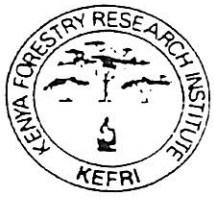
Project Working Paper No. 17



Kenya Forestry Research Institute

Japan International Cooperation Agency

Main Survey Report for Training Impact Evaluation for Taita-Taveta District (Kitui Centre)

Presented by Working Group on Training Effect Evaluation
for Training Sub-Committee (TSC)

Prepared by H. YAMAUCHI

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Kenya/Japan Social Forestry Training Project

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Introduction

Kenya /Japan Social Forestry Training Project implements several training courses at Kitui Centre for grassroots level such as farmers,women's groups,teachers and community leaders ,who play important roles as leaders on tree planting in their areas.Although the main target area for training is Eastern Province,the project has accepted trainees from other Provinces sometimes.Between 1993 and 1995 we had accepted 30 farmers as a trial by request from Taita-Taveta District in Coast Province which has similar environmental condition to that in Eastern Province.This survey was done in order to find out impact of the training on 19 farmers who attended the training courses from Taita Taveta district between 1993 and 1994.

We tried to find out impact of training by comparing their tree planting activities before they attended the training with those after they attended the training.The former was researched as a Pre -survey by questionnaires which 19farmers filled out ,and the latter was researched as a Main-survey by interviews with 11 farmers conducted one -two years after the training.We sorted out 11 farmers out of 19 considering the balance of gender and location because we should try gender analysis and avoid locational bias. We visited 11farmers in Taita Taveta district to interview with them on 17th -22nd April 1996.

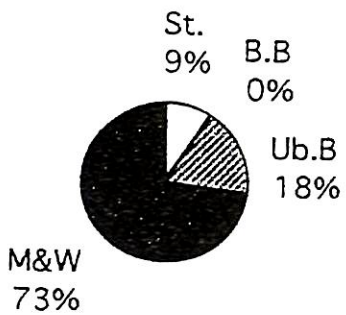
Result of the survey

1.Background

1-1 Housing materials

Housing materials are one of the indicators of property in Kenya.Houses made of stones stand for the richest ,and houses made of bricks stand for the second richest,followed by houses made of unburnt bricks and then houses made of mud and wood. Most farmers,8 out of 11,live in houses made of mud and wood. 2 farmers live in houses made of unburnt bricks and 1 farmer live in a house made of stones.

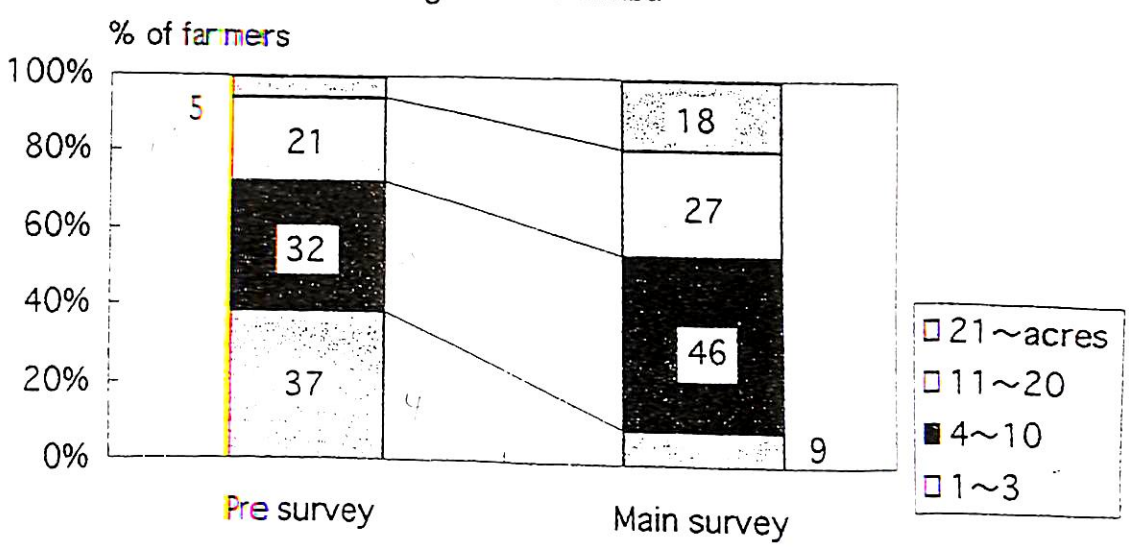
Fig.1.1.1 House materials



1-2 Shamba

37% of the farmers owned 1-3acres shamba and 32% of them owned 4-10 acres at the pre survey.At the main survey,the category of 1-3 acres decreased to 9%,while owners of 4-10 acres increased to 46%,and the upper categories as well.This indicates many farmers extended their shambas recent years either by buying others' shamba or cultivating new shamba.

Fig.1.2.1 Shamba



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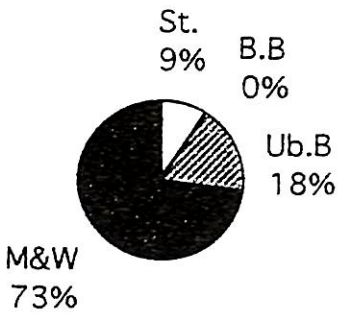

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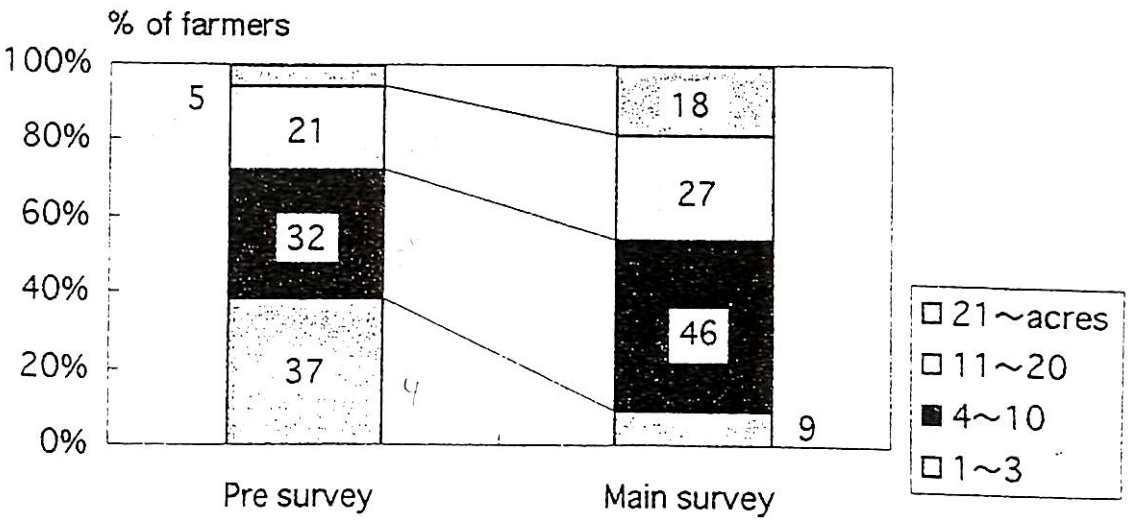
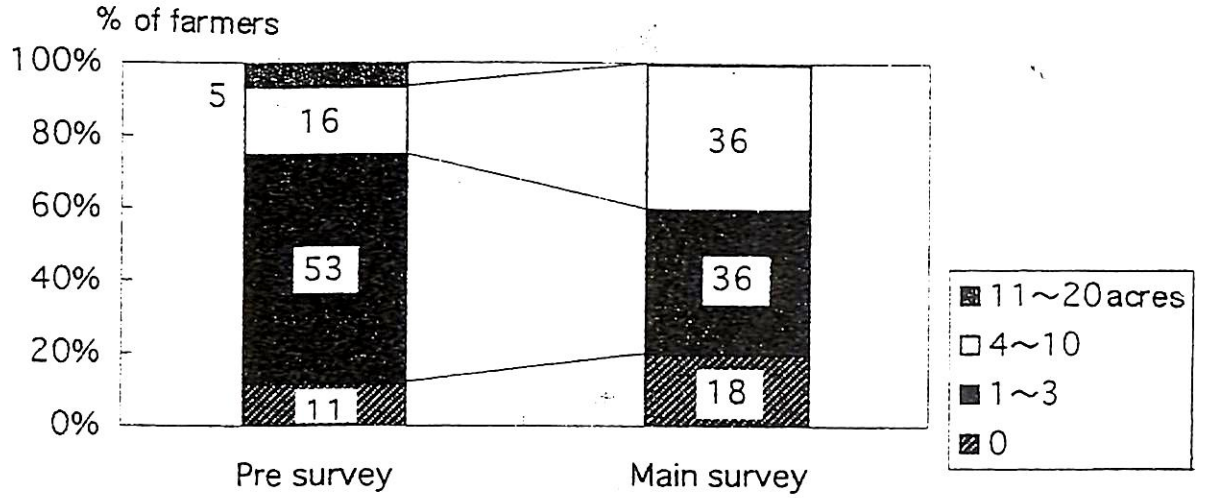


1-3 Grazing land

53% of the farmers owned 1-3 acres of grazing land and 16% of them owned 4-10 acres at the pre-survey.36%of the farmers own 4-10 acres of grazing land and another 36% of them own 1-3 acres at the main survey.This indicates their grazing land varied in size recent years as the result that some farmers probably sold their grazing land to other farmers.

Fig.1.3.1 Grazing land



1-4 Livestock

The number of livestock is also one of the indicators of property in Kenya.

As for cattles,all farmers except one had 1-10 cattles both at the pre-survey and at the main survey.

As for goats,68% of the farmers had 1-10 goats at the pre-survey. 36% of the farmers had 1-10 goats and another 36% of the farmers had 11-20 goats at the main survey.As goats are liquid assets in Kenya and more easily sold or bought than cattle,the number of goats changes.

As for sheep,more than half farmers did not have sheep both at the pre-survey and at the main survey.

Therefore an average farmer has 1-10 cattles and around 10 goats.

However no clear correlation is seen between the number of livestock and the scale of grazing land.

Fig.1.4.1 Cattle

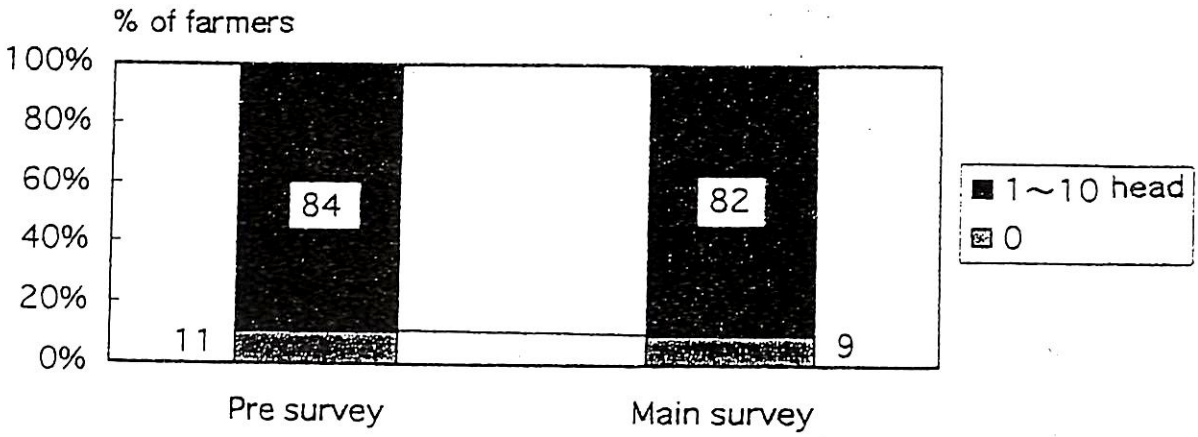


Fig.1.4.2 Goat

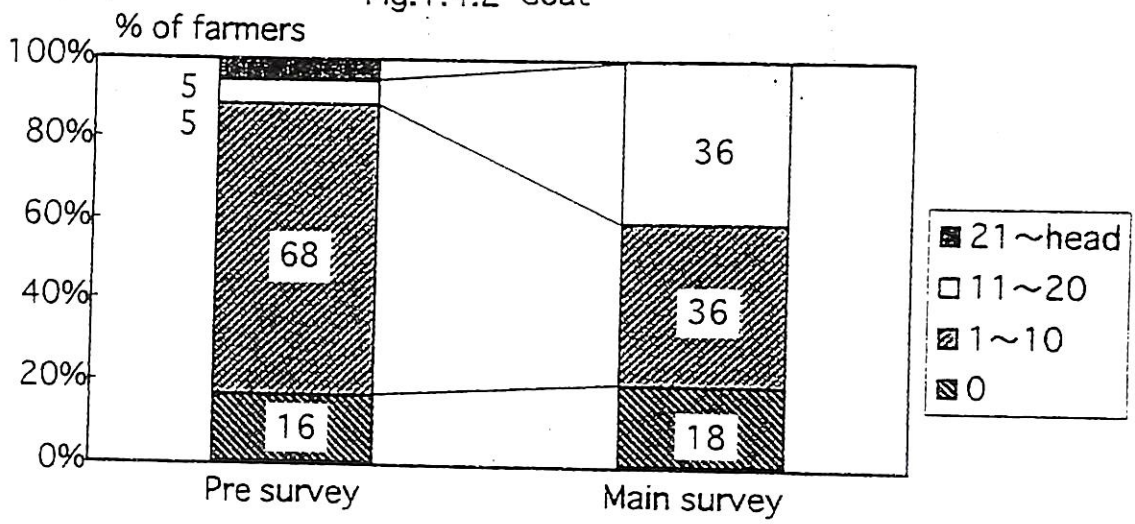
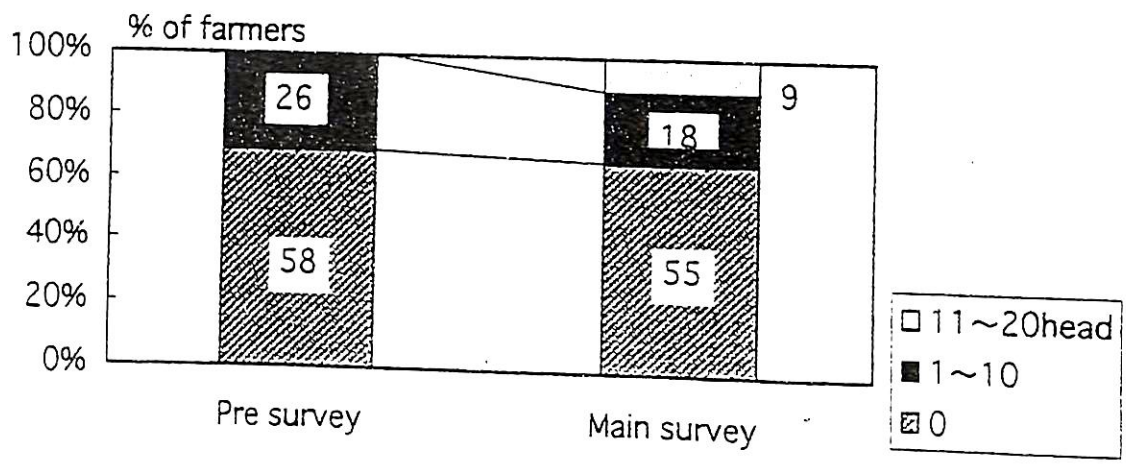


Fig.1.4.3 Sheep

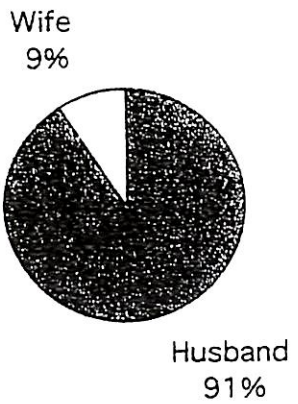


2.Attribute

2-1 Land owner

According to the main survey, all land owners were husbands except only 1 farmer.There is a gender disparity on possession of land,which seems to be common in Kenya.

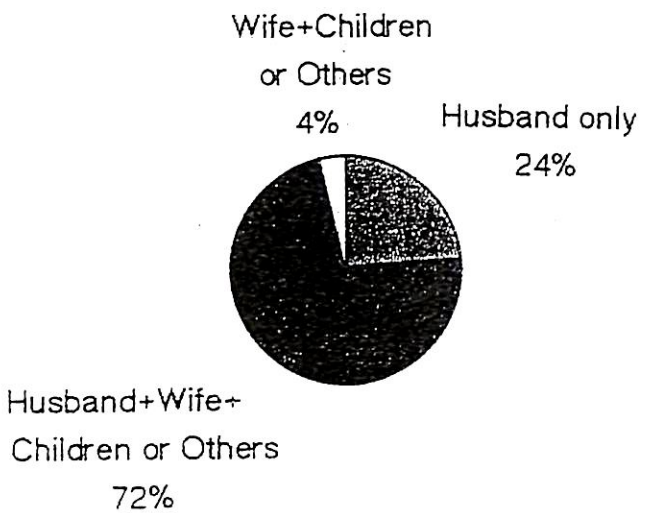
Fig.2.1.1 Land owner



2-2 Cultivator

It was commonly observed that both husband and wife engaged in cultivation, although 2 farmers answered that only husbands cultivated and 3 farmers answered that wives and children or workers cultivated without husbands.

Fig.2.2.1 Cultivator



2-3 Group activities

In Kenya there are some kinds of groups which make some work easier through cooperation among the members such as making terraces,cultivating,planting trees. Those groups also have a function to extend new knowledge and techniques to communities through group members.

Most farmers except 2 are members of such group and some of them belong to more than one group .

As for the composition of the groups,one group consists of only men, 4 groups consist of only women and 6 groups consist of both men and women.Planting activities are carried out by all the groups except one without connection on the gender constitution.

Fig.2.3.1 Group member

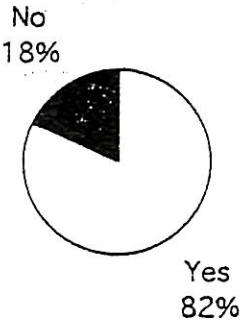


Fig.2.3.2 Group construction

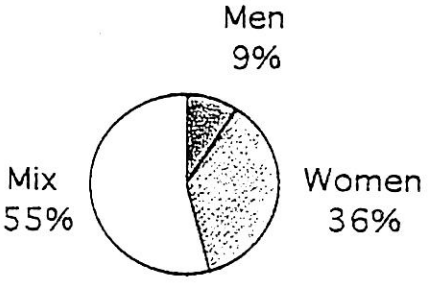
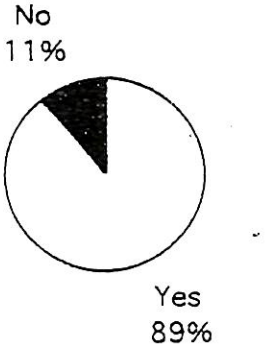


Fig.2.3.3 Planting activities

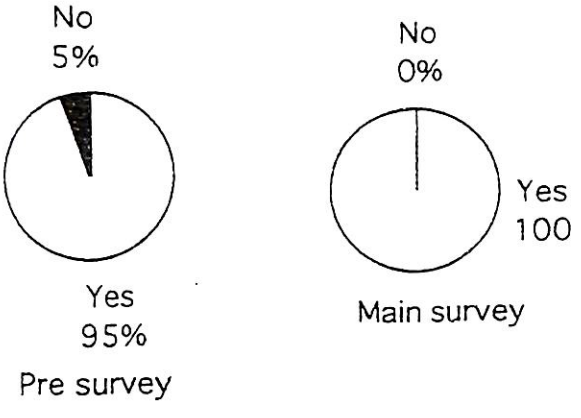


3.Tree planting activities

3-1 Experience

According to the main survey, all farmers have experiences of tree planting.Also at the pre-survey all farmers except one had experiences of tree planting.

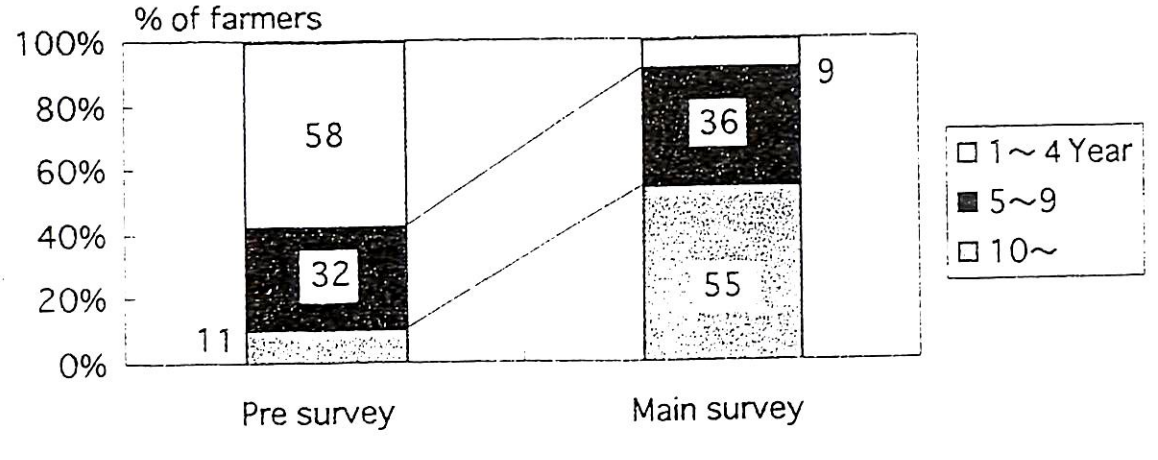
Fig.3.1.1 Experience



3-2 First planting

The pre- survey shows that 58% of the farmers started planting trees 1-4 years ago,while main survey shows 55% of the farmers started planting trees more than 10 years ago.Comparing between two surveys,although there are a few contradictions, it is manifested by two surveys that the most farmers started planting trees before they attended the training courses.

Fig.3.2.1 1st planting

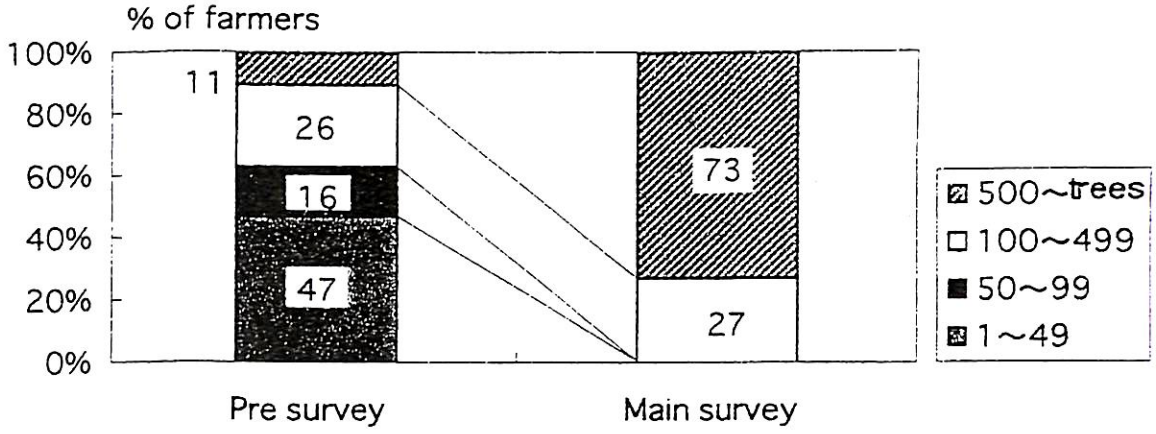


3-3 Number of trees planted to date

Before they attended training courses ,47% of the farmers had planted 1-49 trees and only 11% of them had planted more than 500trees.But after the training courses all farmers planted more than 100 trees.In fact 73% of them planted more than 500 trees.

This figure might be regarded as a successful result of the training.But even though farmers plant so many trees ,most trees may not survive without proper tending and management particularly in ASALS.So in future we need to consider more carefully how many trees are appropriate to be planted per year by a farmer from the points of view of managerial capability of a farmer for proper tending.

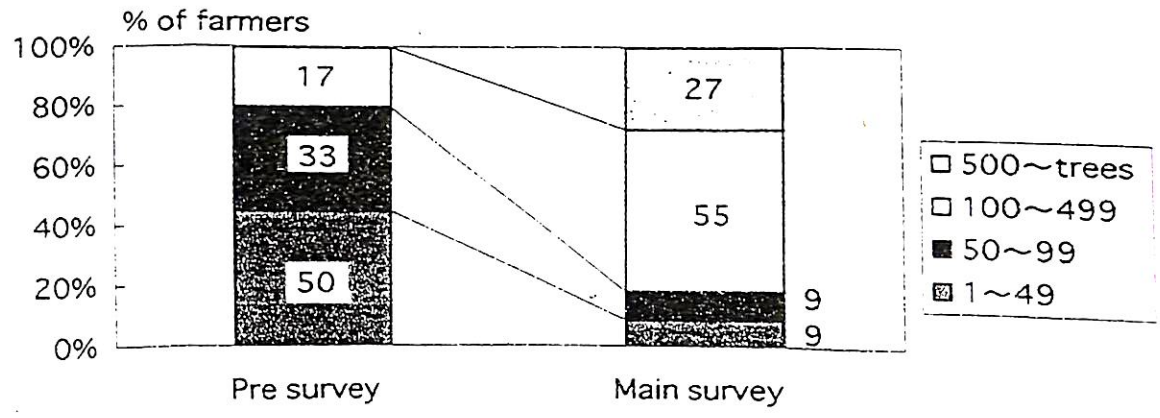
Fig.3.3.1 Number of trees planted



3-4 Number of surviving trees

Before they attended the training courses ,around 80% of the farmers had less than 100 surviving trees.But after the training courses around 80% of the farmers have more than 100 surviving trees.It means most farmers have planted more trees after the training courses and most of trees survive so far,suggesting positive effects of the training to encourage them to plant more trees and improve their tree planting and tending techniques.

Fig.3.4.1 Number of surviving trees



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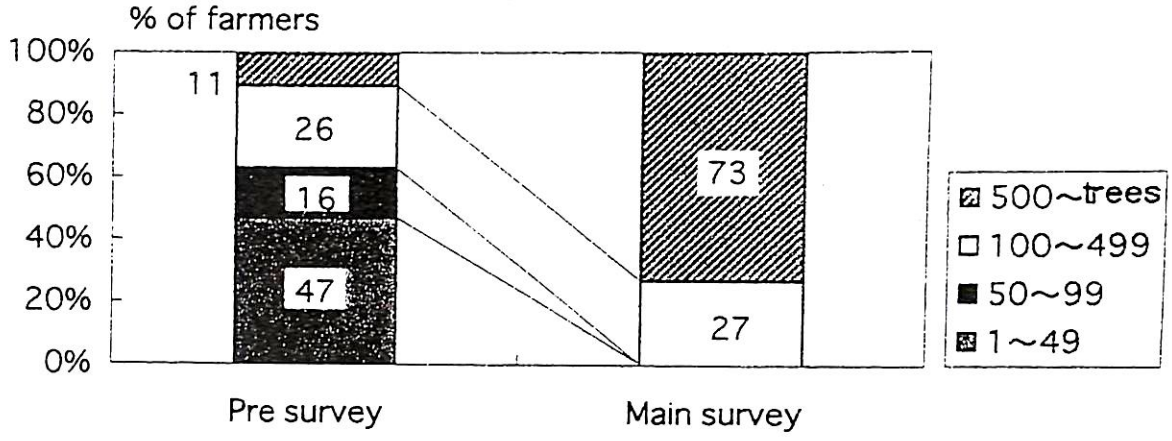

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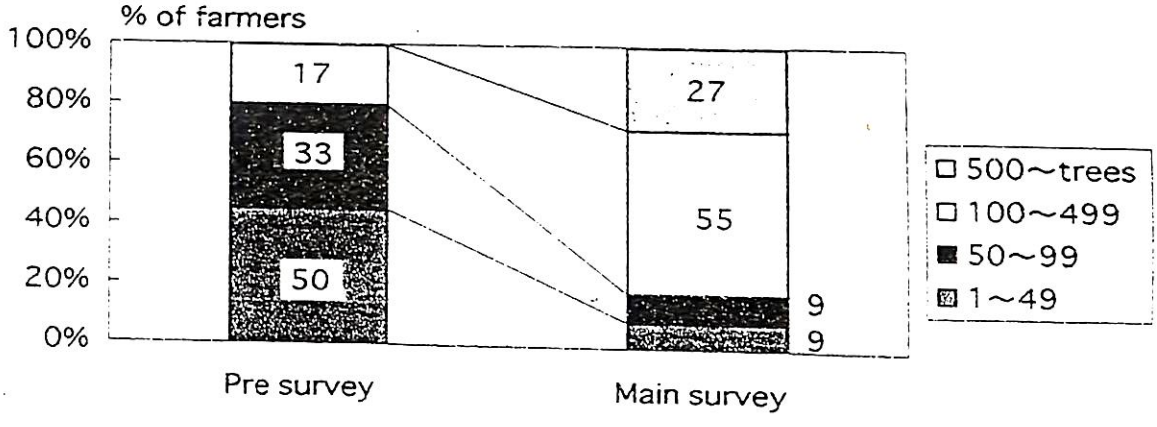
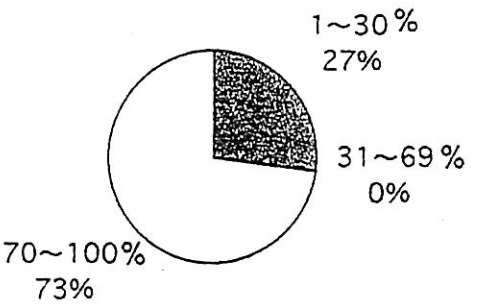


3-5 Surviving rate

According to the main survey, surviving rate of the planted trees is very high ; 73% of the farmers indicated surviving rate of more than 70%.But on the other hand 27% of the farmers got low surviving rate ,1-30%.As concerns 27% of the farmers whose surviving rate was low,it is difficult to find the reasons of low surviving rate.However they commonly referred to the technical problems and lack of time for forestry activities.Therefore these two points might be part of the reasons of low surviving rate.

Fig.3.5.1 Surviving rate

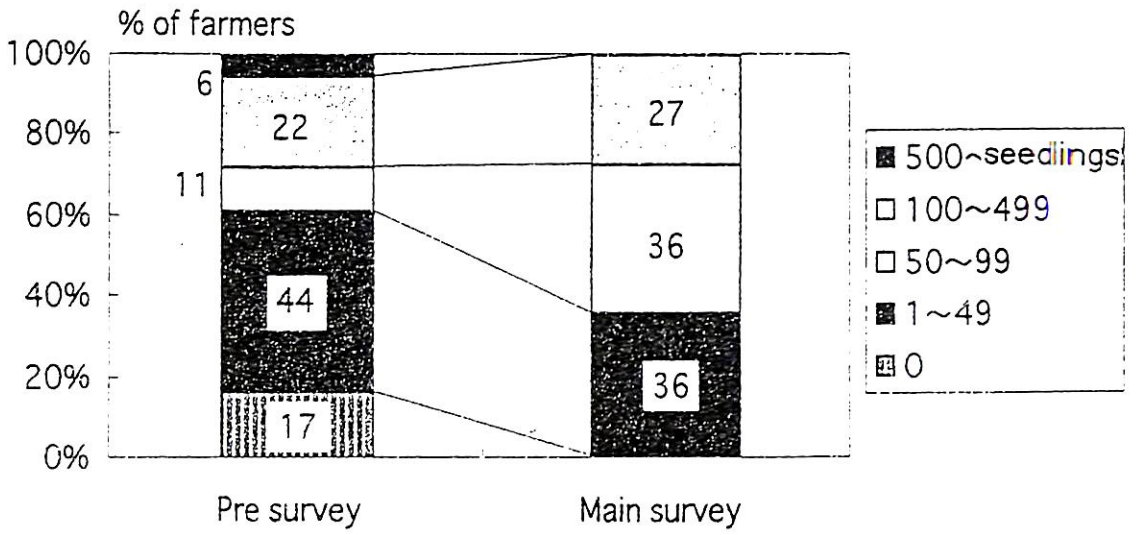


3-6 Planted seedlings within last one year

At the pre-survey 16%of the farmers did not plant any seedlings within the previous one year,but at the main survey all farmers planted seedlings within last one year.

According to the main survey,36% of the farmers planted 1-49 seedlings within last one year,another 36% of the farmers planted 50-99 seedlings ,and 27% of the farmers planted 100-499 seedlings.This also suggests positive impact of the training.

Fig.3.6.1 Planted seedlings last year



3-7 Trees planted on each place

Farmers planted trees in various places.The table below shows number of trees, number of species and survival rate of the trees planted by farmers on each place.

According to this table, they planted many species for various purposes on their compounds, but number of trees planted there is less than other places.This is probably because compound does not have so much space for planting trees.Compound is the best tree planting place in terms of tending because farmers always can take care of trees there.Therefore the average surviving rate is 70.5%,which is higher than that on shamba.

On the boundary of compound farmers planted many trees (average 154) ,but species are less than those on compound because of the specific purposes for fencing.

Shamba ,which has 169.5 trees and 3.7 species on average,also seems to be significant places for tree planting.Generally shambas have enough spaces for planting trees.The size of shamba does not necessarily relate to the number of trees planted according to the main survey.But the average surviving rate on shamba is the lowest.In this regard,two points can be thought as the reasons ; farmers can not take care of trees planted on shamba so much because of the distance from their houses and there is competition with crops for water.In planting trees on shamba it should be taken into consideration the competition with crops for space and water.

The number of trees planted on the boundary of shamba is quite large,but the species are not various as well as those on the boundary of compound.

Most of the farmers did not seem to want planting trees on their grazing land.Although the number of trees planted on their grazing land is also quite large,actually only 3 farmers planted trees there.The average surviving rate is over 100% because of natural gemination.

Table 3.7.1 Trees planted on each species

	Av. No. planted	max.No. planted	min.No. planted	No. of species	Max.No. species	Min.No. species	Av. surviving rate
Compound	28.5	52.0	8.0	6.0	13.0	1.0	70.5
Boundary of compound	154.0	314.0	8.0	4.0	10.0	0.0	66.2
Shamba	169.5	754.0	0.0	3.7	9.0	0.0	54.9
Boundary of shamba	174.0	400.0	0.0	1.8	5.0	0.0	80.9
Grazing land	268.7	506.0	0.0	3.0	2.0	0.0	133.3

Therefore tree planting on each place can be characterized as follows ;

-Planting trees on compound is supposed to suit various purposes and to be tended properly.

-Planting trees on shambas contributes to cover much space with trees and provide much biomass,although it should be considered the competition with crops on space and water.

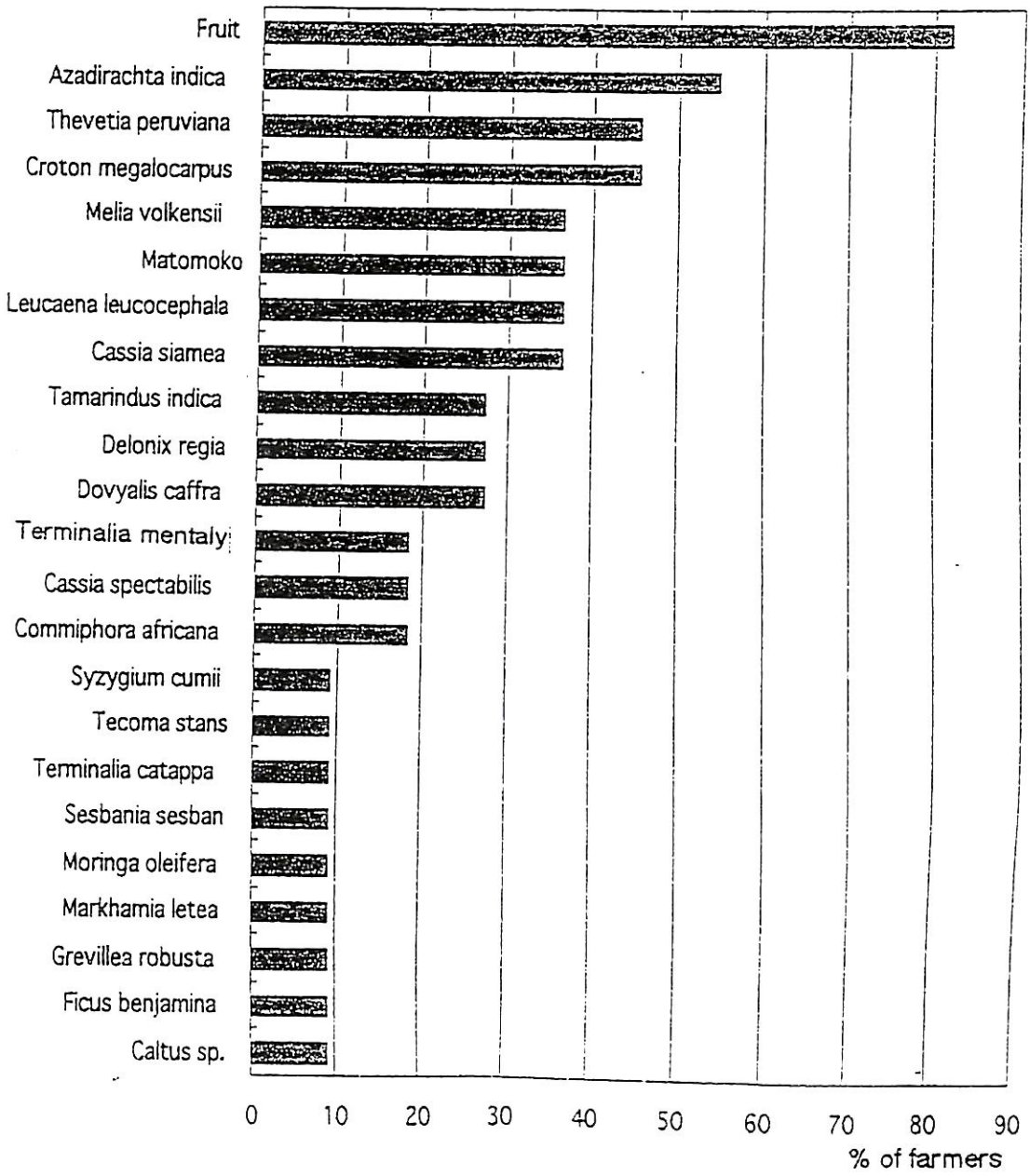
-Since the main aims of planting trees on boundaries are fencing and windbreak,the species which suit those purposes should be selected.However some of them can be used as fuelwood or timbers in the process of growing without preventing the main purposes.

3-7-1 Compound

Most farmers planted fruit trees on their compound.Next to that, around half of them planted *Azadirachta indica, Thevetia peruviana, Croton megalocarpus.*And then around one third of them planted *Melia volkensii, Cassia siamea, Leucaene leucocephola, Matomoko, Tamarindus indica, Delonix regia, Dovyalis caffra.*

The purposes of these trees are various such as windbreak,fuelwood,shade,medicinal,ornamental,fodder,pole or timber.On the average one farmer planted 28.5 trees of 6 species and the average surviving rate is about 70%.The maximum number of trees planted by one farmer is 52,and the minimum is 8.The maximum number of tree species planted by one farmer is 13,and the minimum is 1.

Fig.3.7.1 Surviving tree species in compound

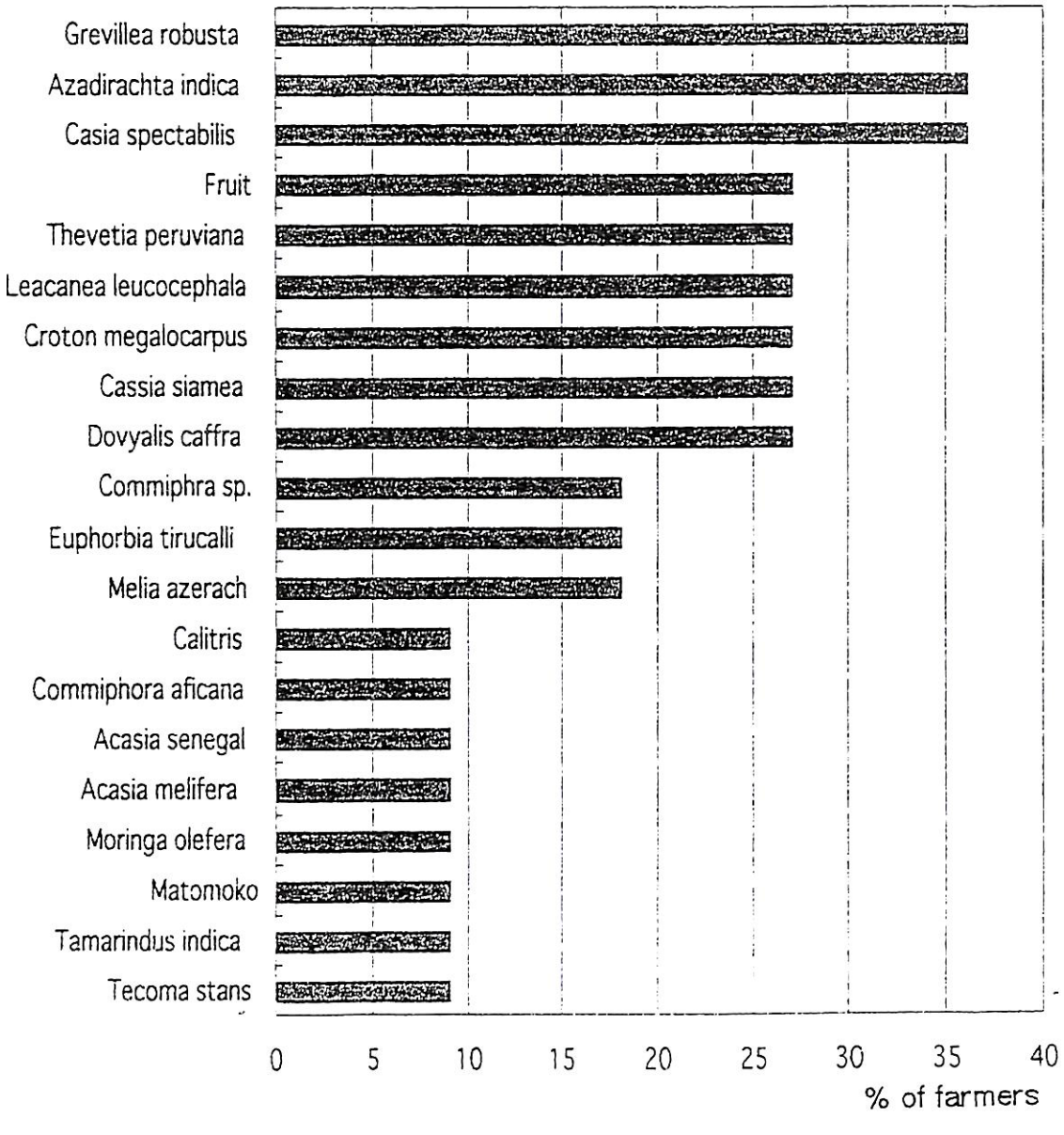


3-7-2 Boundary of compound

The most popular tree species which farmers planted in their boundaries of compound are *Cassia spectabils*,*Azadirachta indica* and *Grevillea robusta*.Although *Grevillea robusta* tends to be attacked by termite,it is in great demand and it survives in this area.These species are planted in order to break wind and provide shade. The next common species are fruit tree, *Croton megalocarpus*, *Leacanea leucocephala*,*Dovyalis caffra*, *Cassia siamea* and *Thevetia peruviana*.Farmers selected species which play roles not only for fencing and windbreak but also providing shade,fuelwood, timber and so on.

On the average one farmer planted 154 trees ,4 species.Farmers tend to plant the same species densely on their boundary of compound for the purposes of windbreak,therefore the number of trees is large but the species are not various.

Fig.3.7.2 Surviving tree species in boundary



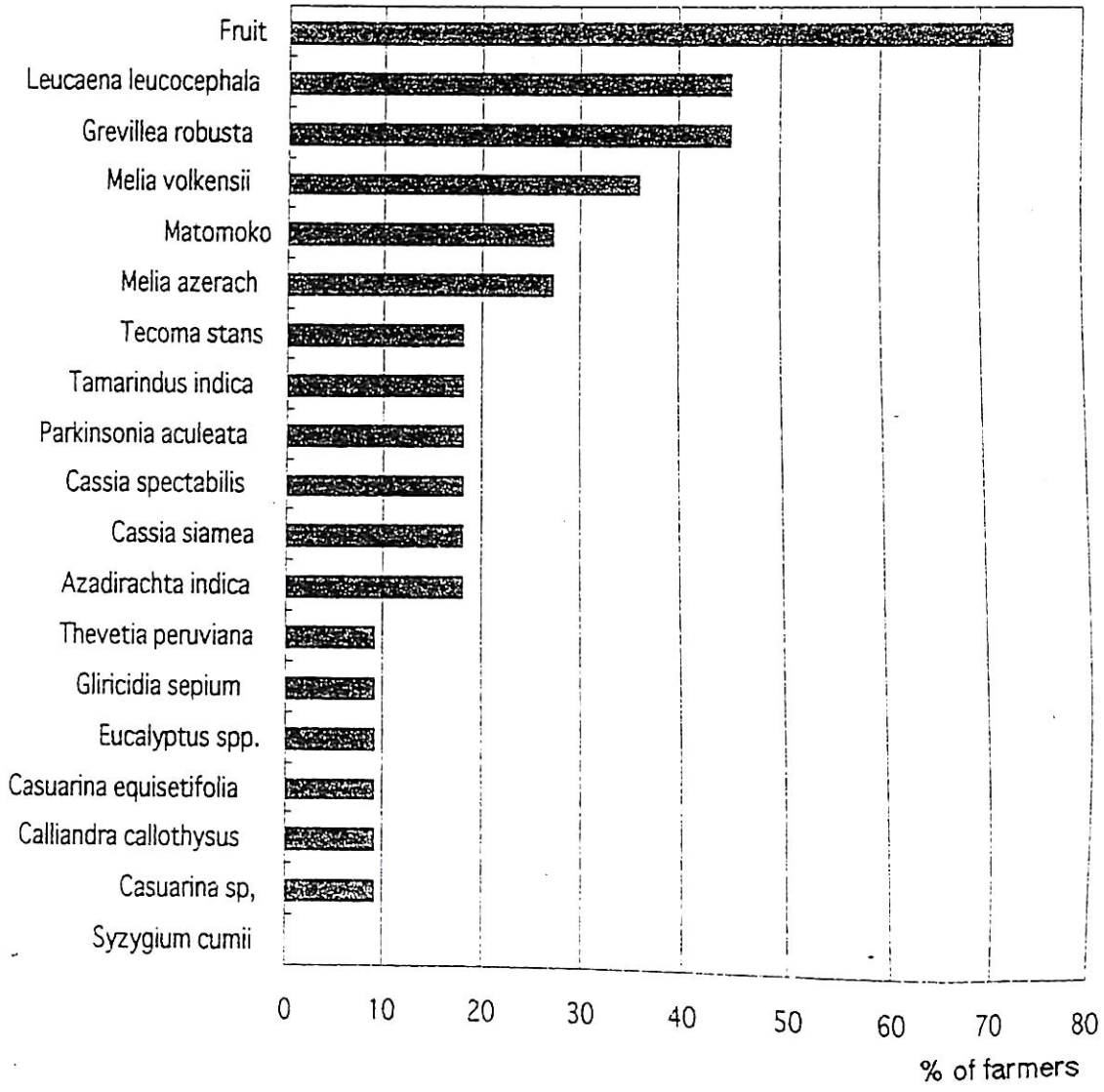
3-7-3 Shamba

Fruit trees are most popular trees in their shambas.About half of the farmers planted *Grevillea robusta* and *Leucaena leucocephala* for fertilizer,fodder,fuelwood and so on.Around one third of the farmers planted *Melia volkensii*,*Matomoko* and *Melia azerach* for pole or timber for instance.On the average one farmer planted 169.5 trees in shamba.

Farmers selected tree species which are used for fertilizer or fodder.Besides appropreate species should be selected in terms of agroforestry.Although shamba provides space for tree planting,competition for water between crops and trees occurs.

In addition to selection of species ,tending techniques should be taken into consideration in order to achieve main purpose of providing fodder and to mitigate competition with crop growing.Lopping,for instance,might improve providing a lot of biomass for fertilizer or fodder and reduce the amount of water consumption.

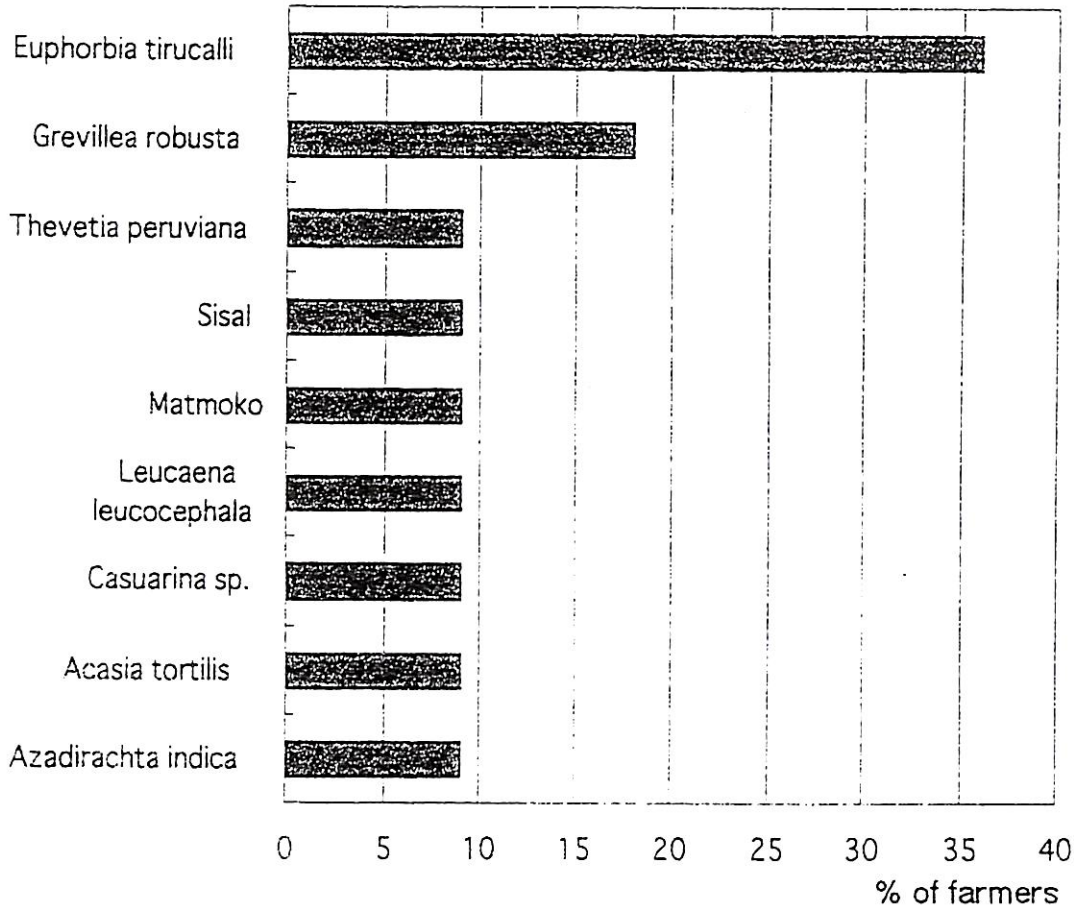
Fig.3.7.3 Surviving tree species in shamba



3-7-4 Boundary of shamba

Each farmer planted only one or two species in their boundaries of shamba.The main purposes of planting trees on boundaries of shamba are fencing especially against animals and marking.Therefore species planted there are limited to attain these aims.One third of them planted *Euphrobia tirucalli* . *Euphrobia tirucalli* is the most common species planted on boundaries of shamba,because it suits well for fencing against animals.The other speices which farmers planted there are *Grevillea robusta*, *Leucaena leucocephala*, *Cusuarina sp.*, *Azadirachta indica* and so on.The average number of trees planted per farmer is 174.Farmers planted a large number of trees on their boundaries of which species are similar to the ones planted on their boundaries of compound.

Fig.3.7.4 Surviving tree species in boundary of shamba



3-7-5 Grazing land

Only about 30% of farmers planted trees in their grazing land,but one of them did not have surviving trees .One farmer planted 300 *Leacaena leucocephala* for soil conservation,fertilizer and fodder.The other planted 6 *Eucalyptus sp.* and 100 *Grevillea robusta.*

This indicates grazing land is rarely used for tree planting .Actually it is difficult to grow trees on grazing land because of browsing and stepping by animals.

However trees provide good shade for livestock and prevent soil erosion by controlling livestock movement if they are allocated properly.Grazing land leaves room for improvement on tree planting .

4.Utilization of trees planted

All farmers have already utilized the planted trees for some purposes.The most common utilization is for firewood,followed by fodder.

We can not directly compare answers in the two surveys, because the question in the pre-survey asked the purpose of tree planting and in the main survey the question asks utilization which farmers have already done.

But we found out two major points through comparing these surveys ; one is changing consciousness after training or the impact of training,and another is a gap between purposes of tree planting and utilization which they did.

The details of them are as follows ;

(1) In the pre-survey the most popular purpose of tree planting was "pole/timber"which 74% of the farmers answered.But in the main survey only 36% of the farmers have actually used trees as poles or timbers.This is probably because it takes long time to use trees which they planted as poles or timbers.

(2) The purpose as "firewood" is also quite popular and actually most farmers have already used trees as firewood.It reconfirms us that planting trees is necessary to get firewood.

(3) In the pre-survey 32% of the farmers planted trees for charcoal making,but anybody has not used trees for charcoal making yet.One of the possible reasons is that farmers keep trees for charcoal making providing against drought,because making chacoal is a common way of earning income during drought in ASAL.

(4) The purpose for "fodder" is also high which 58% of the farmers answered and the utilization as "fodder" is also high which 64% of the farmers answer.We should encourage planting of tree species which suits this purpose .

(5) Although nobody raised medicine as purpose of tree planting in the pre-survey,3 farmers (27%) have used trees which they planted as medicine after training courses (Utilization as medicine is included "Others" in the Fig.4.1.1) .According to the implementation reports of training courses,which have been written after each training couse,"medicine & edible plant"is the most popular subject.Therefore the utilization as medicine can be regarded as the training impact.

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But we found out two major points through comparing these surveys ; one is changing consciousness after training or the impact of training,and another is a gap between purposes of tree planting and utilization which they did.

The details of them are as follows ;

(1) In the pre-survey the most popular purpose of tree planting was "pole/timber"which 74% of the farmers answered.But in the main survey only 36% of the farmers have actually used trees as poles or timbers.This is probably because it takes long time to use trees which they planted as poles or timbers.

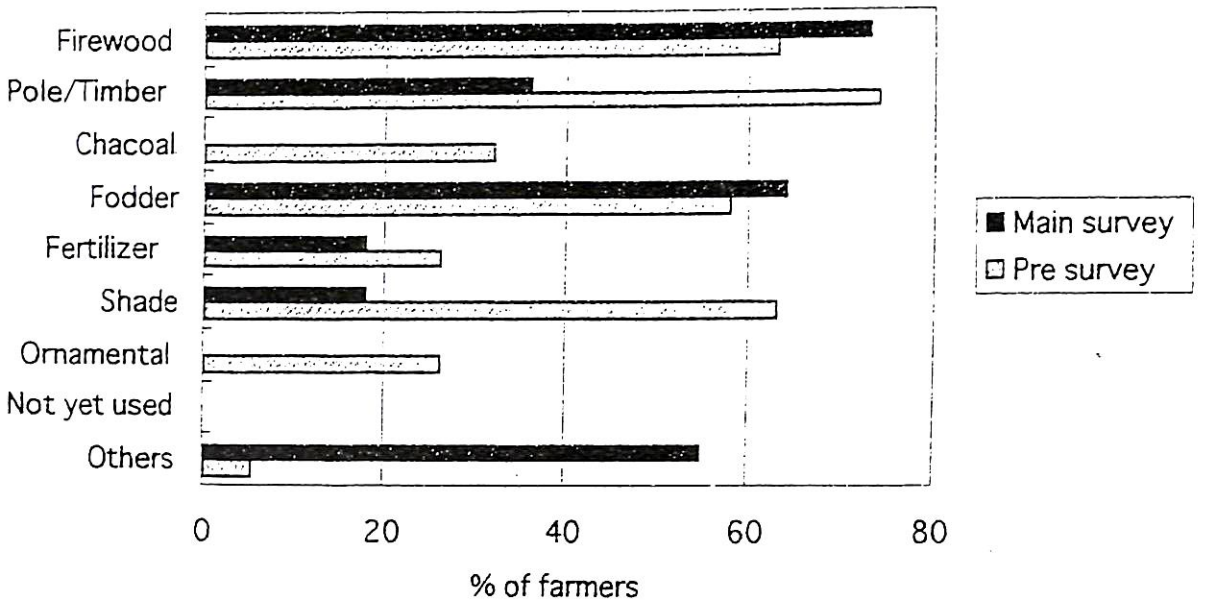
(2) The purpose as "firewood" is also quite popular and actually most farmers have already used trees as firewood.It reconfirms us that planting trees is necessary to get firewood.

(3) In the pre-survey 32% of the farmers planted trees for charcoal making,but anybody has not used trees for charcoal making yet.One of the possible reasons is that farmers keep trees for charcoal making providing against drought,because making chacoal is a common way of earning income during drought in ASAL.

(4) The purpose for "fodder" is also high which 58% of the farmers answered and the utilization as "fodder" is also high which 64% of the farmers answer.We should encourage planting of tree species which suits this purpose .

(5) Although nobody raised medicine as purpose of tree planting in the pre-survey,3 farmers (27%) have used trees which they planted as medicine after training courses (Utilization as medicine is included "Others" in the Fig.4.1.1) .According to the implementation reports of training courses,which have been written after each training couse,"medicine & edible plant"is the most popular subject.Therefore the utilization as medicine can be regarded as the training impact.

Fig.4.1.1 Utilization



5.Income generation

5-1 Sales of products

Half of farmers have got income constantly or a few times through sales of trees which they planted.They sold trees in the forms of poles,firewood and also they sold fruit (Fruit is included "others" in the Fig.5.1.2) .On the other hand 36% of the farmers used trees only privately.

Income generation through sales of planted trees encourages farmers to continue tree planting and tending.From this point of view new subjects related to sales of wood products such as marketing should be included in the training courses in future.

Fig.5.1.1 Getting income

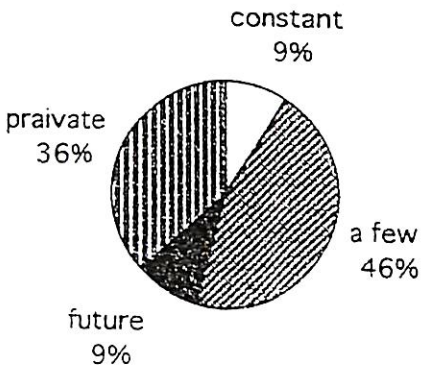
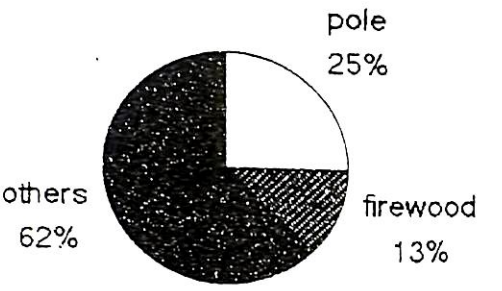


Fig.5.1.2 Form of sold

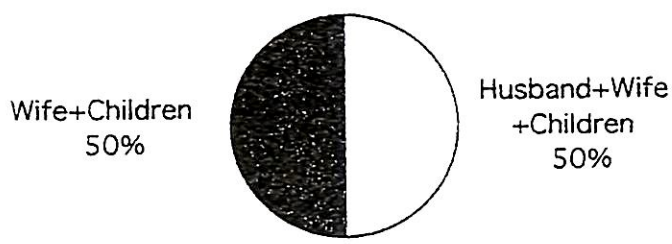


5-2 Beneficiary

Half of the farmers who got income through sale of trees replied that husband, wife and children received benefit from sales. Another half of them answered that only wife and children received benefit through it. Nobody replied that only husband received benefit.

Therefore wives and children got more benefit through selling trees than husbands. Generally speaking husbands have control of trees and it is considered a constraint on promoting womens' planting activities. But in fact wives and children can receive benefit through selling trees as this survey shows. If this is the common case applied to broader area, we may not have to worry about husband's control of trees so much.

Fig.5.2.1 Beneficiary



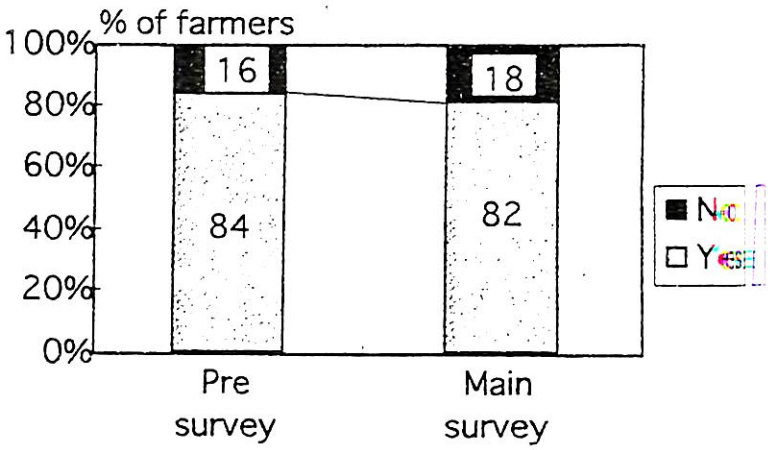
6. Nursery

6-1 Establishment of nursery

Both in the pre-survey and in the main survey around 80% of the farmers replied that they had nurseries, and around 20% of the farmers replied they did not.

This ratio dose not change before and after the training courses, but observing the details contents are different. Some farmers quit their nurseries and others started nurseries. We can not find out the reasons why a few farmers quit their nurseries. But one of them who quit her nursery oneself even wants to help others establish and manage nurseries. As for the other farmers who established nurseries after training course, this might be regarded as one of the positive impacts of training courses.

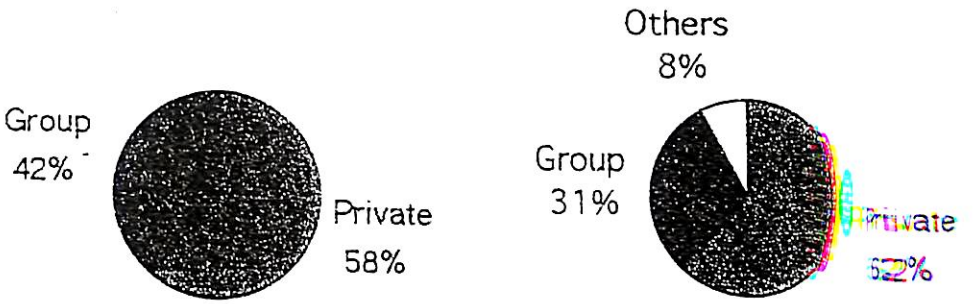
Fig.6.1.1 Possession of nursery



6-2 Owner of nursery

About owner of nurseries at the pre-survey, 15 farmers had a private nursery each and 2 farmers had two nureries each ; one private and one group. Therefore the total number is 19. Private nurseries account for 58% out of 19 and group nurseries occupy 42%. At the main survey 5 farmers have one nursery each and 4 farmers have two nurseries each, one private and one group or others. Therefore the total number of nurseries is 13. Private nurseries account for 62% out of 13 group nurseries account for 31%, and others (church) occupy 8%. The ratio between private nurseries and group nurseries does not change before and after the training courses.

Fig.6.2.1 Possessor of nursery



6-3 Number of seedlings

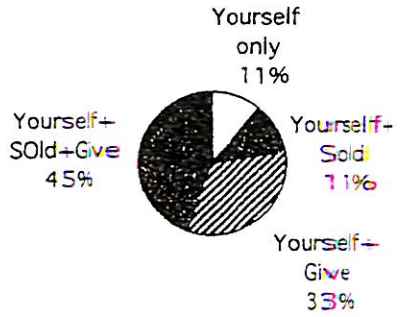
The number of seedlings which farmers are growing at their nurseries varies depending on individuals .The average number of seedlings which farmers own privately decreased a little from 76 in the pre-survey to 65 in the main survey.Even on group nurseries the number of seedlings varies considerably,according to the main survey, the minimum is 50 and the maximum is 1250.

The average number of seedlings in the group nursery also decreased from 2302 in the pre survey to 425 in the main survey.The reason of this decrease is because a farmer did not refer at the main survey about group nursery which had 10050 seedlings at the pre-survey.

6-4 Use of seedlings

According to the main survey, the major use of seedlings which they grow is self-sufficiency.All farmers who have nurseries use seedlings for themselves.11% of them give seedlings to others for free and half of them have got income through selling seedlings.Most farmers distributed their seedlings to others in some ways and consequently they transferred the training impact indirectly upon others through the seedling distribution.

Fig.6.4.1 Use of seedlings



6-5 Changes of nursery activities

Most of the farmers changed their nursery activities positively after training courses. Some of them started to establish nurseries or help others establish nurseries.The others tried new techniques which they had learnt in the training courses,for instance,useing wood ash to control termites,useing cow manure for potting,pricking out and root pruning.These changes can be counted as tangible impacts of the training courses.

7.Problems on forestry activities

Farmers encountered many problems on their forestry activities.Training courses are expected to help them mitigate their problems.We tried to find out the training impacts on this matter through comparing two surveys,although the choices were a little bit different between two surveys.

Some problems were affected by training directly,but the others were not affected directly. So at first we look through the problems which are expected to be mitigated by attending training courses.

(1) Technique

The ratio of farmers who have technical problems reduced from 37% at the pre-survey to 27% at the main survey.The problems such as "seed collection","seed pre-treatment","nursery establishment","soil mixing",which were raised at the pre-survey seemed to have been solved after the training courses,because these disappeared at the main survey.This might be regarded as one of the positive impacts of the training courses.

The specific problem which was raised at the main survey is "budding&grafting".Even in the current programs participants learn this techniques ,however,since these techniques are very important for fruit trees which farmers prefer to plant,this techniques should be enforced more.

(2) Insect,animal

There was not the choice of "Insect,animals" in the pre-survey.Only one farmer referred to termite problem in the choice of "others" at the pre-survey.

On the other hand,all farmers raised "Insect,animals"problems mostly by termites at the main survey.Farmers learnt some techniques against termites in the training courses,but termite still remains as one of the biggest problems.

(3) Water

The ratio of water problem increased dramatically from 37% at the pre-survey to 82% at the main survey.We can not identify the reasons of this trend.One possilble reason is that farmers started to feel shortage of water because they planted many trees after training courses.Although tending techniques which do not need so much water such as micro catchment and clear weeding are introduced in the training courses,shortage of water is still one of the most serious problems in ASAL.

(4) Seed

The ratio of farmers who raised seed problems decreased from 53% at the pre-survey to 27% at the main survey.This is probably because farmers used seeds which were distributed at the training courses.In addition,they have knowledge and techniques of seed collection after the training courses.

(5) Materials

The ratio of material problems also decreased from 37% at the pre-survey to 18% at the main survey.The reason of this might be the same as the reason of seed problems.Potting tubes were the major items on the material problems at the pre-survey.At the time of the main survey farmers used potting tubes which were distributed at the training courses.Besides farmers might know use of local materials like milk packages which they learnt to use in the training courses instead of potting tubes.

In the second place we look through problems which are not affected directly by training.In other words these problems might be hindrance to put into practice what they learnt at the training courses.Even if farmers got knowledge and techniques on tree planting in the training courses,they cannot try them well without solution of the following problems.

(6) Tool

Tool was one of the major problems which more than 80% of the farmers referred at the pre-survey and more than 70% of them referred at the main survey.They replied shortage of jembe,watering can,wheelbarrow,panga,shovel and rake .

(7) Busy

Nobody raised "Busy"as a problem at the pre-survey,but 45% of the farmers raised it at the main survey.It is difficult to identify the reasons.One of possible reasons is that farmers felt shortage of time because they needed more time to plant and tend many trees after training courses.

(8) Group

At the pre-survey 32% of the farmers raised "Group"problem such as lack of cooperation among members.At the main survey only 9% of the farmers raised "Group"problem.It can be supposed as a reason that every group started to do forestry activities seriously recent years,but the exact reasons can not be find out.

(9) Family

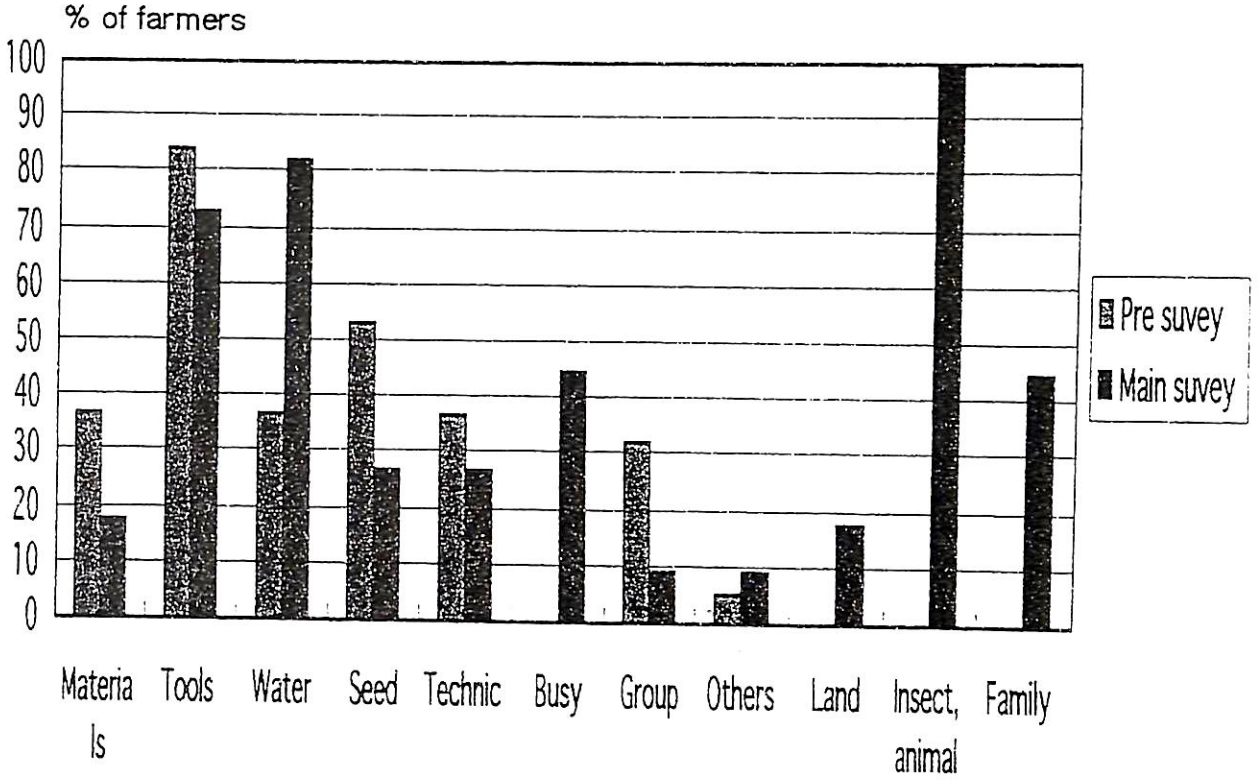
There was not the choice of"Family" at the pre-survey.At the main survey around half of the farmers replied "Family" was one of problems ,which is difficult to be neglected.

Since this survey did not have detailed information about this,we need to inspect details of this matter in future.Some experts and some institutions on social forestry point out lack of cooperation among families which frequently includes gender issues hindering improvement of social forestry.

(10) Land

There was not the choice of "Land" at the pre-survey.At the main survey 18% of the farmers replied land is problem.One of them has only 1-3 acres shamba,but generally speaking ,farmers have enough land which they can use for tree planting.

Fig.7.1.1 Problems



8.Techniques

8-1 Techniques they learnt

According to the pre survey most farmers had got some techniques on nursery work or tree planting before they attended the training courses.On seed collection 89% of them got techniques from Forestry Department and 16% of them got from other ministries.On nursery work 63% of them got techniques from Forestry Department and 37% of them learnt techniques by themselves or from family members.

On choice of the appropriate species 89% of them got techniques from Forestry Department and 16% of them got from other ministries.

It means that farmers can have opportunities to learn techniques on nursery work or tree planting through organizations such as Forestry Department or family members.

8-2 New techniques

All the farmers except one practically tried new techniqueswhich they learnt in the training courses.This figure shows the most significant and direct impact of the training courses as well as high adaptability of the farmers to the new techniques.

Exceptional one did not change her techniques,because she already had techniques which she had learnt in the other training course.We need to carefully nominate the farmers who really require new knowledge and techniques.

8-3 Techniques they tried

The techniques on tree planting which they tried are "seed collection and treatment","seedbed preparation","nursery establishment","nursery techniques","pricking out","pitting","root pruning","micro catchment","weeding","row planting","protection","choice of the right species","medicinal use".

In addition to the techniques on tree planting ,they also tried new techniques such as "soil conservation","grazing management","grazing land and livestock management","bottle feeding",and "improved jiko".

It shows the most basic significance of training that farmers tried new techniques which they learnt in the training courses.But we can not find out from this survey whether they achieved success like higher surviving rate as the result of their trials.

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Fig.8.1.1 Seed collection

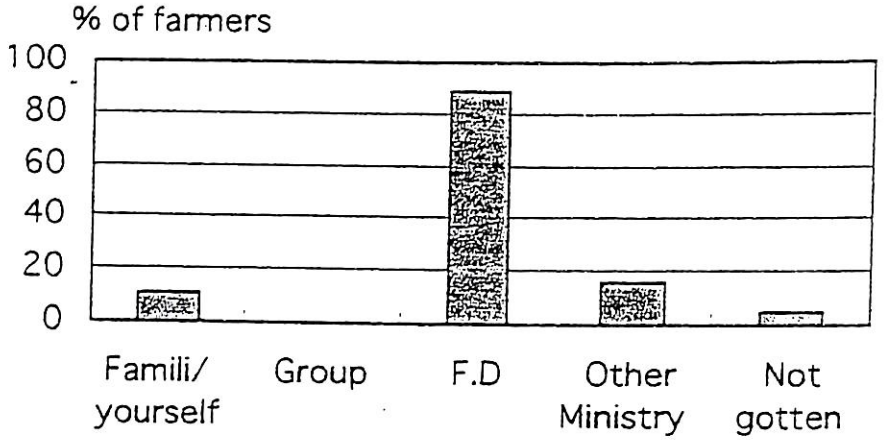


Fig.8.1.2 Nursery work

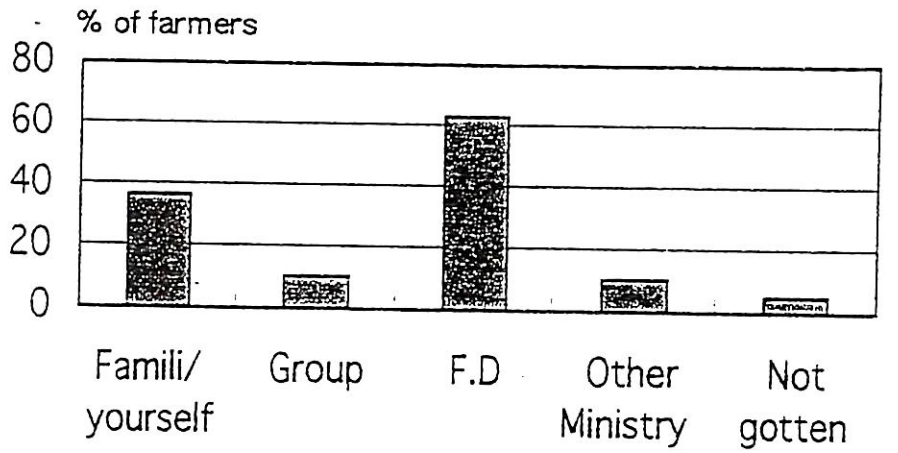
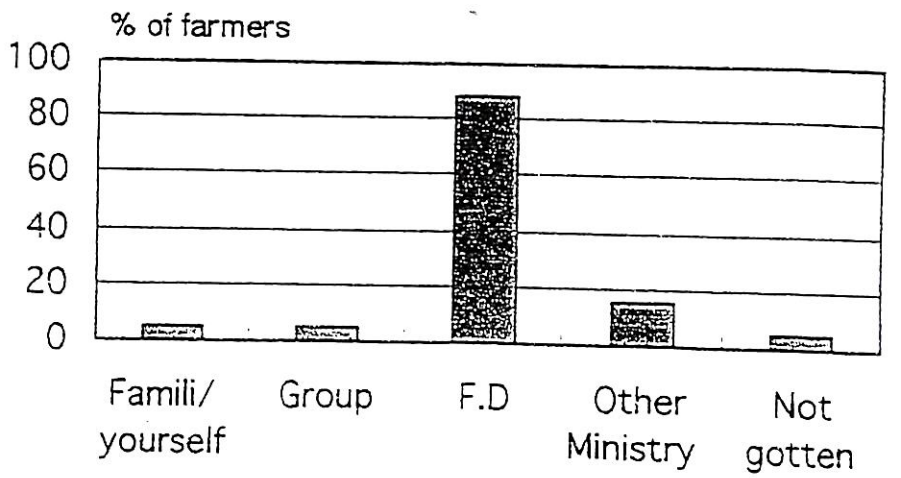


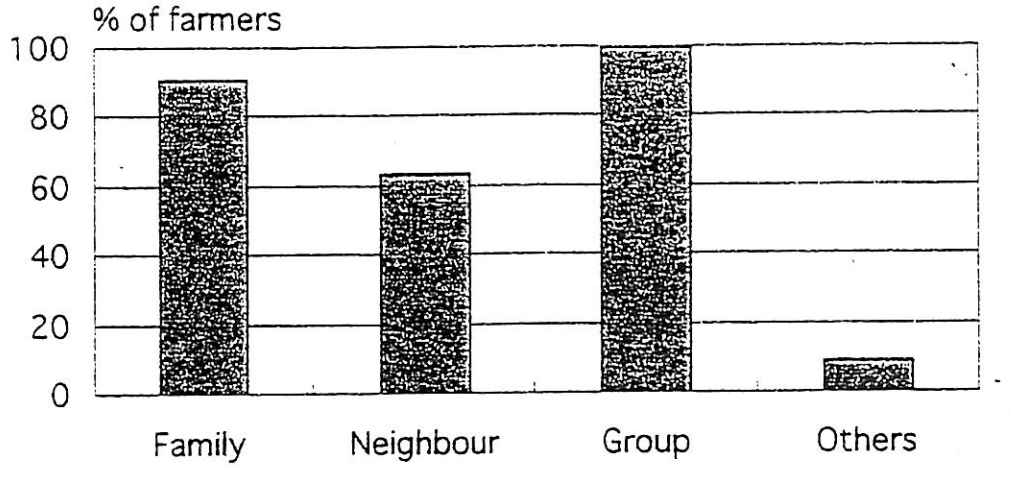
Fig. 8.1.3 Choice of the appropriate species



9.Extension

All farmers have extended techniques which they learnt in the training courses to others such as family members,neighbours,and group members.All the farmers taught techniques to members of groups.It means groups are good channels to extend techniques.All the farmers except one taught techniques to their family members regardless of gender of trainees.

Fig.9.1.1 Extension



10.Future plan

Most farmers want to establish nurseries,continue or increase tree planting activities in future.Some of them expect to get more benefits through selling trees.And some of them are planning to teach others on trees planting or nursery activities.The training encouraged them to extend nursery activities and tree planting activities.

11.New subjects

The following two subjects were introduced in phase 2.Some of the trainees advised their partners or others practically on these new subjects.

11-1 Family planning

Half of farmers think family planning is very useful and around 30% of farmers think it is useful.Only one farmer thinks it is needless.

Some of them started to pose child birth or to use contraceptives.

11-2 Home economy

This subject is taught only in women's' courses.

4 out of 7women think home economy is useful and 2 of them think it is very useful.

They started to improve family diet or budget for food and other things.

12. Suggestion for training course

The most common suggestion which 4 out of 11farmers mention is to increase number of participants in the training courses from Taita-Taveta District.As it is mentioned before,all farmers have extended knowledge or techniques to others,but only 30 farmers are too small to penetrate with ideas of social forestry into their region.

The new subjects which they suggested to introduce to the training courses are "preparation of annual work plan","construction of houses without much timber","cookery","religious education","better method of farming",and"species site mulching".Although current training programs are tight,we should take their opinions into account.

Conclusion

1.Impacts of training

As mentioned in the previous sections,several positive training impacts have been identified as a result of the survey.They are summarized as follows :

-The number of planted and surviving trees have increased after the farmers attended the training courses.For example,the farmers who planted 500 trees or more so far have increased from 11% to 73%,and those who planted 50 trees or more in the previous one year from 37% to 63%.

-In relation to the use of planted trees,all the farmers have already used their tree products in some forms like firewood,fodder or even as medicine.More than half of them got some income from sales of the tree products.

-Most farmers have already put into practice the new nursery and tree planting/tending techniques learned at the training courses.

-All the farmers shared their experience at the training with others e.g.family members,neighbours and group members.This suggests possibility of widespread effects of the training.

2.Influence of economic level or gender difference

2-1 Economic background

It was expected before conducting the survey that there would be some difference in the training impacts because of different economic status of each farmer,such as housing materials,size of their shamba and number of livestock.As a result of the survey,however,no such relation was observed between the two elements.The reason of this irrelation could be attributed to the small number of the farmers surveyed this time and similar economic levels among most of the farmers.

2-2 Gender

Also clear differences or tendency in the training impacts to the trainees of different gender were not seen from this survey.This could be again because of the small number of samples surveyed this time.More number of samples in wider range of areas should be necessary to reach a conclusion on the relation between the training impacts and this kind of socioeconomic background of the trainees.

3.Feedback to the training courses

Their answers on some questions suggested that we should rectify subjects and add new subjects.The species and numbers of trees on each place show us what kinds of trees farmers want to plant and where they want to plant.

We should also teach them tree species and tending techniques to meet their tree products needs.

Since some farmers have got income through selling seedlings or trees they grew,we should consider introducing new subjects relating to selling seedlings or other wood products ,for instance on marketing.

In their suggestion for training,they requested more people from their region to attend the training courses,because the number of participants from Taita Taveta district so far is too small to extend the idea of social forestry.It is necessary to have a certain number of participants from one region take training courses to root the ideas and activities on social forestry in the region.It is suggested that we should narrow the target areas of training and continue training courses until a certain number of participants in each area take the training .

4.Methods of survey

It is very difficult to identify whether their improvements on nursery or tree planting activities depend only on training at Kitui Centre ,however we can find out some training impacts as they are mentioned above.According to the pre survey,most of trainees had got some techniques concerning seed collection,nursery work,choice of the appropriate species and so on from other organizations like Forestry Department,before they attended the training courses.

The main survey is conducted one-two years after training courses before farmers take other opportunities to improve their nursery or tree planting techniques.That is because we find out the training impacts clearly. However,we also need to inspect the effects of training with the long term view whether their new trials which they learnt in the training courses lead them to success of their forestry activities.

As concerns questionnaire,some questions which seem to have no relation to tree planting or nursery activities like background should be cut in order to slim the survey.Too many questions cause interviewers and interviewees to lose their concentration to the survey.

Finally I recommend that the survey method by visiting farmers is the most credible and useful method.It is worth while spending a lot of time and energy,because we can know not only their answers to the questionnaire but also their environment,their feelings and so on through our visiting farmers.

(3) Sheep (a) 0 head (b) 1-10 (c) 11-20 (d) 21 or more

3.1 For what purpose do you keep them ?

(1) Cattle:_____

(2) Goats:_____

(3) Sheep: _____

4. Are you a member of any Group ?

(a) Yes (b) No

(If replied "Yes")

4.1. Is the group composed of purely men, women or mixture ?

(a) Men (b). Women (c) Mixture

4.2 Does your group carry out tree planting activities ?

(a) Yes (b) No

5. Have you ever planted trees except fruits ?

(a) Yes (b) No.

(If replied "Yes")

5.1 When did you start planting trees for the first time ?

(a) 10 or more years ago (b) 5-9 years ago (c) 1-4 years ago

5.2 So far how many trees (except fruits) have you planted in your land ?

(a) 1-49 trees (b) 50-99 (c) 100-499 (d) 500 or more

5.3 So far how many trees planted (except fruits) are surviving in your land ?

(a) 1-49 trees (b) 50-99 (c) 100-499 (d) 500 or more

5.4 So far what is the survival rate of trees planted (except fruit trees) ?

(a) 0% (b) Low rate (1-30%) (c) Medium rate (31-69%)
(d) High rate (70-100%).

5.5 How many seedlings (except fruits) did you plant within last one year in your land ?

(a) 0 seedlings (b) 1-49 trees (c) 50-99 (d) 100-499
(e) 500 or more

5.6 Which species have you planted at these places and how many trees are surviving ?

Place planted trees	Species	Number planted	surviving Number	Survival rate	Purpose of planting	Evaluation of techniques
Compound						
Boundary of compound						
Shamba						
Boundary of shamba						
Grazing land						
The other place (specify)						

C.S. Cassia siamea
C.sp. Cassia spectabilis
L.L. Leucaena leucocephala
A.A. Acacia albida
A.T. Acacia tortilis
A.I. Azadirachta indica (Neem)
M.V. Mellia volkensii
G.R. Grevillea robusta
E.S. Eucalyptus spp.
F. Fruits trees
O. The other species

6.1 Have you already utilised your trees (wood, foliage, etc.) for the following purposes ?

(a) Firewood (b) Pole/timber (c) Charcoal making
(d) Fodder (e) Fertiliser (f) Others
(g) Not yet used (trees are too young)

7. Have you ever got income through sales of your trees (poles, timber, firewood, etc.).

(a) Got constant income every year (b) Got income afew times
(c) Expect income in the future (d) Private or family consumption only.

7.1 Specify the form in which you sold the trees .

(a) poles (b) timber (c) firewood (d) others:_____

7.2 Who benefits most out of the income received ?

(a) Husband (b) Wife (c) Children (d) others:_____

8. Are you rising any seedlings in a nursery ?

(a) Yes (b) No.

(If replied "Yes")

8.1 Whose nursery is it ?

(a) Private/Individual (b) Group (c) Others:_____

8.2 How many seedlings a year do you raise in such a nursery ?

(a) Private/Individual :_____

(b) Group :_____

(c) Others :_____

8.3 **Have you or your group sold or given some of the seedlings produced in the nursery to someone e.g. other villages ?**

(a) Only used by yourself or group members (b) Sold (got income)
(c) Given (free of charge).

8.4 **Have you had any changes of nursery activities after training courses at K.T.C. ?**

_____

_____

9. **Which kind of problems are you facing on forestry activities ?**

(a) Lack of materials, specify them_____

(b) Lack of tools, specify them_____

(c) Lack of water.

(d) Lack of land.

(e) Difficult to collect seeds.

(f) Damage by insects, animals or diseases.

(g) Technical matters, specify them _____

(h) We are too busy with other works

(I) Lack of co-operation among group members.

(j) Lack of co-operation among family members.

(k) Others (specify):_____

_____

10. **Have you tried the new techniques which you learnt in the training courses at K.T.C.?**

(a) Yes (b) No.

(If replied "Yes")

10.1 Which kind of techniques have you tried ?

_____

_____

11. Have you taught any persons techniques that you learnt in the training courses at K.T.C. ?

(a) Yes (b) No.

(If replied "Yes")

11.1 To whom have you taught the techniques ?

(a) Family (b) Neighbours (c) Group members

(d) Other persons: _____

12. Are the following subjects useful for you ?

Subject	Usefulness	Practice
Family planning	(a) Very useful (b) Useful (c) Needless	
Home Economic	(a) Very useful (b) Useful (c) Needless	

13. Is there any useful idea you think could be included in the training course ?

_____

_____

_____

13.1 What are your expectations for enhancing tree planting activities in the future ?

_____

_____

_____

14. Evaluation by interviewer

14.1 Area for tree planting.

(a) Not difficult, if farmers have knowledge and techniques which they can learn in the training course at K.T.C.

(b) Difficult because of severe environment , it needs advanced techniques beyond training.

14.2 Conscious of the trainee for tree planting

(a) High motivation and success in tree planting.

(b) High motivation, but tree planting activities are not carried out continuously. (for example, exercises before and under preparation or nothing presently).

(reasons)_____

_____

_____

(c) High motivation, but fail to plant trees (many seedlings died)

(reasons)_____

_____

_____

(d) Trainee wants to try tree planting, but never planted.

(reasons)_____

_____

(e) Low motivation

(reasons)_____

14.3 Items which the interviewer suggested to improve techniques of trainee.

14.4 Points that were obtained to improve the trainee course in this interview.

Fomu ya Ukaguzi Mkuu wa Mafunzo ya Akina mama/wakulima.

Tarehe:_____

Mhoji: _____

Mhojiwa: _____

Wilaya: _____

Tarafa: _____

Mtaa:_____

Anwani:_____

Tarehe ya mafunzo (KTC):_____

1. **Nyumba yako imejengwa na vifaa gani ?**

(a) Mawe (b) Matofali ya kuchomwa
(c) Matofali yasiyo ya kuchomwa (matofali baridi)
(d) Udongo na miti au mbao

2. **Una ekari ngapi za shamba ?**

(1) Shamba:
(a) ekari 0 (b) 1-3 (c) 4-10
(d) 11-20 (e) Zaidi ya 21

(2) Shamba la malisho:
(a) ekari 0 (b) 1-3 (c) 4-10
(d) 11-20 (e) Zaidi ya 21

2.1 **Ni nani anajulikana kama mwenye hiyo shamba ?**

(a) Mume (b) Mke (c) Binti (d) Wana wa kiume.

2.2 **Ni nani anayelima hiyo shamba ?**

(a) Mume (b) Mke (c) Watoto (d) Wengine.....

3. **Una mifugo wangapi ?**

(1)	Ng'ombe:	(a) 0	(b) 1-10	(c) 11-20	(d) Zaidi ya 21
(2)	Mbuzi:	(a) 0	(b) 1-10	(c) 11-20	(d) Zaidi ya 21
(3)	Kondoo:	(a) 0	(b) 1-10	(c) 11-20	(d) Zaidi ya 21

3.1 **Madhumuni yako yakuweka hawa mifungo ni nini ?**

(1) Ng'ombe: _____

(2) Mbuzi: _____

(3) Kondoo: _____

4. **Wewe ni mwanachama wa kikundi ?**

(a) Ndiyo (b) La

(Ikiwa jibu ni "ndiyo")

4.1 **Ni akina nani waliyo wahusika wengi katika hicho kikundi ?**

(a) Wanawake (b) Wanaume (c) Wanaume na wanawake

4.2 **Kikundi chenu kinafanya kazi ya upandaji wa miti ?**

(a) Ndio (b) La

5. **Mbali na miti ya matunda, umewahi kupanda miti yoyote ?**

(a) Ndio (b) La.

(Ikiwa jibu ni "ndiyo")

5.1 **Ulianza kupanda miti lini kwa mara ya kwanza ?**

(a) Miaka 10 au zaidi iliyopita (b) Miaka 5-9 iliyopita (c)Miaka 1-4 iliyopita

5.2 **Mpaka sasa umepanda miti mingapi (mbali na ya matunda) ?**

(a) 1-49 (b) 50-99 (c) 100-499 (d) Zaidi ya 500

5.3 Mpaka sasa ni miti mingapi kati ya ile uliyopanda shambani lako (mbali na matunda) imebaki na inaendelea kukua ?

(a) 1-49 (b) 50-99 (c) 100-499 (d) Zaidi ya 500

5.4 Mpaka sasa ni kiasi ya silimia ngapi ya miti uliopanda (mbali na ya matunda) inaendelea kukua ?

(a) 0% (b) Asilimia ndogo (1-30%)
(c) Asilimia kiasi (31-69%) (d) Asilimia kubwa (70-100%)

5.5 Ni miche ngapi (mbali na ya matunda) ulipanda shambani lako kati ya mwaka mmoja uliyopita ?

(a) 0 (b) 1-49 (c) 50-99 (d) 100-499 (e) Zaidi ya 500

5.6 Ni miti ngapi iliyobaki na inaendelea kukua katika sehemu hizi. Ukaguzi wa maarifa ya mhoji maswali.

Pahali miti imepandikizwa	Aina ya miti	Nambari iliyopandwa	Nambari ya miti inavokua	Asilimia ya miti inavokua	Madhumuni	Utumizi wa ujuzi kupanda miti
Ua-inje ya boma						
Mpaka wa boma						
Shambani						
Mpaka wa shambani						
Sehemu ya malisho						
Sehemu zingine taja.						

C.S. Cassia siamea
C.sp. Cassia spectabilis
L.L. Leucaena leucocephala
A.A. Acacia albida
A.T. Acacia tortilis
A.I. Azadirachta indica (Neem)
M.V. Mellia volkensii
G.R. Grevillea robusta
E.S. Eucalyptus spp.
F. Fruits trees
O. The other species

6.1 **Umeisha anza kutumia miti yako (kuni, chakula cha mifugo na kadhalika) kwa madhumuni yafuatayo ?**

(a) Kuni (b) Fito/Mbao (c) Utengenezaji makaa
(d) chakula cha mifugo (e) Mbolea (f) Ingine .....
(g) Bado hujatumia (kwa sababu ya uchanga wa miti)

7 **Umeshawahi kuwa na mapato ya kifedha kutokana na mauzo ya miti yako (fito,bao,kuni na kadhalika) ?**

(a) Ninapata mapato yasiyopungua kila mwaka.
(b) Nina pata mapato mara chache
(c) Miti hii ni kwa faida yangu binafsi au kwa matumizi ya jamii pekee.
(d) Matumizi yako au ya familia pekee.

7.1 **Eleza ni kutoka hali gani uliuza hiyo miti ?**

(a) Fito (b) Bao (c) kuni (d) Ingine.....

7.2 **Ni nani anayefaidika kutokana na fedha kama hizo ?**

(a) Mume (b) Mke (c) Watoto (d) Wengine.....

8. **Unakuza miche yoyote kwa bustani ya miche ?**

(a) Ndiyo (b) La

(Ikiwa jibu ni "ndiyo")

8.1 **Hiyo bustani ni ya nani ?**

(a) Binafsi (b) Kikundi (c) Ingine:.....

8.2 **Unakuza jumla ya miche mingapi katika bustani hiyo ?**

(a) Yako binafsi :_____

(b) Kikundi :_____

(c) Ingine :_____

8.3 **Umeshaa uza au kupeana miti yeyote kwa mfano kijiji (wewe au kikundi chenu) kiasi chochote cha ile miche mnayo kuza kwa bustani ?**

(a) Inatumiwa na wewe au wanachama kikundi pekee.
(b) Inauzwa (kwa kuleta mapato)
(c) Inapeanwa bila malipo

8.4 **Umepata mabadilikp ya ukusaji na ustawishaji wa miche katika bustani yako ya miche tangu utoke kwa mafunzo huko K.T.C.**

_____

_____

9. **Unakabiliwa na shida gani katika shughuli za ukuzaji wa miti kwa jumla ?**

(a) Ukosefu wa vifaa, vitaje _____

(b) Ukosefu wa vyombo, vitaje _____

(c) Ukosefu wa maji

(d) Ukosefu wa ardhi

(e) Ugumu wa ukusanyaji wa mbegu.

(f) Uharibifu kutokana na wadudu, wanyama au magonjwa.

(g) Shida za kitekinologia au ujuzi, taja _____

(h) Ukosefu wa nafasi kwa sababu ya kazi nyingine nyingi.

(I) Ukosefu wa ushirikiano kati ya wanachama.

(j) Ukosefu wa ushirikiano kati ya jamii yako.

(k) Shida nyingine (taja):_____

10. Umejaribu kutumia ujuzi mpya uliyojifunza kutokana na mafunzo uliyopewa kule K.T.C ?

(a) Ndiyo (b) La

(Ikiwa jibu ni "ndiyo")

10.1 Ni ujuzi gani uliyo jaribu ?

_____

_____

11. Umejaribu kumfunza mtu yeyote ujuzi ule ulijifunza kwa mafunzo kule K.T.C.

(a) Ndiyo (b) La

(Ikiwa jibu ni "ndiyo")

11.1 Ujuzi huo umefunza nani ?

(a) Jamii yako (b) Majirani
(c) Wanachama wa kikundi/vikundi
(d) Wengine:.....

12. Mafunzo yanayofuata yana umuhimu wowotekwako ?

Somo	Umuhimu	Matumizi
Upangaji wa uzazi	(a) Muhimu sana (b) Muhimu (c) Sio muhimu	
Hali ya uchumi nyumbani	(a) Muhimu sana (b) Muhimu (c) Sio muhimu	

13. Uko na maoni au maarifa yoyote tunaweza kuongeza kwa mafunzo yetu ?

_____

_____

13.1 Kwa siku sijazo, una matarajio gani kuhusu uendelezaji wa upandaji wa miti ?

_____

_____

Presurvey Form for Women's / Farmers' Course

Date : _____

Name : _____ Age : _____

Course Duration : from _____ to _____

Where is your home District : _____

Division : _____

Location : _____

Please enclose the answer (alphabet) that is true of you with a circle in following questions.

1. What kind of materials is your house made of ?

(a) Stone (b) Burnt brick (c) Unburnt brick (d) Mud & Wood

2. How many acres of land do you have ?

(1) Shamba : (a) 0 acre (b) 1-3 (c) 4-10 (d) 11-20 (e) 21 or more

(2) Grazing land : (a) 0 acre (b) 1-3 (c) 4-10 (d) 11-20 (e) 21 or more

3. How many head of animals do you have ?

(1) Cattle : (a) 0 head (b) 1-10 (c) 11-20 (d) 21 or more

(2) Goats : (a) 0 head (b) 1-10 (c) 11-20 (d) 21 or more

(3) Sheep : (a) 0 head (b) 1-10 (c) 11-20 (d) 21 or more

3.1. For what purpose do you keep them ?

(1) Cattle : _____

(2) Goats : _____

(3) Sheep : _____

4. Are you a member of Group ?

(a) Yes (b) No

(If replied "Yes")

4.1 Does your group carry out tree planting activities ?

(a) Yes (b) No

5. Have you ever planted trees except fruits ?

(a) Yes (b) No

(If replied "Yes")

5.1. When did you start planting trees for the first time ?

(a) 10 or more years ago (b) 5-9 years ago (c) 1-4 years ago

5.2. So far how many trees (except fruits) have you planted in your land?

(a) 1-49 trees (b) 50-99 (c) 100-499 (d) 500 or more

5.3.1 So far how many trees planted (except fruits) are surviving in your land ?

(a) 1-49 trees (b) 50-99 (c) 100-499 (d) 500 or more

5.3.2 What is the survival rate of trees (except fruits) planted so far in your land ?

(a) 0 % (b) Low level (1-30 %) (c) Medium level (31-69%)

(d) High level (70-100%)

5.4 How many seedlings (except fruits) did you plant within last one year in your land?

(a) 0 seedlings (b) 1-49 (c) 50-99 (d) 100-499 (e) 500 or more

5.5 Where have you mainly planted trees in your land ? (You may select one or more)

(a) around house or in the garden (b) boundary (c) shamba

(d) grazing land (e) specific area for plantation

6. For what purpose have you planted these trees ? (You may select one or more)

(a) Ornamental (b) Shade (c) Firewood (d) Chacoal making (e) Fodder

(f) Fertilizer (g) Pole/Timber for construction

(h) Others : _____

6.1 Have you already utilized your trees (wood, foliage, etc.) for the following purposes?

(a) firewood (b) pole/timber (c) charcoal making (d) fodder

(e) fertilizer (f) not yet used (trees are too young)

6.2 Have you ever got income through sales of your trees (pole, timber, firewood, etc.)?

(a) got constant income every year (b) got income a few times

(c) expect income in the furture (d) private or family consumption only

7. Are you raising any seedlings in a nursery ?

(a) Yes (b) No

(If replied "Yes")

7.1 Whose nursery is it ?

(a) Private / individual (b) Group

(c) Others (specify) : _____

7.2 How many seedlings a year do you raise in such a nursery ?

(1) Private / individual : _____

(2) Group : _____

(3) Others : _____

7.3 **Have you or your group sold or given some of the seedlings produced in the nursery to someone e.g. other villages ?**

(a) only used by yourself or group members

(b) sold (got income) (c) given (free of charge)

8. **From whom have you got the following techniques on nursery and tree planting so far except the training course at K.T.C. you are taking at present ?**

8.1. **Seed collection**

(a) your family or yourself (b) Group

(c) Forest Department (Officers, workers) (d) Other Ministries (Agriculture,etc)

(e) Any other source (f) I have not got them so far

8.2. **Nursery works**

(a) your family or yourself (b) Group

(c) Forest Department (Officers, workers) (d) Other Ministries (Agriculture,etc)

(e) Any other source (f) I have not got them so far

8.3. **Choice of the appropriate species.**

(a) your family or yourself (b) Group

(c) Forest Department (Officers, workers) (d) Other Ministries (Agriculture,etc)

(e) Any other source (f) I have not got them so far

8.4. **Agroforestry techniques**

(a) your family or yourself (b) Group

(c) Forest Department (Officers, workers) (d) Other Ministries (Agriculture,etc)

(e) Any other source (f) I have not got them so far

8.5. **Wood/products utilization (How to use the wood and other tree products)**

(a) your family or yourself (b) Group

(c) Forest Department (Officers, workers) (d) Other Ministries (Agriculture,etc)

(e) Any other source (f) I have not got them so far

9. Which kind of problems are you facing on forestry activities ?

(a) Lack of materials, specify them _____

(b) Lack of tools, specify them _____

(c) Lack of water

(d) Difficult to collect seeds

(e) Damage by insects, animals or desease

(f) Technical matters, specify them _____

(g) We are too busy with other works.

(h) Lack of cooperation among the members.

(i) Others (specify) : _____

_____

_____

10. What are your future plans of promoting tree planting activities after this course ?

_____

_____

_____

_____

We wish you well as you now prepare to go back home !

(Pre-survey form in Kiswahili)

Fomu ya Kutangulia Ukaguzi wa mafunzo ya Akina mama/Wakulima

Tarehe : _____

Jina la mshiriki : _____ Umri : _____

Muuda wa mafunzo : kutoka _____ mpaka _____

Nyumbani kwako ni wapi ? Wilaya : _____

Tarafa : _____

Mtaa : _____

Tafadhali zungushia alama ya (√), jawabu lako kwa maswali haya yafuatayo.

1. **Nyumba yako imejengwa na nini ?**

   (a) Mawe (b) Matofali ya kuchomwa

   (c) Matofali yasiyo ya kuchomwa (d) Udongo na miti au mbao

2. **Una ekari ngapi za shamba ?**

   (1) Shamba : (a) ekari 0 (b) 1-3 (c) 4-10 (d) 11-20 (e) Zaidi ya 21

   (2) Shamba la malisho : (a) ekari 0 (b) 1-3 (c) 4-10 (d) 11-20

   (e) Zaidi ya 21

3. **Una mifugo wangapi kwako?**

   (1) Ng'ombe : (a) 0 (b) 1-10 (c) 11-20 (d) Zaidi ya 21

   (2) Mbuzi: (a) 0 (b) 1-10 (c) 11-20 (d) Zaidi ya 21

   (3) Kondoo : (a) 0 (b) 1-10 (c) 11-20 (d) Zaidi ya 21

3.1. **Je, hizo mifugo ni za mathumuni gani ?**

(1) Ng'ombe : _____

(2) Mbuzi: _____

(3) Kondoo: _____

8. Ni kutoka kwa nani umewahi kupata ujuzi au maarifa ya upandaji wa miti isipokuwa kutokana na haya mafunzo hapa chuoni ?

8.1. Kuhusu ukusanyaji wa mbegu

(a) Kutoka kwa jamii yako au wewe mwenyewe (b) Kutoka kwa kikundi fulani

(c) Kutoka kwa idara ya misitu (maofisaa au wafanyi kazi)

(d) Kutoka kwa idara zingine (Kama idara ya kilimo na kadhalika).

(e) Kutoka mahali pengine popote

(f) Sijapata maarifa yoyote (kabla ya haya mafunzo)

8.2. Kuhusu kazi ya bustani

(a) Kutoka kwa jamii yako au wewe mwenyewe (b) Kutoka kwa kikundi fulani

(c) Kutoka kwa idara ya misitu (maofisaa au wafanyi kazi)

(d) Kutoka kwa idara zingine (Kama idara ya kilimo na kadhalika)

(e) Kutoka mahali pengine popote

(f) Sijapata maarifa yoyote (kabla ya haya mafunzo)

8.3. Kuhusu uchagusi wa miti inayofaa.

(a) Kutoka kwa jamii yako au wewe mwenyewe (b) Kutoka kwa kikundi fulani

(c) Kutoka kwa idara ya misitu (maofisaa au wafanyi kazi)

(d) Kutoka kwa idara zingine (Kama idara ya kilimo na kadhalika)

(e) Kutoka mahali pengine popote

(f) Sijapata maarifa yoyote (kabla ya haya mafunzo)

8.4. Kuhusu Kilimo mseto

(a) Kutoka kwa jamii yako au wewe mwenyewe (b) Kutoka kwa kikundi fulani

(c) Kutoka kwa idara ya misitu (maofisaa au wafanyi kazi)

(d) Kutoka kwa idara zingine (Kama idara ya kilimo na kadhalika)

(e) Kutoka mahali pengine popote

(f) Sijapata maarifa yoyote (kabla ya haya mafunzo)

8.5. **Matumizi ya bidhaa kutoka kwa miti (vile unaweza kutumia mbao na bidhaa zingine kutoka kwa miti)**

(a) Kutoka kwa jamii yako au wewe mwenyewe (b) Kutoka kwa kikundi fulani

(c) Kutoka kwa idara ya misitu (maofisaa au wafanyi kazi)

(d) Kutoka kwa idara zingine (Kama idara ya kilimo na kadhalika)

(e) Kutoka mahali pengine popote

(f) Sijapata maarifa yoyote (kabla ya haya mafunzo)

9. **Ni aina gani ya matatizo/shida unazopata katika shughuli za upandaji wa miti?**

(a) Ukosefu wa bidhaa fulani (Taja ni bidhaa gani) _____

(b) Ukosefu wa vyombo fulani (Fafanua/Taja ni gani) _____

(c) Ukosefu wa maji

(d) Ugumu wa kukusanya mbegu.

(e) Uharibifu wa miti kutokana na wadudu na magonjwa.

(f) Kutojua technologia/maarifa fulani (Taja) _____

(g) Kuwa na kazi nyingi.

(h) Kutokuwa na ushirikiano mwema kati ya washiriki wa kikundi.

(i) Shida zingine (Taja) : _____

_____

_____

10. **Je, uko na shabaha/matarajio gani za kuendeleza upandaji wa miti baada ya haya mafunzo ?**

_____

_____

_____

_____

Tunakutakia vyema unapojiandaa kurudi nyumbani !

Appendix 2 Raw data of the main survey and the pre-survey

Main Suvey for Taita-Taveta

No.	Course	Sex		House of materials				How many acres									Land owner		Who cultivates				How many heads of animals											
								Shamba					Grazing land										Catle				Goat				Sheep			
		M	F	St.	B.B	Ub.B	M&w	0	1-3	-10	-20	21-	0	1-3	-10	-20	21-	Hus	Wife	Hus	wife	Child	Other	0	-10	-20	21-	0	-10	-20	21-	0	-10	-20	21-
1	F,May.93	1					1				1			1				1		1					1				1			1			
2	F,May.93	1					1			1				1				1		1	1		1		1				1				1		
3	W,Jul.93		1			1				1				1				1			1		1		1				1				1		
4	w,Jul.93		1				1				1				1			1		1	1	1			1				1			1			
5	F,May.93	1					1			1					1			1		1	1				1				1			1			
6	W,94		1				1			1			1					1		1	1	1							1						
7	F,94		1			1			1				1						1		1		1	1				1				1			
8	F,94		1				1			1				1				1		1	1	1			1										
9	F,Mar.94	1					1					1			1			1		1					1				1			1			
10	W,Jul.94		1	1								1					*1	1			1	1	1		1								1		
11	W,Jul.94		1				1				1				1			1		1	1		1		1				1			1			
Total		4	7	1		2	8		1	5	3	2	2	4	4		0	10	1	8	9	4	5	1	9			2	4	4		6	2	1	

Main Suvey for Taita-Taveta

No.	Group							Tree planting																					
	Member		Construction			Planting		Experience		1st planting			How many trees planted				No. of surviving trees				Survival rate				Planted seedlings last year				
	Yes	No	Men	W	Mix	Yes	No	Yes	No	10-	5-9	1-4	1-49	-99	-499	500-	1-49	-99	-499	500-	0	1-30	-69	-100	0	1-49	-99	-499	500-
1		1									1					1			1					1			1		
2	1				1	1					1					1				1				1				1	
3	1		1		1	1					1					1				1				1				1	
4		1								1						1			1			1				1			
5	1				1	1					1				1			1				1					1		
6	1				1	1				1						1			1					1				1	
7	1			1			1					1				1			1					1		1			
8	1			1		1				1						1				1				1			1		
9	1				1	1				1					1		1					1				1			
10	1			1	1	1				1					1				1					1		1			
11	1			1		1				1						1			1					1			1		
Total	9	2	1	4	6	8	1		0	6	4	1	0	0	3	8	1	1	6	3	0	3	0	8	0	4	4	3	0

No.	Surviving trees						
	Compound						
	A.I	C.A	C.M	Caltus sp.	C.S	C.sp.	D.C
1		2(67)	7(100)			2(100)	
2							
3			2(40)Windbreak				1(100)shade
4	3(25)wind break						
5	2(13)shade、medicine		1(10)shade、fuelwood、medicine	30(100)fence	1(10)shade、fuelwood、timber		
6			8(47)		1(20)		1(100)
7	3(100)	1(50)	7(100)		2(100)	5(100)	10(100)
8	2(50)						
9							
10	3(43)medicine						
11	9(24)shade、fuelwood、tinmer、medicine				8(200)shade、windbreak		

note : ( ) Surviving rate. Surviving rate over 100% means natural gemination.

A.I Azadirachta indica
C.A Commiphora africana
C.M Croton megalocarpus
Cal. Caltus sp.
C.S Cassia siamea
C.sp. Cassia spectabilis
D.C Dovyalis caffra
D.R Delonix regia
F.B Ficus benjamina
G.R Grevillea Robusta
L.L Leucaena leucocephala
M.L Markhamia latea
M.O Moringa oleifera
M.T Matomoko
M.V Melia volkensii
S.S Sesbania sesban
T.C Terminalia catappa
T.I Tamarindus indica
T.M Terminalia mentaly
T.P Thevetia peruviana
T.S Tecoma stans
S.C Syzygium cumiii
F Fruit tree

No.	Surviving trees									
	Compound									
	D.R	F.B	G.R	L.L	M.L	M.O	M.T	M.V	S.S	T.C
1	2(100)			5(33)				6(100)		
2	0(0)		0(0)				11(100)			
3			2(100)fuelwood							
4				2(17)fodder、windbreak	2(100)timber			1(100)shade、timber、fodder		
5										
6		2(100)					3(60)	1(100)		
7				5(33)			1(50)	6(100)		
8						8(80)	6(100)			1(100)
9										
10	4(66)shade、ornamental									
11	8(80)ornamental			4(27)fuelwood、fodder					3(15)fodder	

No.	Survivin trees					
	Compound					
1	T.I	T.M	T.P	T.S	S.C	F
2			4(100)			20(49)
3						3(60)
4						6(75)fruit
5						
6						
7	1(100)					17(71)
8	1(50)	1(50)	4(100)			5(33)
9			12(60)	4(100)	1(100)	8(100)
10						10(100)fruit
11			2(100)shade、ornamental			
	5(100)fruit、fodder	1(100)ornamental	2(100)fuelwood、timber			12(100)fruit

No.	Sueviving trees							
	Boundary of compound							
	A.I	A.M	A.S	C.A	Calitris	Commiphra sp.	C.M	C.S
1	9(45)							4(100)
2	-				-	-	-	-
3					200(100)fence、windbreak	50(83)fence,windbreak	3(15)fence to control animals	
4	5(100)shade							3(25)windbreak
5								
6		60(30)					7(70)	
7			125(50)	35(35)			8(100)	
8								
9	4(40)							
10						300(100)windbreak		7(44)shade,fuelwood,timber
11	5(83)windbreak							

A.M Acasia mellifera
A.S Acasia senegal
D.C Dovyalis caffra
E.T Euphorbia tirucalli
M.A Melia azerach

No.	Surviving trees											
	Boundary of conpound											
	C.sp.	D.C	E.T	G.R	L.L	M.A	M.O.	M.T	T.I	T.P	T.S	F
1	150(75)	70(47)										
2	-	-	-	-	-		-	-	-	-	-	-
3	5(50)windbreak			7(25)fence,windbreak								
4					5(100)fodder					6(100)windbreak		1(20)fruit
5			300(100)fence									
6	6(60)	4(27)	10(20)	5(33)	2(2)	1(8)				175(76)		4(80)
7		50(50)				1(100)						
8				5(100)			6(75)	11(100)		20(50)		3(75)
9					4(40)shade							
10	4(24)shade			3(30)timber								
11									4(100)fence, fruit		6(100)fence	

No.	Surviving trees									
	Shamba									
	A.I	Ca	C.C	C.E	C.S	C.sp	E.S	G.R	G.S	M.A
1			65(93)				3(43)		1(100)	30(100)
2	3(15)	2(20)						25(50)		2(10)
3						15(60)shade、windbreak		700(88)timber、fuelwood		
4										
5					1(10)shade					6(100)timber
6	2(40)					15(30)				
7								0(0)fertilizer、timber、fuelwood		
8								50(50)		
9								0(0)fertilizer,fodder		
10	No trees planted because of no title deeds									
11				50(50)timber	5(250)soil concervation			30(60)timber		

Ca Casuarina sp.
C.C Calliandra callothyrsus
C.E Casuarina equisetifolia
E.S Eucalyptus spp.
G.S Gliricidia sepium
P.A Parkinsonia aculeata

No.									
	M.T	M.V	L.L	P.A	S.C	T.I	T.P	T.S	F
1	6(100)	3(50)	250(56)					3(10)	14(61)
2	6(60)	1(25)	300(100)		1(17)				67(43)
3			15(60)fodder、fuelwood						24(67)fruit
4									9(60)fruit
5				1(100)ornamental					3(50)fruit
6						1(33)			10(100)
7									
8	30(75)	25(83)	15(75)				5(100)		63(36)
9			4(29)fertilizer,fodder	1(10)fertilizer,fodder		1(25)fertilizer,fodder,fruit			1(3)fruit
10									
11		10(100)timber							

No.	Surviving trees								
	Boundary of shamba								
	A.I	A.T	Ca	E.T	G.R	L.L	M.T	S	T.P
1									
2		100(33)	2(20)		25(83)	20(20)	2(10)		
3					400(80)mark,windbreak,fuelwood,timber				
4				more than300,mark,boundary					
5	-	-	-	-	-	-	-	-	-
6	10(100)			10(100)					
7								50(100)mark,boundary	
8				200(100)fence					100(83)
9					0(0)				
10	No trees planted because of title deeds								
11				many:fence,boundary,mark					

A.T Acasia tortilis

S Sisal

No.	Surviving trees		
	Glazing land		
	E.sp.	G.R	L.L
1			
2			300(300)soil conservation,fodder,fertilizer
3	6(100)	500(100)	
4	-		
5			
6	-		
7	-		
8			0(0)fodder
9			
10			
11			

E.sp. Eucalyptus sp.

Main Suvey for Taita-Taveta

No.	utilization							income											
								Have you got income				form of sold				Who benefits			
	firewood	pole/timber	charcoal	fodder	fertiliser	not yet	others	constant	a few	future	private	poles	timber	firewood	others	Hus	Wife	Child	Other
1	1	1		1					1			1				1	1	1	
2	1			1	1		1(fruit)		1						1	1	1	1	
3	1			1			1(fruit)		1	1					1(fruit)		1	1	
4	1	1									1								
5							1(medicine,seed)				1								
6	1	1		1			1(fruit)		1						1(fruit)	1	1	1	
7	1				1				1						1(fruit)		1	1	
8	1	1		1				1				1		1	1		1	1	
9				1			1(medicine,shade)				1								
10							1(medicine,shade)				1								
11	1			1						1									
Total	8	4		7	2			1	5	2	4								

Main Suvey for Taita-Taveta

No.	Nusery activities												Problems on forestry activities										
	Nusery		Whose nusery			How many seedlings			Sold / give														
	Yes	No	Private	Group	Others	Private	Group	Others	Yourself	Sold	Given		Material	Tool	Water	Land	Seed	Insect,animal	Technic	Busy	Group	Family	Others
1	1		1			60			1	1	1		1	1	1			1	1				1
2	1		1		1(church)	10		30	1		1							1					
3	1		1	1		48	1250		1		1			1	1			1	1	1			
4	1		1			30								1	1		1	1	1	1		1	
5	1		1			not yet			1		1			1	1		1	1		1			
6	1		1	1		87	50		1	1	1		1	1	1	1		1				1	
7		1														1		1				1	
8	1		1	1		20	300		1	1	1			1	1			1				1	
9	1			1			100		1	1	1			1	1			1		1		1	
10		1													1			1		1	1		1
11	1		1			200			1	1			1		1			1					
Total	9	2	8	4					8	5	7		3	7	9	2	2	11	3	5	1	5	2

Main Suvey for Taita-Taveta

No.	New Techniques		Extension						New subject					
					To whom				Family planning			Home Economy		
	Yes	No	Yes	No	Family	Neighbour	Group	Others	Very	Useful	Needless	Very	Useful	Needless
1	1		1		1		1		1					
2	1		1		1	1	1			1				
3	1		1		1		1		1				1	
4	1		1		1	1	1			1				
5	1		1		1	1	1		1				1	
6	1		1		1	1	1		1				1	
7		1	1		1	1	1						1	
8	1		1		1		1			1				
9	1		1				1		1				1	
10	1		1		1	1	1	1	1			1		
11	1		1		1	1	1				1	1		
Total	10	1	11	0	10	7	11	1	6	3	1	2	5	

Pre- Suvey for Taita-Taveta

No.	Course	Sex		House of materials				How many acres										How many heads of animals											
								Shamba					Grazing land					Catle				Goat				Sheep			
		M	F	St.	B.B	Ub.B	M&w	0	1-3	-10	-20	21-	0	1-3	-10	-20	21-	0	-10	-20	21-	0	-10	-20	21-	0	-10	-20	21-
1	F,May.93	1					1		1					1					1			1				1			
2	F,May.93	1					1		1					1					1				1			1			
3	W,Jul.93		1			1			1										1				1				1		
4	w,Jul.93		1				1				1			1					1					1		1			
5	F,May.93	1					1				1				1				1				1			1			
6	W,94		1			1	1			1					1								1						
7	F,94		1			1							1					1				1				1			
8	F,94		1				1			1				1					1				1						
9	F,Mar.94	1					1				1					1			1				1			1			
10	W,Jul.94		1	1								1					*1		1						1		1		
11	W,Jul.94		1				1				1				1				1				1			1			
12	F,May.93	1				1				1			1					1					1			1			
13	W,Jun.94		1				1			1				1					1				1				1		
14	W,Jul.93		1				1		1					1					1			1				1			
15	W,Jun.94		1				1			1									1				1				1		
16	F,May.94	1				1				1				1					1										
17	F,May.94		1				1		1					1					1				1			1			
18	W,Jul.94		1		1				1					1					1				1			1			
19	W,Jul.94		1			1			1					1					1				1				1		
Total		6	13	1	1	6	12	0	7	6	4	1	2	10	3	1	0	2	16	0	0	3	13	1	1	11	5	0	0

Pre-Suvey for Taita-Taveta

No.	Group		Tree planting																	
	Member		Experience		1st planting			How many trees planted				No. of surviving trees				Planted seedlings last year				
	Yes	No	Yes	No	10-	5-9	1-4	1-49	-99	-499	500-	1-49	-99	-499	500-	0	1-49	-99	-499	500-
1	1		1				1			1				1					1	
2	1		1				1			1				1					1	
3		1		1						1				1		-	-	-	-	-
4		1	1			1					1		1					1		
5	1		1				1		1				1				1			
6	1		1			1					1		-	-					1	1
7	1		1				1	1				1					1			
8	1		1		1			1				1				1				
9		1	1				1	1				1				1				
10	1		1			1		1				1				1				
11	1		1		1					1			1						1	
12	1		1				1		1				1				1			
13	1		1			1		1				1					1			
14	1		1			1		1					1				1			
15	1		1			1	1	1				1					1			
16	1		1				1		1			1								
17	1		1				1	1				1					1			
18	1		1				1	1				1					1			
19	1		1				1			1			1					1		
Total	16	3	18	1	2	6	11	9	3	5	2	9	6	3	0	3	8	2	4	1

Pre-Suvey for Taita-Taveta

No.	utilization								Nusery activities							
									Nusery		Whose nusery			How many seedlings		
	Ornamental	Shade	Firewood	Chacoal	Fodder	Fetrtilizer	Pole/Timber	others	Yes	No	Private	Group	Others	Private	Group	Others
1				1			1		1		1			50		
2					1				1		1			50		
3							1		1		1			1		
4	1	1			1		1			1	1					
5		1					1		1		1			40		
6		1	1	1	1	1	1		1		1	*1		130		
7		1	1		1		1		1		1			84		
8			1						1		1			100		
9		1	1		1	1	1		1			1			40	
10		1	1	1	1		1		1			1				
11	1	1	1	1	1	1	1	1	1			1			10050	
12			1		1		1		1		1			only a few		
13	1		1						1			1			320	
14	1	1					1		1			1				
15			1		1					1						
16		1	1				1	*1	1		1			100		
17		1								1						
18		1	1	1	1	1	1		1			1			100	
19	1	1	1	1	1	1	1		1		1	1		200	1000	
Total	5	12	12	6	11	5	14	1	16	3	11	7	0			

*1 for selling(business) *church group

Pre-Suvey for Taita-Taveta

No.	Problems on forestry activities							
	Materials	Tools	Water	Seed	Technic	Busy	Group	Others
1	①1	②1						
2	③1	④1						
3	⑤1	⑥1			⑦1			
4		⑧1					1	
5		⑨1						
6		⑩1	1					⑪1
7	⑫1	⑬1			⑭1			⑮1
8	⑯1	❶1	1		❷1			❸1
9		❹1	1		❺1			
10			1	1			1	
11	❻1	❼1			❽1			
12	❾1	(1)1						
13		(2)1	1		(3)1			
14	(4)1	(5)1						
15		(6)1	1		(7)1			
16	(8)1	(9)1			(10)1		1	
17								
18			1	1			1	
19	(11)1	(12)1					(13)1	
Total	10	16	7	2	7	0	5	3

①seeds
②panga,jembe,polythen bags
③seeds
④panga,jembe,shovels,wheelborrow watering can,potting tubus
⑤seeds,
⑥jembe,rake,watering can
⑦seed collection,pre-treatment
⑧jembe,wheelborrow,shovel
⑨panga,wheelborrow,rake, potting bag,watering can
⑩panga,jembe
⑪some members of a women's group fail to attend meetings
⑫lack of insecticides
⑬water can
⑭seed pre-treatment
e.g. in boiling water and hot water
⑮causes seeds/seedlings to dry and sometimes esten by termites becuase group members fail to follow advice and regullations of the group
⑯seeds,potting materials

❶wheelbarrow,jembe,water can
❷pre-treatment
❸cuases seedlings to dry up in the nusery
❹watering can,wheelborrow,drum, mitingu
❺lack of proper work plan
❻tubes,seeds
❼water can,wheelborrow,panga jembe,water tank
❽budding & grafting,root pruning nusery techniques & management
❾materials and capital for starting
(1)jembe,wheelbaroou,rakes,panga,e.t.c.
(2)wheelbarow,shovel,water can
(3)nusery establishment
(4)seeds,potting materials
(5)rake,water can,shovel,jembe,panga
(6)wheelbarow,shovel,water can
(7)various tree planting and management tec.
(8)seeds,potting materials,insecticides
(9)shovel,wheelbarow,jembe,panga,water can
(10)nusery establishment,soil mixing
(11)potting materials,seeds
(12)water can,weelbarow
(13)rumour mongering and not taking tree planting activities by group members seriousry

Pre-Survey for Taita-Taveta

No.	From whom have you got following techniques except the training couse at K.T.C?																	
	Seed collection						Nursery work						Choice of the appropriate species					
	Family/yourself	Group	F.D	Other Min.	Other	Not got	Family/yourself	Group	F.D	Other Mln.	Other	Not got	Family/yourself	Group	F.D	Other Min.	other	Not got
1			1						1						1			
2			1						1						1			
3			1				1								1			
4			1						1						1			
5	1						1						1					
6			1				1		1					1	1			
7			1				1								1			
8			1						1						1			
9						1			1						1			
10			1	1					1	1					1	1		
11			1				1	1							1			
12			1	1					1	1					1	1		
13			1						1						1			
14			1						1						1			
15	1		1						1						1			
16			1				1								1			
17			1									1						1
18			1	1											1	1		
19			1				1	1	1						1			
Total	2	0	17	3	0	1	7	2	12	2	0	1	1	1	17	3	0	1

Pre-Survey for Taita-Taveta

No.	From whom have you got following techniques except the training couse at K.T.C?																	
	Seed collection						Nursery work						Choice of the appropriate species					
	Family/yourself	Group	F.D	Other Min.	Other	Not got	Family/yourself	Group	F.D	Other Mln.	Other	Not got	Family/yourself	Group	F.D	Other Min.	other	Not got
1			1						1						1			
2			1						1						1			
3			1				1								1			
4			1						1						1			
5	1						1						1					
6			1				1		1					1	1			
7			1				1								1			
8			1						1						1			
9						1			1						1			
10			1	1					1	1					1	1		
11			1				1	1							1			
12			1	1					1	1					1	1		
13			1						1						1			
14			1						1						1			
15	1		1						1						1			
16			1				1								1			
17			1									1						1
18			1	1											1	1		
19			1				1	1	1						1			
Total	2	0	17	3	0	1	7	2	12	2	0	1	1	1	17	3	0	1