REPUBLIC OF NAMIBIA

MINISTRY OF AGRICULTURE

WATER AND RURAL DEVELOPMENT

OMUSATI REGION

BASELINE SURVEY OF THE IMPACT OF AGRICULTURAL EXTENSION SERVICES

DIRECTORATE OF EXTENSION AND ENGINEERING SERVICES

OUTAPI, OCTOBER 2003

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Disclaimer

The views expressed in this report are the responsibility of the authors, and do not necessarily reflect those of the Ministry of Agriculture, Water and Rural Development.

Acronyms and abbreviations

ADC	Agricultural Development Centre
AEO	Agricultural Extension Officer
AET	Agricultural Extension Technician
ARDC	Agricultural Rural Development Centre
CA	Clerical Assistant
CAEO	Chief Agricultural Extension Officer
CAET	Chief Agricultural Extension Technician
CBS	Central Bureau of Statistics
DART	Directorate of Agricultural Research and Training
DEES	Directorate of Extension and Engineering Services
DRWS	Directorate of Rural Water Supply
DVS	Directorate of Veterinary Services
FC	Focus Community
FED	Farmers Extension Development Group
FS	Farming System
FSRE	Farming System Research and Extension
Ha	Hectares
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
IFAD	International Fund for Agricultural Development
Km	Kilometres
Km^2	Square kilometres
MAWRD	Ministry of Agriculture, Water and Rural Development
NASSP	Namibian Agricultural Support Services
NCD	North Central Division
NOLIDEP	Northern Regions Livestock Development Programme
NOREESP	Northern Regions Extension and Epidemiological Support Programme
RDSP	Rural Development Support Programme
REMP	Rural Extension Management Programme
SPSS	Statistical Package of Social Sciences
TA	Technical Advisor
UNAM	University of Namibia

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We are indebted to REMP through which this study was made possible and enabled the Regional Survey Officials to recruit enumerators for the fieldwork. REMP also contributed to transport costs as the activity had not been planned or budgeted for in the government budget. We wish to extend our most sincere and heartfelt gratitude to our colleague, Mr Kristof A Amufufu, for designing maps for the survey area in Omusati.

Lastly, we do not want to forget all farmers who were involved and interviewed during the survey exercise in the Omusati region and the enumerators, who have worked so diligently from the start to the end of the exercise.

The authors do not claim their work on the regional sections to be complete. However, we are very much indebted to all the people who assisted us improve our work and contributed to the production of this report.

PART ONE

0 FOREWORD

Government's annual operational expenditure on agricultural extension services has averaged about N$ 50 million over the last few years. In addition, international donors have contributed roughly N$ 10 million per year to both operational and capital expenditure. Agricultural Development Centres are found all over the country staffed by qualified officials equipped with vehicles and provided with operational budgets. But, is the extension service achieving what it sets out to do?

This is a report on a baseline study designed to survey selected indicators of extension impact during the 2002/03 farming season. We intend to repeat this survey after the 2006/07 season to gauge change over the period between the baseline survey and the final survey. This period coincides with the span of NDP 2, which is the basic planning timeframe of the extension service.

Our collaborators, as well as the Namibian public at large have made calls for an assessment of the impact of agricultural extension services. These are the people who ultimately control our purse strings; and as competition for government resources increases, we want to assess whether what we are doing is worth supporting.

As managers, we also want to know whether all the effort we are putting in is actually bearing fruit. If we find, for example, that, after years of promoting a particular farming technology or practice, farmers are simply not interested and have not adopted it, we will obviously need to think again. What are we doing wrong? Is it the wrong technology? Are our methods failing? How can we improve?

We are approaching the task of impact assessment by gathering quantitative information using formal questionnaires and qualitative information using informal, participatory methods. The two approaches need to be integrated; qualitative methods need to build on quantitative.

This report presents the results of a regional questionnaire baseline survey that has produced, we believe, objective results. Each region has designed and managed its own survey. This reflects our decentralised organisational structure, which operates regional programmes in response to regional realities.

This report focuses on your region, and is being distributed to you as important collaborating partners and stakeholders in the cause of regional Development. We hope you find it interesting and informative and we look forward to increasing collaboration in future.

D.R. Tshikesho
DIRECTOR OF EXTENSION AND ENGINEERING SERVICES
October 2003

1 EXECUTIVE SUMMARY

Part One of this report provides background information to introduce a baseline study designed to survey selected indicators of extension impact on the broad mass of Namibia's communal farmers during the 2002/03 farming season. This baseline survey was conducted by the Ministry of Agriculture, Water and Rural Development (MAWRD) after it identified a need for improving the monitoring and evaluation of the impact of its agricultural extension and research services. Strengthened monitoring and evaluation systems are expected to assist managers in improving the effectiveness of their extension strategies, and to provide evidence to planners and donors of the cost-effectiveness of investing in the extension service. In addition, our collaborators, as well as the Namibian public as whole, want to find out whether the efforts of the agricultural extension service, in trying to inform and advice farmers, are worthwhile.

Comment: So how come it is called a baseline survey?

This baseline survey is intended to explore the current situation; it should be followed by an impact survey, scheduled for the end of the NDP2 planning period in 2005 to see how things have changed over time.

The report discusses some of the conceptual and practical difficulties involved in trying to assess the impact of agricultural extension services by investigating causal linkages between extension and farmer behaviour, farm production, and farmer welfare. It explains the rationale for focussing on the assessment of the extension service's most immediate objective, which is to facilitate change of farmer behaviour in terms of awareness, understanding, and adoption of recommended farm management practices, farm technologies, and organisational practices. Changed farmer behaviour should, in turn, lead to the achievement of higher level objectives (e.g. improved yields, better risk management, increased incomes), although these are subject to many external influences.

To investigate such change we can break down the process of such change into a number of stages – and look at how much of each has occurred with regard to specific changes being advocated. Change requires that farmers have:

1. contact with extension (either directly through participating in activities with extensionists, or visiting demos, or Agricultural Development Centres (ADCs), or indirectly through the radio, or other farmers who have learned directly from extension);
2. received information, advice or training on the innovation from extensionists;
3. understood the information, advice or training on the innovation;
4. tried out and adapted the innovation to their specific needs; and
5. acted upon or adopted the innovation.

We measure this by looking at indicators of:

- Extension-farmer contact and farmer satisfaction with extension services
- Farmer awareness, understanding, adoption and change

During 2003, baseline extension impact surveys have been conducted in all of Namibia's regions. Regional questionnaires have been designed to reflect local agricultural development realities.

Part Two of the report provides information on the context of natural resources and agriculture, as well as of extension services in the Omusati region. It also discusses in more detail the survey methodology.

The report points out the marginal nature of farming in the area, due mainly to low and erratic rainfall. Up until recently the government's agricultural extension services were focussed mainly on providing subsidised agricultural services (e.g. farm input sales, the development and maintenance of farm infrastructure), and the administration of government programmes such as drought relief and credit schemes. New approaches have stressed the provision of advisory, information, communications and farmer training services. Extension services mainly aim to help all farmers to develop and adopt improved farming technologies and practices, to organise themselves into self-help groups of various sorts, and to better interact with the world of agricultural markets, services, infrastructure, laws and policies in which they operate. In some places extension has been playing more of a facilitating role relating to a range of rural livelihood issues.

The last section of Part Two describes the survey method that was used, including further discussion of its rational and objectives, sampling procedures, preparation for field implementation, actual field implementation experience, and the data analysis process.

Part Three of the report presents and discusses the survey findings. The first part of the questionnaire aimed to investigate key farmer characteristics. The results showed that that the sample of respondents selected was reasonably representative of the total population of the sub-region. Questions which aimed to indicate farmer awareness, understanding and adoption of selected extension recommendations, as well as perception of issues promoted by extension, revealed a mixed picture.

2 INTRODUCTION

2.1 WHAT AGRICULTURAL EXTENSION SERVICES DO AND WHO THEY SERVE

Up until recently the government's agricultural extension services were focussed mainly on providing subsidised agricultural services (e.g. ploughing, farming input sales, the Development and maintenance of farm infrastructure), and the administration of government programmes such as drought relief and credit schemes. In the mid-1990s, things began to change as it was realised that many of these services were not benefiting the mass of farmers and, in any case, were often best provided by the private sector.

New approaches stressed the provision of advisory, information, communications and farmer training services. Extension services aim to help farmers to develop and adopt improved farming technologies and practices, to organise themselves into self-help groups of various sorts, and to better interact with the world of agricultural markets, services, infrastructure, laws and policies in which they operate. In some places extension has been playing more of a facilitating role relating to a range of rural livelihood issues.

At the same time, greater attention was given to the communal sector, where extension services were supposed to target all farmers. Efforts were made to reach farmers by working with farmers' groups and through the mass media, and through various methods designed to impact on numbers of farmers, such as demonstrations, shows, and training courses.

2.2 QUESTIONNAIRE SURVEY RATIONALE

Extension impact: can you prove it?

This section discusses some of the conceptual and practical difficulties involved in trying to assess the impact of agricultural extension services.

How can we prove that changes in farmer welfare, farm production and income, and changes in farmer behaviour (which we can define as including increased farmer knowledge and skills, improved farm technology, farm management practice, and farmer organisations) have occurred because of the work of the agricultural extension service? Many variables influence such changes (for example, other sources of information, rainfall, market prices, availability of credit, health issues, and so on) of which extension may or may not be one. It is notoriously difficult to make a causal linkage between the work of extension services and changes in farmer behaviour, let alone farm production, and ultimately welfare.

This is different from other services. In the field of education, for example, we have exam results, in the field of health we have hospital records, in the field of transport we have roads built and maintained, all clearly visible and easily measurable indicators.

Impact on who?

The agricultural extension service uses different methods to address individual farmers, groups of farmers and the broad mass of farmers, be it information meetings, demonstrations, training, or mass media. Ultimately, the mandate of the extension service is to serve all farmers. Therefore, this baseline study looks at the impact of extension activities on the broad community of farmers. The rationale for this is that although extension recognises that it cannot directly contact all farmers, it believes that its influence ultimately reaches all farmers through normal farmer-to-farmer dissemination. This assessment does not look at the impact of specific activities on immediate beneficiaries, for example on trainees who have been exposed to specific training activities.

Different types of impact

The DEES has drawn up a logical framework, which describes its main activities and their relationship to a set of objectives (see page 21). The log frame describes extension activities which should deliver clear outputs, which in turn should contribute to the achievement of a broader purpose, which itself will contribute to a more general goal. It is the job of the extension service to carry out the activities and deliver the outputs.

For extension managers, it is most important to assess impact at the output level: that is to look at service delivery and changed farmer behaviour, as defined above. Changed farmer behaviour should, in turn, lead to the achievement of higher level objectives (e.g. improved yields, better risk management, increased incomes), although these are also subject to many other influences (e.g. rain, market prices, etc.).
Extension services provide information, advice and training to enable farmers to be better managers by enabling them to develop and adopt better technologies and farm management practices, and by being better organized for different types of collective action. We can measure the extent this has happened by looking at rates and degrees of change in farmer practices and management.

To do this we can break down the process of such change into a number of stages – and look at how much of each has occurred with regard to specific changes being advocated. Change requires that farmers have:

1. Contact with extension (either directly through participating in activities with AETS or visiting demos, or ADCs, or indirectly through the radio or other farmers who have learned directly from extension);
2. Received information, advice or training on the innovation from Extensionist;
3. Understood the information, advice or training on the innovation;
4. Tried out and adopted the innovation to their specific needs; and
5. Acted upon or adopted the innovation.

We measure this by looking at indicators of:

- Extension-farmer contact and farmer satisfaction with extension services
- Farmer awareness, understanding, adoption and change

Extension impact assessment aims to review the extent to which these things have taken place, first through revealing the baseline situation, and later through reviewing how things have changed over time.

Concerning extension-farmer contact and farmer satisfaction, we can measure this by asking about the extent farmer involvement with extension activities, and their perceptions of that involvement. Regarding farmer awareness and adoption, we select specific agricultural Development issues to focus on. We cannot ask farmers about all the different technologies and practices and other information that extension services promote. We must select a few topics only. We can then say that these things represent the range of issues that extension deals with. In other words, they are indicators of the bigger picture of extension work.

Therefore, each region has designed its own questionnaire to investigate selected topics, which they believe represent the many that extension in a specific region is promoting. These key topics have been selected from amongst those the region expects to be the most important over the next few years. Specific questions have been asked to try and pinpoint whether farmers are aware of and understand extension recommendations, have reacted to and adopted them.

The hypothesis we are testing therefore is that extension services have a positive impact on farmer knowledge and behaviour. We are not able, at this stage, to test the hypothesis that this improved farmer knowledge and behaviour has in turn led to increased productivity and incomes, or improved agricultural GDP or balance of trade (purpose and goal indicators). To do so we need much better production and incomes data over a long period of time. Assuming that, all is well in terms of the external environment, in other words when conditions allow, that improved farmer knowledge, technologies and practices will have an impact on production and incomes.

Finally, we must also acknowledge that monitoring extension impact, even at the output level, is not easy. How can we say that change in farmer behaviour is because of extension? Many variables influence farmer behaviour including information provided by other services. However, Namibia's extension services pride themselves on the extent to which they collaborate with other services (government, non-government and private), and are content to share credit should impact, in due course, be revealed.

2.3 QUESTIONNAIRE PROCESS

So far, we have focussed on conceptual issues. Now we move to the practical means of extension impact assessment.

Formal questionnaires are a useful tool for research into people's perceptions, levels of awareness, knowledge and practices related to specific issues under investigation. Questionnaires are essentially a mechanical tool, in which you ask carefully defined questions covering selected issues, to a carefully selected representative sample of the community, you receive answers that are entered on answer sheets in code form, and you analyse these answers statistically.

This survey was undertaken by the regional team of the agricultural extension service, under the leadership of the regional Chief Agricultural Extension Officer, as follows.

Table 1: Main Steps in the Baseline Survey Process

1. Questionnaire design: this involved the elaboration of region-specific indicators used to prepare questionnaires for each region. Questionnaires were based on a common national outline relating to indicators of common concern, but incorporating local specific issues. Questionnaire design also included pre-testing in the field and subsequent modification of questions to ensure they were correctly phrased, relevant and so on. *(January-March 2003)*

2. Planning of field implementation: sampling procedures and logistics. *(April 2003)*

3. Field implementation: to minimize bias, extension staff took no part in interviews. Their role included:
   - hiring of enumerators;
   - training of enumerators;
   - liaising with communities;

- Transporting enumerators in the field;
- Field supervision of enumerator performance; and
- Field checking of completed questionnaires.

(May-June 2003)

4. Data analysis: data entry and analysis was done using the software package Statistical Package for the Social Sciences (SPSS) and was contracted out. *(July-September 2003)*

5. Report preparation. *(July – October 2003)*

This process is revisited in more details in section 5 of this report. The questionnaire is presented in Annex 1.

PART TWO

3. AGRICULTURE IN OMUSATI REGION

The Omusati region's agricultural productivity is limited by a host of factors. These include the soil types, the semi-arid to arid climate in which the region lies, and low and erratic rainfall regime. The region is the driest and least urbanised of the four regions comprising the four north central regions. Because of low and probably declining productivity, and hence diminishing returns to labour, it is unable to sustain the growing population, which is therefore moving off the land to urban areas. This in turn leads to one of the major constraints to increasing productivity: seasonal labour shortages. Nevertheless, agriculture remains the most important means of rural livelihoods in the region particularly for the resource-poor, the majority of whom are women.

3.1 BIOPHYSICAL RESOURCES

Omusati is a vast region, slightly larger than the size of Rwanda in the Central Africa, which covers 26,338 square kilometres (km^2). The region covers 26,573 square kilometres, or 2,657,300 hectares (ha). The region is one of the largest in the north central of Namibia, second only to the Oshikoto region, which covers 38,653 square kilometres.

Agriculture is the backbone of the region's economy. Mixed farming is predominantly practised in the region. People living both in rural areas and urban centres in this region depend almost entirely on agriculture for their livelihood. Therefore, agriculture plays a leading role on the livelihoods of all populations in the region, particularly for the resource poor farmers, who do not have access to off-farm incomes.

In general, the climate shapes the landscape of any area and determines what plants can grow where. It also determines the availability of water both on the surface and below the ground. Omusati region has a semi-arid to arid climate. It is characterised by rainfall that varies from year to year and long dry spells, which are unfavourable for both crop and pasture growth. The climate is, therefore, a major constraint to increasing agricultural productivity in the region.

Therefore, according the soil types and amounts of rainfall, the region can roughly be divided into three main farming systems (agro-ecological zones). These are the "East", "West" and the "Central", which extends in the Deep South (Okahao, Uutsathima and Amapupa). The east includes the constituencies of Etayi, Okalongo, Oshikuku and Ogongo. The west farming system includes Ruacana and Onesi constituencies. The Central and the Deep South include the constituencies of Outapi, Anamulenge and Tsandi, extending into the Deep South, to include Okahao constituency.

3.1.1 RAINFALL

The rainfall is seasonal, low and erratic. It varies in amount and timing from place to place. Amounts of rainfall are higher and more homogenous in the eastern part of the region, than in the western part. Rain falls generally during the summer months, roughly from November to April. Over two-thirds of rain falls in January, February and March. In good years the annual average rainfall varies from 450 to 500 millimetres per annum. However, in bad years, with high temperatures and strong winds, the rate of evapo-transpiration becomes greater, with rainwater being lost from the ecosystem. Therefore, this variation can be lower, ranging from 300 to 350 millimeters per annum, particularly when one moves to the south (see Fig. 1).

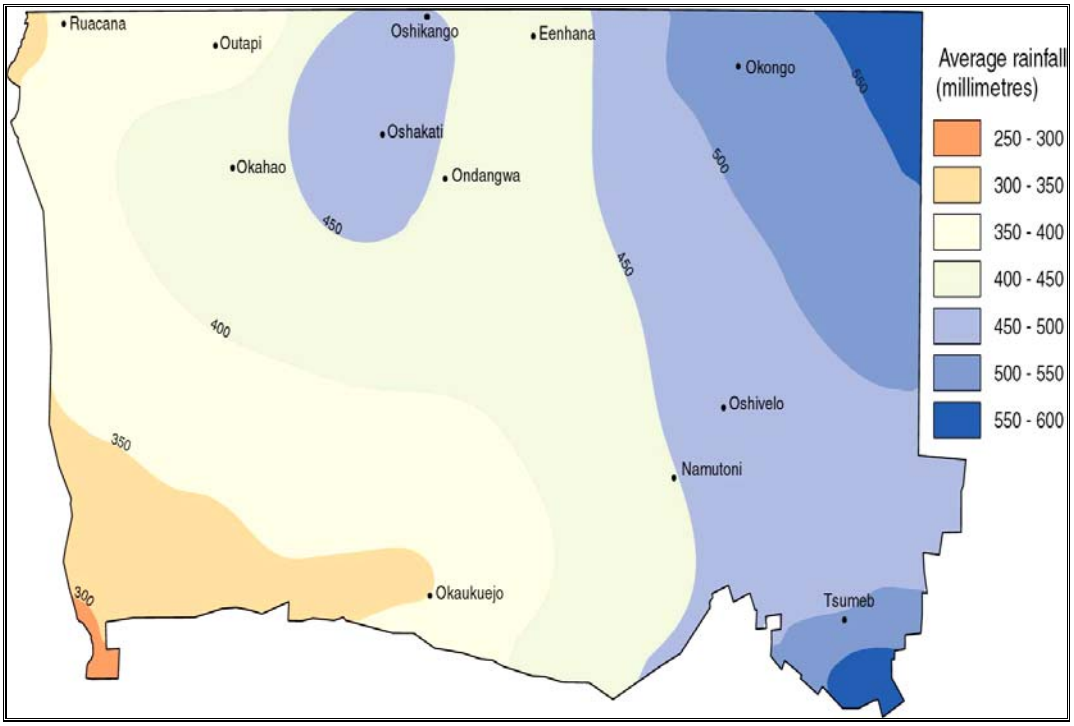


Fig 1. Average annual rainfall

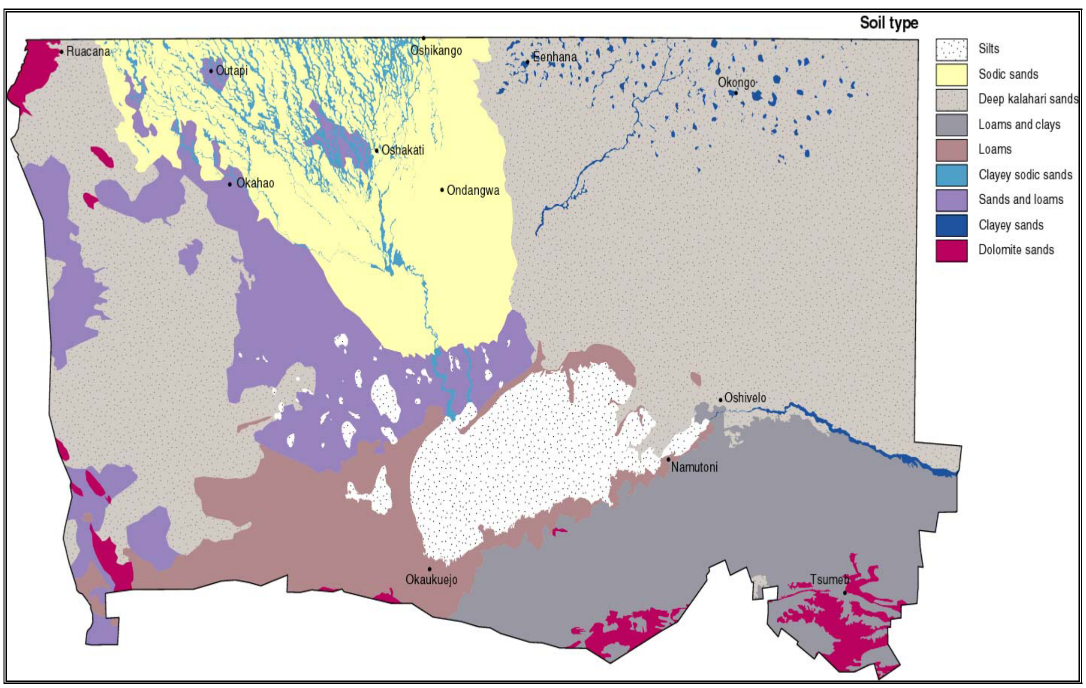


Fig 2. Soil types

3.1.2 SOILS

Almost all the soil types found in the region have been carried there by water and winds. Nine soil types are recognized in what was commonly known as Owambo (Mendelsohn, et al.2002) The bulk of the soils are sandy, stony and loamy, shallow and lack major nutrients such as phosphorous. They have low clay and organic matter content and lack natural fertility, which severely constrains the potential of agriculture in the region. The soil types have low water retention capacity (see Fig. 2).

3.1.3 WATER RESOURCES

Except for the Kunene River in the west, there are no major rivers in the region. However, due to the massive Cuvelai system, meandering and crossing into Namibia, there are a great number of what is known as *oshanas,* cutting throughout the region, creating a seasonal flow of water, which forms an inland massive delta.

Aquifers are relatively stable sources of water. Water is tapped by means of digging shallow wells (known as "*omifima*" and "*eendungu*" if they are 20-40 metres below the ground) and drilling numerous boreholes. The water *pans* and *oshanas* are the sources of water for most of the year in the region.

3.1.4 VEGETATION TYPES

Numerous vegetation types are recognized in the region. However, we will look only at four predominant vegetation types. These are: (i) the Cuvelai palms and fruit-trees on loamy sands; (ii) the Mopane shrub and low tree on oshanas; (iii) the Mopane fruit-trees on oshanas mosaic; and (iv) the Ruacana sand plateau. While the boundaries between these units are not always clear, the differences in soils explain much of the local variations in the plant life.

Distribution of vegetation types varies from one area to another. The plants characteristically grow on certain types of soils, i.e., the variation of vegetable types greatly depends on the soil types found in any area.

(i) The Cuvelai palms and fruit-trees are found mostly on loamy sands, which suits the crop growth. The area is slightly raised and therefore, characterised by dense settlements and intensive cultivation. This is actually where the people have first settled and larger towns of Outapi, Okahao, Oshikuku, Elim and Tsandi developed. A few large trees and fruit-trees dominate here, such as the fan palm, *Hyphaene vcentricosa ("omulunga"),* the bird plam, Berchemia *discolor, ("omuve"),* the sycamore fig-tree, *Ficus sycomorus ("omukwiyu")*, the red milkwood tree, *Dyospyros mespiliformis ("omwandi"),* the marurala tree, *Sclerocarya caffra ("omwoongo")* and *Hyphaene petersiana ("omulunga").* The M*opane* trees and some camel-thorn, *Acacia erioloba or girafae ("omioonde")* are very common in this area. This is the only area in which the baobab tree, *Adansonia digitata ("omukwa")* is relatively common (Mendelssohn, et al. 2000).

The pastures in the area between Okahao, Uutsathima and Amapupa, provide moderate grazing values. A wide variety of grass species, such *Schmidtia kalahariensis, S pappophroides, Pogonarthria fleckii, Aristida stipoides, A. meridionalis, Eragrostis porosa, Enneapogon cenchroides* and *Stipagrostis birtigluma* are abundant here (Mendelssohn, et al. 2000).

(ii) The *oshanas* and the high grounds in the Mopane fruit-trees on oshanas mosaic are predominantly of the silt, clay and sandstone types of soil. This unit is characterized by a large number of *Colophospermum mopane* shrub and trees ("*Omusati"*), after which the region was named. Much of the highest ground is intensively cultivated. The fruit trees, particularly the marula trees, *Sclerocarya caffra ("omwoongo") and* variety of the woodland tree species found in the Kalahari loamy sands grow here.

(iii) The o*shanas* cut throughout the Mopane shrub and low trees on oshanas. The landscape in this unit is less sandy and is dominated by tall *Colophospermum Mopane* trees. The highest grounds are also heavily cultivated. Many fruit-trees also grow here, such as the bird palm, *Berchemia discolor, (omuve),* the red milkwood tree, *Dyospyros mespiliformis ("omwandi"),* baobab or quiver tree, *Adansonia digitata ("omukwa"),* the sycamore fig-tree, *Ficus sycomorus ("omukwiyu")* and the marurala tree, *Sclerocarya caffra.* This unit is almost similar to the Mopane fruit-trees on oshanas mosaic, except that the Mopane trees are taller than in the Mopane fruit-trees on oshanas mosaic.

(iv) The Ruacana Sand Plateau, isolated from other similar types of vegetation to the east, is located to the west of the Cuvelai. The area is characterised by the woody species, which forms a mosaic of distinct patchy vegetation. The landscape has well-develop dunes with deeper sands, dominated by tall *Baikiaea plurijuga ("omupapa"),* with the undergrowth of the red bush-willow, *Combretum apiculatum ("omunaluko")* and other *Combretum* species such as *C collinum* and *C psioides ("ominaluko").* Other characteristic trees in this area include silver terminalia tree, *Terminalia sericea ("omwoolo"*), balm-bush, *Commiphora glandulosa ("omboo"*). This woodland type of vegetation becomes shorter and shorter and more open towards the south and west.

Comment: Something missing here?

The *Baphia massaiensis*, the raisin-bush, *Grewia deserticola* and bicolo*r ("omishe omuhonga, omupundu")* and *Banbinia petersiana* dominate the shrub layer. The *Scmidtia kalahariensis* grass species are dominant here. Within this woodland mosaic, *Combretum apiculatum* dominates on moderately deep sandy soils. Patches of Mopane scrub, *Colophospermum mopane ("Omusati")* are characteristic of the heavier, sandy-clay and loams found (Mendelssohn, et al. 2000).

3.2 POPULATION ISSUES

According to the Population and Housing Census of 2001 (Republic of Namibia 2001), Omusati region is home to 228,842 people. This is 12.5 per cent of the total population of Namibia. Of the whole population in the region, 99 per cent or 226,554 people live in rural areas. Only 1 per cent, or 2,288 persons, is registered as living in urban areas, mainly in Outapi, Okahao and other centres. If we assume that all households in the region are involved in farming, the region has a total number of farming households of 37,822, with an average size 5.9 persons per household**.** In practice it is only a few civil servants and other professions, as well as the so-called 'special population' (e.g. prisoners) who may not be involved in farming. The region has the second highest average household size of 5.9, as compared to Kavango, with average household size of 6.5 persons.

About 62 per cent of the households are female-headed households. Only 38 per cent of the households were male-headed households.

The population in this region tends to be scattered all over the region, with long distances between the homesteads. There are only 8.6 persons per square kilometre in the region, as compared to Ohangwena, with a population density of 21.3 persons per square kilometre (see Fig 3).

The Ovambo people who inhabit this region tend to live far away from one another. The population is not clustered like in Kavango or Caprivi regions, where the people live in groups, which are treated as villages. On average, except the closest neighbours, the distance between the households in rural areas ranges from 3 to 10 kilometres. This distance between the households depends on where you are in the region. In a typical rural area, the households are even as far apart as 15 km. The distance becomes shorter as you approach the urban centres.

The households are located far apart to accommodate grazing for the livestock, which graze in communal land. The households are all enclosed or fenced off to prevent animals from destroying crops during the rainy season. Any area that is outside the fencing is then a grazing area, grazed communally.

While the English is the official language in Namibia, Oshiwambo is extensively spoken in this region. The 2001 Population and Housing Census report reveals that 95 per cent of the households in the region speak Oshiwambo. Other languages such as Herero, Afrikaans and German are also spoken in the region**.**

HIV/AIDS

Omusati has the second highest regional population in the country. It is also one of the regions most affected by Human Immunodeficiency Virus / Acquired Immune Deficiency Syndrome (HIV/AIDS), with an overall 21 per cent of prevalence rate of infected pregnant women, slightly higher than at national level of 20 per cent of sexually active adults (Sero Survey report, 2001).

The HIV/AIDS pandemic claimed 1,105 lives in 2001 and 781 lives in 2003, respectively. There are doubts about the decrease in HIV/AIDS in 2003. The low rate of 781 deaths in the region in 2003, therefore, might be attributed to many deaths which occurred at home.

Namibia is currently ranked third in the SADC region, third in the world and seventh in Africa, as one of the most affected countries by HIV/AIDS, with an overall prevalence of about 20 per cent of sexually active adults (UNAM HIV/AIDS Policy, 2002).

At present, there are 14 active HIV/AIDS counsellors in the region and another 14 who have just been trained.

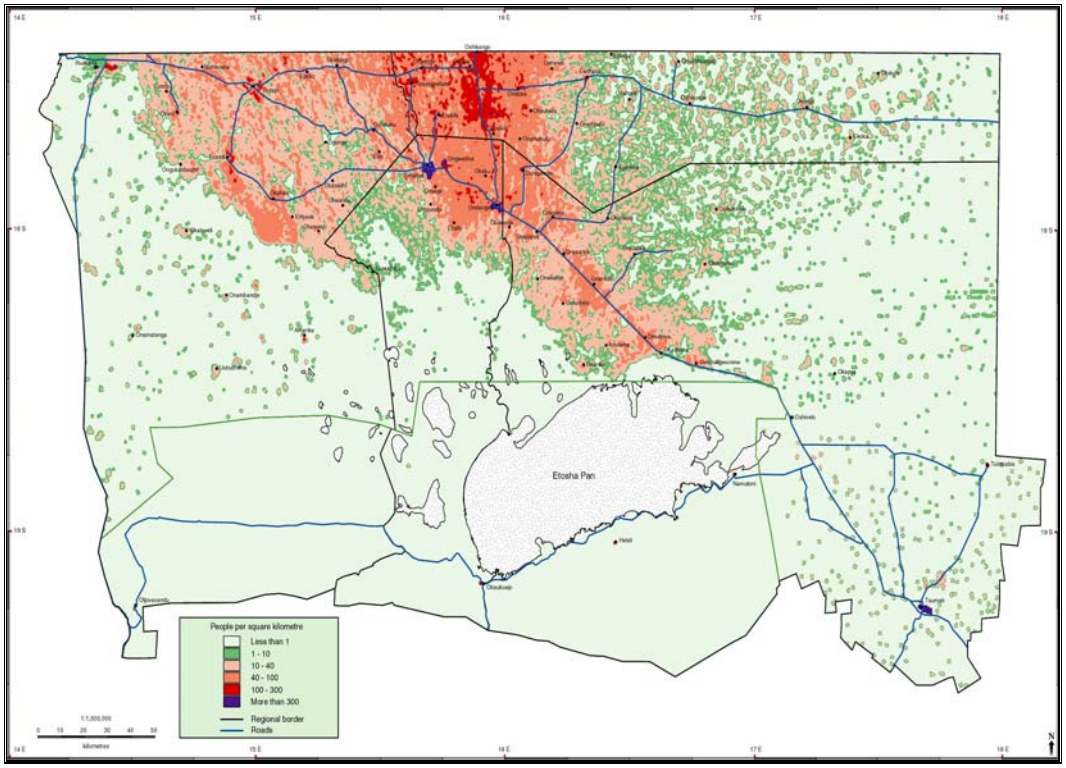


Figure 3: Population Densities in the North Central Regions

3.3 LIVELIHOOD PATTERNS

Agriculture is the main source of employment and livelihoods for the population in the region. Of the 38,204 households in the region, about 99 per cent of them are rural households and derive their livelihood from agriculture. Therefore, agriculture's contribution to the rural livelihoods in the region is significant. For example, the 2001 Population and Housing Census report indicates that about 46 per cent of the household incomes in the region is derived from farming activities as compared to 29 per cent of household incomes at the national level (CBS, 2001).

The region's population can be categorized into different socio-economic groups. The three main household income sources are: pension, farming and salaries, which contribute between 40 and 60 per cent to the household incomes. However, wages, cash remittance, business and non-farming are also household income sources.

According to the 2001 Population and Housing Census report, 46 per cent, 16 per cent, 6 per cent, 8 per cent and 22 per cent of the household incomes were derived from farming, wages and salaries, cash remittances, business and non-farming activities and pension, respectively.

The labour force includes the employed and unemployed persons, all of whom are economically active in the region. However, it excludes those persons, who are economically inactive, i.e. those outside the labour force. These persons are grouped into seven categories: the students, homemakers, retired, old age, income recipients and the severely disabled.

In Omusati region, 37.1 per cent of the total population or 84,900 are in the labour force. Of the total labour force, 64 per cent, or 54,336, is employed, while 36 per cent, or 30, 564, is unemployed. The rate of unemployed in the region is, therefore 36 per cent as compared to that at national level of 31.1 per cent.

3.4 LIVESTOCK PRODUCTION

Omusati is home to a large number of different types of livestock. The region is well known for its large populations of livestock: cattle, goats, sheep, pigs, donkeys, poultry and horses. Table 2 below according to the Livestock Population Census in NCD for Agricultural 4 Seasons from 1996/97 to 1999/00, indicates that there were over 600, 000 livestock in 1996/97, while there were over 776, 000 livestock in 1997/98 in Omusati region. In 1998/99 and 1999/00, there were over 876,000 livestock and 729, 000 livestock, respectively in the region. These livestock are grazing on an area of about 5,332 square kilometres. Surveys conducted earlier suggest that most of the households in the region owned livestock. For the breakdown of livestock types, see table 2 below.

Table 2. Livestock Population in Omusati for Agricultural Seasons from 1996/97 to 1999/00

Season	Cattle	Goats	Sheep	Pigs	Donkeys	Poultry	Horses	Total
1996/97	113,819	265,587	16,753	18,172	35,213	179,636	92	629,272
1997/98	164,199	283,164	21,315	20,890	58,213	228,278	442	776,501
1998/99	225,610	328,577	23,172	24,494	51,059	222,376	1,611	876,899
1999/00	156,827	298,529	20,897	20,795	31,605	199,686	1,246	729,585

Source: (DVS, 2001).

In densely populated areas in the region, shortage of grazing is experienced. This explains why some households in those densely populated areas have fewer cattle and goats. Therefore, livestock farming in the region can be a risky business, mainly due to shortages of grazing.

Cattle farming is the most economically important agricultural activity in the region. Cattle provide meat, milk and manure. As a culture, they are also kept as a symbol of social status. Despite a slight increase in off-take after the introduction of a national price system, providing for equal prices in the north to those south of the Veterinary Cordon Fence in the mid-1990s, the off-take is well below what is recommended, and marketing through formal channels is minimal. This is partly because of the high costs of marketing, which requires prolonged quarantining, and the high transport costs involved. Significant importation of cattle from Angola takes place. Other livestock include goats, donkeys, poultry and pigs. Recently, a few local auction pens such as at Oshaambelo, Okahao, Onesi, Outapi and Ruacana have been constructed in the region. Cattle are sold at these local auction pens.

3.5 CROP PRODUCTION

High rainfall in good years enables farmers to practise mixed farming, i.e. crop and livestock farming. Both crop and livestock make significant contributions to the total household incomes in the region. The principal grain crops grown are pearl millet, locally known as *"mahangu"* and sorghum.

The Omusati is predominantly a "*mahangu"-producing* region. While about 90 percent of all cultivated land is used for mahangu production (including improved varieties: okashana-1, kangara), sorghum (macia var.), cowpea, groundnuts, Bambara nuts, pumpkins, watermelons and pigeon peas are also grown.

Table 3 below shows the estimated total area cultivated mainly to small grains over the last eight seasons in the region, as well as average annual yields, and consequently total harvests. Agricultural extension officials estimated these figures following field observation during the production season. The great variation from season to season, primarily due to rainfall variation as noted above, is very noticeable.

Table 3. Pearl millet and Sorghum Production in Omusati region

Production Season	Area Planted (`000 ha)	Kg/ha	Yield (`000 mt)
1994/95	90.0	90	8.1
1995/96	72.0	250	18.0
1996/97	91.8	350	32.1
1997/98	64.3	140	9.0
1998/99	64.2	150	9.6
1999/00	78.0	185	14.4
2000/01	70.3	295	20.7
2001/02	60.0	140	8.4
2002/03	73.4	170	12.5

Source: Namibia Early Warning and Food Information Unit, 2003

Located some 45 kilometres west of Outapi town is the Etunda Irrigation Project. The project started in 1994 with 30 settler farmers, but this number has now grown to 91 farmers. The settler farmers went through training, after which they are now classified as commercial farmers, growing maize, tomatoes, watermelons and other vegetables on 3 hectare plots on the project. The project uses water for irrigation from the Calueque Dam in Angola, which feeds into the Olushandja Dam in Namibia. The Etunda Project is very productive, supplying the local markets with fresh vegetables and green maize around the urban centres such as Outapi. The farmers who settled there make reasonable incomes of over N$ 16,000 per harvest, after production costs (Ndeutapo, et al.1996: "Etunda Irrigation Project Report, 1996.")

Recently, a number of small horticultural projects have sprung up in the region. These are to be found along the Etaka Dam, into which the Cuvelai system feeds.

3.6 FOOD SECURITY

Food security, which is achieved when people have reliable access to the safe and nutritious food necessary to lead an active and productive life, is, according to the government, the most basic and essential human right. It reflects levels of poverty and is mainly determined by access to productive resources and income earning opportunities.

In good rainfall years, the region as a whole fares well, without requiring any food assistance from elsewhere. However, in recent years, the region has experienced below normal average annual rainfall. Drought has become a recurrent phenomenon. As a result, agricultural production has decreased dramatically. The drought of two consecutive years of 2001/02 and 2002/03 has affected many people in the region, particularly the resource poor, who have no access to off-farm incomes. A significant percentage of households have to rely on government drought relief program for their survival.

Most of the farmers in the region are women, due to cultural practices and the system of migrant labour to the south. Seasonal food shortage and nutritional inadequacy associated with recurrent drought is a serious problem, particularly among the most vulnerable groups

Household and individual food insecurity is a chronic problem amongst the region's poor. The 1993/94 Household Income and Expenditure Survey report revealed that 40.1 per cent of households spent more than 60 per cent of their total income (in cash and kind) on food. This is a generally accepted indicator of poverty. Further, 9.0 per cent of the region's households spend more than 80 per cent of their income on food (CSO, 1996).

A 1994 survey of the Ombalantu area estimated that some 57 per cent of all households lived below the poverty line (van Rooy et al, 1994). These are mainly female-headed households, the elderly and those with limited access to outside sources of income and high dependency ratios. In urban areas those most vulnerable to food insecurity are the unskilled, the unemployed and again female headed households with high dependency rations.

Food crises result from sudden events such as drought, pest and disease outbreaks, unemployment, children's diseases, malaria and HIV/AIDS, or due to gradual processes such as population growth, deforestation, and range degradation. The HIV/AIDS pandemic is now widely recognised to be the single greatest challenge to household food security nationally (SIAPAC. 1999).

4 AGRICULTURAL EXTENSION SERVICES IN OMUSATI REGION

The overall objective of the Ministry of Agriculture, Water and Rural Development is to bring about the continued growth in agricultural incomes, across the broadest possible socio-economic bases, in a sustainable manner. With the advent of independence in 1990, the Directorate of Extension and Engineering Services (DEES) in the Ministry of Agriculture, Water and Rural Development (MAWRD) was created. Its main objective is to improve the level of household food security, through increased agricultural productivity in the region by means of rendering extension services to all farmers.

The DEES's immediate objective is to provide agricultural extension services to all farmers: the poor, the youth and women and those who are socially marginalized. The aim is to disseminate information on relevant agricultural technologies and farming practices to all the farmers in the region. However, resource constraints mean that only limited number of farmers would be reached directly.

4.1 MISSION AND STRATEGY

In order to carry all its duties more effectively, in 2002 the Directorate adopted a logical framework, which is a tool that links long term policies and plans (e.g. Second National Development Plan [NDP2]) with short-term plans (e.g. Annual Work Plan and Budgets) and which sets out what should be monitored and evaluated. Within this logframe the Directorate has set out its goal and purpose, and defined the outputs as well as the main activities that have to be carried out to achieve the set objectives of the Ministry at large. The core of this logframe is presented below.

4.1.1. EXTENSION LOGICAL FRAMEWORK

The goal of the Omusati region is the improvement of household food security, which would be extended also to national level.

4.1.2. PURPOSE

Farmers have achieved increased and sustainable agriculture production and increased incomes derived from agriculture.

4.1.3. FIVE OUTPUTS

1. Improve the agriculture technology and practice options that are available to the farmers.
2. Relevant staff and farm support information is available in the region.
3. Develop the human resources in the agricultural sector.
4. The agricultural institutions and organizations are strengthened towards improved service delivery.
5. Co-operation between partner organisations is improved.

4.1.4. EIGHT MAIN ACTIVITIES

Main activities for Output **1**

- Continuously develop technologies and related information and disseminate.

Main activities for Output **2**

- Inform farmers on agriculture-related policy issues, input and product markets, and complementary service provision and on related value added opportunities, and complementary off-farm livelihood opportunities

Main activities for Output **3**

- Farmer training in technical, management and facilitation skills
- Staff of DEES and partners training in technical, management and facilitation skills

Main activities for Output **4**

- Facilitate CBO formation, provide training in technical and management skills and support CBO projects
- Management information systems
- Efficient use of personnel, financial, logistical, infrastructure and material resources

Main activities for Output **5**

- Information sharing, joint planning and co-ordinations, joint-planning and collaboration

Table 4.1.1 Logical Framework

GOAL	
Improve food security at household and national levels	
PURPOSE	
Farmers have achieved increased and sustainable agriculture production and increased incomes derived from agriculture	
OUTPUTS	**ACTIVITIES**
1.Improved agricultural technologies and practice options are available to the farmers.	▪ Continuously develop technologies and related information and disseminate.
2.Relevant farmer support information is available	• Inform farmers on agriculture-related policy issues, input and product markets, and complementary service provision and on related value added opportunities, and complementary off-farm livelihood opportunities
3.Human Resources in the agricultural sector are developed.	• Farmer training in technical, management and facilitation skills • Staff of DEES and partners training in technical, management and facilitation skills
4. Agricultural institutions and organizations are strengthened towards improved service delivery	• Facilitate CBO formation, provide training in technical and management skills and support CBO projects • Management information systems • Efficient use of personnel, financial, logistical, infrastructure and material resources
5. Co-operation between partner organizations is improved	• Information sharing, joint planning and co-ordinations, joint-planning and collaboration

4.2 KEY EXTENSION APPROACHES

Extension services make contact with farmers mainly through groups of farmers rather than individuals. Agricultural Extension Technicians (AETs) are expected to form 4 to 6 Farmer Extension and Development (FED) groups each. A FED group may consist of 20 to 25 farmers. The FEDs are exclusively formed to receive agricultural extension services. Besides establishing the FEDs, Focus Communities (FCs) are also formed. These are formed to carry out more intensive farming systems research and extension (FSRE) tests and trials. Tests and trials concentrate on technology dissemination to local conditions, before the information is disseminated. There are some 68 FED groups, 20 Focus Communities and 6 CBOs active in Omusati region, which are the main contact points for extension services.

To enable farmers to carry out their activities with confidence, extension conducts farmers training courses on various agricultural issues. This includes the on-farm demonstrations, leadership skills training and courses on crop production and animal husbandry. Farmers also attend agricultural shows and fairs and are also taken to exposure tours (for example, to Zimbabwe in 2002).

The Chief AET, who is the immediate supervisor for the AETs in the region, ensures that the FED groups are formed, information on relevant technologies is provided and advisory services are rendered to farmers.

One important approach used in working with FEDs and FCs is Participatory Rural Appraisal (PRA), where the farmers together with the AETs determine the farmers' needs and possible areas for extension interventions. Coverage and effectiveness of the extension services have dramatically improved recently.

4.3 DEES POST ESTABLISHMCENT IN THE REGION

The Chief Agricultural Extension Officer (CAEO) is in charge of all the extension operations in the region. One Chief Agricultural Extension Technician (CAET) and three Agricultural Extension Officers (AEOs), based at Outapi, support the CAEO. The other supportive staff members are the 3 Clerical Assistants, based at Outapi, Okahao and Onesi ADCs, respectively.

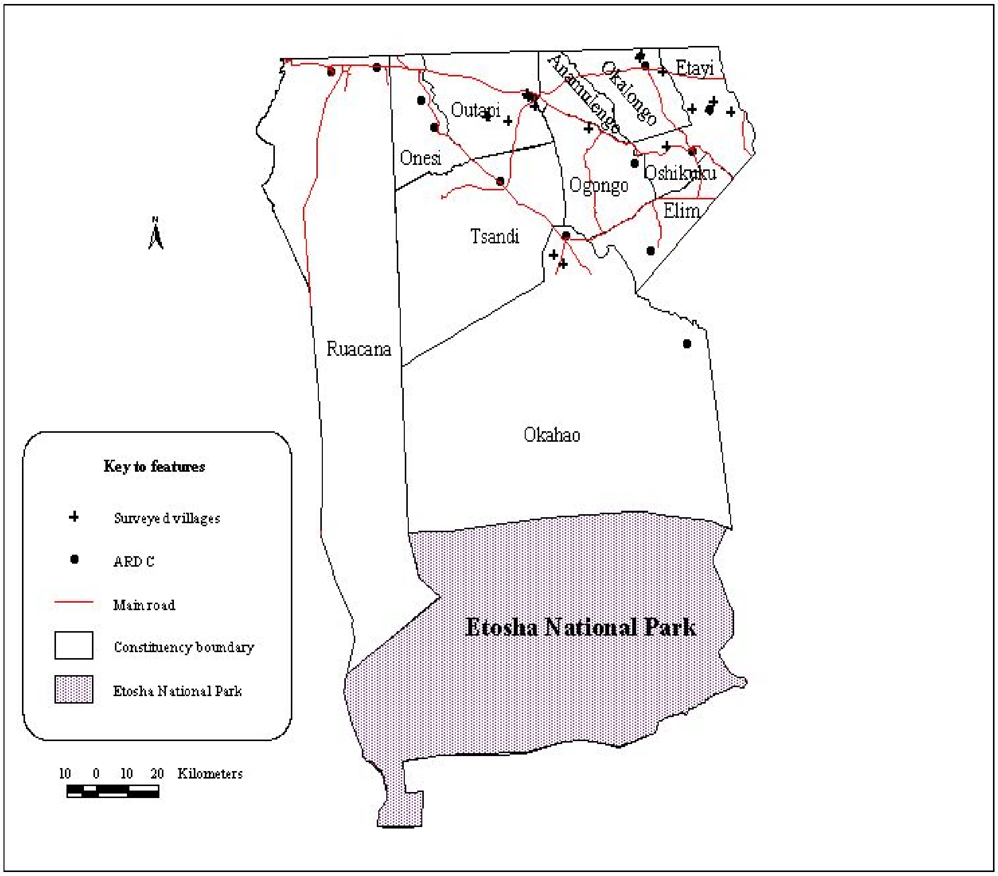
Currently, there are 12 ADCs in the region (see table 4.4). This means that one ADC serves each of the 12 constituencies. Each centre is managed by one or two AETs. The AETs serve the constituency in which the ADC is located. Presciently, there are 17 AETs in the region, with 3 more AET posts not filled.

There are 102 FED groups in the region. Only 68 FED groups are active, while 34 are not active. A FED group may be comprised of an average of 15 farmers or so. Therefore, the 17 AETs focus their attention on a total of 1,020 (68 x 15) farmers in the region. This clearly indicates that only very limited number of 1,020 farming households out of 38,202 farming households (see section 3.2), or less than 3 per cent, have close contact with extension. In practice, extension does not only contact these farmers; contacts are made with others through a wide range of activities. Overall the region's AET post to farming household ratio is 1:1,910 (20 AET posts: 38,202 farming households).

It is the mandate of the extension service to serve all farmers. But while the demand for extension service among farmers is high, the supply of the service is limited. This is due to limited resources of the ministry, for which many directorates compete.

4.4 ARDCs/ADCs

Figure 5: Map showing the location of ARDCs / ADCs in Omusati region, 2003



There are one Agricultural and Rural Development Centre (ARDC) and 12 Agricultural Development Centre (ADC) in Omusati region. The ARDC, located at Outapi, is the head office for the region. One ADC, serving Outapi constituency is also located at Outapi centre. The ADCs are located in almost all 11 constituencies (see figure 5). The ARDC and ADCs differ in that there are more supportive staff members at an ARDC than there are at an ADC. For instance, there are 3 AEOs, a CAET and a Clerical Assistant based at the ARDC. Normally, an ADC might be manned by one or two AETs. See also the table on the following page.

Table 4. 4 ARDCs and ADCs in Omusati region

ARDC/ADC	Constituency
Outapi ARDC	Outapi (for Omusati)
Outapi ADC	Outapi and Anamulenge
Okahao ADC	Okahao
Onkani ADC	Okahao
Tsandi ADC	Tsandi
Onesi ADC	Onesi
Eunda ADC	Onesi
Ogongo ADC	Ogongo
Oshikuku ADC	Oshikuku
Onaanda ADC	Elim
Etayi ADC	Etayi
Okalongo ADC	Okalongo
Ruacana ADC	Ruacana

4.5 OPERATIONAL EQUIPMENT

While there are shortages of equipment at all sub-centres, the Head office at Outapi is moderately well equipped with modern computer software. The centre is connected to both to e-mail and Internet. It is linked to the head office in Windhoek as well as with the divisional head office in Ongwediva.

As is a general experience in other north central regions, almost all sub-centres are not equipped with computers, except for Okahao ADC which has one old computer. At least one vehicle is allocated to each ADC for field operations. Almost all the ADCs have a telephone installed, while one fax machine is located at the Outapi centre only.

4.6 DONOR PROJECTS

In the early 1990s, a few donor funded projects responded to the government of Namibian for assistance and joined the MAWRD in its development efforts. Notably, the Northern Regions Livestock Development Programme (NOLIDEP) joined the DEES, operating in the northern regions and the south of the country. NOLIDEP is operated in terms of a loan agreement between the International Fund for Agricultural Development (IFAD) and the Government of Namibia. The European Union (EU) countries, such France, Denmark Luxemburg and Belgium funded almost all donor funded projects. This includes the Northern Namibia Rural Development Program (NNRDP), Rural Development Support Programme (RDSP), Northern Regions Extension and Epidemiological Support Program (NOREESP), and Rural Extension Management Programme (REMP). Except for the Namibian Agricultural Support Services Programme (NASSP), all other donor funded projects are due to be completed during 2004.

4.7 MAIN COLLABORATORS

Besides collaborating with other directorates in the MAWRD, such as the Directorates of Planning (DoP), Research and Training, (DART), Veterinary Services (DVS) and Rural Water Supply (DRWS), the DEES in the region collaborates closely with several other line ministries, the Regional Council, farmers unions and other Non-governmental Organizations (NGOs).

In many cases the DEES in the region shares its infrastructure such as offices, meeting and training halls with DVS and DART. This is particularly true when other directorates wish to conduct training at the centre. The DEES and the Ministry of Health and Social Services (MoHSS) have jointly organized and conducted a number of workshops on HIV/AIDS. Extension staff members are usually referred to hospital records, when they want to check on the current status of HIV/AIDS in the region. Our staff may at times invite the DVS staff to their meeting with FED group farmers to respond to questions pertaining to animal diseases.

5 SURVEY METHOD

This is a report on a baseline survey designed to investigate selected indicators of extension impact during the 2002/03 farming season. Baseline findings may be used to draw up impact indicators for the NDP2 period. It is intended to repeat this survey after the 2006/07 season to gauge changes over the period between the baseline survey and the final survey. This period coincides with the span of NDP2, which is the basic planning timeframe of the extension service. It should then be possible to see whether the indicators have been achieved or otherwise.

Comment: So how come it is called a baseline survey?

5.1 RATIONALE

It is intended that baseline and impact questionnaire surveys should be conducted to contribute to the monitoring and evaluation of impact of the extension services. The impact of the extension services needs to be monitored and evaluated firstly to assist managers to improve the effectiveness of their extension strategies. Secondly, evidence needs to be provided to planners as well as funders concerning the cost effectiveness of investing in extension services.

Our collaborators, as well as the Namibian public at large, have made calls for the assessment of the impact of agricultural extension service. These concerns are partly because the results of the work the DEES produces are not always as visible as those produced by other services, for example those of education, health, or transport and communication, where examination results, hospital records and roads, respectively, are visibly seen. Therefore, people outside the DEES are some times sceptical as to whether or not agricultural extension services produce results and are therefore worthy of funding. As competition for government funding resources increases, we need to assess and find out whether what we are doing is worthy of support by government.

All in all, we need to monitor and evaluate the impact of extension services to see if all the efforts that extension is making are bearing fruit.

5.2 SURVEY OBJECTIVES

The objectives of the survey were to establish a baseline, from which changes in farmer knowledge, farming practices and behaviour could be measured. Changes in these aspects are amongst the main indicators of the achievement of the DEES's outputs and purpose (see logframe, section 4.1). Once the baseline has been established, we could investigate the extent of the impact of the extension services on the communal farmers from here onwards. Other indicators to look at include the level of contact between farmers and the extension agents, and the consequent extent of agricultural technology awareness and adoption by farmers. The survey is intended to set the stage from which to focus on the degree to which selected crop and animal husbandry practice has been carried out, such as adopting new seed varieties, row planting, use of draught animal power (DAP), use of weeding cultivator and the use of fertiliser.

5.3 QUESTIONNAIRE DEVELOPMENT

This survey has employed a closed questionnaire to gather information from farmers. The questionnaire is presented in Annexure 1 of this report. It is closed in the sense that all answers options are given, and the enumerators simply have to mark the appropriate pre-coded answer. This makes objective and accurate analysis easier. The questionnaire was drawn up by the regional DEES staff members responsible for the survey. The questionnaires used in all the different regions of the country had a common structure, but questions were designed to reflect the specific farming systems and extension services rendered in each region. In the case of southern Omusati region, the questionnaire was drawn up together with colleagues working in the other north central region, because of the similarities that exist in terms of farming systems and consequently extension services in these two areas. The questionnaire was drawn up at two workshops with a process of field pre-testing and consultation with regional extension teams in between.

5.4 SAMPLE SELECTION

The term "sample" needs to be defined here, as it will be used throughout this report. A sample is a part of population (217 respondents in the case of Omusati region), selected in the belief that it will be a representative of the whole population.

The sample selection was based on a preliminary stratification according to broadly defined farming systems in the region. The region was divided into three farming systems areas based mainly on the following characteristics: rainfall; soil type; population density; main farming activities (cropping, livestock rearing); and farm size. The three farming system areas (FS) that were distinguished were:

Western (FS1)
The framing system consists of Ruacana and Onesi Constituencies (with a total number of 4,510 households). The rainfall is generally good in this area. Soil structure is characteristic of hilly and rocky country on the Ruacana part, while Onesi part is flat, with sand veld and loamy soils. Farm size is medium of 2-3 hectares (ha) per household. A few small and large stock are kept inland, but large number of livestock are moved to cattle posts during dry seasons. Human population density is high in Onesi, but low in Ruacana.

North East Central (FS2)
This farming system is made up of Outapi, Ogongo, Okalongo, Etayi and Oshikuku Constituencies (with a total number of 24,362 households). Rainfall is general moderate and relatively homogeneous. Soil structure is a mixture of loamy, clayish, sandy and characterised by water *pans* and *Oshanas*. Population density is the highest in the region. Farm size is medium of 2-3 hectares (ha) per household. All cattle are moved to cattle posts in FS3. The number of livestock is low. Agro forestry is insignificant in this farming system area. Water canal runs from Calueque, along the Ruacana to Oshakati main road.

South (FS3)
Okahao and Tsandi Constituencies (with a total number of 9, 614 households), make up this farming system. Rainfall is high. Soil structure ranges from loamy, clayish to sand veld. Population density is low with high concentration in the urban areas, but gets thinner as one proceeds to the south proper. The inland south is a crop area with the farm size of 2-3 ha per household. The south proper is a cattle post area, with high populations of livestock dominating and with numerous cattle posts.

Hence:
- Western - FS1- contains approximately 12% of the region's farming households;
- North East Central - FS2 - contains approximately 63% of the region's farming households;
- South - FS3 - contains approximately 25% of the region's farming households;

For reasons of logistics and timing it was planned to complete a total number of 216 questionnaires in Omusati region. These were allocated to the defined farming systems areas as follows:

FS1 = 26 to be selected from 2 communities
FS2 = 136 to be selected from 6 communities
FS3 = 54 to be selected from 4 communities

All the communities in each Farming Systems Area were listed in two groups on the basis of a second stratification according to whether the community hosted a Farmer Extension and Development (FED) group or not (see below). Within each group communities were randomly selected. To select the households in each of the above communities, systematic sampling method was used. Farming households were listed and given a number: 1, 2, 3…26. Then they were selected at regular intervals, i.e., each 4th household was picked. This enabled each household to have an equal opportunity to be picked. In the event the number of households selected per Constituency was as follows.

Table 1 (a): Survey Constituencies

FS & ADC	Frequency	Percentage of Households
FS1 – Ruacana	12	5.5
FS2 – Okahao	53	24.4
FS3 – Ogongo	24	11.1
FS3 – Okalongo	28	12.9
FS3 – Outapi	51	23.5
FS3 – Oshikuku	25	11.5
FS3 – Etayi	24	11.1
Total	**217**	**100.0**

Stratification according to FED group and Non-FED group communities

The aim of stratifying according to whether a community hosts a FED group or not was to enable comparisons to be made between those farmers who were members of FED groups and those who were not. The aim was to select approximately 50% of the respondents who were FED group members and 50% who were not (referred to in this report as non-FED group farmers).

This was done in order to test the hypothesis that farmers who are in FED groups have responded better to extension information and advice (in terms of their knowledge, attitudes and adoption of technology and practices recommended by extension) than those who were not. This is of interest because the extension strategy in the region involves concentrating considerable support on FED groups. If we find that results are better for FED group members and the areas in which they are active, this provides evidence that the group strategy is effective. Non-group farmers and their areas can be said to act as a 'control' group, who have received relatively little or no direct support.

Villages Covered In The Survey Area

Ruacana (Fs1): **2 Villages**

Okamboola
Otjetjekua

Outapi, Ogongo (FS2):7 villages

Omhakoya
Omatelekelo
Onehani/Oikango
Onakyendjelele
Omukoko
Ohamblanganga
Ombadjele

Okalongo (FS2): 3 villages

Onandjaba 1
Onambome
Ongolo

Etayi (FS2): 5 villages

Etayi
Okahenge
Oklyafengwa
Onelombo
Omutaku

Oshikuku (FS2): 3 villages

Otshikutjatjipya
Epumbu
Oshipanda

Okahao (FS3): 6 villages

Epumbu
Okangala
Otjimanya
Okalili
Oluteyi
Olupumbu

A total of 26 villages

All the FED and non-FED group farmers visited lived in the villages listed.

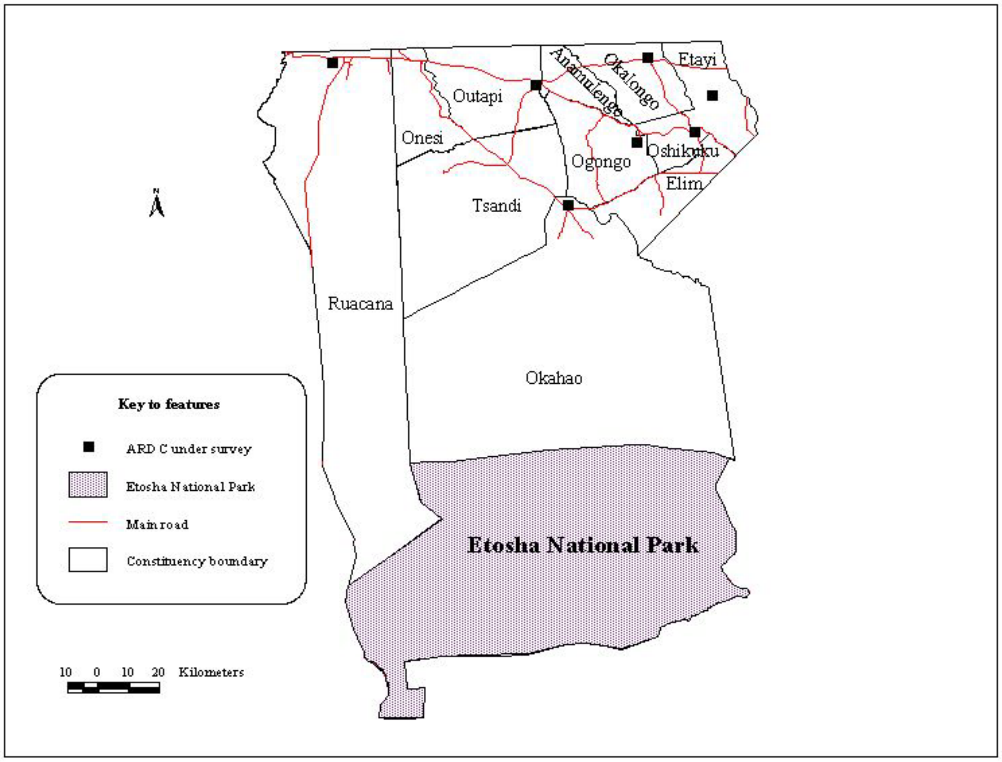
5.5 PREPARATION FOR FIELD IMPLEMENTATION

Before recruiting the enumerators, the post of FOUR enumerators was advertised by displaying it at Outapi agricultural centre and at the Regional Council. This advertisement was also aired on the Namibian Broadcasting Corporation (NBC) Oshiwambo Radio Service.

Requirements for candidates included *inter alia:* (i) being in possession of National Identification document, (ii) Grade 12 (Std 10) with previous experience in agricultural surveys or other surveys or (iii) being a holder of a National Diploma in Agriculture. The Interviews consisted of two parts: the oral and the written. The interviews panel was comprised of the two regional survey officials and one local senior AET.

Some 16 prospective candidates applied for the post of Impact Assessment Survey enumerator. All 16 candidates were interviewed on 29 April 2003 at 10:00 a.m. at Outapi Centre. The best four people, all young females were selected and recruited as enumerators for the period of 10 working days. The enumerators received one day of intensive training at Outapi centre on how to administer the questionnaires to the respondents.

Figure 6: Map showing regional constituencies and the seven ADCs covered surveyed.



To facilitate the enumerators' fieldwork and make it easier, the local AETs were requested to liaise first with the Regional Councillors before the fieldwork started.

The questionnaire implementation took place from 7 - 17 May, 2003. On average, each interview session took from 25 to 30 minutes, with at least 22 questionnaires being completed per day.

5.6 QUESTIONNAIRE IMPLEMENTATION:

The questionnaires were applied by experienced enumerators selected from amongst unemployed Diplomates in Agriculture within the region. The enumerators received one day of intensive training. The enumerators were driven to the farmers by the extension staff – but extension staff members were not present during the interviews and efforts were made to explain to the farmers that the information they gave would be treated confidentially. For example, farmers were not asked to give their names. The survey took a total of nine days in May 2003. The total number of kilometres used was 4,363 at a total cost of N$ 10,034.90.

5.7 DATA ANALYSIS

Data entry and analysis was undertaken in Windhoek by contracted services. Questionnaires were inspected for errors, e.g. for double responses, omissions, unanswered questions and general completeness prior to data entry, and where necessary the corrections were made. Coding of responses for some questions that were not pre-coded was done.

Trained data entry assistants transferred the data from the questionnaires into Microsoft Excel. Data analysis was done using Statistical Package for Social Sciences (SPSS) software. The data was transferred from Excel to the SPSS templates. This involved matching the cases and variables from Excel with those defined in SPSS data file. Using SPSS, the initial frequency tables covering all the defined variables per region were generated. These frequency tables were checked for errors, by inspecting values in each column against the codes for each response in the SPSS data file, and tracing the error to the specific source questionnaire. The necessary corrections were made to the data file based on information found on the questionnaire.

The corrected data set was used to generate preliminary frequency tables for all variables for the region and these tables were circulated to Region Survey Officials for review and comments during a two-day workshop. The Regional Survey Officials provided clarity on some errors in particular omissions/ unanswered questions and inconsistencies based on their knowledge of extension in their regions. After the workshop, the comments from regional officials were used in making final corrections to the data set.

Final frequencies and cross-tabulations were established on the data, and where applicable multivariate analysis was conducted. In addition, appropriate graphics in the form of simple bar graphs, clustered bar graphs and pie charts for selected variables or survey questions were generated to complement the findings presented in the final tables.

The final tables and graphics were scent back to the regions, together with the completed questionnaires, so that report preparation could be completed.

PART THREE

6 SURVEY FINDINGS

Percentages presented in this section are calculated based on valid responses and exclude missing data. The total sample size was 217 (see section 5.4 for sample definition).

6.1 FARMER TYPE

As already noted in section 5, the sample of the regional population that the questionnaire was applied to was selected randomly, further to stratification according to broadly defined farming systems areas and FED group membership or otherwise.

This section of the report presents information on important characteristics indicating the types of farmers, which comprise the sample. These questions are asked as a check on the how representative the sample is, and in some instances to learn more about the farmers.

The information presented below should help us to judge the extent to which the sample was in fact representative of the entire farming community in the region. Based on our previous knowledge of farmers in the region, it can be concluded that the randomly selected sample as a whole was indeed reasonably representative. In addition, it will be important to ensure that, when the impact survey is conducted (planned for 2006/07), the sample then selected displays similar characteristics.

If it were found that the characteristics of the farmers, as sampled in either the baseline or the impact survey to follow, were significantly different from those of community as a whole (i.e. were not representative) or from each other, this could compromise the findings of the survey related to extension - farmer contact (see section 6.2) and extension impact (see section 6.3). This is because responses to questions on indicators of extension – farmer contact and of extension impact may be influenced by the characteristics of the farmers, as below. For instance, if the farmers sampled all lived less than 5 kilometres from the ADC, one could say this is not representative of the whole region's population. Further, it is obvious, that one would expect this to have an influence on extension – farmer contact and impact. Likewise, to a greater or lesser extent, with all the characteristics reported on before.

As noted in section 5.4, the sample of farmers selected was stratified according to broadly defined farming systems areas and whether they were FED group members or not. The latter stratification was done to test the hypothesis that farmers who are in FED groups have responded better to extension information and advice (in terms of their knowledge, attitudes and adoption of technology and practices recommended by extension) than those who were not.

To do this we first need to cross tabulate the results of our questions on FED group membership with the results of all the questions in section A on farmer type. We would hope that we could say from the comparison of farmer type indicators that both sets of farmers ("group" and "non-group") are basically the same type of farmers (e.g. the frequency of responses in the two different groups is reasonably similar). In the event this seems to be more or less the case.

We should then be in a position to say that differences in terms of contact and impact indicators (in sections B and C) are likely to be due to the variable we are looking at (e.g. participation in FED group or residence in FED group area) rather than any other intrinsic difference related to farmer type.

The number of farmer respondents who stated that they were members of a FED group is shown in Table 1., below.

Table 1: FED Groups and non-FED Group members

FED Group Member	Frequency	Percent
FED Member: Yes	87	40.1
Non-FED Member: No	130	59.9
Total	217	100.0

6.1.1 Distance from Agricultural Development Centre (ADC)

Table 2: Distance from the Nearest ADC

Variable	Category	FED Group Member		Total
		Yes	No	
Distance from ADC	< 5Km	29.9%	30.0%	30.0%
	6-10Km	46.0%	55.4%	51.6%
	11-20Km	24.1%	12.3%	17.1%
	> 20Km		2.3%	1.4%

Table 2 shows that out of the total sample, 30 per cent of respondents lived less than 5 km from the nearest ADC, 51.6 per cent lived between 6 and 10 km from the ADC, while 17.1 per cent lived between 11 and 20 km from the ADC, and only 1.4 per cent lived more than 20 km from the ADC.

Comparing the farmers who were in FED groups and those who were not, both follow similar patterns. In both cases, for example, 29.9 per cent of those in FED group lived less than 5 km from the ADC, whereas 30 per cent of those who were not lived less than 5 km from the ADC. 46 per cent of those who were in FED groups lived 6-10 km from the ADC and 55.4 per cent of those who were not, lived between 6-10 km from the ADC. The situation is reversed in the 11-20 km category, where the percentage of those in FED groups was greater, 24 per cent, while only 12 per cent of those who were not in FED groups lived between 11-20 km the ADC.

The differences between those who are FED group members and those who are not members are judged not significant enough to influence any differences in extension impact on farmers in the two groups (as discussed in sections 5.4 and 6.1).

Table 19 suggests a relationship between distance of farmers location from the ADC and farmers knowledge of local AET. The closer to the ADC the more people knew the AET and adopted new technologies. The further from the ADC, the fewer the number of people who knew the AET.

6.1.2 Selected Farmer Type Characteristics

Table 3: Sex of Respondent

Variable	Category	FED Group Member		Total
		Yes	No	
Sex of respondent	Male	40.2%	23.1%	30.0%
	Female	59.8%	76.9%	70.0%

Table 3 indicates that overall 30 per cent of respondents were males, whereas 70 per cent were females. A similar situation is found when comparing those in FED groups and those who were not, with 40 per cent of those in FED groups and 23 per cent of those non-FED groups being males. The percentage of female respondents in both cases was higher, 60 per cent in FED groups and 77 per cent in non-FED groups, respectively. Experience in the area has shown that very often men are away from home for certain reasons.

6.1.3 Age of respondent

Table 4: Age of respondent

Variable	Category	FED Group Member		Total
		Yes	No	
Age of respondent	18-30	11.5%	27.7%	21.2%
	31-43	17.2%	14.6%	15.7%
	44-56	14.9%	23.1%	19.8%
	>56	56.3%	34.6%	43.3%

In Table 4, the overall situation revealed is that more respondents tended to be 56 years of age. For instance, 43 per cent of respondents were over 56 years, about 20 per cent between 44-56 years old, 16 per cent between 31-43 years old and 21 per cent those between 18-30 years old.

Comparison of those in FED group with those who were not shows the same patterns in both cases. For example, 56 per cent of those who were in FED groups were over 56 years old, while 34.6 per cent of the non-FED groups were over 56 years old. About 15 per cent of FED and 23 per cent of non-FED farmers were between 44-56 years old and 17 per cent of FED and 14.6 per cent of non-FED farmers were between 31-43 years old. About 11.5 per cent of FED and 27.7 per cent of non-FED farmers were between 18-30 years old.

The findings demonstrate that in more cases the respondents were aged between 31-55 years and over 56 years. In real life, older people tend to be home, while younger people tend to be away from home for various reasons. Therefore, overall, a greater percentage is of respondents were older than 56 years in both the FED and non-FED groups.

6.1.4 Respondent as Household Head

Table 5: Respondent as Household Head

Variable	Category	FED Group Member		Total
		Yes	No	
Household head	Spouse		6.9%	4.1%
	Man	74.7%	46.2%	57.6%
	Woman	25.3%	46.9%	38.2%

Table 5 demonstrates that, overall, more men than women tended to be household heads, e.g. 58 per cent of respondents were male household heads and 38 per cent were female household heads.

When we compare the FED and non-FED farmers, we find similar situation in the FED and non-FED groups. For instance, 75 per cent of males in FEDs were household heads; whereas only 25 per cent of females were household heads. In the non-FED groups, the situation is reversed, with 47 per cent of women as household heads, slightly more than males, and only 46 per cent of males were household heads. This difference is not likely to influence the impact of the extension among farmers.

6.1.5 Persons in the household helping regularly with farm work

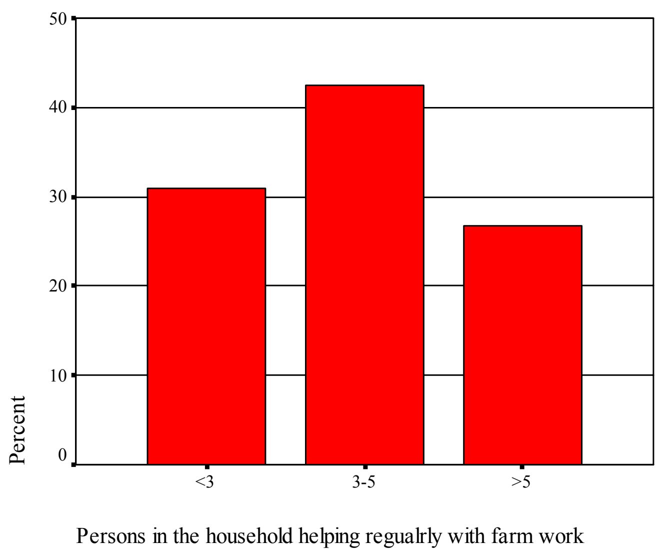
Table 6: Persons in the household helping regularly with farm work

Variable	Category	FED Group Member		Total
		Yes	No	
Persons in the household helping regularly with farm work	<3	26.4%	33.8%	30.9%
	3-5	35.6%	46.9%	42.4%
	>5	37.9%	19.2%	26.7%

Table 6 reveals that, overall, 31 per cent of respondents indicated that they had less than 3 persons helping regularly with farm work, while 42 per cent indicated that they had between 3 and 5 persons helping regularly with farm work and 27 per cent indicated that they had more than 5 persons helping regularly with farm work.

However, comparing those in FED groups and those in non-FED groups, we find that more, 47 per cent of those in non-FED groups indicated that they had between 3 and 5 persons helping regularly with farm work, while only 37 per cent of those in FED groups indicated having the same number (3-5) of persons helping with farm work. Then more of those in FED groups than in non-FED groups, 38 per cent, indicated that they had more than 5 persons helping regularly with farm work, while only 19 per cent of those in non-FED groups indicated that they had more than 5 persons helping regularly with farm work.

Figure 1: Persons helping regularly with farm work



The situatioverall is clearly represented in bar chart above. 42 per cent of respondents had between 3 and 5 persons helping regularly with farm work, while 31 per cent of respondents indicated that the had less than 3 persons helping regularly with farm work. Only 27 per cent said that they had more than 5 persons helping regularly with farm work.

The 2001 Population and Housing Census report indicates that the average size of household in the region was 5.9 persons. The number of persons in the household helping regularly with farm work influences the area planted. These differences between those in FED groups and those who were not, having less than 3, between 3 and 5 and more than 5 persons helping regularly with farm work, would influence the size of area worked on the farm. The more persons are working on the farm, the larger would be the area planted.

6.1.6 Farm Hired Labour

Figure 2: Hired labour

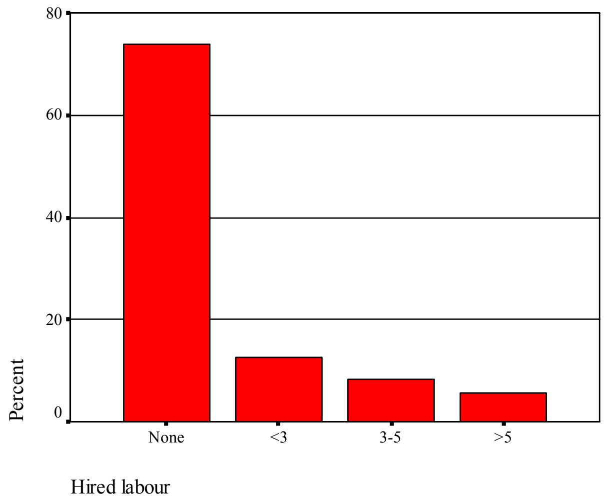


Table 7: Hired labour

Variable	Category	FED Group Member		Total
		Yes	No	
Hired labour	None	65.5%	79.2%	73.7%
	<3	14.9%	10.8%	12.4%
	3-5	13.8%	4.6%	8.3%
	>5	5.7%	5.4%	5.5%

Table 7 reveals that a greater percentage of respondents, 66 per cent and 79 per cent in FED and non-FED groups respectively, used no hired labor. Only 6 per cent in FED groups and 5 per cent in non-FED groups stated they hired more than 5 persons. Overall, 12 per cent of respondents hired less than 3 persons, 8 per cent hired between 3 and 5 and only 6 per cent hired more than 5 persons.

6.1.7 Educational levels

Table 8: Education Levels of Respondents and of the Household

Variable	Category	FED Group Member		Total
		Yes	No	
Education level of respondent	Primary	67.8%	58.5%	62.2%
	Secondary	5.7%	9.2%	7.8%
	Tertiary	3.4%	1.5%	2.3%
	No school	23.0%	30.8%	27.6%

Table 8 indicates that, overall, 62 per cent of respondents had received primary schooling, whereas about 27.6 per cent had received no primary schooling.

The same patterns are indicated when comparing the FED group farmers with those in non-FED groups, where over two-third or 68 per cent of FED farmers said they had received primary education, while 59 per cent of the non-FED farmers received primary education also.

In the secondary education category, over 5 per cent of the FED group farmers said that they had received secondary education, whereas 9 per cent of the non-FED group farmers indicated that they had also received secondary education. For a great percentage of respondents, 67.8 per cent, educational level was at primary level.

In the Secondary and Tertiary categories, the differences, 6 per cent in FEDs and 9 per cent in non-FEDs reflected more less the same characteristics in the two groups of farmers.

6.1.8 <u>Satisfaction of Basic Households Needs</u>

Figure 3: Farming satisfies basic household needs

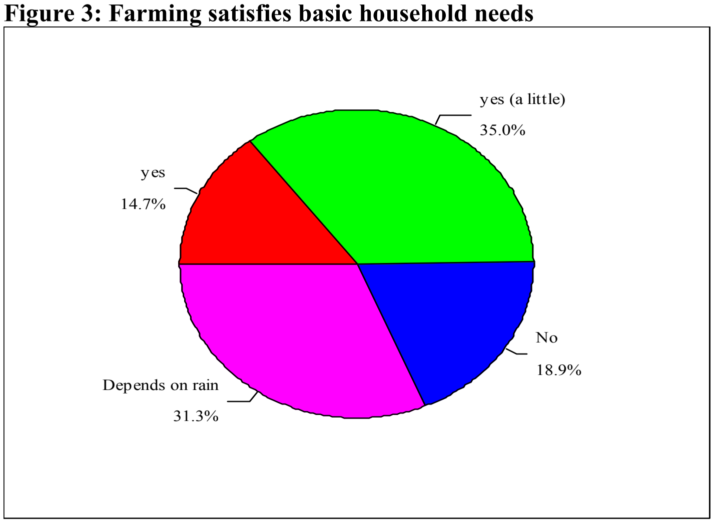


Figure 3 displays the overall picture where only 15 per cent of respondents indicated that farming satisfied their basic needs, 35 per cent said that farming satisfied their basic needs a little, while 31 per cent indicated that farming satisfied their basic needs, but it depended on rainfall. Only 19 per cent of respondents indicated that farming did not satisfy their basic needs. The reader is referred to table 9 below, which carries the same information on whether or not farming satisfied basic needs.

Table 10: Framing satisfies basic household

Variable	Category	FED Group Member		Total
		Yes	No	
Farming satisfies basic household needs	Yes	5.7%	20.8%	14.7%
	Yes (a little)	43.7%	29.2%	35.0%
	No	16.1%	20.8%	18.9%
	Depends on rain	34.5%	29.2%	31.3%

Table 10 reveals that overall, an insignificant percentage (15 per cent) of respondents indicated that farming satisfied their basic need. 19 per cent of the total indicated that farming did not satisfy their basic needs. However, 35 per cent of respondents indicated that farming satisfied their basic needs a little, while 31 per cent indicated that farming satisfied their basic needs, but it depended on rainfall.

Comparing those in FED group and those who were not, we find similar patterns in both cases. For example, 6 per cent of those in FED groups indicated that farming satisfied their basic needs, while 21 per cent of those in non-FED groups indicated that farming satisfied their basic needs. Of those in FED groups, 44 per cent indicated that farming satisfied their basic needs a little, while 29 per cent of those in non-FED groups indicated that farming satisfied their basic needs a little. There was 35 per cent of those in FED groups, who indicated that farming satisfied their basic needs, but it depended on rainfall, whereas 29 per cent of those in non-FED groups indicated that farming satisfied their basic needs, but that also depended on rainfall.

6.1.9 Livestock Ownership

Figure 4: Total number of cattle owned

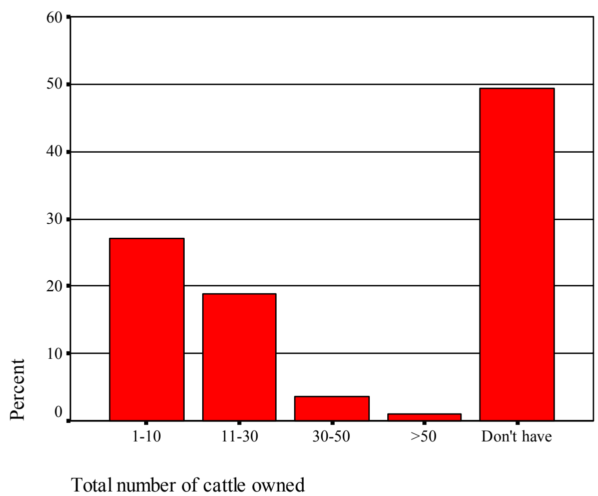


Table 12: Total number of cattle owned

Variable	Category	FED Group Member		Total
		Yes	No	
Total number of cattle owned	1-10	32.2%	23.8%	27.2%
	11-30	26.4%	13.8%	18.9%
	30-50	5.7%	2.3%	3.7%
	>50	1.1%	.8%	.9%
	Don't have	34.5%	59.2%	49.3%

Table 12 shows that overall, almost 50 per cent of respondents indicated that they did not own cattle. However, 27per cent of respondents said they owned between 1-10, while 19 per cent indicated that they owned between 11-30. Only a very small percentage (of between less than 1 per cent and 4 per cent) indicated that they owned between 30-50 and more than 50 cattle, respectively.

Comparing those in FED groups to those who were not, the patterns are similar to the overall picture. For example, the majority, 35 per cent of those in FED groups had still indicated that they owned no cattle, while almost 60 per cent of those in non-FED groups also indicated that they owned no cattle. Over 32 per cent of those in FED groups indicated that they owned between 1-10 cattle, while 24 per cent of those in non-FED indicated they owned between 1-10 cattle. About 26 per cent of those in FED groups said thy owned between 11-30 cattle, while only 14 per cent of those in non-FED groups indicated that they owned between 11-30 cattle. A small percentage in both cases, 6 per cent of those in FED groups and less than 1 per cent of those in non-FED, indicated that they owned between 30-50 cattle. Just over 1 per cent of those in FED groups and less than 1 per cent of those in non-FED groups indicated that they owned more than 50 cattle.

6.1.10 Goat Ownership

Figure 5: Total number of goats and sheep owned

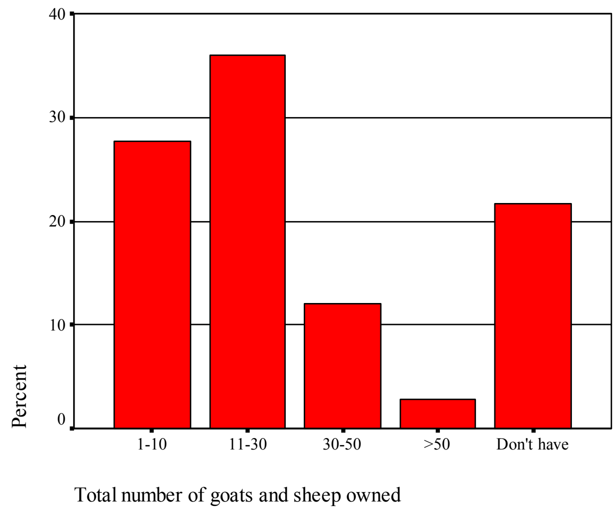


Table 13: Total number of goats and sheep owned

Variable	Category	FED Group Member		Total
		Yes	No	
Total number of goats and sheep owned	1-10	23.0%	30.8%	27.6%
	11-30	40.2%	33.1%	35.9%
	30-50	18.4%	7.7%	12.0%
	>50	5.7%	.8%	2.8%
	Don't have	12.6%	27.7%	21.7%

Table 13 reveals that overall, 36 per cent of respondents indicated that they owned between 11-30 goats. About 28 per cent of respondents indicated that they owned between 1-10 goats. Ownership of goats followed similar patterns as that of cattle. The larger the herd of livestock owned, the smaller the percentage of respondents becomes. More of those in the non-FED, 31 per cent, tended to own between 1-10 goats, while only 23 per cent of those in FED groups, tended to own between 1-10 goats. The situation is reversed with greater percentage, 40 per cent of those in FED groups indicating that that they owned between 11-30 goats, while 33 per cent of those in non-FED groups indicated that they owned between 11-30 goats.

Notably, only very low percentage between 12 and 28 per cent indicated that they did not own goats and sheep. Overall, there were a low percentage 12 per cent of respondents who indicated that they owned between 30-50 goats and sheep. Less than 30 per cent, 13 per cent of those in FED groups and 28 per cent of those in non-FED groups respectively, indicated that they did not own any goats or sheep. However, the percentage that indicated to have owned between 30-50 goats and sheep was 18 per cent of those in FED groups and 8 per cent of those in non-FED groups, respectively. About 6 per cent of those in FED groups and less than 1 per cent of those in FED groups, respectively, indicated that they owned more than 50 goats.

6.1.11 Donkey/Horse Ownership

Table 14: Donkey/Horse Ownership

Variable	Category	FED Group Member		Total
		Yes	No	
Total number of donkeys/horses owned	1-10	56.3%	47.7%	51.2%
	11-30	1.1%		.5%
	Don't have	42.5%	52.3%	48.4%

Table 14 shows that the majority of farmers both in FED and non-FED groups owned donkeys and horses in the region. For example, 56 per cent of those in FED groups owned between 1-10 donkeys and horse, while 48 per cent of those in non-FED groups owned between 1-10 donkeys and horses.

Paradoxically, if there were 32,851 donkeys and horses in 1999/00 season in Omusati region, as shown in the livestock census, everyone in the region could have a donkey or horse. However, according to the experience in the area, less than 50 per cent of respondents owned no donkey or a horse. Only 43 per cent of those in FED and 52 per cent of those in non-FED groups owned no donkeys or horse.

6.1.12 Poultry ownership

Table 15: Poultry ownership

Variable	Category	FED Group Member		Total
		Yes	No	
Total number of poultry owned	1-10	59.8%	63.8%	62.2%
	11-30	35.6%	23.1%	28.1%
	30-50	1.1%	1.5%	1.4%
	Don't have	3.4%	11.5%	8.3%

Table 14 indicates that some 36 per cent of those in FED groups indicated that they owned between 11-30 poultry, while 23 per cent of those in non-FED groups indicated that they owned between 11-30 poultry. Only 3 per cent of those in FED groups indicated that they did not own poultry, while 12 per cent of those in non-FED groups also indicated that they did not own poultry.

However, overall, a greater percentage (62 per cent) of respondents indicated that they owned between 1-10 poultry and 28 per cent said they owned between 11-30 poultry and only 8 per cent overall did not own poultry.

6.1.13 Crop area planted in 2002/03

Figure 6: Total area planted in 2002/03

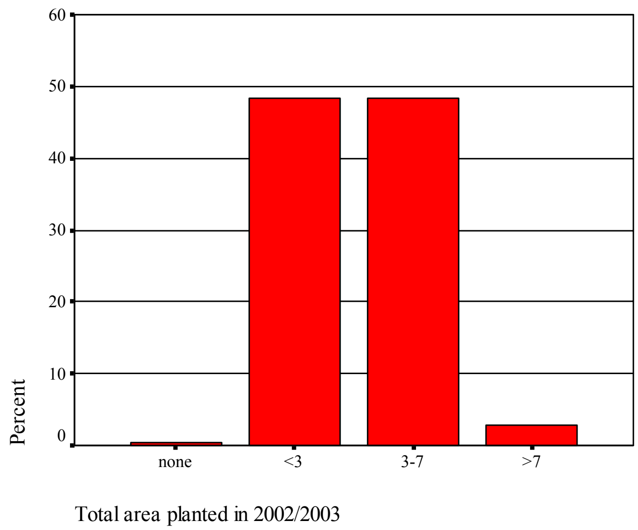


Table 16: Crop Production

Variable	Category	FED Group Member		Total
		Yes	No	
Total area planted in 2002/2003	None		.8%	.5%
	<3	32.2%	59.2%	48.4%
	3-7	65.5%	36.9%	48.4%
	>7	2.3%	3.1%	2.8%

Table 16 reveals that the majority (66 per cent) of those in FED groups planted between 3-7 hectares, while 37 per cent of those in non-FED groups planted on the same area. Indications are that more (59.2 per cent) of those in non-FED groups planted on less than 3 hectares, while only 32 per cent of those in FED groups planted on less than 3 ha. Small percentage in both cases planted on more that 7 ha.

Overall, as clearly represented in Figure 6, the greater percentages, 48.4 per cent of respondents who indicated that they planted on less than 3 ha and between 3-7 ha were the same. Only very small percentages, 2.8 per cent of respondents indicated that they planted on more than 7 ha.

6.1.14 Sources of Household Income Other Than Farming

Figure 7. Sources of household income other than farming

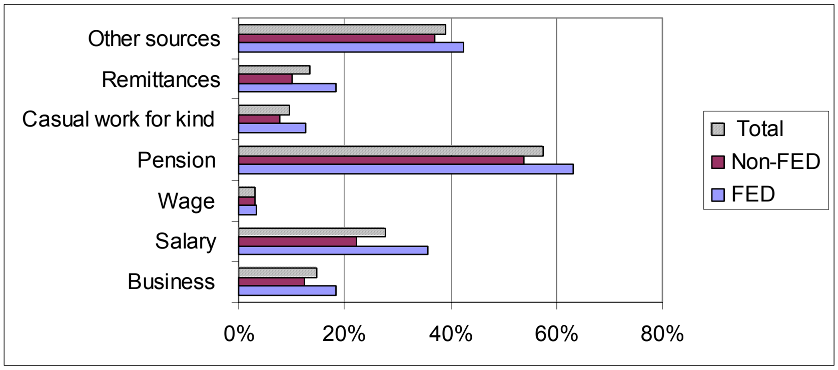


Table 17 (a): Other Income Sources -busienss

Variable	Category	FED Group Member		Total
		Yes	No	
Business	Not applicable	33.3%	30.8%	31.8%
	Yes	18.4%	12.3%	14.7%
	No	48.3%	56.9%	53.5%

Table 17 (a): shows that overall, business was not applicable to 32 per cent of respondents, but it was applicable to only 15 per cent and 54 per cent did not have any.

Comparing those in FED groups and those who were not, similar patterns in both cases are indicated. For instance, 33 per cent of those in FED groups indicated that business was not applicable; meaning it was none of the household income sources, while 31 per cent of those in non-FED groups indicated the same. Small percentage, 18 per cent of those in FED groups and 12 per cent in non-FED groups, respectively said business was a household income source.

A greater percentage in both cases, 48 per cent of FED groups and 57 per cent of those in non-FED groups said business was not any of the sources of their household incomes.

Table 17 (b): Other Income Sources - salary

Variable	Category	FED Group Member		Total
		Yes	No	
Salary	Not applicable	25.3%	25.4%	25.3%
	Yes	35.6%	22.3%	27.6%
	No	39.1%	52.3%	47.0%

Table 17 (b) indicated overall that, 47 per cent of respondents said they received no salary and only 28 per cent said they did receive salary, while salary was not applicable to 25 per cent of respondents.

When we compared those in FED groups and those who were not, we find similar patterns in both cases. For instance, 39 per cent of those in FED groups indicated that they received no salary, while 52 per cent of those in non-FED groups said the same. About 36 per cent of those in FED groups and 22 per cent in non-FED groups, respectively said they received salary. Only

25 per cent of both FED and non-FED farmers said salary was not a source of their household income.

We find that a greater percentage in both cases, 39 per cent of those in FED groups and 57 per cent of those of non-FED groups indicated that salary was not any of the sources of their household incomes.

Table 17 (c) Other Income Sources - wages

Variable	Category	FED Group Member		Total
		Yes	No	
Wage	Not applicable	41.4%	34.6%	37.3%
	Yes	3.4%	3.1%	3.2%
	No	55.2%	62.3%	59.4%

Table 17 (c) reveals that, overall, wage was not applicable to 37 per cent of respondents, but it was applicable to only 3 per cent and 59 per cent received no wage.

Comparing those in FED groups and those who were not, a similar pattern is found in both cases. For instance, 41 per cent of those in FED groups indicated that wage was not applicable; meaning it was none of household income sources, while 35 per cent of those in non-FED groups indicated the same.An insignificant percentage, 3 per cent of those in FED groups and 3 per cent of non-FED groups, respectively cited that wage was a household income source.

A greater percentage in both cases, 55 per cent of those in FED groups and 62 per cent of those in non-FED groups indicated that wage was none of the sources of their household incomes.

Table 17 (d): Other Income Sources - pension

Variable	Category	FED Group Member		Total
		Yes	No	
Pension	Not applicable	14.9%	13.8%	14.3%
	Yes	63.2%	53.8%	57.6%
	No	21.8%	32.3%	28.1%

Table 17 (d) shows that overall, pension was not applicable to only 14 per cent of respondents, but it was applicable to the majority, 58 per cent, while 28 per cent received no pension.

When we compare those in FED groups and those who were not, we find similar patterns in both cases. For instance, 15 per cent of those in FED groups indicated that pension was not applicable; meaning it was none of household income sources, while 14 per cent of those in non-FED groups indicated the same. A greater percentage, 63 per cent of those in FED groups and 54 per cent in non-FED groups, respectively said pension was a household income source.

In the No-category, a small percentage in both cases, 22 per cent of those in FED groups and 32 per cent of those in non-FED groups indicated that salary was not any of the sources of their household incomes.

Table 17 (e) Other Income Sources – casual work for kind

Variable	Category	FED Group Member		Total
		Yes	No	
Casual work for kind	Not applicable	39.1%	35.4%	36.9%
	Yes	12.6%	7.7%	9.7%
	No	48.3%	56.9%	53.5%

Table 17 (b) reveals that overall, casual work for kind was not applicable to 37 per cent of respondents, while it was applicable to only 9.7 per cent, and 54 per cent did no casual work for kind.

If we compare those in FED groups and those who were not, we find more or less the same situation in both cases. For instance, 39 per cent of those in FED groups and 35 per cent of those in non-FFED groups, respectively, indicated that casual work for kind was not applicable; meaning it was none of the household income sources. Again, only small percentage, 13 per cent of those in FED groups and 8 per cent in non-FED 48 per cent of those in FED groups, respectively said that casual work for kind was a household income source.

Again a greater percentage in both cases, 48 per cent of those in FED groups and 57 per cent of those in non-FED groups indicated that casual work for kind was not any of the sources of their household incomes.

Table 17 (f): Other Income Sources - remittances

Variable	Category	FED Group Member		Total
		Yes	No	
Remittances	Not applicable	26.4%	30.8%	29.0%
	Yes	18.4%	10.0%	13.4%
	No	55.2%	59.2%	57.6%

Table 17 (f) shows that overall, remittances was not applicable to 29 per cent of respondents, while it was applicable to only 13 per cent and 58 per cent received no remittances.

Comparing those in FED groups and those who were not, we find similar patterns in both cases. For instance, 26 per cent of those in FED groups indicated that remittance was not applicable; meaning it was none of household income sources, while 31 per cent of those in non-FED groups indicated the same. A small percentage, 18 per cent of those in FED groups and 10 per cent in non-FED groups, respectively, said remittance was a household income source.

However, a greater percentage in both cases, 55 per cent of those in FED groups and 59 per cent of those in non-FED groups indicated that remittance was none of the sources of their household incomes.

Table 17 (g): Other Income Sources - others

Variable	Category	FED Group Member		Total
		Yes	No	
Other source of household income	Not applicable	42.5%	36.9%	39.2%
	No	57.5%	63.1%	60.8%

Table 17 (g) reveals that overall, a greater percentage, 61 per cent of respondents indicated that besides farming, they had no other of source of household income, while only 39 per cent said other source of household income was not applicable.

When we compare those in FED groups and those who were not, we find similar patterns in both cases. For instance, 43 per cent of those in FED groups indicated that other source of household income was not applicable; meaning theirs is only farming, while 37 per cent of those in non-FED groups indicated the same.

A greater percentage, 58 per cent of those in FED groups and 63 per cent in non-FED groups, respectively, said there was no other source household income.

Overall, table 17 discloses that almost 60 per cent of respondents cited the pension as one of their household incomes. If ranked from highest to lowest per cent of respondents, the pension would be ranked first, with 58 per cent of respondents, salaries second, with 28 per cent of respondents and business third, with 15 per cent of respondents and so forth. The rest such as remittances, casual work for kind and wages would be ranked the lowest, with less than 14 per cent of respondents indicating that those were also sources of their household income.

Both Figure 7 and table 17 indicate that less than 14 per cent of respondents indicated that remittances, casual work for kind and wages were also other sources of their household incomes.

6.1.15 Respondent's farming experience

Figure 8 Respondent farming experience

Table 18: Respondent's farming experience

Variable	Category	FED Group Member		Total
		Yes	No	
Respondent's farming experience	<5 years	2.3%	10.0%	6.9%
	6-10 years	6.9%	10.0%	8.8%
	11-20 years	14.9%	18.5%	17.1%
	>20 years	75.9%	61.5%	67.3%

Table 18 indicates that, overall, 67 per cent of respondents had experience of more than 20 years, 17 per cent had experience of between 11-20 years and only about 7 per cent had less than 5 years of experience.

Comparing the FED and non-FED farmers, we find that they followed the same patterns in both cases, where almost 76 per cent of those in FED groups and, 62 per cent of those who were not, said that they had farming experience of more than 20 years. About 15 per cent of FED and 19 per cent of those in non-FED groups said they had farming experience of between 11-20 years, while only 2.3 per cent of FED and 10 per cent of non-FED farmers said they had farming experience of less than 5 years.

6.2 FARMER –EXTENSION CONTACT INDICATORS

Findings reported on in this section aim to indicate levels of contact between farmers and the extension services, by various means. Such contact is the first stage in, and is indeed a pre-requisite to extension work having an impact on farmers.

6.2.1 Agricultural Extension Technician (AET) – Farmer Contact Indicators

Table 19: Farmer Extension Contact

Variable	Category	FED Group Member		Total
		Yes	No	
Extensionist (AET) exists and works in the area	Yes	88.5%	6.9%	39.6%
	No	4.6%	91.5%	56.7%
	Don't know	6.9%	1.5%	3.7%

Table 19 reveals that, overall, almost 57 per cent of respondents said that there was no AET working in the area., whereas only 39.6 per cent said an AET worked in the area. Only 3.7 per cent said they did not know if any AET worked in the area.

The reader recalls that 59.9 per cent of respondents in our sample of 217 farmers were non-FED group farmers, while only 40.1 per cent were FED group members. However, when we compared those in FED groups and those who were not, we found the response was as expected. For example, 89 per cent of those in FED groups indicated that an AET worked in the area, while 91 per cent of those in non-FED groups said that there was no AET working in the area. Only about 7 per cent of those in FED groups and less 2 per cent of those in non-FED groups said they did not about an AET working in the area.

A high percentage, 89 per cent of FED group respondents indicating that an AET worked in the area suggests that there was very high level of contact between farmers in FED groups and extension. The high percentage, 91 per cent of non-FED respondents indicating no AET worked in the area suggests that the contact between the non-FED farmers and extension is almost non-existent.

The information in table 19 is reproduced in Figure 16 below. The reader is therefore referred to Figure 16 to compare the responses of the two groups of farmers.

Figure 16: Extensionist exists and works in the area

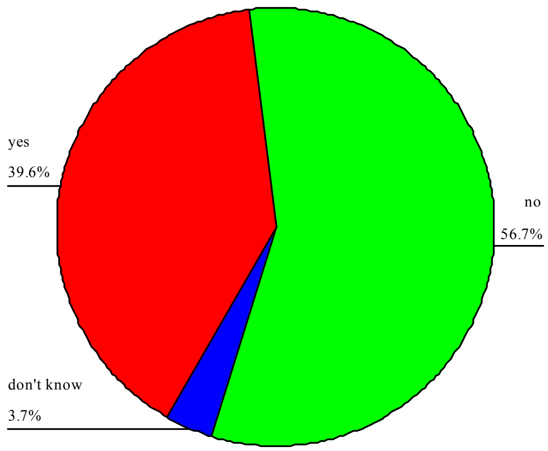


Figure 16 reflects the same situation as in table 19. For instance, overall, almost 57 per cent of respondents indicated that no AET worked in the area; while 39.6 per cent of respondents indicated that an AET worked in the area.

6.2.2 Application of Skills Learned from Training

Table 20: After training has applied skills

Variable	Category	FED Group Member Yes	Non-FED group No	TOTAL
After training has applied skills	No	37.9%	100.0%	75.1%
	Yes	62.1%		24.9%

Table 20 shows that as expected, 62 per cent of those in FED groups indicated that they have applied the skills learned from training, whereas only 38 per cent had not applied the skills learned from training. However, 100 per cent of those in non-FED groups have not applied the skills learned from training, meaning none of those in non-FED groups applied the skills learned from training.

Looking at the entire sample of 217 respondents in both FED and non-FED groups, only 25 per cent of respondents indicated that they have applied the skills learned from training, whereas 75 per cent did not applied the skills learned from training.

This suggests low level of contact between farmers and extension after training. Experience in the area has shown that after training, even those in FED groups, do apply the skills learned from training and the rest do not. This is particularly true if the farmer lived far away from the nearest ADC.

6.2.3 There should there be an AET in your area

Table 21: There should be an AET in your community

Variable	Category	FED Group Member		Total
		Yes	No	
There should be an AET in your community	Not applicable	94.3%	7.7%	42.4%
	Yes	5.7%	68.5%	43.3%
	No		23.8%	14.3%

Table 21 indicates that 43 per cent of all respondents said there should be an AET in their area, while only 14 per cent said no. This might be explained because overall the majority of respondents were non-FED group farmers. When we compare the two groups of farmers, only 5.7 per cent of those in FED groups indicated that an AET should be in their area, while the great majority in non-Fed groups, 69 per cent said that there was a need for an AET in their community, because they did not have one.

The findings suggests that 94 per cent of those in FED groups saw no need for an AET in their community probably because they already had one or they no longer needed the services of additional AET in the area.

Experience in the area is that only a few farmers in FED groups do not have close contact with AETs; either because of the distance from the ADC, or coverage is too large for the AET in the area. The majority of farmers in non-FED groups have no contact with extension; therefore direct extension will have little or no impact on them at all. Impact may only be experienced indirectly, through the mass media or through farmer to farmer dissemination of information. for instance.

6.2.4 Times got information from the AET last year

Table 23: Times got information from the AET last year

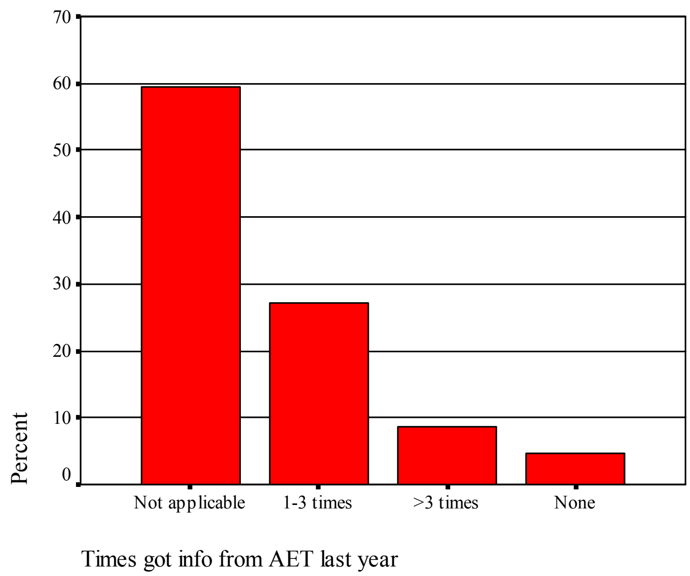
Variable	Category	FED Group Member		Total
		Yes	No	
Times got info from AET last year	Not applicable	11.5%	91.5%	59.4%
	1-3 times	58.6%	6.2%	27.2%
	>3 times	21.8%		8.8%
	None	8.0%	2.3%	4.6%

Table 23 shows that only 12 per cent of respondents in FEDs indicated that getting information from an AET was not applicable, while in non-FEDs, 92 per cent of respondents indicated that this was not applicable to them. These differences between the FED and the non-FED group farmers in the region is commonly experienced.

The greatest percentage (59 per cent) of respondents in FED groups received information from an AET 1-3 times in the last year, while only 6 per cent of respondents in non-FED group received information 1-3 times. There were few (21 per cent) respondents in FED groups who received information more than 3, while none was received in the non-FED groups.

6.2.6 Usefulness of information obtained from AET

Figure 11 Times got information from AET last year



Farmer Perception of Usefulness of Information got from AET

Table 24: Usefulness of information got from AET

Variable	Category	FED Group Member		Total
		Yes	No	
Usefulness of information got from AET	Not applicable	12.6%	93.8%	61.3%
	Very useful	72.4%	.8%	29.5%
	Useful	12.6%	2.3%	6.5%
	Not useful	2.3%	3.1%	2.8%

Table 24 indicates that only 13 per cent of those in FEDs indicated that the usefulness of the information received from an AET was not applicable, either because there was no contact with an AET, therefore they did not get it, so they did not know the usefulness of it. Of those in non-FEDs, 92 per cent indicated that the usefulness of the information was not applicable to them, because they did not get it, apparently because there was no contact with an AET. These types of differences are also typical between the farmers in the two groups (FED and the non-FED).

A greater percentage (72 per cent) of those in FED groups indicated that information received from an AET was very useful, while less than 1 per cent of those in non-FED groups indicated that the information they got from AET was very useful. Experience tells us that there is effectively no contact between those in non-FED communities and AET.

6.2.7 Level of activeness of FED Group

Fig 11: Level of activeness of FED group

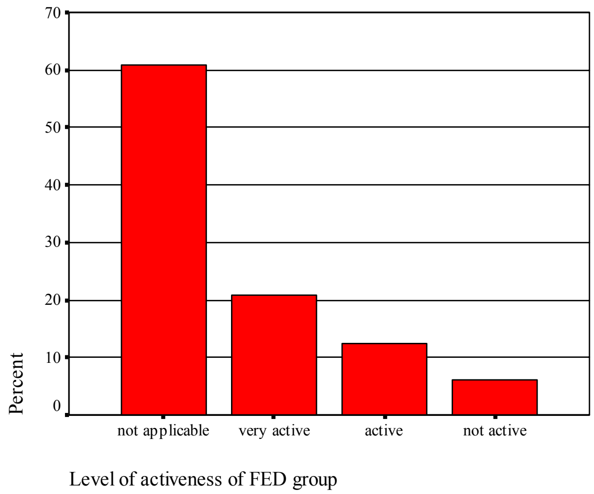


Table 25: Level of activeness of FED group

Variable	Category	FED Group Member		Total
		Yes	No	
Level of activeness of FED group	Not applicable	4.6%	98.5%	60.8%
	Very active	51.7%		20.7%
	Active	29.9%	.8%	12.4%
	Not active	13.8%	.8%	6.0%

Table 23 indicates that 5 per cent of those in FED groups indicated that whether the FED group was active or not was not applicable to them (indicating perhaps that they were wrongly categorised as FED group members, whereas 99 per cent in non-FED groups indicated that activeness of FED group was not applicable.

Of those who were FED group members, 30 per cent indicated that their FED group was active, while less than 1 per cent in non-FED group indicated that the FED groups was active. Less than 1 per cent of non-FEDs indicated the FED group to be active.

Comment: Have neglected to mention the very active category.

6.2.8 Has heard of farmer training by extension staff

Table 26: Has heard of framer training by extension staff

Variable	Category	FED Group Member		Total
		Yes	No	
Has heard of farmer training by extension staff	Yes	96.6%	13.1%	46.5%
	No	3.4%	86.9%	53.5%

Table 26 reveals as expected that a high percentage (i.e. 97 per cent) of those in FED group indicated that they had heard of farmer training by extension staff, while only 13 per cent in non-FED group indicated that they have heard of farmer training by extension staff. Only 3 per cent of those in FED groups, indicated that they have not heard of farmer training by extension staff, while 87 per cent of those in non-FED group indicated that they have not heard of farmer training by extension staff.

However, overall, the table indicates that 46 per cent of all respondents have heard of farmer training by extension staff, whereas 54 per cent have not.

6.2.9 Extension trainings has heard of

Table 27: Extension trainings has heard of

Variable	Category	FED Group Member		Total
		Yes	No	
Extension trainings has heard of	Not applicable	3.4%	87.7%	53.9%
	Leadership skills	5.7%		2.3%
	Demonstration	89.7%	10.0%	41.9%
	Don't know	1.1%	2.3%	1.8%

Table 27 reveals that the majority of farmers, both in FED have heard of training from extension staff.

6.2.10 Attendance at Extension Activities

Table 28. Farmer participation in various extension activities

Variable	Category	FED Group Member		Total
		Yes	No	
Has attended leadership training in	No	94.3%	100.0%	97.7%
	Yes	5.7%		2.3%
Has attended demonstration	No	34.5%	99.2%	73.3%
	Yes	65.5%	.8%	26.7%
Has attended exposure visit	No	77.0%	99.2%	90.3%
	Yes	23.0%	.8%	9.7%
Has attended agric. shows/fairs	No	96.6%	100.0%	98.6%
	Yes	3.4%		1.4%
Has attended none training	No	89.7%	93.8%	92.2%
	Yes	10.3%	6.2%	7.8%
Has attended other training	No	97.7%	100.0%	99.1%
	Yes	2.3%		.9%

Table 28 indicates that many farmers did not attend most of the training sessions. A greater percentage (65 per cent) of those in FED groups attended demonstrations, while only a small percentage attended who were non-FED group members.

6.2.11 Different Mass Media as Sources of Information

Figure 18: Got information from radio/printed media/ TV

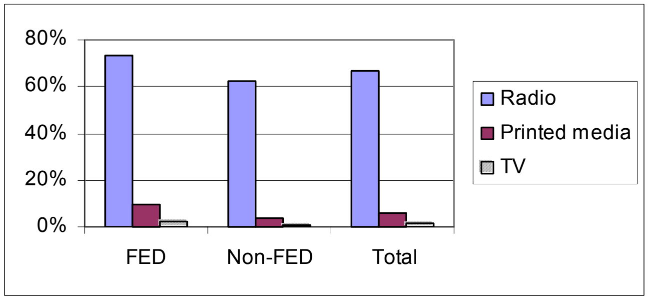


Table 29: Got information from Radio

Variable	Category	FED Group Member		TOTAL
		Yes	No	
Got information from radio	No	26.4%	37.7%	33.2%
	Yes	73.6%	62.3%	66.8%

Table 29 reveals overall that 67 per cent of respondents got agricultural information from radio, while 33 per cent did not.

Amongst both FED and non-FED farmers we found a similar pattern is followed. In a typical situation in rural areas, almost 67 per cent of the rural population get the information from radio, followed by about 6 per cent of people getting information from printed media.

Table 30: Got Information from printed media

Variable	Category	FED Group Member		Total
		Yes	No	
Got information from printed media	No	90.8%	96.2%	94.0%
	Yes	9.2%	3.8%	6.0%

Table 30 indicates that overall, 94 per cent of respondents did not get information from printed media, only 6 per cent did get information from printed media. The same situation is found in both FED and non-FED farmers.

Table 31: Got Information from TV

Variable	Category	FED Group Member		Total
		Yes	No	
Got information from TV	No	97.7%	99.2%	98.6%
	Yes	2.3%	.8%	1.4%

Table 31 indicates that, overall, 99 per cent of respondents did not get information from the TV. Only 1.4 per cent got information from the TV. A similar pattern is followed in both FED and non-FED farmers (see table 36). Typically, the majority of people in rural Omusati have no access to electricity to run a TV.

6.2.13 Frequency of Different Mass Media as Sources of Information

Table 32: Times received info from radio last year

Variable	CATEGORY	FED Group Member		TOTAL
		Yes	No	
Times received info from radio last year	None	27.6%	37.7%	33.6%
	Weekly	11.5%	22.3%	18.0%
	Occasionally	60.9%	40.0%	48.4%

Table 32 reveals that, overall, 48 per cent of respondents said they received information occasionally last year, 18 per cent weekly and 34 per cent received no information. The situation in both the FED and non-FED farmers was more or less the same.

We find that in rural areas, most people listened to radio occasionally and only very few listened weekly in both FED and non-FED farmers.

Table 33: Times received info from print media last year

Variable	Category	FED Group Member		Total
		Yes	No	
Times received info from print last year	None	90.8%	96.2%	94.0%
	Occasionally	9.2%	3.8%	6.0%

In Table 33, the overall situation is that 94 per cent of respondents did not receive information from print media, while only 6 per cent did receive it. A similar pattern is reflected in both FED and non-FED farmers.

The findings are clear that the number of farmers receiving information from printed materials was very minimal.

Table 34: Times received info from TV

Variable	Category	FED Group Member		Total
		Yes	No	
Times received info from TV last year	None	98.9%	99.2%	99.1%
	Occasionally	1.1%	.8%	.9%

Table 34 shows that overall, 99 per cent of respondents did not receive information from TV, Less than 1 per cent did receive it occasionally. A similar pattern is demonstrated in both FED and non-FED farmers.

The findings clearly show that to almost 99 per cent of farmers, getting information from TV was almost not heard of. The number of farmers who did not receive information from TV was very minimal.

6.2.14 Usefulness of different mass media as sources of information

Table 35: Usefulness of info on the radio

Variable	Category	FED Group Member	Non-FED Member	TOTAL
		Yes	No	
Usefulness of info on the radio	Not applicable	26.4%	37.7%	33.2%
	Useful	71.3%	48.5%	57.6%
	Somehow	2.3%	13.1%	8.8%
	Not useful		.8%	.5%

Table 35 indicates that overall, 58 per cent of respondents found information on radio useful, 33 per cent said that it was not applicable to them. There was 8.8 per cent and less than 1 per cent of respondents, respectively, who said information was somehow useful and not useful.

Looking at the FED and non-FED farmers, the same result as with the overall situation is repeated. However, a greater majority of FED farmers, 71 per cent found the information on radio useful, while 49 per cent of non-FED farmers also found the information on radio useful.

The findings demonstrate that the great majority of FED farmers responded better on the information than the non-FED farmers. This also suggests some level of contact between farmers and extension in the FED farmers.

Table 36: Usefulness of info from printed materials

Variable	Category	FED Group Member		Total
		Yes	No	
Usefulness of info from printed materials	Not applicable	90.8%	96.9%	94.5%
	Useful	9.2%	2.3%	5.1%
	Not useful		.8%	.5%

Table 36 shows that, overall, 5 per cent of respondents found information in printed materials useful, less than 1 per cent said that it was not useful. The great majority, 95 per cent said it was not applicable to them.

When comparing the FED and non-FED farmers, the same response as overall situation is displayed. For instance, 9.2 per cent of FED and 2.3 per cent of non-FED farmers said they found the information on radio useful. Only insignificant percentage of both FED and non-FED farmers who said the information on radio was not useful.

The findings demonstrate that the FED farmers, 9 per cent of them, still responded better than 2.3 per cent of the non-FED farmers, on the information on radio.

Table 37: Usefulness of info on from TV

Variable	Category	FED Group Member		Total
		Yes	No	
Usefulness of info on from TV	Not applicable	97.7%	99.2%	98.6%
	Useful	2.3%	.8%	1.4%

Table 37 indicates that overall, 99 per cent of respondents said the information on TV was not applicable, and only 1.4 per cent did find it useful. A similar pattern is demonstrated in both FED and non-FED farmers.

The findings are clear that the number of farmers who found the information on TV useful was very minimal, ranging from 2.3 per cent in FED to less than 1 per cent in non-FED farmers.

6.2.15 Recognition of Role of Extension in Improving Farming

Table 38: Improved Farming Due to Extension

Variable	Category	FED Group Member		TOTAL
		Yes	No	
Realized improvements in farming due to extension activities	Not applicable		1.5%	.9%
	Yes	81.6%	3.1%	34.6%
	No	13.8%	94.6%	62.2%
	Somehow	4.6%	.8%	2.3%

Table 38 indicates that, overall, 35 per cent of respondents said their farming activities had improved due to extension, while 62 per cent said improvement in farming was not due to extension.

The findings disclose that a great majority (81 per cent) of those in FED group said their farming had improved due to extension activities. The FED farmers responded much better than the 95 per cent of those in non-FED groups who believed that improvements in farming was not because extension activities. This is to be expected, since the non-FED farmers have little or no direct contact with extension staff.

6.3 EXTENSION IMPACT INDICATORS

This section reports on indicators of extension impact in terms of farmer awareness, farmer understanding, farmer attitudes and farmer adoption of specific extension recommendations relating to key farming issues in the region. For further discussion of the issue of extension impact indicators, readers are referred to section 2.2.

6.3.1 Crops Grown

Table 39: Crops Grown

Variable	CATEGORY	FED Group Member		TOTAL
		Yes	No	
Grew cereal only	No	100.0%	96.9%	98.2%
	Yes		3.1%	1.8%

Table 39 indicates that, overall, 98 per cent of respondents said they did not grow cereal only, while only 1.8 per cent grew cereal only. Almost, A similar pattern is demonstrated in both FED and non-FED farmers. For example, 100 per cent of those in FED said they did not just grow cereal, while only 3 per cent of non-FED farmers said they grew cereal only.

We find that traditionally farmers in the region do not grow just cereals. Intercropping is very common in the area, as it will be seen in the tables below.

Table 40: Grew cereal + cotton

Variable	Category	FED Group Member		Total
		Yes	No	
Grew cereal + cotton	No	94.3%	100.0%	97.7%
	Yes	5.7%		2.3%

Table 40 demonstrates that, overall, only 2.3 per cent of respondents said they grew cereal and cotton, 98 per cent said they did not grow cereal and cotton. A similar pattern is displayed in both FED and non-FED farmers, with just about 6 per cent of those in FED and zero per cent of non-FED farmers indicating that they grew cereal and cotton. A great majority (94 per cent) of FED and 100 per cent of non-FED farmers said they did not grow cereal and cotton.

The findings demonstrate that the practice of growing cereal and cotton was not common in the region. The practice is non-existent among the non-FED group farmers. Moreover, cotton was a cash crop and is new to the farmers in the region.

Table 41: Grew cereal + legumes

Variable	Category	FED Group Member		Total
		Yes	No	
Grew cereal + legumes	No	5.7%	4.6%	5.1%
	Yes	94.3%	95.4%	94.9%

Table 41 represent a typical practice in Owambo. It shows that, overall, only 5 per cent of respondents said they did not grow cereal and legumes. Otherwise, 98 per cent of respondents said they did grow cereal and legumes. The findings demonstrate a typical traditional practice of growing cereal and legumes that has been in the area for hundreds of years. Other crops may be added, but this is the common phenomenon for both two groups of farmers in the region.

Table 42: Grew cereal + vegetables

Variable	Category	FED Group Member		Total
		Yes	No	
Grew cereal + vegetables	No	69.0%	53.8%	59.9%
	Yes	31.0%	46.2%	40.1%

Table 42 shows that overall about 40 per cent of respondents said they grew cereal and vegetables (cabbage, tomatoes and onion), 60 per cent said they did not grow cereal and vegetables. A similar pattern is displayed in both FED and non-FED farmers. The findings demonstrate that only few farmers, both in FED and non-FED groups, adopted the practice of growing cereal and vegetables. This suggests that the practice was either new or there was no contact between farmers and extension. Therefore, farmers, both FED and non-FED members maintain their traditional farming practice, growing cereal and legumes.

Table 43: Grew other crops

Variable	Category	FED Group Member		Total
		Yes	No	
Grew other crops	No	98.9%	100.0%	99.5%
	Yes	1.1%		.5%

Table 43 shows that overall almost 100 per cent of respondents said they grew no other crops, while Less than 1 per cent said they did grow other crops. As is the normal practice in the region, about 95 per cent of respondents agreed that they grew cereal and legumes. About 40 per cent of respondents in the region grew cereal and vegetables. Less than 1 per cent agreed they grew other crops.

6.3.2 Use of Improved Seed

Figure: 20 Type of Seed Used

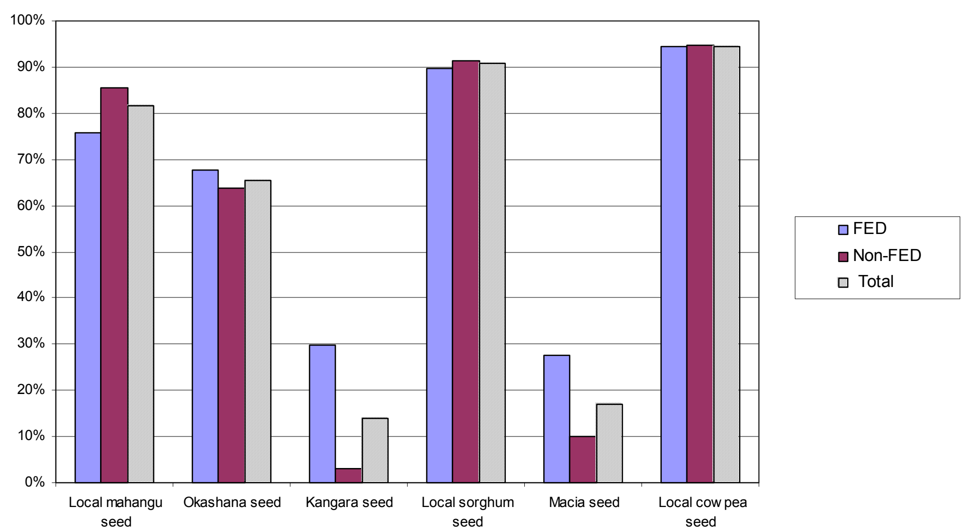


Figure 20 clearly shows six crops that are mainly grown in the area. Three crops: Okashana, Kangara and Macia are of more interest to us. Figure 20 demonstrates that overall, 68 per cent of respondents planted Okashana seed, 17 per cent planted Macia seed and 14 per cent planted Kangara seed. A great majority, 86 per cent of respondents and 83 per cent said they did not plant Kangara and Macia seeds. This is a sign of farmers, in both FED and non-FED groups, not responding well to these two seed varieties.

The other three crops of interest are the local mahangu, local sorghum and local cowpea seeds. Only 18 per cent of respondents, 9 per cent and 5 per cent, respectively said they did not plant local mahangu, local sorghum and local cowpea seeds. Look at this proportion of respondents overall, it suggests that they must have substituted their local crop seeds with other related crop seed varieties, e.g. Okashana or Macia.

We find that traditionally a large proportion farmers in the region tended to maintain their local seed varieties. For instance, figure 20 shows that overall, 82 per cent of respondents planted local mahangu seed, 91 per cent planted local sorghum seed and 95 per cent said they planted local cowpea seed.

While the findings are quite conspicuous in figure 20, the reader is referred to table 44 below, which contains the same information about use of improved seed varieties.

Table 44: Use of Improved Seed

Variable	**CATEGORY**	**FED Group Member**		**TOTAL**
		Yes	**No**	
Plants local Mahangu seed	No	24.1%	14.6%	18.4%
	Yes	75.9%	85.4%	81.6%

Table 44 shows that, overall, 82 per cent of respondents said they planted local Mahangu seed, and only 18 per cent indicated that they did not plant local Mahangu seed. A similar pattern is demonstrated in both FED and non-FED farmers. For example, 78 per cent of those in FED planted local Mahangu seed, while only 85per cent of non-FED farmers said they planted local Mahangu. Small percentage, 24 per cent of those in FED groups and 15 per cent of non-FED farmers said they did not plant local Mahangu seed.

The findings show that majority of FED farmers did not respond to well on moving away from planting local mahangu seed. Both FED and non-FED farmers tend to be conservative, as they do not want to change from their local mahangu seed. This is still a traditional practice among all farmers in the area.

Table 45: Plants Okashana seed

Variable	**Category**	**FED Group Member**		Total
		Yes	**No**	
Plants Okashana seed	No	32.2%	36.2%	34.6%
	Yes	67.8%	63.8%	65.4%

Table 45 shows that, overall, 65 per cent of respondents said they planted Okashana seed, and only 35 per cent indicated that they did not. A similar pattern is displayed in both FED and non-FED farmers. For example, 67 per cent of those in FED and 64 per cent of non-FED farmers said they planted Okashana seed. Some 32 per cent of FED and 36 per cent of non-FED farmers said they did not plant Okashana seed.

The findings here seem to show that a majority of both FED and non-FED farmers responded better to the new seed variety Okashana.

Table 46: Plants Kangara seed

Variable	Category	FED Group Member		Total
		Yes	No	
Plants Kangara seed	No	70.1%	96.9%	86.2%
	Yes	29.9%	3.1%	13.8%

Table 46 indicates that, overall, only 14 per cent of respondents said they planted Kangara seed, and the great majority, 86 per cent said they did not plant planted Kangara seed. Comparing FED and non-FED farmers, similar patterns situation is displayed in both FED and non-FED farmers. For example, only 3 per cent of those in FED and about 30 per cent of non-FED farmers said they planted Kangara seed. Some 70 per cent of FED and 97 per cent of non-FED farmers said they did not plant Kangara seed.

Table 47: Plants local sorghum seed

Variable	Category	FED Group Member		Total
		Yes	No	
Plants local sorghum seed	No	10.3%	8.5%	9.2%
	Yes	89.7%	91.5%	90.8%

Table 47 shows that, overall, 91 per cent of respondents said they planted local sorghum seed, only, 9 per cent did not plant local sorghum seed. Almost the same situation is demonstrated in both FED and non-FED farmers. For example, 80 per cent of those in FED and 92 per cent of non-FED farmers said they planted local sorghum seed. Similar findings as reflected in table 44, with local mahangu seed is displayed with the local sorghum, in both FED and non-FED farmers. This reveals an element of conservativeness and unwillingness to change away from local sorghum seed variety.

Table 48: Plants Macia seed

Variable	Category	FED Group Member		Total
		Yes	No	
Plants Macia seed	No	72.4%	90.0%	82.9%
	Yes	27.6%	10.0%	17.1%

Table 48 reveals that, overall, a great majority (83 per cent) of respondents said they did not plant macia seed, while only 17 per cent said they planted macia seed.

Comparison between the FED and non-FED farmers brings up the same situation. For example, a great majority, 72 per cent of those in FED and 90 per cent of non-FED farmers said they did not plant macia seed. Only 28 per cent of FED and 10 per cent of non-FED farmers said they planted macia seed.

Table 49: Plants Local cowpea seed

Variable	Category	FED Group Member		Total
		Yes	No	
Plants Local cowpea seed	No	5.7%	5.4%	5.5%
	Yes	94.3%	94.6%	94.5%

Table 49 demonstrates the overall situation, where almost all farmers in both FED and non-FED groups, planted local cowpea seed. For example, 95 per cent of respondents said they planted cowpea seed, only 5 per cent said they did not plant cowpea seed. We find similar patterns in both the FED and non-FED farmers (see table 54).

Table 50: Plants Nakare seed

Variable	Category	FED Group Member Yes	No	Total
Plants Nakare seed	No	81.6%	100.0%	92.6%
	Yes	18.4%		7.4%

Table 50 indicates that, overall, 92 per cent of respondents said they did not plant Nakare seed, while only 7 per cent said they did plant Nakare seed. In both FED and non-FED groups, A similar pattern is demonstrated. For example, 82 per cent of those in FED and 100 per cent in non-FED groups said they did not plant Nakare seed. Only 18 per cent of FED and zero per cent of non-FED farmers said they planted Nakare seed.

We find that only small proportion of farmers are responding and do plant Nakare seed so far. This might be attributed to the fact that this seed variety is new to farmers in the area. So the findings are as expected.

Table 51: Plants Shindimba seed

Variable	Category	FED Group Member Yes	No	Total
Plants Shindimba seed	No	88.5%	97.7%	94.0%
	Yes	11.5%	2.3%	6.0%

Table 51 presents similar patterns as displayed in table 50 for Nakare seed. The table shows that, overall, 94 per cent of respondents said they did not plant Shindimba seed, while only 6 per cent planted the seed. In both FED and non-FED farmers, a similar pattern is followed. in both.

This might be attributed to farmers, both in FED and non-FED groups, still sticking to tradition and maintaining their local seed varieties and the seed varieties of Shindimba being new to farmers..

In general, we find that overall, farmers in both FED and non-FED groups, tend to be conservative, resisting to changes. They tended to stick to traditional and therefore, maintain local mahangu; sorghum and cowpea seed varieties.

6.3.3 Sources of Seed

Table 52: Sources of Seed

Variable	CATEGORY	FED Group Member Yes	No	TOTAL
Bought seed last year from ADCs	No	59.8%	73.1%	67.7%
	Yes	40.2%	26.9%	32.3%

Table 52 indicates that overall, only 32 per cent of respondents said they bought seeds last year from ADCs, while 68 per cent said they did not buy from ADCs. A similar pattern is followed in both FED and non-FED farmers. Only 40 per cent of those in FED and 27 per cent of non-FED farmers said they bought seeds from ADCs.

The proportion of farmers buying seeds from ADCs suggests some level of contact between farmers and extension in the area. However, most farmers did not get seeds from ADCs. This might be attributed to proximity to ADCs or conservative farmers who to keep to their local seed varieties.

Table 53: Bought seed last year from local trader

Variable	Category	FED Group Member		Total
		Yes	No	
Bought seed last year from local trader	No	71.3%	90.8%	82.9%
	Yes	28.7%	9.2%	17.1%

In table 53, overall, only 17 per cent of respondents said they bought seed last year from local traders, while 83 per cent said they did not buy from local traders. A similar pattern is followed in both FED and non-FED farmers. For example, only 29 per cent of those in FED and only 9 per cent of non-FED farmers said they bought seeds from local traders.

Table 54: Bought seed last year from cuca shops

Variable	Category	FED Group Member		Total
		Yes	No	
Bought seed last year from cuca shops	No	94.3%	89.2%	91.2%
	Yes	5.7%	10.8%	8.8%

Table 54 shows that, overall, only about 9 per cent of respondents said they bought seed last year from cuca shop, while 91 per cent said they did not buy from cuca shop. A similar pattern is followed in both FED and non-FED farmers. For example, only 6 per cent of those in FED and only 11 per cent of non-FED farmers said they bought seeds from cuca shop.

Table 55: Bought seed last year from church parish

Variable	Category	FED Group Member		Total
		Yes	No	
Bought seed last year from church parish	No	100.0%	99.2%	99.5%
	Yes		.8%	.5%

Table 55 shows that, overall, less than 1 per cent of respondents said they bought seed last year from church, while 99 per cent said they did not buy seed from church. A similar pattern is followed in both FED and non-FED farmers. For example, zero per cent of those in FED and less than 1 per cent of non-FED farmers said they bought seeds from church.

We find that this question was irrelevant, since almost no farmer bought seed from church.

Table 56: Bought seed last year from elsewhere

Variable	Category	FED Group Member		Total
		Yes	No	
Bought seed last year from elsewhere	No	96.6%	83.8%	88.9%
	Yes	3.4%	16.2%	11.1%

Table 56 shows overall that almost 89 per cent of respondents did not buy seeds last year from anywhere else. Only 11 per cent said they bought seeds from elsewhere last year.

The findings suggest that farmers in both FED and non-FED groups typically keep their own seeds. There is also possibility that there is no contact between farmers the AET in the area.

Table 57: Did not buy seed last year

Variable	Category	FED Group Member		Total
		Yes	No	
Did not buy seed last year	No	85.1%	91.5%	88.9%
	Yes	14.9%	8.5%	11.1%

Table 57 shows that overall, a great majority of respondents, 89 per cent said they did not buy seeds last year. Only 11per cent of respondents said they bought seeds last year.

A similar pattern is followed in both FED and non-FED farmers. For example, 85 per cent of FED and 92 per cent of non-FED farmers said they did not buy seeds.

The findings are as expected. Typical farmers in the area make sure seeds are available for planting season. So the seeds are either bought or borrowed from relatives or friends.

6.3.4 Fertilizer Use

Figure 13: Fertilizer Use

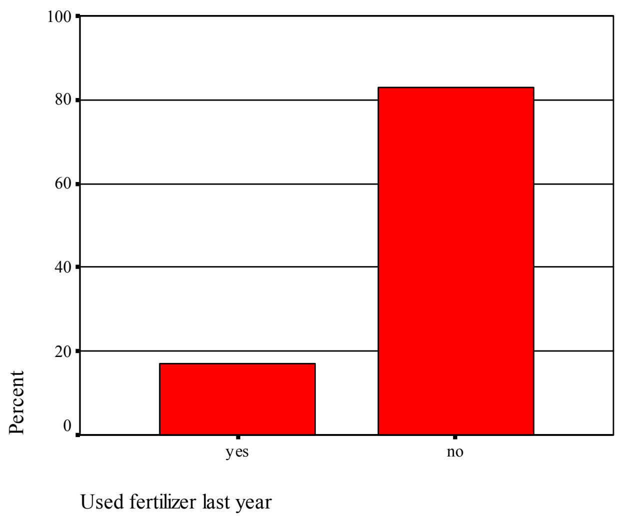


Figure 13 indicates clearly that overall, only about 17 per cent of respondents used fertilizer. Great majority, 83 per cent of respondents did not use fertilizer. The same situation is indicated in table 36 below.

Table 58: Fertiliser Use

Variable	Category	FED Group Member		TOTAL
		Yes	No	
Knows benefits of fertilizer use	No	59.8%	72.3%	67.3%
	To feed crops	39.1%	26.9%	31.8%
	To kill pests	1.1%	.8%	.9%

Table 58 indicates that, overall, only 32 per cent of respondents knew the benefits of fertilizer. A great majority (67 per cent) of respondents said they did not know the benefits of fertilizer. A similar pattern is displayed in both FED and non-Fed group farmers. For example, only about 40 per cent of those in FED groups and only 27 per cent of those in non-FED groups knew the benefits of fertilizer

The small proportion of farmers who knew the benefits of fertilizer suggests that there was low level of contact between farmers and extension.

Table 59: Used fertilizer last year

Variable	**Category**	**FED Group Member**		Total
		Yes	**No**	
Used fertilizer last year	Yes	23.0%	13.1%	17.1%
	No	77.0%	86.9%	82.9%

Table 59 reveals that overall, only 17 per cent of respondents used fertilizer last year. A great majority, 83 per cent said they did not use fertilizer last year. A similar pattern is followed in both FED and non-Fed farmers, with only 23 per cent of FED and 13 per cent of non-FED farmers having used fertilizer last year. A great majority (77 per cent) of FED, and 87 per cent of non-FED farmers never used fertilizer.

The reader is refereed to in Figure 13, which displays the same information.

Table 60: Method of fertilizer application

Variable	**Category**	**FED Group Member**		Total
		Yes	**No**	
Method of fertilizer application	Not applicable	72.4%	85.4%	80.2%
	Broadcast	1.1%		.5%
	Top dressing	12.6%	3.1%	6.9%
	Mixing with seed	13.8%	11.5%	12.4%

Table 60 reveals that overall, only a small proportion of farmers applied fertilizer using top dressing and mixing with seeds. A similar pattern is followed in both FED and non-FED groups. For instance, 13 per cent in FED and 3 per cent in non-Fed farmers did top dressing. About 14 per cent in FED and 12 per cent in non-FED farmers mixed with seeds. We find that few farmers knew about methods of applying fertilizer.

Table 61: Buys fertilizer mainly from

Variable	Category	FED Group Member		Total
		Yes	No	
Buys fertilizer mainly from	Not applicable	75.9%	88.5%	83.4%
	ADCs	21.8%	10.0%	14.7%
	Shops	1.1%	.8%	.9%
	Elsewhere	1.1%	.8%	.9%

Table 61 shows that overall, 83 per cent of respondents said buying fertilizer was not applicable, 15 per cent bought from ADCs, while less than 1 per cent bought from shops and elsewhere. A similar pattern is followed in both FED and non-FED farmers.

The proportion of farmers who bought fertilizer from ADCs was insignificant. This suggests that that the level of contact between farmers and extension was low. Proximity to the ADCs may be another factor.

We find that even the farmers who are FED members did not buy fertilizer as expected. Buying fertilizer was not applicable to 76 per cent of FED group framers either.

6.3.5 Weeding

Figure 14: Weeding

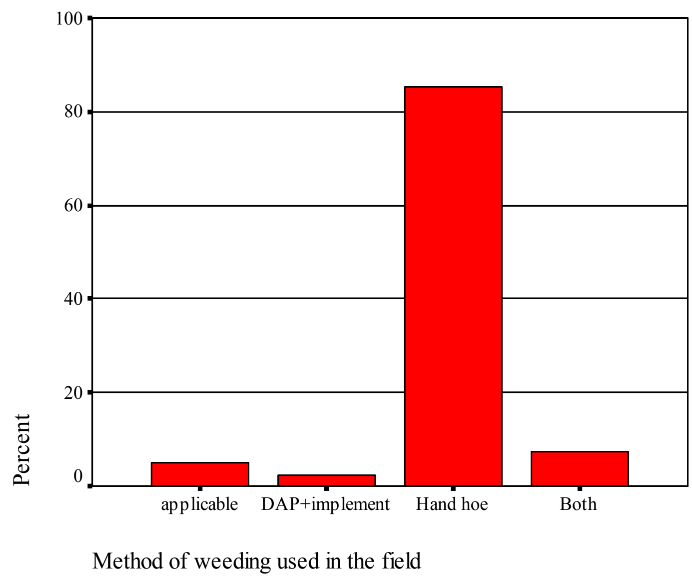
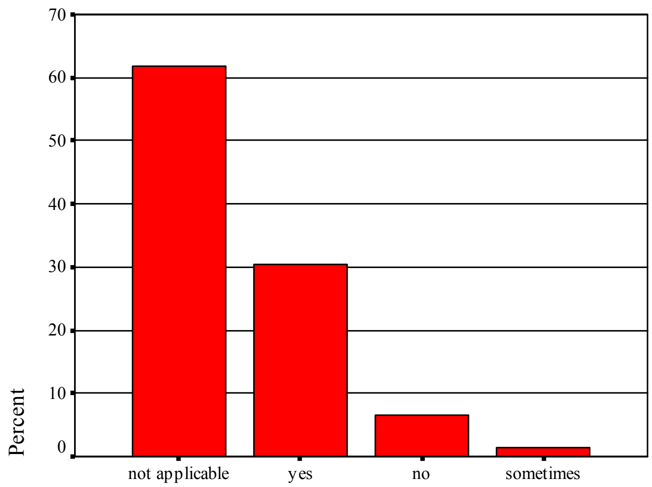


Figure 14 indicates that the majority of respondents (85 per cent) used hand hoes for weeding, 7 per cent used both DAP and hand hoes, and only 2.3 per cent said they used DAP and an implement only.

Figure 15: Thinks that using DAP for weeding is better than hand hoe



Thinks that using DAP for weeding is better than Hand hoe

Figure 15 indicates clearly that overall, 30 per cent of respondents said that using DAP was better than using hand hoes, while 7 per cent said it was not better than using hand hoe and only 1.4 per cent said it was better sometimes. The majority (62 per cent) of respondents did not know about using DAP for weeding, therefore, comparing it with hand hoe, was not applicable.

Table 62: Weeding and Draught Animal Power

Variable	Category	FED Group Member		TOTAL
		Yes	No	
Method of weeding used in the field	Applicable	6.9%	3.8%	5.1%
	DAP+ implement	4.6%	.8%	2.3%
	Hand hoe	71.3%	94.6%	85.3%
	Both	17.2%	.8%	7.4%

We find that as expected, about 5 per cent of FED and less than 1 per cent of non-FED farmers weeded with DAP and implement. The 94 per cent of non-FED as compared to 71 per cent of FED farmers weeding with DAP and implement, suggests that the FED farmers responded better to weeding with DAP and implement, than the non-FED farmers.

Table 63: DAP implements mainly used for weeding

Variable	Category	FED Group Member		Total
		Yes	No	
DAP implements mainly used for weeding	None	72.4%	97.7%	87.6%
	Senegalese cultivator	11.5%	.8%	5.1%
	BS 41 cultivator	11.5%	1.5%	5.5%
	Plough	4.6%		1.8%

Table 63 shows that overall, 88 per cent of respondents said they used none of the implements. A small proportion used Senegalese cultivator, BS 41 cultivator and plough. This indicates that the level of adoption to new technologies is very low, even among the FED farmers.

Table 64: Thinks that using DAP for weeding is better than Hand hoe

Variable	Category	FED Group Member		Total
		Yes	No	
Thinks that using DAP for weeding is better than Hand hoe	Not applicable	44.8%	73.1%	61.8%
	Yes	49.4%	17.7%	30.4%
	No	4.6%	7.7%	6.5%
	Sometimes	1.1%	1.5%	1.4%

Table 64 discloses that overall, 30 per cent of respondents said weeding with DAP was better than hand hoe, while only 7 per cent said it was not. About 1.4 per cent said it was better sometimes. The finding demonstrates that 49 per cent of FED farmers there is a likelihood of gradually adopting weeding with DAP as compared to 17 per cent of non-FED farmers.

3.3.6 Grain Storage

Table 65: Grain Storage

Variable	Category	FED Group Member		TOTAL
		Yes	No	
Main type of storage used for produce	Granary	71.3%	83.8%	78.8%
	Basket	26.4%	13.1%	18.4%
	Metal container	1.1%	.8%	.9%
	Plastic container		.8%	.5%
	Bags	1.1%	1.5%	1.4%

Table 65 reveals that overall, 79 per cent of respondents stored their produce in granaries, while 18 per cent stored in baskets, and 1.4 per cent stored in bags. Less that one per cent of respondents said they stored in metal and plastic containers.

Table 66: Method used to minimize pest infestation in stored produce

Variable	Category	FED Group Member		Total
		Yes	No	
Method used to minimize pest infestation in stored produce	Not applicable	2.3%	2.3%	2.3%
	Always keep store closed	42.5%	63.1%	54.8%
	Keep storage basket off the ground	2.3%	1.5%	1.8%
	Pour ash in the store	52.9%	33.1%	41.0%

Table 66 shows that overall, 55 per cent of respondents always kept their grain store closed, 41 per cent poured ash in the store. A similar situation is found with both the FED and non-FED farmers, for example, 42 per cent of FED and 63 per cent of non-FED framers said they always kept the store closed. About 53 per cent of Fed and 33 per cent of non-FED farmers said they poured ash in the store.

We find that the traditional methods of simply keeping the store closed and pouring ash in the store still plays an important role among the majority of farmers.

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3.3.7 Grain Marketing

Table 67: Grain Marketing

Variable	Category	FED Group Member		TOTAL
		Yes	No	
Sells some of the produce	Yes	26.4%	13.8%	18.9%
	No	73.6%	86.2%	81.1%

Table 67 indicates that overall, 81 per cent of respondents do not sell their produce, while only 19 per cent said they sold their produce. A similar pattern is followed in both FED and non-FED farmers. For example, 74 per cent of FED and 86 per cent of non-FED farmers did not sell their produce. Only 26 per cent of FED and 14 per cent of non-FED sold their produce.

The table bodes well with the traditional attitudes of farmers in the area, who believe that produce is not for sale. However, the 26 per cent of FED farmers now selling suggests that FED farmers are moving away from their traditional belief and starting to sell their produce.

Table 68: Produce mainly sold at this type of market

Variable	Category	FED Group Member		Total
		Yes	No	
Produce mainly sold at this type of market	Not applicable	73.6%	86.2%	81.1%
	Open market	4.6%	.8%	2.3%
	Agricultural shows + fairs	3.4%		1.4%
	Elsewhere	18.4%	13.1%	15.2%

Table 68 reveals that overall, 2.3 per cent sold at open market and only, 1.4 per cent said they sold at agricultural shows15 per cent of respondents said they sold the produce elsewhere. For the great majority (81 per cent) of respondents selling their produce was not applicable. A similar situation as found overall is displayed in both the FED and non-FED farmers.

Table 69: Frequency of produce sales

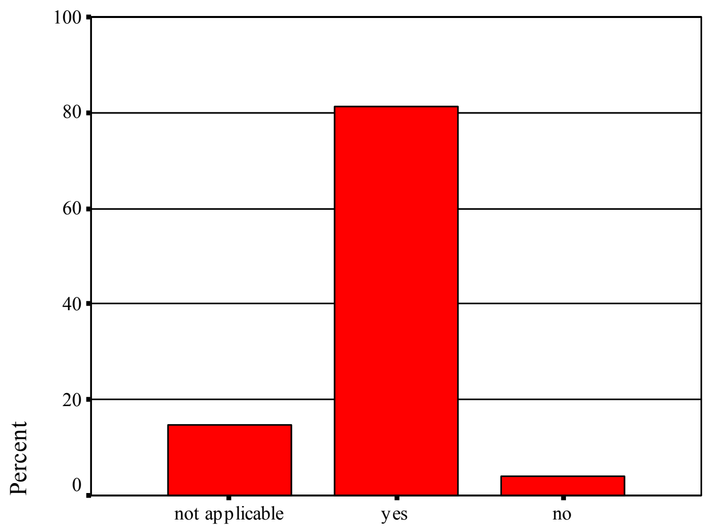
Variable	Category	FED Group Member		Total
		Yes	No	
Frequency of produce sales	Not applicable	72.4%	86.9%	81.1%
	Everyday	1.1%		.5%
	Occasionally	24.1%	13.1%	17.5%
	Once a year	2.3%		.9%

Table 69 indicates that overall, 18 per cent of respondents said that sales of produce only take place occasionally. Otherwise, to the majority of respondents (81 per cent) the sales of produce are not applicable. The situation reflected overall is similar to that of the FED and non-FED farmers. For example, 24 per cent of FED and 13 per cent of non-FED farmers said the sale of produce occurred only occasionally. Only 1.1 per cent and 2.3 per cent of FED farmers, respectively, who said the sales took place every day and once a year. Otherwise, the majority, 72 per cent of FED and 87 per cent of non-Fed frames indicated that the sales of produce were not applicable.

The findings demonstrate simply how seldom the sales of produce occur in the area. This conforms to the traditional norms of no sales for food produced for own consumption.

3.3.8 Animal Husbandry- Castration Practice

Figure 16: Castration Practice



Castrates livestock

Figure 16 shows that overall, 81 per cent of respondents castrated their livestock, while only 4 per cent did not.

Table 70: Animal Husbandry - Castration

Variable	Category	FED Group Member		TOTAL
		Yes	No	
Castrates livestock	Not applicable	6.9%	20.0%	14.7%
	Yes	89.7%	75.4%	81.1%
	No	3.4%	4.6%	4.1%

Table 70 shows that overall, 81 per cent of respondents castrated their livestock, while only 4 per cent did not. Comparing FED and non-FED a farmer, A similar pattern is followed in both FED and non-FED group farmers. For instance, almost 90 per cent of FED and 75 per cent of non-FED said they castrated their livestock. Only 3 per cent of FED and 4 per cent of non-FED farmers did not castrate livestock.

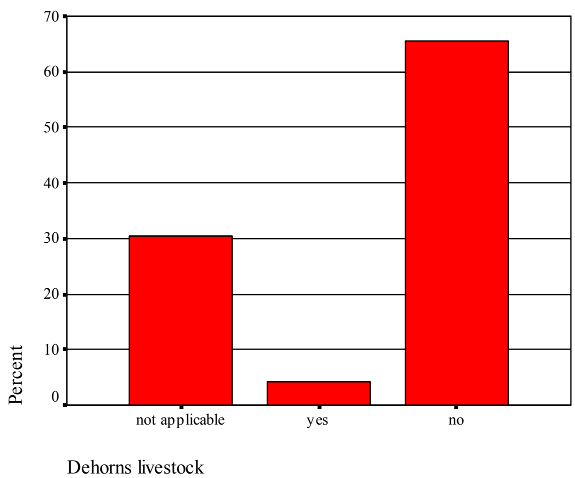
Table 71: Main castration method used

Variable	Category	FED Group Member		Total
		Yes	No	
Main castration method used	Not applicable	11.5%	23.8%	18.9%
	Knife	35.6%	30.0%	32.3%
	Burdizzo	46.0%	30.8%	36.9%
	Rubber ring	6.9%	15.4%	12.0%

Table 76 indicates that overall, 37 per cent of respondents used Burdizzo, 32 per cent used knife and 12 per cent used rubber ring. About 19 per cent said it was not applicable. Comparing the FED and non-FED group farmers shows similar situation, with Burdizzo being predominantly used in castration, followed by knife.

Findings demonstrated that farmers, in FED groups responded slightly better than those in non-FED groups. For example, 46 per cent of FED as compared to 31 per cent of those in non-FED groups used Burdizzo for castration. About 37 per cent in Fed as compared to 30 per cent in non-FED groups used knife for castration. There seems to be farmer training and good level of contact between farmers and extension in the region. The situation for castration is more or less the same as for cattle dehorning in both cases.

Figure 24: Dehorning Livestock



In Figure 24, the overall picture shows that only 4 per cent of respondents dehorned their livestock, whereas 65 per cent did not.

Table 72: Animal Husbandry – De-horning

Variable	Category	FED Group Member		TOTAL
		Yes	No	
Knows benefits of dehorning livestock	Not applicable	14.9%	35.4%	27.2%
	Yes	27.6%	13.8%	19.4%
	No	57.5%	50.8%	53.5%

Table 77 shows that overall, about 54 per cent of respondents did not know the benefits of dehorning livestock, while only 19 per cent knew. About 27 per cent of respondents said dehorning livestock was not applicable.

Comparing the FED and non-FED group farmers shows similar situation. For instance, 58 per cent of Fed and 51 per cent of non-Fed frames did not know the benefits of dehorning. Only 28 per cent of Fed and 14 per cent of non-FED knew the benefits of dehorning.

The findings suggest that there is also some degree of contact between farmers and extension. Therefore, the FED farmers responded slightly better than non-FED farmers, 28 per cent of FED as compared to 14 per cent of non-FED farmers, who knew benefits of dehorning.

Table 73: Dehorns livestock

Variable	Category	FED Group Member		Total
		Yes	No	
Dehorns livestock	Not applicable	17.2%	39.2%	30.4%
	Yes	8.0%	1.5%	4.1%
	No	74.7%	59.2%	65.4%

Table 73 demonstrates that overall, 65 per cent of respondents did not dehorn their livestock, whereas only 4 per cent dehorned their livestock.

A similar pattern is found when comparing the FED and non-FED farmers. About 75 per cent of FED and 59 per cent in non-FED farmers did not dehorn livestock. Only 8 per cent of FED and 1.5 per cent of non-FED farmers did dehorn their livestock. The practice was not applicable to 30 per cent of respondents.

Findings suggest that the practice has not taken roots with the farmers in the area. It might be either because farmers are not aware of the benefits of dehorning the livestock or the practice does not fit with traditions in the area.

3.3.9 Supplementary Feeding Practice

Figure 25: Supplementary Feeding

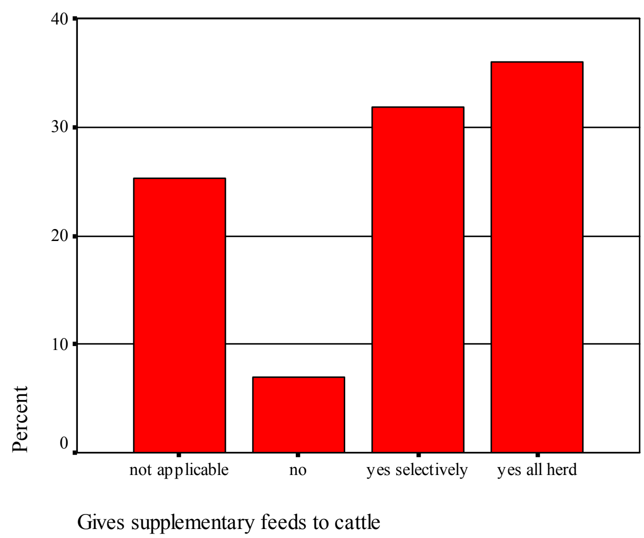


Figure 25 indicates overall that 36 per cent of respondents said they gave supplementary feeding to their total herd, and 32 per cent gave to livestock selectively. Figure 18 further indicates that 25 per cent of respondents said that the supplementary feeding practice was not applicable.

Table 74: Supplementary Feeding

Variable	Category	FED Group Member Yes	No	TOTAL
Knows the benefits of supplementary feeding	Not applicable	8.0%	21.5%	16.1%
	Yes	85.1%	62.3%	71.4%
	No	6.9%	16.2%	12.4%

Table 74 shows that overall, 71 per cent of respondents said they knew of the benefits of supplementary feeding, whereas only 12 per cent said they did not. Only 16 per cent of respondents did say it was not applicable.

Comparing the FED and non-FED farmers, similar patterns was found in both cases, with 85 per cent of FED and 62 per cent of non-Fed farmers saying they knew the benefits of supplementary feeding.

Table 75: Gives supplementary feeds to cattle

Variable	Category	FED Group Member Yes	No	Total
Gives supplementary feeds to cattle	Not applicable	12.6%	33.8%	25.3%
	No	2.3%	10.0%	6.9%
	Yes selectively	48.3%	20.8%	31.8%
	Yes all herd	36.8%	35.4%	35.9%

Table 75 indicates that overall, 36 per cent of respondents gave supplementary feeds to all their cattle, while 32 per cent gave it selectively. About 25 per cent said supplementary feeds for cattle were not applicable. Only a small proportion, about 7 per cent did not give supplementary feeds to cattle selectively.

When we compare the FED and non-Fed farmers, a similar pattern is followed. For instance, 37 per cent of FED and 35 per cent of non-FED farmers said they fed to all herd, while 48 per cent of FED and 21 per cent of non-FED farmers said they fed to cattle selectively. About 13 per cent of FED and 34 per cent of non-FED farmers said it was not applicable. Only 2.3 per cent of FED and 10 per cent of non-Fed farmers said they did not give supplementary feed to cattle.

We find that a good number of FED farmers, 48 per cent and 37 per cent respectively, gave supplementary feeds to cattle selectively and to all their herd. This suggests that the FED farmers responded better than those in non-FED groups.

3.3.11 Selective Supplementary Feeding

Figure 26 Selective supplementary feeding by animal type

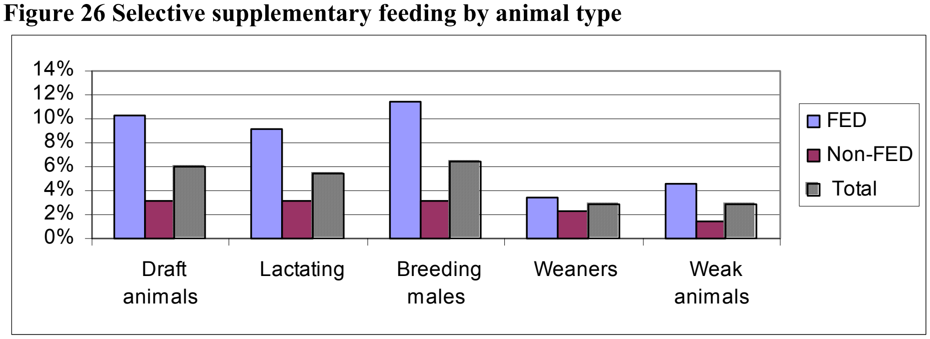


Figure 26 shows that overall 6 per cent of respondents did not selectively give supplementary feeding to draft animals, and only 10 per cent of FED and 3 per cent of non-FED farmers selectively gave supplementary feeds to draft animals.

Comparing the FED and non-FED farmers on other animal types, a similar situation is displayed. For instance, about 9 per cent of FED and 3 per cent of non-Fed farmers selectively gave supplementary feed to lactating cows.

Findings suggest that a great majority of farmers, both FED and non-FED groups. Did not give supplementary feeds to draft animals (see figure 26).

We find that a few farmers gave supplementary feed selectively to draft animals.

Table 76: Selective Supplementary Feeding

Variable	Category	FED Group Member		TOTAL
		Yes	No	
Selectively give supplementary feed to **draft animals**	Not applicable	62.1%	85.4%	76.0%
	No	27.6%	11.5%	18.0%
	Yes selectively	10.3%	3.1%	6.0%

Table 76 shows that overall, 18 per cent of respondents did not selectively give supplementary feeding to draft animals, and only 6 per cent gave selectively to draft animals.

Comparing the FED and non-FED farmers, a similar situation is displayed. About 28 per cent of FED and 12 per cent of non-Fed farmers did not selectively give supplementary feed to draft animals. Only 10 per cent of FED and 3 per cent of non-FED farmers selectively gave supplementary feeds to draft animals.

Findings suggest that a great majority of farmers, both FED and non-FED groups did not give supplementary feeds to draft animals.

Table 77: Selectively give supplementary feed to lactating cows

Variable	Category	FED Group Member		TOTAL
		Yes	No	
Selectively give supplementary feed to **lactating cows**	Not applicable	88.5%	94.6%	92.2%
	No	2.3%	2.3%	2.3%
	Yes selectively	9.2%	3.1%	5.5%

Table 77 shows that overall, 5.5 per cent of respondents gave supplementary feeds selectively to lactating cows, while 2.3 per cent did not.

Comparing FED and non-FED farmers, we find similar situation. For instance, 9 per cent of FED and 3 per cent of non-FED farmers gave give supplementary feeds selectively to lactating cows. About 2.3 per cent of both FED and non-FED farmers did not. A great majority, 89 per cent of FED and 95 per cent of non-FED said it was not applicable

Findings suggest that the practice was simply not applicable to the majority of farmers.

Table 78: Selectively give supplementary feed to breeding males

Variable	Category	FED Group Member		Total
		Yes	No	
Selectively give supplementary feed to **breeding males**	Not applicable	87.4%	96.2%	92.6%
	No	1.1%	.8%	.9%
	Yes selectively	11.5%	3.1%	6.5%

Table 78 indicates overall that, about 7 per cent of respondents selectively gave supplementary feeds to breeding males and less than 1 per cent of respondents did not.

If we compare the two groups of farmers, the FED and non-FED, we find that similar patterns are followed. About 12 per cent of FED and 3 per cent of non-FED farmers did give supplementary feeds selectively to breeding males. Only 1.1 per cent of FED and less than 1 per cent of non-FED farmers did not.

Table 79: Selectively give supplementary feed to weaners

Variable	Category	FED Group Member		Total
		Yes	No	
Selectively give supplementary feed to **weaners**	Not applicable	74.7%	94.6%	86.6%
	No	21.8%	3.1%	10.6%
	Yes selectively	3.4%	2.3%	2.8%

Just over 10 per cent did not selectively give supplementary feeds to weaners and only 2.8 per cent did selectively give supplementary feeds selectively to weaners.

If we compare the FED and non-FED farmers, similar patterns are displayed. For example, 75 per cent of FED and 95 per cent of non-Fed farmers said the practice was not applicable. About 22 per cent of FED and 3 per cent of non-FED farmers did not give supplementary feeds selectively to weaners. Only 3.4 per cent of FED and 2.3 per cent of non-FED did selectively give supplementary feeds to weaners

Only a small proportion of farmers selectively gave supplementary feeds to weaners.

Table 80: Selectively give supplementary feed to weak animals

Variable	Category	FED Group Member		Total
		Yes	No	
Selectively give supplementary feed to **weak animals**	Not applicable	59.8%	82.3%	73.3%
	No	35.6%	16.2%	24.0%
	Yes selectively	4.6%	1.5%	2.8%

Table 80 shows that overall, 73 per cent of respondents said this practice was not applicable. About 2.8 per cent of respondents said they did give supplementary feeds selectively to weak animals, 24 per cent did not.

If we compare the FED and non-FED farmers, similar patterns are displayed. For example, about 60 per cent of FED and 82 per cent of non-FED farmers said the practice was not applicable. About 36 per cent of FED and 16 per cent of non-Fed farmers said they did not selectively give supplementary feeds to weak animals. Only about 5 per cent of FED and 2 per cent of non-FED did selectively give supplementary feeds selectively to weak animals.

3.3.12 Types of Supplementary Feed Used

Figure 27: Type of supplementary feed used

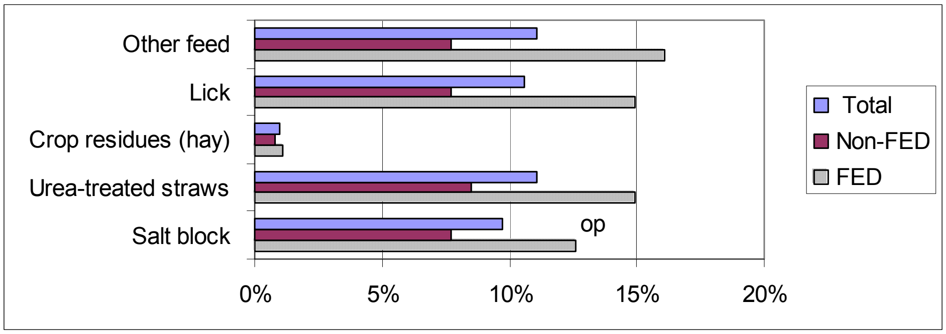


Table 81: Types of Supplementary Feed Used

Variable	Category	FED Group Member		TOTAL
		Yes	No	
Salt block	Not applicable	77.0%	86.9%	82.9%
	No	10.3%	5.4%	7.4%
	Yes selectively	12.6%	7.7%	9.7%

About 10 per cent of respondents did use salt blocks, about 7 per cent did not. Comparing the FED and non-FED farmers, we find similar patterns being displayed. For example, 77 per cent of FED and 87 per cent of non-Fed farmers said the practice was not applicable. About 10 per cent of FED and 5 per cent of non-FED farmers did not use salt block for supplementary feeding. Only 13 per cent of FED and 8 per cent of non-FED did use salt block to supplementary animals.

Table 82: Urea-treated straws

Variable	Category	FED Group Member		Total
		Yes	No	
Urea-treated straws	Not applicable	82.8%	90.8%	87.6%
	No	2.3%	.8%	1.4%
	Yes selectively	14.9%	8.5%	11.1%

Less than 2 per cent of respondents said they did not feed with Urea treated straws and only 11 per cent said they used urea treated straws.

If we compare the FED and non-FED farmers, similar patterns are followed as observed on the table. About 83 per cent of FED and 91 per cent of non-FED farmers said this practice was not applicable. Small proportion, 2.3 per cent of FED and less than 1 per cent of non-FED farmers said they did not used urea treated straws. Only 15 per cent of FED and 9 per cent of non-FED farmers said they used urea treated straws.

Therefore, the 15 per cent of FED farmers implies that the FED farmers responded better than non-FED farmers with only 9 per cent of them using urea treated straws. We find that more farmers have started using urea-treated straws for their animals, which they did not a few years back.

Table 83: Crop residues (hay/stover)

Variable	Category	FED Group Member		Total
		Yes	No	
Crop residues (hay/stover)	Not applicable	13.8%	43.1%	31.3%
	No	85.1%	56.2%	67.7%
	Yes selectively	1.1%		.5%
	Yes all herd		.8%	.5%

Less than 1 per cent said they selectively fed livestock with crop residues. Comparing the FED and non-FED farmers, similar patterns are followed. For instance, 85 per cent of FED and 56 per cent of non-FED farmers said they did not use crop residues. About 1 per cent of FED and zero per cent of non-FED farmers said they used crop residues selectively and to all herd. The findings suggest that supplementary feeding livestock with crop residues has almost not been heard of.

Table 84: Licks

Variable	Category	FED Group Member		Total
		Yes	No	
Licks	Not applicable	80.5%	91.5%	87.1%
	No	4.6%	.8%	2.3%
	Yes selectively	14.9%	7.7%	10.6%

About 2.3 per cent of respondents did not use licks and only 10.6 said they did use licks. We find similar patterns displayed when comparing the FED and non-FED farmers. A small proportion, 5 per cent of FED and less than 1 per cent of non-FED farmers did not use licks. Only 15 per cent of FED and 8 per cent of non-FED did use licks. The findings seem to point that a great majority of farmers did not use licks. It is either the contact between farmers and extension was lacking or the farmers could not afford to buy licks.

Table 85: Other feeds

Variable	Category	FED Group Member		Total
		Yes	No	
Other feed	Not applicable	82.8%	91.5%	88.0%
	No	1.1%	.8%	.9%
	Yes selectively	16.1%	7.7%	11.1%

Less than 1 per cent of respondents did not use other feeds. Only 11 per cent said they did use other feeds. Looking at the FED and non-FED farmers, similar situation is displayed. One per cent of FED and less than 1 per cent of non-FED farmers said they did not use other feeds. Only 16 per cent of FED and 8 per cent of non-FED farmers said they used other feeds selectively.

3.3.13 Timing of Supplementary Feeding

Table 86: Timing of Supplementary Feeding

Variable	Category	FED Group Member		TOTAL
		Yes	No	
Time of supplementary feeding	Not applicable	14.9%	43.1%	31.8%
	Dry season	70.1%	51.5%	59.0%
	Rainy season	13.8%	5.4%	8.8%
	Throughout the year	1.1%		.5%

Table 86 shows that overall, 59 per cent of respondents said they gave supplementary feeds to cattle during the dry season. Only 9 per cent supplementary fed during rainy season and less than 1 per cent said throughout the year.

The same patterns are displayed when we compare the FED and non-FED farmers. About 13.8 per cent of FED and 5.4 per cent of non-FED farmers said they supplementary fed to cattle during rainy season. Only 1.1 per cent of FED and zero per cent of non-FED farmers said they gave supplementary feed to cattle throughout the year.

We find that a great majority of FED farmers, 70 per cent gave supplementary feeds during dry season and 14 per cent gave supplementary feeds during rainy season, respectively.

3.3.14 Animal Health - Vaccinations

Figure 28 Knows schedule of diseases livestock are vaccinated against

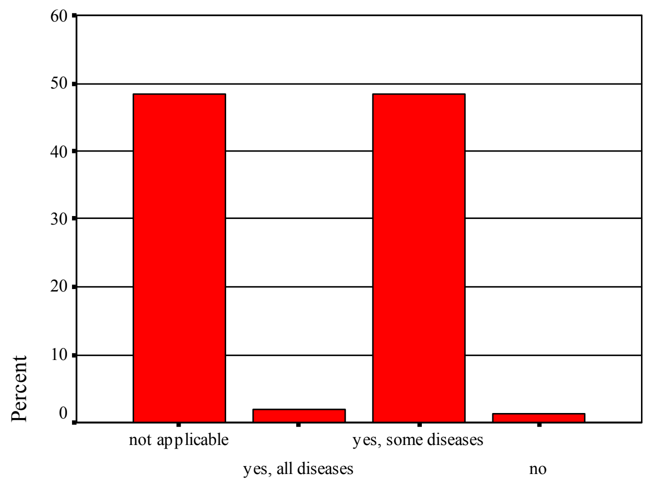


Table 87: Animal Health - Vaccination

Variable	Category	FED Group Member		TOTAL
		Yes	No	
Cattle taken to crush pen for vaccination yearly	Not applicable	34.5%	55.4%	47.0%
	Yes	63.2%	41.5%	50.2%
	No	2.3%	3.1%	2.8%

Table 87 shows that overall, 47 per cent of respondents said taking cattle to crush pen for vaccination yearly was not applicable. About 50 per cent of respondents said they took their cattle to crush pen for vaccination yearly, while about 3 per cent did not.

We find similar patterns displayed when comparing the FED and non-FED farmers. About 63 per cent of FED and 42 per cent of non-FED said they took their cattle for vaccination. Only 2.3 per cent of FED and 3 per cent of non-FED did not.

The findings suggest that the FED group framers responded pretty well to vaccination as compared to the non-FED group farmers. In general, vaccination of cattle seems to gradually be becoming a common practice among farmers in the area.

Table 88: Knows the scheduled diseases livestock are vaccinated against

Variable	Category	FED Group Member		Total
		Yes	No	
Reason for not vaccinating cattle	Not applicable	98.9%	97.7%	98.2%
	No knowledge	1.1%	2.3%	1.8%

Table 88 indicates that overall, 98 per cent of respondents said because it was not applicable. Less than 2 per cent of respondents said they had no knowledge.

Table 89: Knows the scheduled diseases livestock are vaccinated against

Variable	Category	FED Group Member		Total
		Yes	No	
Knows the scheduled diseases livestock are vaccinated against	Not applicable	35.6%	56.9%	48.4%
	Yes, all diseases	1.1%	2.3%	1.8%
	Yes, some diseases	63.2%	38.5%	48.4%
	No		2.3%	1.4%

About 1.8 per cent of respondents said they did for all diseases, 48 per cent said some diseases and only 1.4 per cent did not know.

We find similar patterns displayed when comparing the FED and non-FED farmers. For example, 36 per cent of FED and 57 per cent of non-Fed farmers said that it was not applicable. About 63 per cent of FED and 39 per cent of non-FED said they knew the schedule for some diseases. Zero per cent of FED and 2.3 per cent of non-FED said they did not know about scheduled diseases.

The findings suggest that very few farmers in the area knew about scheduled diseases livestock were vaccinated against.

3.3.15 Animal Health – Extension Support

Table 90: Extension Support with Animal Health

Variable	Category	FED Group Member		TOTAL
		Yes	No	
Received training from DEES in prevention, diagnosis & treatment of diseases	Not applicable	12.6%	33.1%	24.9%
	Yes	13.8%	2.3%	6.9%
	No	73.6%	64.6%	68.2%

Table 90 reveals that overall, 25 per cent of respondents said training on all that was not applicable. About 7 per cent of respondents said they did receive training from DEES, while 68 per cent did not.

The same pattern is displayed when comparing the FED and non-FED farmers. For example, 13 per cent of FED and 33 per cent of non-FED farmers said training on all that was not applicable. About 14 per cent of FED and 2.3 per cent of non-FED farmers said they received training from DEES on prevention, diagnosis and treatment of diseases. A great majority, 74 per cent of FED and 65 per cent of non-FED group farmers did not.

The findings reveal that even among the FED group farmers, only a few of them, 14 per cent received training from extension on prevention diagnosis and treatment of diseases.

3.3.16 Livestock Marketing – Types Sold

Table 91: Livestock Marketing

Variable	Category	FED Group Member		TOTAL
		Yes	No	
Livestock type sold most	Not applicable	5.7%	15.4%	11.5%
	Small stock	21.8%	12.3%	16.1%
	Large stock	9.2%	2.3%	5.1%
	Poultry	3.4%	10.0%	7.4%
	Don't sell	56.3%	55.4%	55.8%
	Don't own	3.4%	4.6%	4.1%

Table 91 indicates that overall, a great percentage (56 per cent) of respondents said they did not sell their livestock. About 16 per cent said they sold small stock and 12 per cent of respondents said the sale of livestock was not applicable. Some 5 per cent said they sold large stock, 7 per cent said they sold poultry and 4 per cent said they don't own livestock.

A similar pattern is demonstrated in both FED and non-FED farmers. For example, 56 per cent of FED and 55 per cent of non-FED farmers said they did not sell their livestock. About 22 per cent of FED and 12 per cent of non-FED farmers said they sold small stock. Only 9 per cent of FED and 2.3 per cent of non-FED framers sold large stock, while 3.4 per cent of FED and 10 per cent of non-Fed farmers said they sold poultry. About 3.4 per cent of FED and 5 per cent of non-FED farmers said they did not have livestock.

What is conspicuous is that farmers, in both FED and non-FED, do not seem to sell their livestock.

3.3.17 Livestock Marketing Information

Figure 29 Receives livestock marketing information from AETS/Farmer Organization/Meatco/others

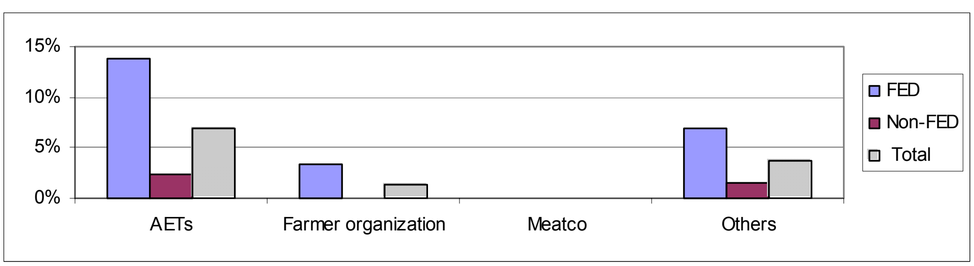


Figure 29 indicates that 14 per cent FED and about 2.4 per cent of non-FED said they received information from AET. Only about 3.4 per cent of FED said they received information from farmer organizations. No information was received from Meatco. About 6 per cent of FED and about 2 per cent of non-Fed farmers received information from others.

The findings suggest that there was good level of contact between the local AET and farmers in the area.

Table 92. Livestock Marketing Information Sources

Variable	Category	FED Group Member		TOTAL
		Yes	No	
Receives livestock marketing information regularly	Not applicable	25.3%	33.1%	30.0%
	Yes	13.8%	2.3%	6.9%
	No	60.9%	64.6%	63.1%

Table 92 shows overall, that 63 per cent of respondents did not receive livestock marketing information regularly. Only 6.9 per cent said they did receive marketing information.

We observe similar patterns when we compare the FED and non-FED farmers. For instance, 61 per cent of FED and 65 per cent of non-FED farmers said they did not receive marketing information regularly. About 14 per cent of FED and 2.3 per cent of non-FED farmers said they received the information regularly. Otherwise, 25 per cent of FED and 33 per cent of non-FED farmers said it was not applicable.

Table 93: Receives livestock marketing information from AETs

Variable	Category	FED Group Member		Total
		Yes	No	
Receives livestock marketing information from AETs	Not applicable	89.7%	98.5%	94.9%
	Yes	3.4%		1.4%
	No	6.9%	1.5%	3.7%

Only 1.4 per cent said they did receive livestock marketing information, while about 4 per cent said they did not. A similar situation is found when comparing the FED and non-FED group farmers. Only 3.4 per cent of FED and none of non-FED said they received information from AETs. Otherwise 7 per cent of FED and less than 2 per cent of non-FED farmers said they did not receive information from AETs.

Table 94: Receives livestock marketing information from Farmer organization

Variable	Category	FED Group Member		Total
		Yes	No	
Receives livestock marketing information from farmer organization	Not applicable	95.4%	99.2%	97.7%
	No	4.6%	.8%	2.3%

About 2 per cent said they received no information on marketing from a Farmer organization.

Table 95: Receives livestock marketing information from Meatco

Variable	Category	FED Group Member Yes	No	Total
Receives livestock marketing information from Meatco	Not applicable	93.1%	97.7%	95.9%
	Yes	6.9%	1.5%	3.7%
	No		.8%	.5%

About 4 per cent said they received information on marketing from Meatco and less than 1 per cent said they did not. A similar pattern is found when comparing the FED and non-FED group farmers. For example, 7 per cent of Fed and less than 2 per cent of non-FED farmers said they received information from Meatco. None of the FED and less than 1 per cent of non-FED said they received information Meatco.

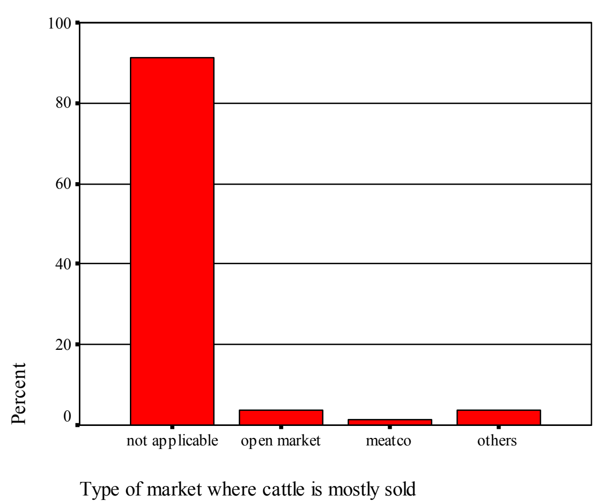
Table 96: Receives livestock marketing information from others

Variable	Category	FED Group Member Yes	No	Total
Receives livestock marketing information from Others	Not applicable	94.3%	97.7%	96.3%
	Yes	3.4%	.8%	1.8%
	No	2.3%	1.5%	1.8%

Only 1.8 per cent of respondents said they received information from others, while the same 1.8 per cent said they did not. A similar situation is found when comparing the FED and non-FED group farmers. For example, 3.4 per cent of FED and less than 1 per cent of non-FED farmers said they received information from others. About 2 per cent of FED and less than 2 per cent of non-FED said they did not.

3.3.18 <u>Livestock Marketing Channels</u>

Figure 30 Types of markets where cattle are mostly sold



About 15 per cent of respondents said open market, 10 per cent said Meatco and 15 per cent said others. The open market *(omatala)* and other markets were more important to farmers than formal markets.

Table 97: Livestock Marketing Channels

Variable	Category	FED Group Member Yes	No	TOTAL
Type of market where cattle are mostly sold	Not applicable	87.4%	93.8%	91.2%
	Open market	8.0%	.8%	3.7%
	Meatco	2.3%	.8%	1.4%
	Others	2.3%	4.6%	3.7%

Some 4 per cent said open markets, 1.4 said Meatco, while about 4 said others. We find similar patterns displayed when comparing the FED and non-FED farmers. About 8 per cent of FED and less than 1 per cent of non-FED farmers said open market, 2.3 per cent of FED and less than 1 per cent of non-FED framers said Meatco, and 2.3 per cent of FED and 4.6 per cent of non-FED farmers said others.

Table 98: Type of market where small stock are mostly sold

Variable	Category	FED Group Member Yes	No	Total
Type of market where small stock are mostly sold	Not applicable	78.2%	88.5%	84.3%
	Auction	1.1%		.5%
	Open market	6.9%		2.8%
	Others	13.8%	11.5%	12.4%

Less that 1 per cent said auction, about 3 per cent said open markets and 12 per cent said others A similar situation is displayed when comparing the FED and non-FED farmers. About 1.1 per cent of FED and none of non-FED farmers cited auction, about 7 per cent of FED and none of the non-FED farmers cited open market, while 14 per cent of FED and about 12 per cent of non-FED framers said others.

Table 99: Type of market where poultry are mostly sold

Variable	Category	FED Group Member Yes	No	Total
Type of market where poultry are mostly sold	Not applicable	85.1%	83.8%	84.3%
	Auction	1.1%		.5%
	Open market	2.3%	1.5%	1.8%
	Others	11.5%	14.6%	13.4%

Less that 1 per cent said auction, 1.8 per cent said open markets and 13 per cent said others. A similar situation is displayed when comparing the FED and non-FED farmers. About 1.1 per cent of FED and none of non-FED farmers cited auction. About 2 per cent of FED and less than 2 per cent of the non-FED farmers cited open market, while 12 per cent of FED and about 15 per cent of non-FED framers said others.

Table 100: Type of market where pigs are mostly sold

Variable	Category	FED Group Member Yes	No	Total
Type of market where pigs are mostly sold	Not applicable	90.8%	92.3%	91.7%
	Open market	1.1%	.8%	.9%
	Others	8.0%	6.9%	7.4%

Less that 1 per cent said open markets and about 7 per cent cited others. A similar situation is displayed when comparing the FED and non-FED farmers. About 1.1 per cent of FED and less than 1 per cent of non-FED farmers cited open market. Some 8 per cent of FED and 7 per cent of the non-FED farmers said others.

Traditionally, small stock and poultry and pigs to some extent are regarded as only for own consumption, but not for marketing. These are even given away as gifts to friends or family members.

Table 101: Type of market where donkeys are mostly sold

Variable	Category	FED Group Member Yes	No	Total
Type of market where donkeys are mostly sold	Not applicable	100.0%	99.2%	99.5%
	Others		.8%	.5%

Less that 1 per cent cited others to imply informal or to local communities. A similar situation is displayed when comparing the FED and non-FED farmers, where none of the FED and less than 1 per cent said they sold to others. The findings are quite conforming to the local situation in the area. Normally, there is no market for donkeys to speak of.

3.3.19 Timing of Cattle Marketing

Table 102: Cattle Marketing Season

Variable	Category	FED Group Member Yes	No	TOTAL
Season for selling most livestock	Not applicable	70.1%	74.6%	72.8%
	Summer	4.6%	2.3%	3.2%
	Winter	8.0%	1.5%	4.1%
	Spring	1.1%		.5%
	Any season	16.1%	21.5%	19.4%

About 3 per cent said in summer, 4 per cent said in winter, less than 1 per cent said spring, but 19 per cent said any season.

Similar situation is seen when we compare the FED and non-FED farmers. About 5 per cent of FED and 2.3 per cent of non-FED farmers cited summer. About 8 per cent of FED and less than 2 per cent of the non-FED farmers cited winter, while 1.1 per cent of FED and none of FED farmers said spring. But 16 per cent of FED and 22 per cent of non-FED farmers said any season.

The findings displayed in table 106 are the norms followed by typical farmers in the area. Except for the idea of selling livestock when they are fat in summer, there is no specific season for selling livestock.

3.3.20 Cattle Marketing Age

Table 103: Cattle Marketing Age

Variable	Category	FED Group Member		TOTAL
		Yes	No	
Age at which most livestock is sold	Not applicable	83.9%	86.9%	85.7%
	4-6 years	5.7%	10.0%	8.3%
	7-9 years	6.9%	2.3%	4.1%
	>9 years	1.1%		.5%
	Any age	2.3%	.8%	1.4%

About 8 per cent said between 4-6 years, 4 per cent said between 7-9 years, less than 1 per cent said older than 9 years and 2.3 per cent said any age. Comparing the FED and non-FED farmers, similar situation is seen. About 6 per cent of FED and 10 per cent of non-FED farmers cited between 4-6 years, 7 per cent of FED and 2.3 per cent of non-FED farmers said between 7-9 years, 1.1 per cent of FED and zero per cent of non-FED farmers said older than 9 years and 2.3 per cent of FED and less than 1 per cent of non-FED farmers said any age.

3.3.21 Attitudes to Innovation

Table 104: Attitude to New Farming Practices and Technologies

Variable	Category	FED Group Member		TOTAL
		Yes	No	
Considering farming with new things	Not applicable		.8%	.5%
	Yes	83.9%	73.8%	77.9%
	No	16.1%	25.4%	21.7%

Table 104 shows that overall, almost 78 per cent of respondents said they consider farming with new things. About 22 per cent said they did not consider faming with new things. Similar patterns were displayed when comparing the FED and non-FED farmers. For example, 84 per cent of FED and 74 per cent of non-FED farmers said they consider faming with new things. About 16 per cent of Fed and 25 per cent of non-FED farmers said they did not consider faming with new things.

There is a tendency amongst farmers, both in FED and non-FED, of adopting new technologies.

Table 105: Reasons for considering new farm opportunities

Variable	Category	FED Group Member		Total
		Yes	No	
Reasons for considering new farm opportunities	Not applicable	16.1%	26.2%	22.1%
	Earn more income	44.8%	22.3%	31.3%
	Have more assets/property	12.6%	.8%	5.5%

Table 105 reveals that overall 31 per cent of respondents said that they considered new farming opportunity to earn more income. Only 6 per cent said to have more assets and or property. Similar patterns were displayed, when comparing the FED and non-FED farmers.
The findings suggest that, farmers in both FED and non-FED seem to be well informed about the benefits of new farm opportunities.

Table 106: Improved Farming due Extension

Variable	**Category**	**FED Group Member**		Total
		Yes	**No**	
Realized improvements in farming due to Extension activities	Not applicable		1.5%	.9%
	Yes	81.6%	3.1%	34.6%
	No	13.8%	94.6.	62.2%
	Somehow	4.6%	.8%	2.3

Table 106, reveals overall that, about 35 per cent of respondents said they realized improvements in farming due to activities of extension. However 62 per cent said they did not realize improvements due to extension activities.

This result demonstrates the active contact between local AETs and farmers in the FED groups. As expected, a great majority (82 per cent) of FED group farmers responded to improved farm technology and farm management practice, much better than the 3.1 per cent of non-FED group farmers, who said they did not realize any improvement due to extension activities.