not taken through the suggested process. Sheets filled using the new format illustrated above are attached to this report.

Title of activity/ information: Specific farm forest Design (1)

Name of source: Mbila Nzoo Division: Central
Location: Kyangwithya East Sub-location: Ivaini
Name of Extension agent: Josephine Musyoki Date: 23rd May, 2002
Intention by source: Reduce cost of weeding

☑ General ☐ Pressing ☐ Innovated ☐ Specify challenge

Content:

Mr. Mbila has a *Eucalyptus* stand established in his farm, which has an altitude of 1450m above sea level and receives 1000mm rainfall per year. His management techniques are aimed at producing straight poles and they seem to be quite unique. In his farm the implications of high-density spacing of trees on tending and other management operations are noted as explained.

Detailed

Explanation: Tree Density

The *Eucalyptus camaldulensis* trees in this farm have been planted at a spacing of 2.5ft by 2.5ft hence there are about 17,200 trees per hectare. The farmer has maintained his stand at that the density not only by spacing but also by beating up to replace the dead trees and by coppice management

High density and tending operation
The farmer grows tree seedlings together with crops for two rain seasons. The cost of weeding is therefore reduced given that the tree seedlings are only needed together with the crops. After the two rain seasons, the inter-cropping is stopped and the trees are dense and high enough to suppress weeds hence no more weeding.

Centre Director's
Comments: The farmer should be advised on the need to the space his trees more wide3ly to reduce moisture competition especially during the dry season. High mortality may occur in this situation.

District forest officer's
Comments:

Title of activity/ information: Specific farm forest Design (2)

Name of source:	Mbila Nzoo	Division:	Central
Location:	Kyangwithya East	Sub-location:	Ivaini
Name of Extension agent:	Josephine Musyoki	Date:	23rd May, 2002
Intention by source:	Reduce cost of weeding		

☑ General ☐ Pressing ☐ Innovated ☐ Specify challenge

Content:

Mr. Mbila has a *Eucalyptus* stand established in his farm, which has an altitude of 1450m above sea level and receives 1000mm rainfall per year. His management techniques are aimed at producing straight poles and they seem to be quite unique. In his farm the implications of high-density spacing of trees on tending and other management operations are noted as explained.

Detailed

Explanation: Pruning

1. Natural pruning occurs in a stand because the lower branches are suppressed by dense canopy closure that makes the branches die and fall
2. The stand has high density, which allows for pruning of branches.

Centre Director's
Comments: While explanations are correct thinning must be done at the appropriate time to allow selected trees increase their diameter. Otherwise trees would suppress each other over a long period thus distributing biomass in many stems.

District forest officer's
Comments:

Title of activity/ information: Specific farm forest Design (2)

Name of source: Mbila Nzoo Division: Central
Location: Kyangwithya East Sub-location: Ivaini
Name of Extension agent: Josephine Musyoki Date: 23rd May, 2002
Intention by source: Reduce cost of weeding

☐ General ☐ Pressing ☑ Innovated ☐ Specify challenge

Content:

The farmer does not incur any cost of pruning because the pruning is natural. Due to the same high-density effect the farmer does not carry out any activity in his stands.

The farmer uses the pruned branches for wood-fuel.
The same fallen branches and twigs trap the soil during run-off and prevent the soil erosion from taking place on the farm.

Detailed Explanation: *Pricing of the products from farm Woodlots*

The prices of the forestry products from the farm varies as follows: -
The farmer sells his poles at 20/= each. The buyer then sells his poles at 30/= per pole.

When the farmer takes his poles to the market place on his arrangement, he will sell each pole at Kshs. 60/=.
The buyer can also sell his poles at 60/= when he takes them to the market place.

Centre Director's Comments: In the process of marketing, the middlemen should be avoided. However, the farmer should consider the transportation costs and the convenience of taking the products to the market.

District forest officer's Comments:

Title of activity/ information: Specific farm forest Design (1)

Name of source: Mbila Nzoo Division: Central
Location: Kyangwithya East Sub-location: Ivaini
Name of Extension agent: Elijah Oyugi Date: 25th May, 2002
Intention by source: The method used for forest management and soil conservation

☑ General ☐ Pressing ☐ Innovated ☐ Specify challenge

Content:

Mr. Mbila Nzoo is a core farmer who has establishment big Eucalyptus Woodlots at a high density of 17,200 stems per hectare. The farm is on altitude of 1450m above the sea level. The farmer applies unique sustainable management of his farm forestry aimed at increasing his farm outputs.

Detailed Explanation: *Harvesting of forest products.*

The farmer harvest poles from his stand at the age of 2 years. The stands are of different age classes in half a year. This implies that after half a year a stand is ready for harvesting which is done selectively. The maximum period at which the farmer can harvest a coppice stand is 20 year after which the farm can be put under cultivation of food crops for two rainy seasons before next planting of seedling. The soil will have gained fertility after this period due to enrichment of organic materials from little fall.

Centre Director's Comments: Quite innovative. This allows the farmer to continuously generate some income from this woodlot.

District forest officer's Comments

Title of activity/ information: Pest management in farm forests
Name of source: Josephine Munyao **Division:** Central
Location: Kyangwithya **Sublocation:** Dumont
Name of extension agent: J.K. Musyoki **Date:**

Intention as per the source: Pest management by use of local method:
Type of information

☐ General ☐ ✓ Pressing needs ☐ Innovated ☐ Specific challenge

Content:
Mrs. Josephine Munyao has established a nursery and several wood lots with different types of tree species. The area has an altitude of about 1000m and the rainfall received per year is low (about 400mm to 900 mm). Due to frequent drought the problem of termite attack on trees is very common in the area. This farmer has therefore been using concoctions of *Gnidia subcordata* (Kamba: Musinzili) and *Azadirachta indica* interchangeably to control this problem.

Detailed explanation: Control of termites in wood lots and fruit orchards
Gnidia subcordata is believed to be very poisonous by some communities. The bark fibres are used for making ropes but the leaves are not palatable to livestock as fodder. Some farmers in Kitui prepare an extract from the leaves and use it to control termites. The project has been encouraging the farmers to use such traditional methods to control pests and diseases and this farmer indicated that she has been able to control termite's problem by a using a decoction of this shrub and that of *Azadirachta indica* interchangeably. The farmer acknowledged that survival rate of trees in the wood lot and fruit orchard has improved

Centre Director's
Comments: It would be interesting to confirm some of these alleged successes in on-station trial where controls can also be put in place.

District forest officer's
Comments:

Title of activity/ information: Pest management in farm forests

Name of source: Benjamin Kithiki **Division**: Central
Location: Itoleka **Sublocation**: Kyandui
Name of extension agent: J.K. Musyoki **Date**:
Intention as per the source: Pest management by use of local method:
Type of information

☐ General ☐ Pressing needs ☐ Innovated ☐ Specific challenge

Content:
David Malombe has established a fruit orchard that has about 350-paw paw with rows of red pepper in between the fruit rows. The area has an altitude of about 1000m and the rainfall received per year is low (about 400mm to 900 mm).

Detailed explanation: The farmer indicated that he had planted pepper in between the rows of paw-paw fruit trees, a rare practice in the area so to manage pests in the fruit orchard. This is because he believed that the pepper repels pests because of it is not palatable A neighbouring agricultural officer who is also a student in the university was planning and working with this farmer to know how this practice will help to control pests in the fruit orchard. A follow-up may therefore provide more information on this.

Centre Director's
Comments: This requires verification in on-station where a control can be put in place. At the same time observations on this farm should be compared with those of neighbours and documented.

District forest officer's
Comments:

Conclusion

At the start of any kind of rural development project, it is important to consider the local resident's indigenous knowledge, skills and knowledge acquired through training as well as their own innovations initiated due to problems encountered over time. However, it should be noted that gathering such kind of information is not an easy task and needs to be planned precisely at the initial stages of the project. This gives an understanding of the community needs and their ideas / level of knowledge or skills on the technical package the project has. Such an activity as this can also help to obtain information that can help to develop good and applicable technologies among the local people. For the information collected to become useful, it is necessary to understand the importance of collaboration of different specialists.

Recommendations

If collection of information from the local people in any project's target area is to be effective and of relevance to a project's implementation process, it is important to take the following precautions:

- The objectives of collecting the information need to be stated clearly to avoid confusion.
- It is necessary to establish a guideline of information system that specifies the type of information to be collected and what process to follow.
- A clear focus on the target source of information and target recipients of processed and packaged information is needed.
- The individuals to collect the information need thorough training (awareness) on how to conduct the activity using the formulated guideline.
- Plans need to be put in place on how to package the information and disseminate it.
- The individuals involved in planning such an activity should also be involved in the implementation of it so as to be in a position to note gaps in their guidelines thus being able to make changes as needed. This will also enhance formulation of practical guidelines as well as gathering of useful information.
- The information format and flow chart suggested in this report need to be re- tested further so as to develop it further as desired by Kenya Forest Research Institute and Forest Department.