REPUBLIC OF NAMIBIA

MINISTRY OF AGRICULTURE
WATER AND RURAL DEVELOPMENT

(DRAFT: 12 NOV 2003)

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BASELINE SURVEY OF THE IMPACT OF AGRICULTURAL EXTENSION SERVICES IN THE SOUTHERN KUNENE SUB-REGION

DIRECTORATE OF EXTENSION & ENGINEERING SERVICES
KHORIXAS, OCTOBER 2003

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Acronyms and abbreviations

ADC	Agricultural Development Centre
AET	Agricultural Extension Technician
CAET	Chief Agricultural Extension Technician
CBO	Community Based Organisation
DEES	Directorate of Extension and Engineering Services
DVS	Directorate of Veterinary Services
EU	European Union
GDP	Gross Domestic Product
FSA	Farming Systems Area
MAWRD	Ministry of Agriculture, Water and Rural Development
NAPCOD	Namibia's Programme to Combat Desertification
NDP2	Second National Development Programme
NGO	Non-governmental Organisation
NNFU	Namibia National Farmers Union
REMP	Research Extension Management Programme
RWS	Rural Water Supply
SAET	Senior Agricultural Extension Technician
SARDEP	Sustainable Animal and Range Development Programme
SKW	Sesfontein, Kuwarib, Warmquelle Development Programme
SPSS	Statistical Package for the Social Sciences
VCF	Veterinary Cordon Fence

Acknowledgements

The questionnaire survey was undertaken by the late Mr D. Useb, in collaboration with the rest of the DEES team in the southern Kunene region. Report preparation was undertaken by Mr D. Useb, Mr C. N. Tsuseb and Mr P. Vigne. Financial and technical assistance were provided by the EU supported Research Extension Management Programme (REMP). Particular thanks are offered to the farmers of the southern Kunene sub-region for their generation co-operation in giving their time and providing the information used in this survey. Thanks are also given to the survey enumerators: M. Hoaes, E. Naseb, B.R. Haradoeb, A. Awaseb.

This report is humbly dedicated to the memory of Mr D. Useb who tragically passed away in a car accident while preparing 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.

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

Calls for an assessment of the impact of agricultural extension services have been made by our collaborators, as well as the Namibian public at large. 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 the Kunene South sub-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. It notes the intension 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.

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

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, that 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 southern Kunene sub-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. Despite this, it notes that farming provides the main livelihood for approximately 3,250 full-time farming households, and contributes to the livelihoods of an additional 1,175 part-time farmers. Farming is based mainly on small stock; according to the 2002 Livestock Census the area hosts 104,716 goats and sheep, and 17,778 cattle.

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 discussed 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.

Findings related to investigations of the extent of contact between farmers and extension services include that 85.7% of respondents knew the name of their local AET, an indication of a fair degree of familiarity. Also, despite the problem of distance (37.3% of the sample lived more than 40 kilometres from the local Agricultural Development Centre), it was found that 68.4% of respondents stated that they had received information from their local AET in the last year. 82.4% of respondents said they found information from extensionists to have been useful, 42.4% saying it was very useful. These findings are in line with the existing extension worker to farmer ratios in the area which are calculated as 1:232 full-time farming households.

The findings also showed that radio is an important source of agricultural information. 71.3% of respondents said they heard agricultural information on the radio either daily (9.3%) or weekly (62%). Respondents also rated this information highly: 58.7% said that such information was very useful and 38% said it was quite useful.

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.

Yet animal health issues are an important, focus of extension advice in response to farmer demand. Responses reveal low rates of vaccination, as recommended, against the important cattle production diseases: Black quarter, Botulism, and Bruscellosis, and the important small stock disease Pasteurella. Of particular concern is the low percentage of farmers vaccinating cattle against anthrax, which is compulsory. It is also revealing that 50% of those not vaccinating say that this is because they do not know about vaccinations or see no need for vaccinations. While the extent of the problem of internal and external parasites varies in the sub-region from year to year, the survey shows surprisingly low levels of recognition of parasites as a problem, particularly in the case of internal parasites. Only 41.2% of respondents recognise internal parasites as a problem and only 59.2% of these apply recommended treatment. Finally, it may be noted that 53% of respondents say they have received extension training related to animal health, nearly all of whom say they found it useful. It may be concluded that extension services should pay increased attention to issues of animal health.

Concerning routine animal husbandry practices, there is room for improvement with regard to dehorning of cattle, while rates of adoption of castration and use of registered brand marking are relatively high. Provision of licks is practiced by three quarters of farmers, but this is usually

only salt block. It is likely that in some areas there is a need for licks containing minerals, particularly phosphorus.

Responses showed that 59.3% of respondents kept livestock management records. But this says nothing of the quality of these records, or whether they cover production and or financial matters.

In line with previous findings that farming is the key source of income in the sub-region, the survey showed that 91.1% of farmers do sell livestock. However, an analysis of main marketing channels shows that there is heavy reliance of speculators, particularly for small stock – which are the major livestock marketed in the area. This is supported by the finding that farmers mainly sell livestock when the need for money arises – as opposed to selling according to a planned market oriented production system. Only two thirds of farmers say they have received information on livestock prices – this may be taken to extend to broader aspects of grading and pricing, if not marketing in general.

Concerning the fundamental matter of range management, 60% of respondents said that they did not think it was possible to practice effective grazing management in communal areas. More than 60% of respondents identified fencing – which may be taken to mean the possibility of keeping the livestock of other farmers off their grazing, in other words exclusive land user rights, as the most effective way of managing grazing. The main reasons given for this, and other ways not being possible was lack of cooperation amongst farmers. With the advent of the Communal Land Reform Act of 2002, this could be an area in which extension services can become more active.

The survey confirmed the limited importance of crop production in the sub-region. However, the questionnaire focussed exclusively of cash crop production, and thus did not capture concerning small-scale (also known as 'backyard' gardening) gardening, which is an important source of nutrients for some households.

Finally, the survey showed that 66.1% of participants were a member of one community based organisation or anther. Considering all types of community based organisations, 83% of respondents said they regards these organisations as useful and important.

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

2.2.1 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.

2.2.2 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.

2.2.3 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 19 and 20). The logframe 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:

6. contact with extension (either directly through participating in activities with Agricultural Extension Technicians (AETS) or visiting demos, or Agricultural Development Centres (ADCs), or indirectly through the radio or other farmers who have learned directly from extension);
7. received information, advice or training on the innovation from extensionists;
8. understood the information, advice or training on the innovation;
9. tried out and adapted the innovation to their specific needs; and
10. 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 pin-point 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. Rather, we assume that, all being 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 which 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.

Box. Main Stages in 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;
- liasing 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 detail in Section 5 of this report. The questionnaire is presented in Annex 1.

PART TWO

3 AGRICULTURE IN KUNENE SOUTH REGION

The baseline extension survey being reported on here covered communal areas in the south western section of Kunene region. Although referred to by the Directorate of Extension and Engineering Services as the southern Kunene sub-region it corresponds with the Sesfontein and Khorixas Constituencies, and excludes the Kamanjab and Outjo Constituencies. The southern border of the Khorixas Constituency is the Ugab river, and the northern border of the Sesfontein Constituency is the 19 degree latitude line, about 20 kilometres north of the settlement at Sesfontein.

3.1 BIOPHYSICAL RESOURCES

3.1.1 RAINFALL

The Kunene South region, like the rest of Namibia, is a semi-arid summer rainfall area. Most rains are in summer, especially from December to March. Many showers are too light or isolated to benefit plant growth, and a good deal of water is lost as a result of high evaporation. Due to the erratic rainfall conditions there are only ephemeral rivers, Ugab-river in Sorris-Sorris area, Huab-river in Fransfontein area, Hoanib in Sesfontein area and are irregular and unreliable.

As illustrated in figures 3.1, the average annual rainfall for the area varies between 0 mm, in the Skeleton Coast area to the west, and 400 mm to the eastern border. Mean annual evaporation is many times as high as this, at about 3,000 mm as measured from open water. In the Southern Kunene communal area, that this report focuses on, farming is practiced in areas with average rainfall as low as 150 mm. While in the east averages are no more than 300 mm Rainfall is both low and variable, to the extent that average figures are a poor guide of the rainfall situation.. For example, at Khorixas it is common for rainfall to vary as much as 50 per cent from the long term mean of 215 mm; and the range of rainfall is 22 – 500 mm (Jacobson et al. 1995). The whole area is prone to severe droughts which can result in heavy stock losses. Farmers lose a lot livestock during drought. It's known that droughts are common in this part of the region and should be treated as part of the farmer's circumstances through preparedness. Strategic plans should always in be place as part of production management.

3.1.2 SOIL TYPES

Soils in the area vary in association with the rocky substrate from which soils derive and increasing aridity from east to west. For the most part soils are calcareous, shallow, rocky and poorly developed. They are mainly red sands derived from decomposed granite or whiter sandy clays with calcrete rocks. Deeper alluvial (riverine deposits) and colluvial (hill run-off deposits) soils are found in the valleys but are often calcareous and saline with limited potential for irrigated agriculture. Some alluvial soils deposited in the floodplains of some of the larger ephemeral rivers include deposits of sandy loams and sandy clay loams, and where they are found with high groundwater tables support dense stands of trees. Some of these areas may be suitable for irrigation.

According to fig. 3.2, the area consists of one main land province classified as Escarpment. The "Escarpment" is roughly composed of 50% eroded surfaces of the degraded escarpment, and 50 % high mountains of the escarpment. This relatively flat highland plain (elevation about 1,000 to 1,200 metres stretches from the border of the communal area to the basalt ridges of the Grootberg (1,645 metres) to the west. The Grootberg forms the edge of the escarpment which

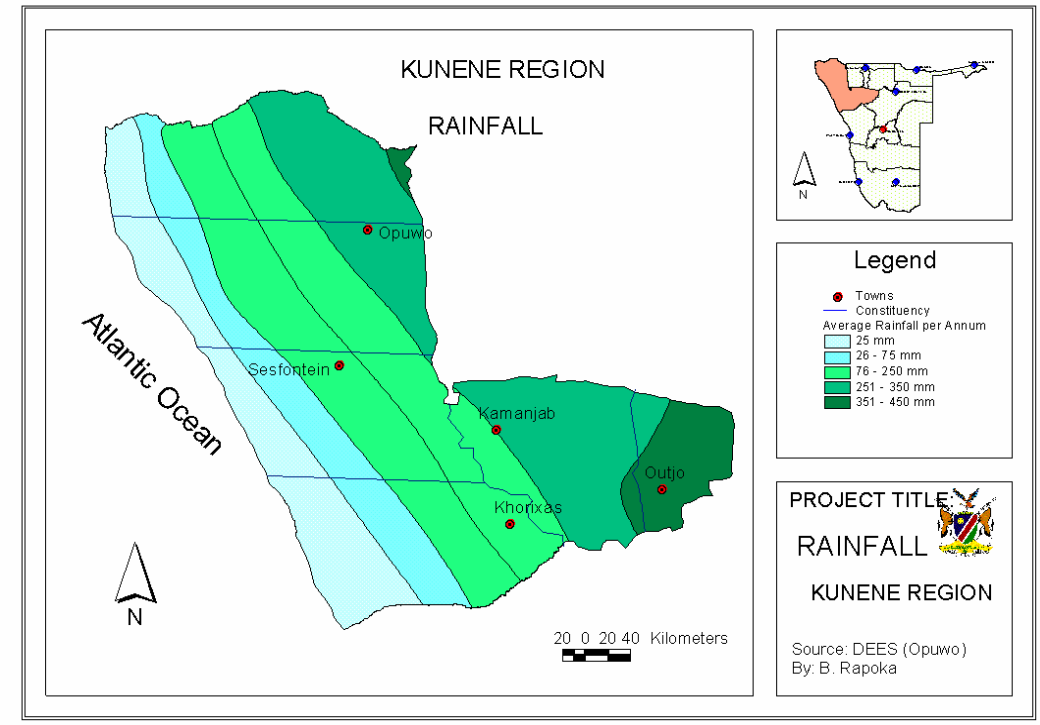


Fig. 3.1 Rainfall distribution

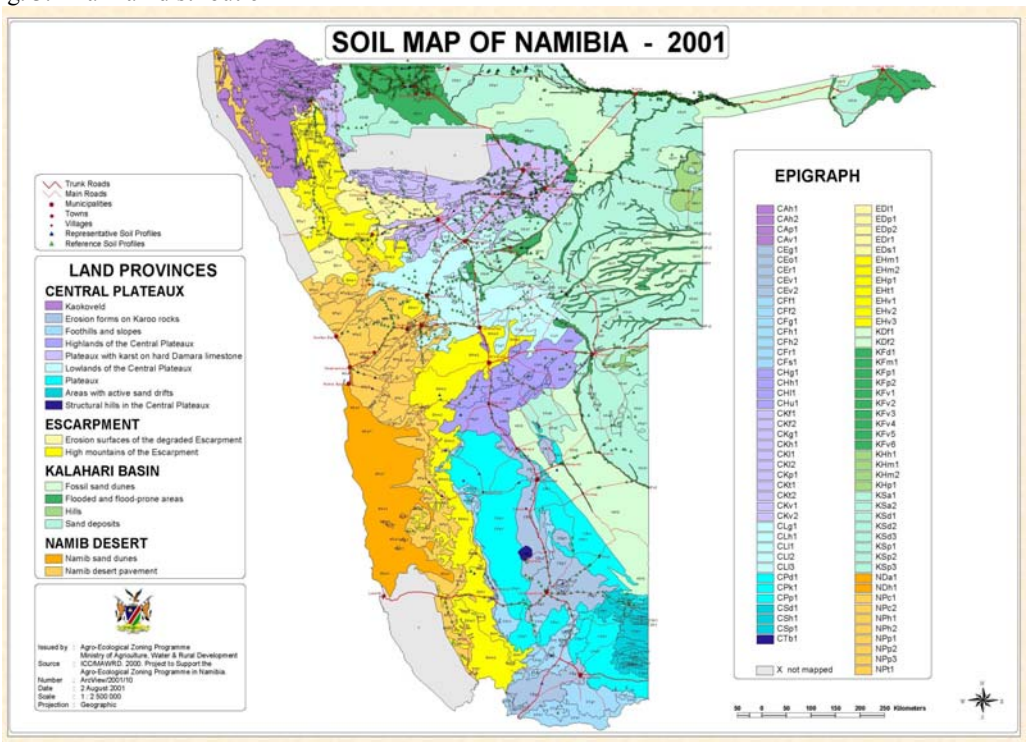


Fig. 3.2 Soil types of Namibia.

drops to the plains towards the Namib which have an elevation of about 500 metres. Towards the eastern border of the Kunene south area a second land province classification can be found "Central Plateaux" with the sub component Plateaux with Karst on hard Damara limestone.

The escarpment is predominantly characterised by Lithic Leptosols and Leptic Regosols. In the extreme west between the Skeleton Coast and Escarpment is an area of Haplic Leptosol. The Skeleton Coast, a strip 40 km wide and 600 km long was not surveyed.

3.1.3 VEGETATION TYPES

Vegetation types are usually due to a combination of factors, including rainfall, temperature, soil type and topography. The climatic patterns have brought about two vegetation areas, Mopani savannah and desert, which also influence population distribution. The area is mountainous, rocky, sandy and flat and consists of loam, clay and sandy soils.

Giess's classification (see fig. 3.3) gives an overview of the area. In the extreme east of the vegetation is mainly mopane savanna, mostly dominated by mopane (*Colophospermum mopane*). Further south a mixture of *Acacia* species dominate. A wide range of grasses appear in the area and the distribution depends on the soil types. *Stipagrostis uniplumis, S. brevifolia, S. obtuse* and *S. anomala* are available in most of the area. More to the West *Panicum arbusculum*, *Setaria appendiculata, Anthephora pubescens, A. ramose* and *Digitaria eriantha* are more common and these species are very important for good animal production. .

Moving westwards the transition to semi-desert is characterised by a variety of tree species (e.g. *Euphorbia, Cyphostemma, Moringa, Acacia*). This area is covered with small shrubs, *Leucosphaera bainesii*, *Monechma genistifolia, Blepharis pruinosa*, etc. The grass cover is very little and consists of *Stipagrostis obtusa* and *Stipagrostis uniplumis.* Woody species are confined to riverbanks including *Acacia erioloba* and other shrubs.

Vegetation in the extreme west of the area to the coast zone is extremely rare, with only highly specialised, small species being able to survive. The vegetation consists of tough dune grass, *Stipagrostis sabulicola*, together with *Trianthema hereroensis*. In the dune streets during the rainy season *Stipagrostis gonatostachys* will appear.

It is important to stress, however, that these broad classifications fail to do justice to the great variability of vegetation in the area. River valleys and run-off catchments with good soils and higher moisture and nutrient levels and high groundwater levels, and mountains which catch higher rainfall, produce important vegetation resources, which are vital for the survival of livestock at certain times. Tree species commonly found in the ephemeral river valleys include *Combretum imberbe* (leadwood), *Colophospermum mopane (*mopane), *Faidherbia albida* (ana tree), *Acacia erioloba* (camelthorn), and *Ficus spp*. (figs) and *Hyphaene petersiana* (palms). These are important browse species for livestock.

Indicating carrying capacity in Namibia is shown in Figure 3.4 expressed in kg per ha. However, where rainfall variation is so great from year to year, as well as spatially in a single year, such are of little value, and if used as a guide will result in overstocking from time to time. Under these circumstances access to emergency grazing and opportunities for emergency marketing are important drought coping mechanisms.

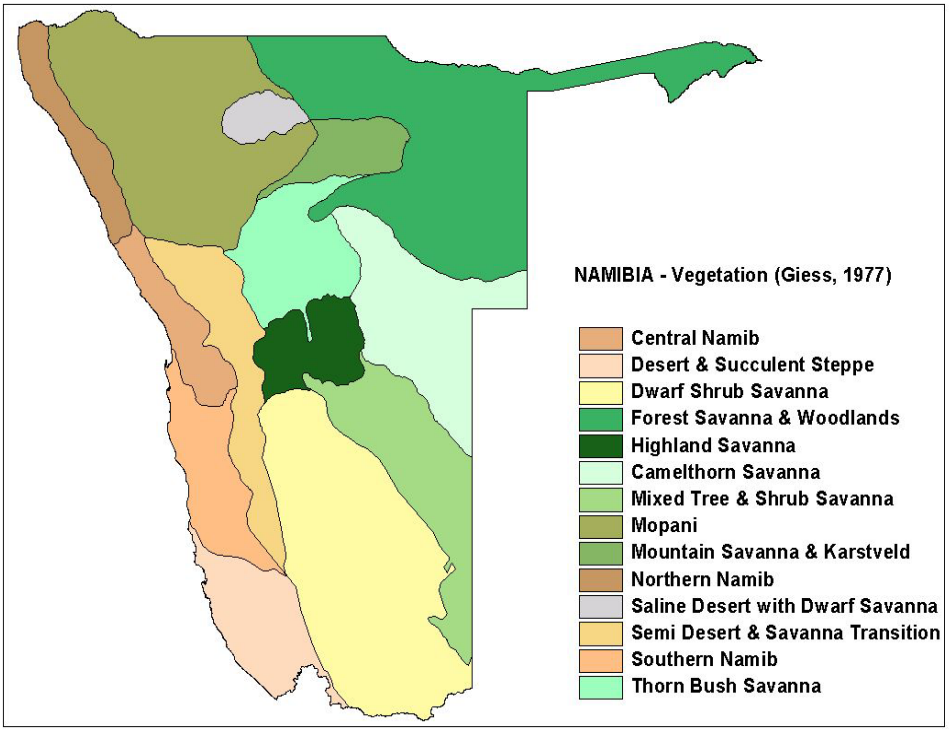


Fig. 3.3 Vegetation types of Namibia.

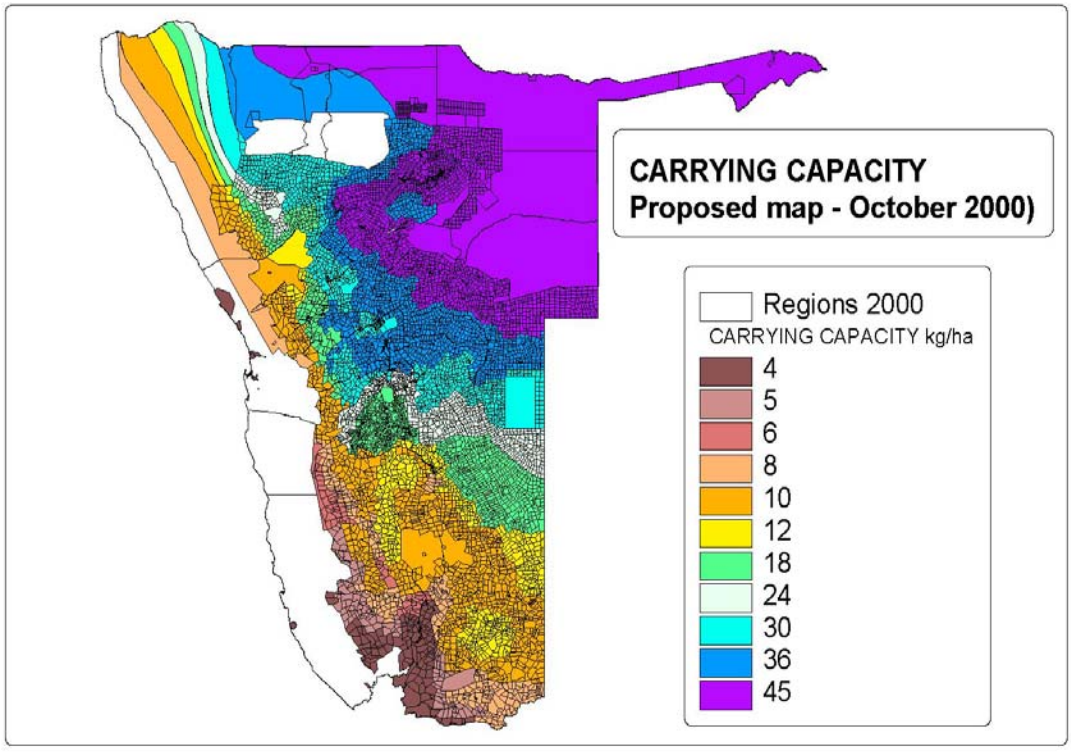


Fig. 3.4 Carrying capacity for the whole of Namibia.

3.2 POPULATION ISSUES AND SETTLEMENT PATTERNS

The south Kunene sub-region, as an administrative unit of the DEES is approximately equivalent to the Khorixas and Sesfontein Constituencies. As such the total population, according to the 2001 Population Census is 18,264, and the total number of households is 3,806. This figure includes non-farming residents of Khorixas and other settlements. The agricultural extension services estimates the number of farming households to be approximately 3,241, including 754 female-headed households. In addition, there are an estimated 1,175 part time or absentee farmers active in the sub-region. Thus, the total number of full and part time farming households amounts to some 4,416.

These figures compare with the total population of 66,158, and the total number of households of 12,555 for the Kunene region as a whole. The southern Kunene region is the most sparsely populated, having a population density of approximately 0.56 people per square kilometer.

Most of the data in the Census report gives little indication of the situation in the southern sub-region specifically. This is because all data is given for the region as a whole, and this is one of the biggest and most diverse regions in the country. Nevertheless the following indicators may be of interest: population growth rate 1.9% (well below the national level); urban residents: 25%, rural residents 75%; 41% under the age of 15 years; female headed households 40%; literacy rate (15+ years) 57%; access to radio: 72%.

The following figures produced by the Central Bureaux of Statistics (ref. as below) are for the whole of the Kunene region – the specifics of the southern part of the region are not reported.

Age distribution

Age	**Percent of Population**
Less than 20 years	57
20 - 59	39
60 and older	6

Average life expectancy for males and females

Year	**Life expectancy: males – females**
1996	68.4 – 64.2
2011	38.0 – 40.0
2020	48.0 – 50.0

Settlements are scattered with most people living in family groups on farms, with larger concentrations occurring near schools, clinics and other government offices in places like Fransfontein, Bersig, Anker and Grootberg. The main settlements are at Khorixas and Sesfontein which were occupied by settled communities before colonisation due to the availability of water. Khorixas, formerly the white town of Welwichia, has by far the most developed municipal and social infrastructure and amenities.

The 1991-2021 Population Projections report (Central Bureaux of Statistics 2000. quoted in the Republic of Namibia 2002 Kunene Regional Development Plan) suggests that the areas population is likely slightly to drop over the next ten years. This is mainly due to out-migration resulting from lack of employment and income generating opportunities, as well as decreased life expectancy and decreased fertility due to increased educational standards.

3.2 LIVELIHOOD PATTERNS

The natural environment, and particularly the variable rainfall, of the southern Kunene region make the area suited for pastoral nomadism in which livestock are moved seasonally in search of grazing. This forms the basis of the farming systems practiced by farmers in northern Kunene. In southern Kunene farmers move in search of grazing in times of drought. For example, in 1994 farmers in the Khorixas area moved thousands of cattle to the Sorris-Sorris area, near the Brandberg (Jaconson et al. 1995).

The advent of settler farming in the area saw the establishment of extensive ranching on fenced farms from the 1930's onwards. Small stock and notably karakul farming was practiced to the west on farms of about 12,000 ha. Further east extensive cattle ranching becomes feasible, with farms in the commercial areas of the Outjo district of about 5,000 ha. These farms limited movement in search of grazing but were generally big enough to include some good grazing in most years. Occasionally, stock had to be moved to other farms for emergency grazing. By the time of the Odentaal report in 1964 many of the western-most farms had been abandoned and were being used for emergency grazing or in years of good rain only.

Following the Odentaal Commission and the designation of the communal area of southern Kunene as the northern part of the homeland for Damaras, all the white owned commercial farms (223 for all of former Damaraland) were compulsorily purchased by government and mainly Damara people were settled involuntarily on the land. The people came from different parts of Namibia, and even so far away as the northern Cape in the case of the Riemvasmakers people.

Resettlement in Damaraland generally involved moving people from more productive areas, including the eastern parts of southern Kunene, to the more marginal west, where they were settled in high densities and without access to the higher rainfall areas to the east. In other words the seasonal east west transhumance of previous times was prevented. In any case, the resettlement of Damaras was not primarily intended to establish them as farmers. Its main aim was to remove them from white farming areas into a reserve. Hence, the way they were settled and the support they were given were not conducive to the establishment of economically viable or environmentally sustainable farming systems.

Prior to independence, the Damaraland Second Tier Authority purchased nine freehold farms for resettlement of farmers in the commercial area. In recent years, resettlement has continued in various forms.

Nowadays, in the Kunene south communal area, income derives from small stock farming, cattle, donkeys, poultry and small gardening where possible. As in many communal areas of Namibia, livestock ownership is skewed. Most people live by subsistence farming, though there are a few wealthy livestock owners who farm commercially. These few large-scale owners absorb a disproportionate amount of grazing. Government schemes to resettle some of these large farmers on freehold farms, first on nine farms purchased before independence by the Damaraland Second Tier Authority, and more recently through various government sponsored resettlement schemes, are only partially successful in their aim of moving large herds ands flocks off communal grazing, as no attempt is made to prevent such farmers exercising their rights to graze in the communal area as well as on their newly acquired farms.

Irrigated gardens producing large quantities of vegetables and other crops have been a feature of the area for nearly a century. Gardening at Warmquelle, near Sesfontein, started in 1906. Such gardens get their water from springs or high levels of impermeable rocks along river courses, now often supplemented by boreholes and dams.

Many farm households in communal southern Kunene derive significant income from off-farm employment; their farms being managed by family members or labourers. Other sources of income in the area include the public service (including education, defence and police), small mining enterprises, and tourism ventures. Significant wildlife and spectacular scenery make tourism an important source of income for the area. Tourism concessions and conservancies enable communities and individuals to benefit. This is reflected in a sudden increase in the involvement of local communities in game farming and tourism ventures. There are five conservancies registered in the area, namely the Torra, #Khoadi//!Hoas (Grootberg), Uibased (Twyfelfontein), Doro !Nawas and Omburo (Purros) Conservancies, and several more

applications are pending. There are 19 private game reserves and 43 hunting farms registered in the neighbouring Outjo district of Kunene.

According to the National Labour Force Survey (1997), 43% of the whole of the Kunene region's households derived an income in the form of "wage and cash income", while 23% of households income was based on subsistence farming, and 14% of households derived income from business activities. These figures are difficult to interpret because they include the northern part of Kunene and the commercial farming district around Outjo.

Formal employment opportunities in the area are very limited. Many young adults who have received some education or training, leave the region in search of employment.

3.4 LIVESTOCK PRODUCTION

Small stock, and particularly goats, predominate in the area because of the lack of grazing. Springs at Sesfontein, Khowarib, Fransfonteien, Sorob and Warmquelle water irrigated plots totalling some 50 ha. Otherwise water shortages have led to the concentration of stock and consequent overgrazing around water points.

Reflecting the importance of the livestock sector to the region, recent livestock census figures are presented below. The figures for the southern Kunene region that this report covers are given in the second from bottom row of each table. Amongst other things these figures reveal a significant drop in numbers following the 1994/95 and 1995/96 drought years and signs of a gradual recovery thereafter. The figures also illustrate the importance of the regions goat herd relative to other stock. A comparison of livestock census data with range areas and carrying capacities indicates that overgrazing that occurs in places is the result of poor distribution of livestock within the region rather than overstocking overall.

DIRECTORATE OF VETERINARY SERVICES KUNENE REGION LIVESTOCK CENSUS

Table . Cattle - 1995 to 2002 (Census figures for the end of the year)

Veterinary Area	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**
Opuwo	136,617	154,926	165,704	173,473	172,933	173,969	176,215	177,216
Sesfontein	1,035	2,500	2,553	2,218	1,987	2,746		
Outjo	94,999	74,310	76,992	75,424	59,421	59,432	68,940	98,411
Khorixas & Kunene S.	**15,411**	**31,501**	**24,677**	**28,175**	**20,200**	**14,066**	**15,308**	**17,778**
Kunene Region	248,062	263,237	269,926	279,290	254,541	252,213	262,464	295,407

Table . Goats - 1995 to 1999 (Census figures for the end of the year)

Veterinary Area	1995	1996	1997	1998	1999	2000	2001	2002
Opuwo	209,874	405,372	405,486	404,484	406,128	429,567	258,790	259,601
Sesfontein	23,694	29,110	31,481	31,710	32,212	42,124		
Outjo	42,001	45,034	45,105	42,627	41,250	39,170	49,197	62,410
Khorixas & S. Kunene	**59,709**	**86,171**	**81,147**	**82,541**	**79,095**	**60,136**	**74,121**	**83,871**
Kunene Region	335,78	565,687	563,219	561,362	558,685	572,997	384,109	407,884

Table . Sheep - 1995 to 1999 (Census figures for the end of the year)

Veterinary Area	1995	1996	1997	1998	1999	2000	2001	2002
Opuwo	64,068	66,387	67,377	65,640	64,881	67,431	63,616	64,476
Sesfontein	5,225	5,809	6,989	6,445	6,459	7,093		
Outjo	40,735	39,616	43,658	45,123	38,787	36,545	46,673	44,411
Khorixas & S. Kunene	**8,334**	**11,614**	**11,864**	**12,632**	**12,765**	**19,791**	**11,996**	**20,845**
Kunene Region	118,362	123,426	129,888	129,840	122,892	132,860	124,286	131,734

These figures may be compared with livestock numbers gathered by extension staff at the time of the reporting (Sept 2003): Cattle – 19,462; Goats – 102, 323; Sheep – 22,847; Pigs - 120; Donkeys – 9,291; Horses – 1,537; Mules – 27.

Hence, average ownership per farming household (using the figure of 4,416 households as noted in section 2.3).amounts to 4.4 cattle, 23.2 goats and 5.2 sheep. In practice, ownership is highly skewed with variation being mainly due to farmers' socio-economic class and location. Please refer to section 6.3.6 for an indication of livestock ownership distribution. As rainfall and grazing decrease from east to west, so do the number of small stock, mainly goats, increase in proportion to cattle. In the western areas, such as in the Sorris Sorris area, only goats and a few sheep are found. Most households subsist on flocks of between 150 to 300 goats, though flocks of about 600 are known. (Recommended ram:ewe ratio 1: 30 in practice 1:50 is common.).

A recent initiative of the Karakul Board is to re-introduce karakul farming, which had declined in the last two decades due to the depressed international market Karakul production which requires that only the breeding herd is grazed, is well suited to the environment, but market conditions remain uncertain most recently due to foreign exchange rate fluctuations.

The Directorate of Veterinary Services (DVS) is responsible for the Veterinary Cordon Fence (VFC) , which restricts livestock movement to the north, in the Foot and Mouth Disease buffer zone, and in surveillance zone to the south. The VCF runs along the northern border of the former freehold farms bought by the State for the Damaraland homeland. As such, the fence starts from the border with the Etosha National Park at Otjovasandu, and runs in an approximately south westerly direction to the coast.

As such most of the Sesfontein Constituency of the southern Kunene sub-region falls to the north of the VCF. Livestock from these areas cannot be moved to the south unless, in the case

of cattle, they are quarantined for 21 days in the Omutambo Omauwe in Omusati region and transported and sold to Meatco at their Oshakati abattoir. The consequence of this inconvenient and costly arrangement is that cattle in the area are marketed only at local informal markets. In the case of small stock, they may be sold to the south, but only after undergoing quarantining at Omutambo Omauwe, being transported south of the VCF and then undergoing further quarantining – again an inconvenient and costly business.

Immediately to the south of the VCF lies the surveillance zone, a strip of two or three former freehold (so called Odentaal) farms. Livestock from this zone may be marketed to the south after undergoing 21 days quarantining in one of three quarantine farms, namely Middleput, Condor post, and Kuwarib. There are four veterinary control points along the VCF in the sub-region at Palmwag, Werda, Kaizerfontein and Otjovasandu. In addition, there are 124 veterinary crush pens in the sub-region.

Livestock marketing to the south of the VCF is facilitated by the following government owned infrastructure located in the sub-region: 25 auction kraals: 12 for cattle and 13 for small stock used for auctions and permit sales. In the first 9 months of 2003 , the DVS registered the following sales in the sub-region: cattle – 3,575, sheep – 1,063 and goats – 7,409.

3.5 CROP PRODUCTION

Irrigated agriculture occurs in temporary and permanent gardens near springs and on river banks. The main crops produced are green maize, winter wheat, pearl millet and sorghum, beans, cowpeas, pumpkins, tomatoes, carrots, onions. Springs at Sesfontein, Warmquelle, Khowarib, Fransfontein, Ehomba and Sorob, water irrigated plots totalling some 50 ha. Summer and winter seasonal planting of crops takes place in these gardens. Most irrigation takes place using flood and furrow methods, though drip and other forms of micro-irrigation is now increasing.

The major irrigation for crop production is only applicable in Sesfontein area, with crash crop and vegetable production. However there are small scale home yard gardening practices in place mainly with flood irrigation.

Anther focus of regional development efforts could be on developing the agricultural potential of the natural springs, combining food crops with high value cash crops. Small-scale irrigated cropping could be practiced, for both commercial high value non-perishable cash crops such as dates (e.g. at Eersbegin), Oriental tobacco and Dark Air-cured tobacco (e.g. at Sesfontein, Warmquelle, Khowarib), paprika and crops for local consumption purposes. There are believed to be opportunities to increase the number of new gardens and expand the area of existing gardens given investment in improved water supply and catchment technology as well as irrigation technology. For example, the community at Onverwag on the Ugab river started in 2003 with Date Palm production and so far 66 date palm trees have been planted. Micro irrigation is used for watering the plants.

The Namibia Development Corporation recently replanted the date plantations at Eersbegin with export quality stock and hopes are high that these will when they come into production sustain a processing plant at Khorixas.

The development of the Region's crop and horticulture sector is constrained partly by lack of experience of the people and the difficulties inherent in managing communal garden assets, as well as by the very small local market for fresh produce.

3.6 FOOD SECURITY

Food security is achieved when people have reliable access to the safe and nutritious food necessary to lead an active and productive life. It reflects levels of poverty and is mainly determined by access to productive resources and income earning opportunities. Under-nutrition affects both physical and mental growth and development particularly in children.

In Kunene region, as a whole, agricultural production makes only a small and, it is believed, declining contribution to average communal area household income, both actual and imputed. Most rural people rely mainly on purchased food, using incomes derived from employment, pensions, remittances of both food and cash and a range of non –farming activities including trading. Own production of food comprised 16.6% of total intake in the Kunene Region as a whole.

Household and individual food insecurity is a chronic problem amongst the region's poor. The 1993/94 household income and expenditure survey revealed that 40.6 % of households spent more than 60% of their total income (in cash and kind) on food. This is a generally accepted indicator of poverty. Further, 11.3% of the region's households spend more than 80 % of their income on food. Those who are most vulnerable to food insecurity are mainly female-headed households, the elderly and those with limited access to outside sources of income and high dependency rations. It will be important to update these figures following the completion of the 2003 Household Income and Expenditure Survey.

Malnutrition is widespread among children in the Kunene region. Between 20 and 25% of all children under five suffer from chronic under nutrition and some 5 to 13 %suffer from moderate to severe wasting.

4. AGRICULTURAL EXTENSION SERVICES IN SOUTHERN KUNENE REGION

4.1 MISSION AND STRATEGY

The Directorate of Extension and Engineering Services (DEES) of the Ministry of Agriculture, Water and Rural Development (MAWRD) has defined its mission as being:

"to provide agricultural extension services in the form of advisory, information communication, and training services aimed at empowering farmers, and at encouraging the adoption of improved agricultural and related income generating technologies and practices."

In order to carry all its duties effectively, in 2002 the Directorate adopted a logical framework, which is a tool that links long term policies and plans (e.g. National Agricultural Policy (1996); 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 reproduced in the table below.

Table Extension logical framework

GOAL
Improve food security at household and national levels
PURPOSE
Farmers have achieved increased and sustainable agricultural production and increased incomes deriving form agriculture.

OUTPUTS	**ACTIVITIES**
1. Improved agricultural technology and practice options are available to stakeholders	❖ Development of relevant agricultural technology ❖ Development of information on relevant agricultural technologies ❖ Dissemination of information on relevant agricultural technologies to create awareness and interest.
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 organisations 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

OUTPUTS	ACTIVITIES
5. Co-operation between partner organisations is improved	❖ Information sharing (documents and meetings), joint planning and co-ordinations, joint-planning and collaboration

4.1.1 KEY EXTENSION APPROACHES

The key approach adopted by the DEES to guide its interactions with farmers is referred to as the Farming Systems Research and Extension approach. Essentially, it requires that extension activities are (i) participatory, to the extent practicable, (ii) multi-disciplinary and collaborative, so as to ensure a holistic or farming systems perspective, and (iii) driven by the real needs of farmers, farming communities, as well as of the government. The table on the following page highlights the four main phases in the cycle: analysing and diagnosis; activity planning to address constraints and opportunities; implementation; review, monitoring and evaluation, and impact assessment.

Table: The FSRE approach in the form of the project cycle

CYCLE PHASES	WHAT?	WHO?	OUTPUTS
ANALYSIS AND DIAGNOSIS	Primarily an investigating and analysing activity with farmers to understand how their systems are organised to ensure that projects and programmes respond to real needs (using tools such as pra, pla).	This is a participatory activity. A multi–disciplinary team approach is ideal with relevant subject matter specialists interacting with community members. Ideally, this could involve staff from throughout the ministry – dees, dart, dvs, drws, other stakeholders (ministries, cbos ngos) and farmers/community members	Identification and classification of main farming systems or livelihood systems and descriptions of key system constraints and potential opportunities.
ACTIVITY PLANNING TO ADDRESS CONSTRAINTS AND OPPORTUNITIES	Primarily a development planning activity.	Involvement in this activity depends on the nature of the constraint/opportunity being addressed. This is likely to fall under either: • Production systems (may require - participatory technology development, adaptive research, training etc) • Marketing systems (infrastructure, training, market information etc) • Community organisation (cbo formation, training, etc.) • Enabling environment etc. (policy changes,	Implementable programmes/ projects These may be designed to be led by cbos, ngos, directorates etc, depending on the nature of the activity that has emerged from the analysis and planning process.

CYCLE PHASES	WHAT?	WHO?	OUTPUTS
		infrastructure, legal reform) All of these will involve farmers/community members and extension with other development professionals involved as required by the programme	
PROGRAMME / PROJECT IMPLEMENTATION	This may be a variety/ combination of activity types; research, extension, training, communication/ information.	May involve ministry staff from number of directorates/ other ministries and stakeholders But again it will always involve farmers/community members and extension	Whatever the programme or project aimed at. For example, increased productivity of systems, improved incomes, reduced risks, reduced vulnerability, improved household and national food security, increased human resource and/or institutional capacity in rural communities
REVIEW, MONITORING AND EVALUATION, IMPACT ASSESSMENT	This is primarily a research activity	All involved in implementation of a programme or project should participate e.g., subject matter specialists and staff from throughout the ministry – research, extension, vets, water and possibly other stakeholders (ministries, NGOs) and farmers/community members.	Quantification of progress, adjustment of activities, new activities, re-prioritisation.

Some of the main ways in which extension interacts with farmers are noted below:

Individual and group contact and use of mass media

Individual farmer contacts as well as group contact approaches are used by extension staff to contact farmers. Extension regularly visits farms and farmers likewise visit the Agricultural Development Centres (ADC) for advice. It is usually a more efficient use of extension workers time if farmers can be approached in groups. The use of mass media, especially through the NBC radio broadcasts is an important way of providing agricultural information. It is also important to note, however, that information heard on the radio and via direct contact with extension workers fulfil different and complementary roles. Radio is more suitable as a source of news and information of immediate relevance, and for creating awareness of farming innovations. On the other hand, AET interventions are aimed at increasing understanding of a new innovation, developing associated skills, encouraging testing of an innovation by farmers, and finally supporting adoption by the farmer.

Farmer Associations and Unions
Farmers have organised themselves into groups and have established farmers associations and unions in all wards in the sub-region. These operate as farmers' representatives and interact with extension and other stakeholders on behalf of other farmers.

On farm trials and demos
Livestock technology and practice demonstration days, in the form of mini livestock shows, are conducted. Other new technologies are introduced to farmers as available on an ad hoc basis. A livestock improvement scheme is available at Grootberg to provide farmers with improved quality breeding stock of selected breeds, especially Boergoat rams and Damara sheep rams.

Farmer training
Regular farmer training programmes are conducted in the region in collaboration with stakeholders and partner organization such as SARDEP, NAPCOD and NNFU etc.
Recent training courses have included:

- Animal Health practices for quality production
- Animal husbandry
- Rangeland management and monitoring systems
- Local level monitoring systems
- General farm management principals
- Strategic planning in farming business
- Financial management in farming
- Project proposal writing
- Training of livestock marketing advisors

Study (exposure) tours of farmers
Farmers are exposed to variety of projects in and outside the region with visits organised or facilitated by extension services. The following have been visited recently:

- Visit functional rangeland projects
- Visit functional community development projects
- Visit Meatco abattoirs and tannery
- Visit Omatjene Research station to review work on animal husbandry, breed selection, grazing management and livestock breeding management.

Information days
A variety of information days are arranged by extension services for farmers with the aim of informing farmers of government policies such as the National Agricultural Policy, the National Drought Policy, the Second National Development Plan and of different emergency programs operating in the region, as well as general agricultural related matters in and around the region.

4.2 DEES POST ESTABLISHMENT IN THE REGION

Table 4.1 Post establishment for the extension personnel in the southern Kunene sub-region.

RANK	POST	FILLED	VACANT
CAET	2	2	0
SAET/AET	12	10	2
Clerical Assistance	4	3	1
Chief Handyman	1	1	0
Drivers	3	3	0
Labourers	20	17	3
TOTAL	42	36	5

The sub-region has a post establishment of 14 Agricultural Extension Technicians including Chief and senior AETs. Although the 2 Chief s are involved with significant management and administrative duties, they do also provide direct extension support to farmers. Considering the numbers of farming households as discussed in section 3.2 of this report we find that 14 extension officials serve some 3,241 full-time farmers. This amounts to a ratio of 1 extension worker to 232 full-time farmers. If the estimated number of part-time (1,175) farmers is included the ratio is 1 extension worker to 316 farmers.

4.3 AGRICULTURAL DEVELOPMENT CENTRES

There are seven ADC's in the DEES's southern Kunene sub-region: Khorixas Constituency: Khorixas ADC (and sub-regional head-quarters), Fransfontein ADC, Sorris-Sorris ADC, and Morewag ADC; and Sesfontein Constituency: Erwee ADC, Bergsig ADC and Sesfontein ADC. The Outjo ADC in the Outjo Constituency mainly serves the freehold farming area not covered in this survey.

4.4 OPERATIONAL EQUIPMENT

List of operational equipment in the Region.

4.4.1 OFFICE EQUIPMENT:

6x fax machines
5x coloured printers
3x black printers
2x overhead projectors
8x computers
13x telephone heads
2x switchboards
1x screen
1x table editing desk
1x tape recorder
1x camera digital PS A 40
1x scanner
2x sound boxes-computer

4.4.2 VEHICLES

Total	Make & Type
4	Ford courier 4x4 pickup
1	Sedan Nissan Sentra
1	Land Cruiser 4x4 station wagon
1	Mazda 2x4 Loading vehicle
2	Toyota Hilux 4x4 pickup
1	Nissan Double Cap 4x4
1	Ford Ranger 2x4
4	Isuzu 4x4 pickup
1	Colt 4x4 pickup
1	Nissan Truck 2x4 with trailer
1	Mercedes Benz Truck 4x4
1	Tata Truck 4x4
2	Water Tankers 1x 2500 LTRS & 1x 100 TRS
1	Hino Truck 4x4
1	Motor bike Yamaha 4x4

4.5 ANNUAL BUDGET BY MAIN MINISTRY OF FINANCE VOTE

Comment: Where are the figures?

The table below presents the operational budgets, excluding remuneration, provided to the entire Kunene region in recent years. This budget is shared between the three sub-regions: Kunene South, Kunene North and Kunene Central (Outjo area), according to their respective number of ADCs, staff and activities. The actual breakdown between the three sub-regions is not available.

Votes	**2001-2002 (N$)**	**2002-2003 (N$)**	**2003-2004 (N$)**
021 Travel & Subsistence Allowance	273230	221054	262500
022 Materials and Supplies	204065	170598	153100
023 Transport	1688074	1505762	1579200
024 Utilities	56588	47307	67400
025 Maintenance Expenses	48415	40523	52300
027 Other Services and Expenses	29119	24372	38400
101 Furniture and Office Equipment	26775	26775	35900
103 Operational Equipment, Machinery and Plant	9000	9000	12000
Total	**2391953**	**2058352**	**2218349**

4.6 DONOR PROJECTS

SARDEP program is operational in Grootberg area, focusing on rangeland management and small stock training. The NAPCOD program is operational in the area focusing on rangeland training for farmers, conservancy environmental shepherds and livestock improvement. It also assists with activity planning support farmers Associations and conservancy committees. REMP support institutional and human resources development in the region i.e. infrastructure, office equipment, training and exposures. Sustainable Development Program for Sesfontein, Kuwarib and Warmquelle (SKW), aims towards improvement in community garden for sustainable food production and food security in the concern areas.

4.7 MAIN COLLABORATORS

Collaboration consists of line ministries, Directorates, NGO's Services Delivering Organisations CBO's etc. as follows:

Ministry of Health of Social Services – HIV-AIDS awareness
Ministry of Environment and Tourism
Ministry of Regional and Local Government and Housing
Ministry of Lands Resettlement and Rehabilitation – Regional Councils
Ministry of Works, Transport and Communication
Ministry of Basic Education and Culture
Directorate of Rural Water Supply (RWS)
Directorate of Veterinary Services (DVS)
Directorate of General Services
Traditional Authorities
CBO's – Conservancies Committees, Farmers Associations and Unions, Waterpoint committees etc.
NAPCOD
AGRA Co-operative

5 SURVEY METHOD

5.1 RATIONALE

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. Up until now it has been difficult to draw up specific impact indicators because the baseline situation has not been known. It is intended 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. It should then be possible to see whether the indicators have been achieved or otherwise. This information should be useful for extension managers in directing their interventions. It should also be of interest to other stakeholders including collaborating agencies as well as the Namibian tax paying public at large.

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

5.2 SURVEY OBJECTIVES

As discussed in section 2 of this report, this survey looks at indicators of extension impact in terms of the level of objective over which extension managers have most control – that is the impact on farmer understanding, attitudes, awareness and adoption, which we may collectively refer to as "farmer behaviour". It is the job of extension to facilitate farmers efforts to improve their farm management practices. Extension does this mainly by providing information, advice and training. Whether this translates into increased agricultural production and yields, and whether this in turn translates into increased farmer and national income and food security are much more complex questions. The attainment of these objectives is due to many factors of which extension services are but one. Their attainment, in a country like Namibia, is also a long term objective – which in the absence of miracle technologies, is likely to take many years to become evident.

5.3 QUESTIONNAIRE DEVELOPMENT

This survey has employed a closed questionnaire to gather information from farmers. It is closed in the sense that all answers options are given, and the enumerator simply has to mark the appropriate pre-coded answer. This makes objective and accurate analysis much easier. The questionnaire was drawn up by the DEES staff member 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 Kunene sub-region, the questionnaire was drawn up together with colleagues working in Erongo 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 southern Kunene sub-region was divided into two major farming system areas (FSA), namely Kunene South and Kunene Central, based on a number of criteria including population density, type of animal and crop farming, farming system and vegetation type. The Southern

Kunene FSA is mostly a small stock farming area with very limited numbers of large stock. The Central Kunene is mixed with large and small stock, and with limited crop production.

The total number of questionnaires completed in the sub-region was 120, allocated per FSA in proportion to an approximate breakdown of farming households. Out of a total number of resident farming households of some 3,241 (see section 3.2) this amounts to a sample of 3.7%. This was felt to be reasonable given the logistical difficulties that have to be overcome in reaching farmers in the sub-region.

Farming system area	**Proportion of total regional farming population**	**Sample size**
Kunene South	45%	54
Kunene Central	55%	66
TOTAL		**120**

The sub-region has 7 operational ADCs and within the two main farming system areas 4 ADCs were randomly chosen based on key criteria's above-mentioned. In each of these ADC wards approximately 10% of the farming households were randomly selected for interviewing.

The communities randomly selected and total questionnaires applied within the chosen farming households:

Farming System Area	**ADC Area**	**No of Farming Households**	**No of Questionnaires**
Southern Kunene	Fransfontein	300	28
	Morewag	250	26
Central Kunene	Erwee	450	40
	Sesfontein	300	26
		1300	120 (9.2%)

5.5 FIELD IMPLEMENTATION

The questionnaires were applied by experienced enumerators selected from 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 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 2,082 at a total cost of N$ 4,788.00.

5.6 DATA ANALYSIS

Data entry and analysis was undertaken in Windhoek by contracted services. Questionnaires were inspected for errors, 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.

Lastly, 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 sent back to the regions, together with the completed questionnaires, so that report preparation could be completed.

PART THREE

6 SURVEY FINDINGS

Percentages are calculated based on valid responses and excluding missing data.
The total sample size was 120.

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. This section of the report presents information on important characteristics indicating the types of farmers which comprise the sample. These questions are asked (i) as a check on the representativeness of the sample, and (ii) in some cases 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 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 the 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 6.2) and extension impact (see 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.

6.1.1 Distance from ADC

Variable	Category	Percent of Households
Distance from ADC	< 10Km	19.5%
	10-20 Km	17.8%
	21-40Km	25.4%
	> 40Km	37.3%

Table . Indicates that of the total sample 19.5% lived less than 10 km from the nearest ADC, 17.8% lived between 10 and 20 kilometres from the ADC, 25.4% lived between 21 and 40 km from the ADC. 37.3% lived more than 40 kilometres from the nearest ADC. In an area as sparsely populated as the southern part of the Kunene region, this is reasonably representative of the distribution of farmers regionally.

6.1.2 Selected Demographic Variables and Farmer Characteristics

Variable	Category	Percent of Households
Age of respondent	< 25	2.5%
	25-35	17.6%
	36-64	55.5%
	>65	24.4%
Sex of respondent	Male	64.7%
	Female	35.3%
Respondent type	Head of household	62.2%
	Wife of household head	19.3%
	Other	18.5%
Household size	1-5	58.8%
	6-10	24.4%
	>10	16.8%

The table above reveals that about a quarter of respondents were more than 65 years old. This could have an influence on extension impact because it is often experienced that older people are more conservative when it comes to changing their farming practices. Conversely, relatively few young farmers were interviewed. Only some 20 per cent of respondents were less than 35 years old, and it is likely that these were often not the head of household or the person who takes the farming decisions.

About two thirds of the respondents were men. These included heads of household and in some cases other family members or hired labour on the farm. 62.2 per cent of respondents were heads of household. This data does not tell us how many heads of household were women.

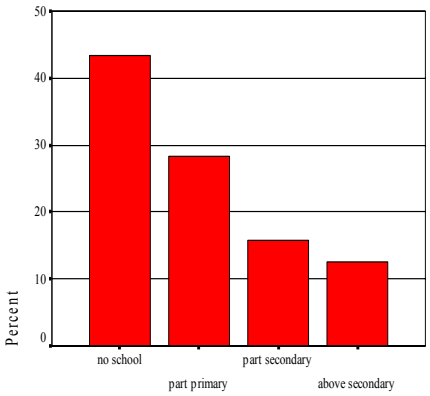
6.1.3 Farm Labour

Variable	Category	Percent of Households
Family members working regularly on the farm excluding respondent	<2	58.0%
	3-5	26.8%
	>6	15.2%
Hired labour	<2	75.0%
	3-5	18.2%
	>6	6.8%

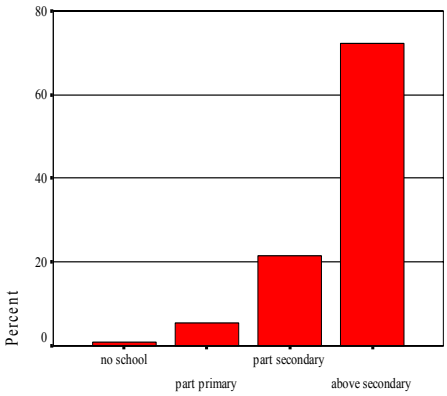
This table reveals that 42 per cent of households have three or more family members working regularly on the farm, and that 25 per cent employ three or more hired labourers on the farm. The latter include both permanent and temporary employees.

Unfortunately, this question has been poorly designed. It fails to distinguish those farmers not using any hired labour.

6.1.4 Education Level of Respondent and of Member of Household to have Achieved Highest Level of Education



Education level of respondent

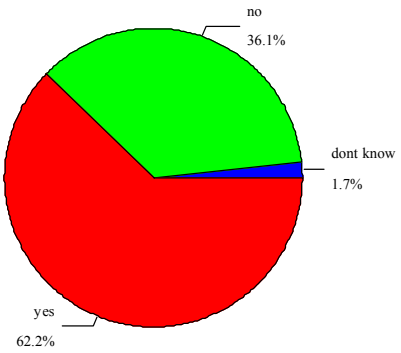


Highest education level of a member in the household

Variable	Category	Percent of Households
Education level of respondent	No school	43.7%
	Part primary	27.7%
	Part secondary	16.0%
	Above secondary	12.6%
Highest education level of a member in the household	No school	.9%
	Part primary	5.4%
	Part secondary	20.7%
	Above secondary	73.0%

This table reveals that a high proportion of respondents reported not having attended school. It is likely that this includes some of the older respondents as well as some hired labourers who responded to the questionnaire in the absence of other family members. A surprisingly high 73% of respondents indicated that the highest educational attainment of any member of the household was above secondary level. This can be taken to include those who have completed secondary level. It may have sometimes included those who have completed Grade 10. Nevertheless, it indicates that most households do include members with secondary education. This is of relevance to the design of extension materials such as pamphlets and posters, which could target more formally educated household members in the expectation that the information they contain is passed on to the head of household.

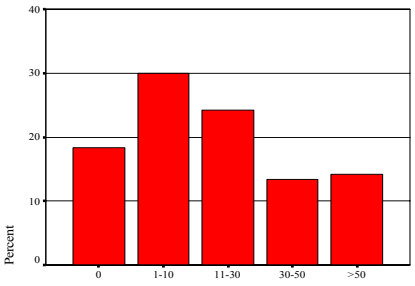
6.1.5 Farming Satisfies Basic Household Needs

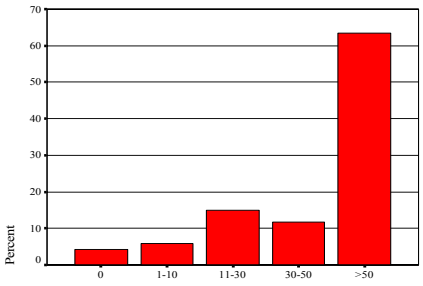


Variable	Category	Percent of Households
Farming satisfies basic household food needs	Yes	61.9%
	No	36.4%
	Don't know	1.7%

Farmers were asked as to whether farming income (in both kind and cash) satisfied their basic household needs. Perhaps surprisingly some 62% stated that it did. This corresponds with the information provided in section 6.1.8., which shows that households have few significant alternative income sources.

6.1.6 Total Number of Cattle, Goats and Sheep Owned



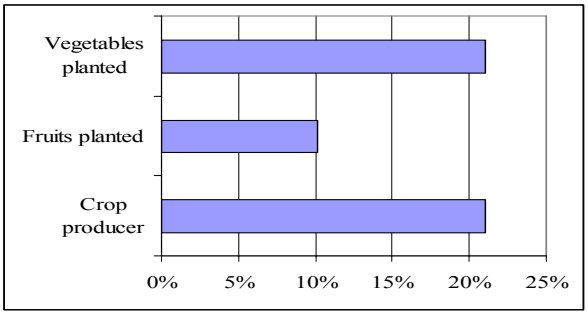


Number of animals	Livestock ownership (% of households)		
	Cattle	Sheep and Goats	Equines
0	18.5%	4.2%	17.6%
1-10	29.4%	5.9%	65.5%
11-30	24.4%	15.1%	15.1%
30-50	13.4%	11.8%	.8%
>50	14.3%	63.0%	.8%

The table shows that nearly all households keep livestock. Only 4.2% reported not keeping small stock. 74.8% of household owned more than 30 goats and sheep and 63% owned more than 50. This is clearly the most important type of livestock in the area. However, cattle are also important, though in smaller numbers. 27.4% of households owned more than 30 head of cattle – which may be considered the minimum herd size with which to practice systematic production aimed at the market.

82.4% of household reported keeping one or more donkeys, horses or mules. This suggests that extension services might be wise to investigate the support needs of farmers in respect of equine husbandry, health and grazing management. Grazing management is a concern partly because of the difficulties that farmers face in marketing equines when grazing is scarce.

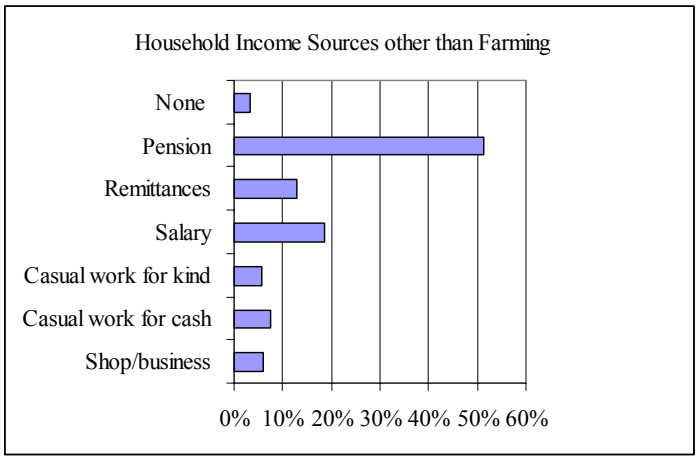
6.1.7 Crop Production



Variable	Category	Percent
Crop producer	yes	20.3%
Fruits planted	yes	10.2%
Vegetables planted	yes	20.3%
Total harvested vegetables	<50Kg	56.0%
	51-100 Kg	28.0%
	>101 Kg	16.0%
Total fruit harvested	<50Kg	53.8%
	51-100 Kg	23.1%
	>101 Kg	23.1%

In contrast to livestock production, crop and horticultural production is of minor significance in terms of income. The majority of the approximately 20% who reported growing vegetables also reported harvesting less than 50 kg of produce. Likewise, the 10% who reported producing fruit. What these figures do not reveal is the number of households having very small gardens producing just a few fruit and vegetables. The extent to which these are included in those reporting production of less than 50 kg or whether respondents did not mention small "backyard" production is not known.

6.1.8 Main Sources of Income Other than Farming



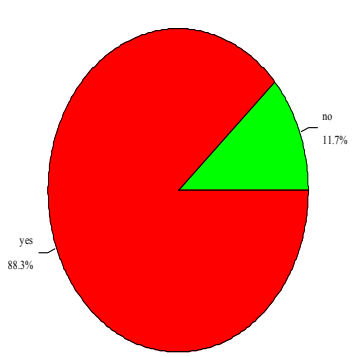
Variable	Category	(% of Households)
Shop/business	Yes	5.9%
Casual work for cash	Yes	7.6%
Casual work for kind	Yes	5.9%
Salary	Yes	17.8%
Remittances	Yes	12.9%
Pension	Yes	51.7%
None	Yes	3.4%

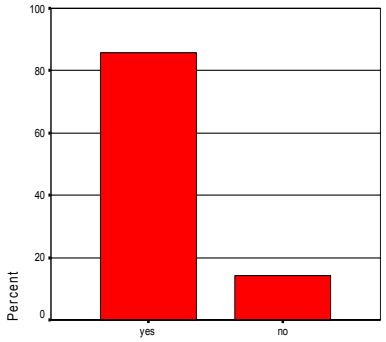
This table shows that there are few alternative sources of income in the area, but that only 3.4% of households had no other sources of income. 51.7% of households reported that one or more members received the monthly State pension of N$ 250. 17.8% reported receiving a salary, and 12.9% reported receiving remittances – which can be interpreted as referring to significant sums on a regular basis.

6.2 FARMER EXTENSION CONTACT

Questions 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 and is indeed a pre-requisite to extension work having an impact on farmers.

6.2.1 Farmer Knows that an Extensionist (AET) Works in the Area and Knows the Name of the AET

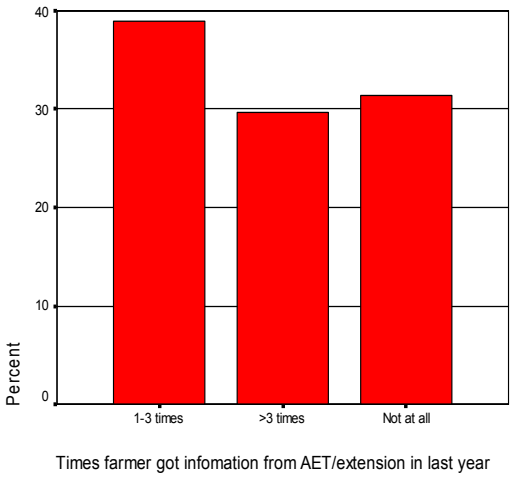




Variable	Category	(% of Households)
AET exist and works in the area	Yes	88.2%
Knows the name of AET	Yes	85.7%

As an indicator of extension-farmer contact farmers were asked whether they knew if there was an agricultural extension technician (AET) working in their area, and if they knew his or her name. Knowing the local AET's name indicates a certain degree of familiarity. The percentage of positive responses given to these questions are amongst the highest of all the regions of the country.

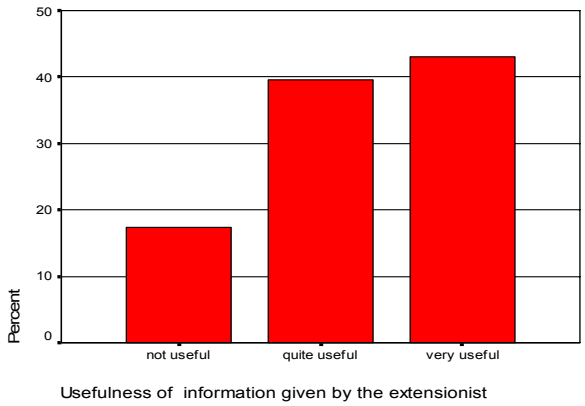
6.2.2 Times Farm Family Got Information from Extension Last Year



Variable	Category	(% of Households)
Times farmer got information from AET/extension in last year	1-3 times	39.3%
	>3 times	29.1%
	Not at all	31.6%

Although 31.6% of farmers reported not having received information from the agricultural extension technician in the last year, it is notable that this is a relatively low figure compared to other regions.

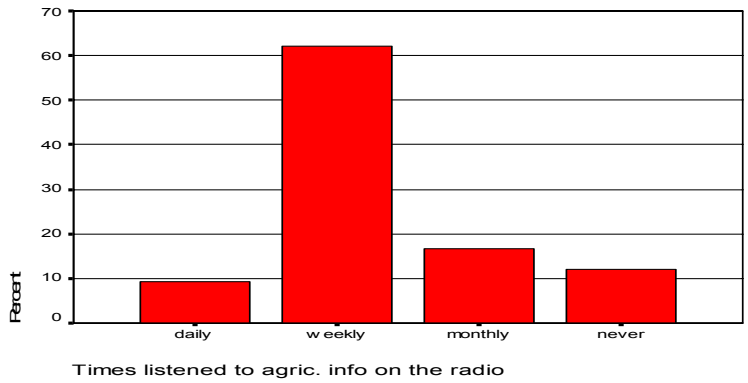
6.2.3 Usefulness of Information Given by the Extensionist



Variable	Category	(% of Households)
Usefulness of information given by the extensionist	Not useful	17.6%
	Quite useful	40.0%
	Very useful	42.4%

The table reveals high levels of satisfaction with the information and advice provided by the AET. It is likely that the 17.6% who responded that extension information included some who had no knowledge of the existence of the AET in the area.

6.2.4 Extension Contact by Radio

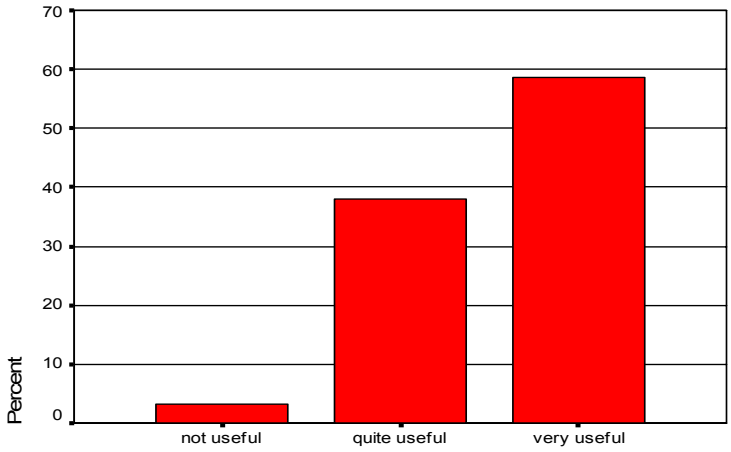


Variable	Category	(% of Households)
Heard agric information on the radio in the last year.	Yes	78.1%
Reasons for not listening to agric info on radio	No radio	57.7%
	Not interested	19.2%
	Programme timing	15.4%
	Do not know	7.7%
Times listened to agricultural Info on the radio	Daily	9.3%
	Weekly	62.0%
	Monthly	16.7%
	Never	12.0%

This table reveals high levels of radio listenership. Notably, 71.3% of respondents stated they heard agricultural information on the radio either daily or weekly. The main reason for not listening to the radio was that the respondent did not own a radio.

Responses on the number of times farmers heard agricultural information on the radio are not fully consistent. 78.19% claimed they had heard information on the radio in the last year while 88% claimed they heard such information either daily, weekly or monthly.

6.2.5 Usefulness of Agricultural Information on the Radio



Variable	Category	(% of Households)
Usefulness of info on the radio	Not useful	3.3%
	Quite useful	38.0%
	Very useful	58.7%
List of example heard on the radio	Diseases, breed selection, treatment of animals, vaccinate	

Of those who had heard agricultural information on the radio in the last year, 58.7% of respondents said they found it to have been 'very useful'. This compares with 42.4% who found information received from the AET 'very useful'. Only 3% of farmers found agricultural information on the radio 'not useful'. Clearly radio is an important information channel for farmers. The DEES recognises this and intends to strengthen its contributions to NBC radio broadcasts. It is also important to note, however, that information heard on the radio and via direct contact fulfil different and complementary roles. Radio is recognised as being suitable as a source of news and information of immediate relevance, and for creating initial awareness of farming innovations and developments. On the other hand, AET interventions are aimed at increasing understanding of a new innovation, developing associated skills, encouraging testing of an innovation by farmers, and finally supporting adoption by the farmer.

6.3 EXTENSION IMPACT

The 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. Readers are referred to section 2.2. for further discussion of the issue of extension impact indicators.

6.3.1 Livestock mortality

Variable	Category	Percent
Most common cause of death in large/small stock	Diseases	54.4%
	Parasites	3.5%
	Poisonous plants	13.2%
	Don't know	7.9%
	Drought	21.1%

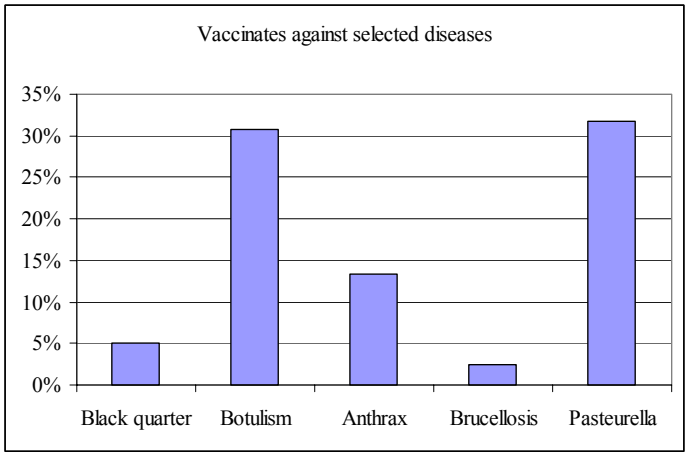
Farmers identified diseases as the major cause of livestock death; which reflects their demand for extension information and advice on animal health care matters. Poisonous plants, particularly the 'slangkop', are a problem in some areas. Drought may be taken to mean starvation in this case.

6.3.2 Livestock vaccination

86.1% of farmers reported that they vaccinate their cattle, while 70.3% reported vaccinating their sheep and goats. Since 18.5% of respondents reported that they did not own cattle (see 6.3.6) there may be some doubt as to interpretation of this response. It is not clear about the timeframe referred to in this question; for example, the question could have been interpreted as "have you ever vaccinated" your livestock. Also, on the question of timing, a significant percentage reported vaccinating after six months, while the normal period is annually except in the case of weaners for whom some certain vaccinations are recommended to be given in doses with a monthly interval.

Variable	Category	Percent
Vaccinates large stock	Yes	86.1%
Vaccinates small stock	Yes	70.3%
Times to vaccinate	Monthly	3.2%
	After 6 months	38.9%
	Annually	55.8%
	After 2 years	2.1%

6.3.3 Vaccinates Against Black Quarter Only, Botulism Only, Anthrax, Brucellosis, Black quarter & Brucellosis



Variable	Category	Percent
Vaccinates against Black quarter	Yes	5.0%
Vaccinates against Botulism	Yes	30.3%
Vaccinates against Anthrax	Yes	13.4%
Vaccinates against Brucellosis	Yes	2.5%
Vaccinates against Pasteurella	Yes	31.9%

In contrast to the results from the preceding questions on animal health and vaccinations, the answer to the question which diseases do you vaccinate against revealed low rates of vaccination. Certainly the answers to these questions do not appear to correlate. It is likely that the answers to this question are more accurate. They reveal low rates of vaccination as recommended against the important cattle diseases: Black quarter, Botulism, and Anthrax, and Bruscellosis (and virtually no use of combined Black quarter, Botulism, and Anthrax vaccines), and the important small stock disease Pasteurella.

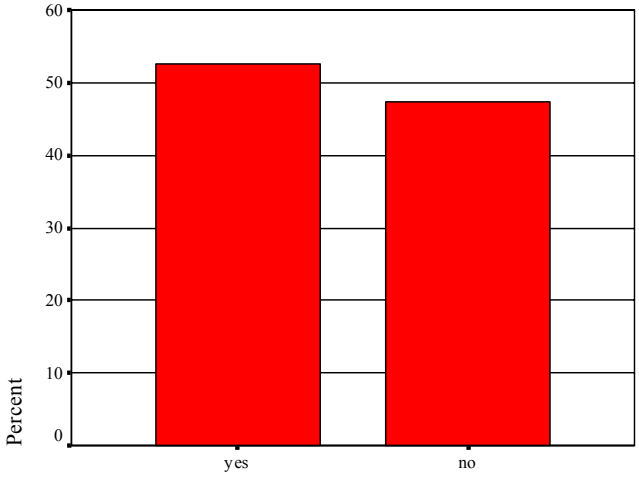
Of particular concern is that only 13.4% of farmers say they vaccinate against anthrax. This is despite the fact that vaccinating cattle against anthrax is compulsory. Proof of such vaccinations must be shown to veterinary inspectors when animals are sold and when farms are inspected. It is notable that up till 1998, the DVS organised vaccinations against anthrax; since then the responsibility was given to farmers themselves, evidently with poor results.

6.3.4 Reasons for not Vaccinating

Variable	Category	Percent
Reason for not vaccinating	Lack of vaccines	4.0%
	Expensive	36.0%
	See no need	24.0%
	Do not know	36.0%

A high 36% of those who did not vaccinate stated the main reason for not vaccinating was that they did not know about it. Another 36% said it was too expensive – a reasonable response in some cases and 24% said they saw no need, perhaps reflecting the low incidence of out-break of these diseases reported. Thus 50% did not vaccinate either because they did lacked information or saw no need – surely a call for extension services to pay increased attention to this issue.

6.3.5 Received Extension Info/training in Prevention, Diagnosis and Treatment of Diseases.

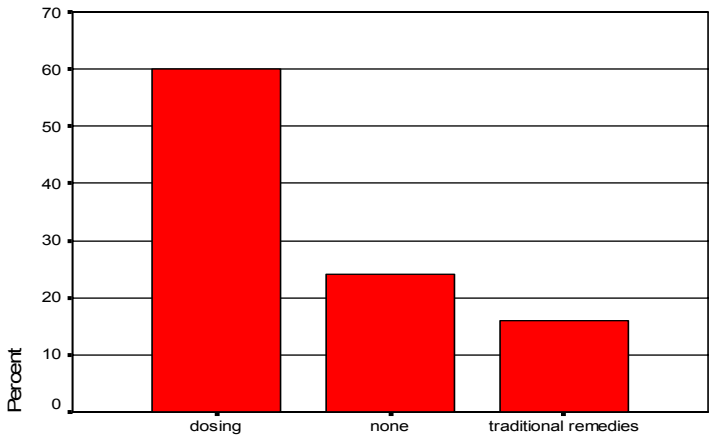


Had extension training in prevention, diagnosis and treatment of di

Variable	Category	Percent
Received extension training in prevention, diagnosis and treatment of diseases	Yes	53.0%
Usefulness of animal health info/training	Very useful	60.4%
	Quite useful	37.7%
	Not useful	1.9%

Just over half of all respondents stated that they had received training in animal health matters and nearly all of these said they found it useful, 60.4% saying they found it very useful.

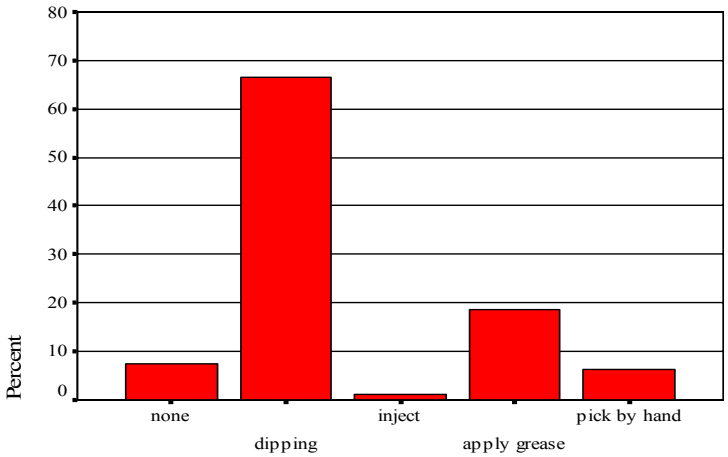
6.3.6 Methods Used to Control Internal Parasites: Dosing, Traditional Remedies, No Method



Variable	Category	Percent
Livestock affected by internal parasites	Yes	41.2%
Methods to control internal parasites	Dosing	59.2%
	None	24.5%
	Traditional remedies	16.3%

Only 41.2% recognised that their animals suffered from internal parasites. It may be that in the drier more westerly areas the incidence of parasites is in fact lower than elsewhere, but in general small stock do suffer parasites often associated with environmental conditions. Nearly 60% of those who recognised internal parasites as a problem in their flocks treated them with purchased medication; while 16.3% reported suing traditional remedies – the efficacy of which is not known.

6.3.7 Methods Used to control external parasites: dipping, injection, grease, spray, picking

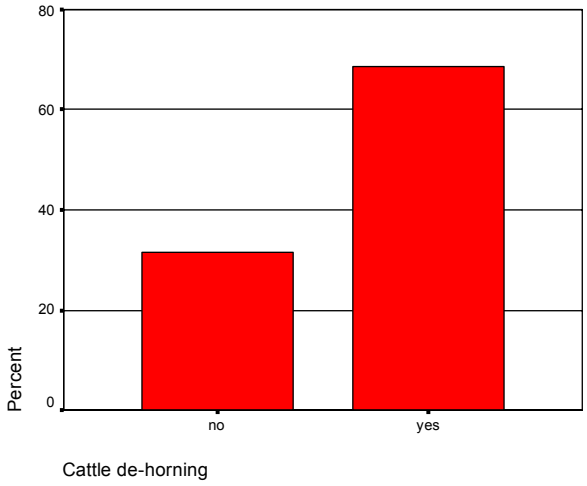


Methods to control external parasites

Variable	Category	Percent
Livestock experience external parasites	Yes	67.2%
Methods to control external parasites	None	7.5%
	Dipping	66.3%
	Inject	1.3%
	Apply grease	18.8%
	Pick by hand	6.3%

67.2% of farmers recognised the problem of external parasites – ticks. Again these are connected with environmental conditions and are in general a lesser problem in drier areas. It is notable that the 2002-03 rainy season saw exceptionally high levels of tick infestation in the region. Also of note is that many farmers reported using measures to control ticks. The question does not reveal whether this is done only prior to marketing or on a regular basis. Two thirds of farmers reported dipping, which mainly involves the use of pour on formulas.

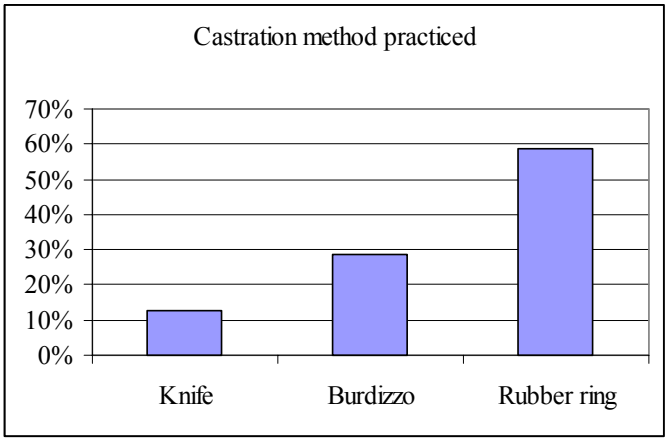
6.3.8 Cattle de-horning



Variable	Category	Percent
Cattle de-horning	Yes	69.2%
Age at dehorning	3-6 months	42.9%
	6-12 months	42.9%
	>12 months	14.3%
Reasons for not dehorning	Don't know how	32.1%
	Culture	25.0%
	No need	14.3%
	No tool	28.6%
Advantages of dehorning	Improved animal growth	43.1%
	Reduce fighting	12.5%
	Reduce injuries	23.6%
	Good appearance	20.8%

Nearly 70% of owners stated that they dehorned their cattle – though when asked the main reason for dehorning 43.1% said it resulted in improved growth.

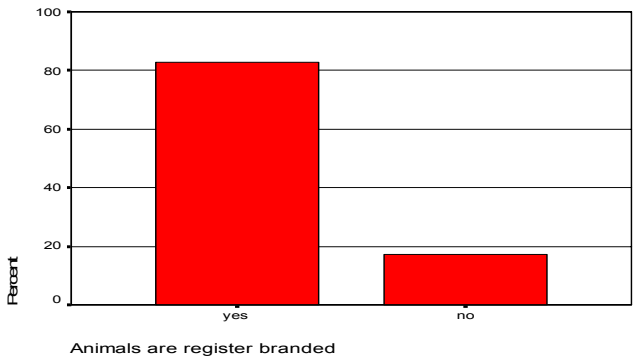
6.3.9 Castration of large and small stock



Variable	Category	Percent
Castration of large and small-stock	Yes	98.3%
Age at castration	3-6 months	51.3%
	6-12 months	39.8%
	>12	8.8%
Castration method often practiced	Knife	12.6%
	Burdizzo	28.8%
	Rubber ring	58.6%
Reasons for castration	Do not know	3.6%
	Control breeding	96.4%
Received info from extension on castration	Yes	42.7%
Person who castrates your animals	Yourself	98.2%
	Hired labour	1.8%
Time of year for castration	Winter	85.8%
	Summer	3.5%
	Autumn	10.6%

In contrast to dehorning, nearly all farmers stated that they castrated their livestock to control breeding, the big majority reported using a rubber ring, and conducting the operation during winter. There would seem to be little need for further extension effort to be expended on this matter.

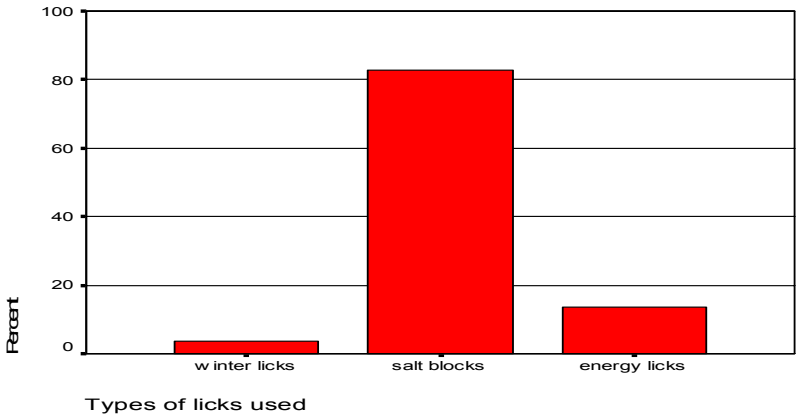
6.3.10 Animals are branded with registered brand



Variable	Category	Percent
Animals are register branded	Yes	82.7%
Reasons for not branding	No knowledge	46.7%
	Others	53.3%
Has received info from extension on branding	Yes	58.3%

On the issue of using registered brands, which are compulsory for cattle, 82.7% stated that they branded accordingly and 58.3% stated that they had received information on branding from extension.

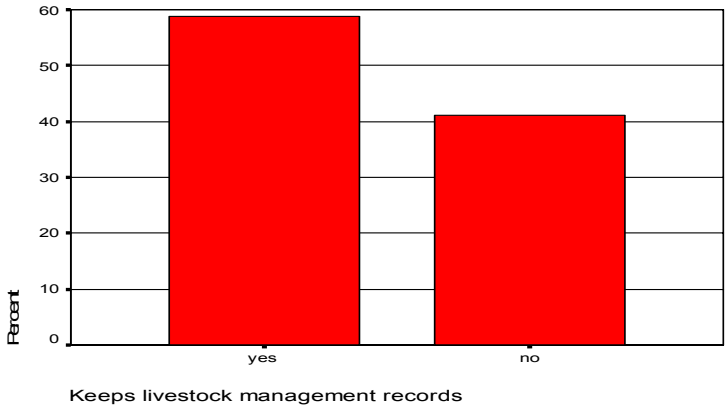
6.3.11 Types of licks used



Farmers are recommended to provide lick supplements to their livestock particularly in the dry winter season. Thre quarters of farmers reported using licks, and only 12% of thoe not using licks said this was because they lacked knowledge on the subject. The big majority provide salt licks only – rather than winter and summer licks with specific mineral supplements. This may be justified because the vegetation of the area is reportedly of reasonable nutrient content – as compared to some sandier and wetter areas of Namibia. 13.6% of respondents reported using energy licks. Licks are given to all animals rather than selectively.

Variable	Category	Percent
Provide cattle licks	Yes	75.7%
Reason for not providing licks	Lack of money	56.0%
	Not necessary	24.0%
	Licks supplier too far	8.0%
	Don't know	12.0%
Types of licks used	Winter licks	3.7%
	Summer licks	0%
	Salt blocks	82.7%
	Energy licks	13.6%
Kind of animals supplemented	Heifers	1.3%
	All cattle	98.7%

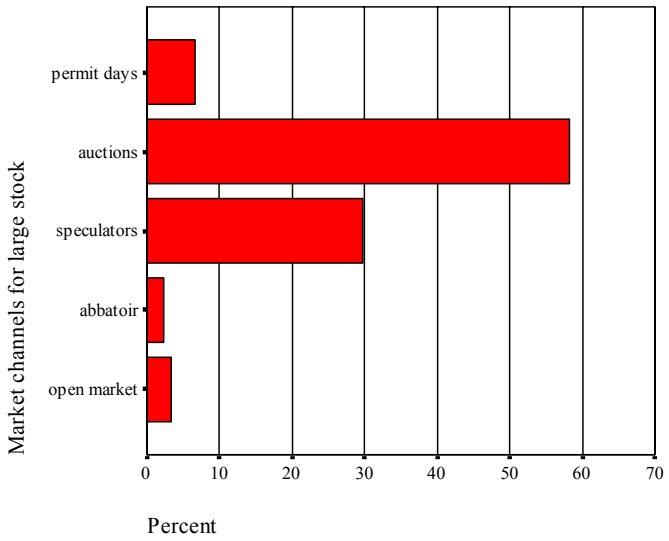
6.3.12 Livestock management records

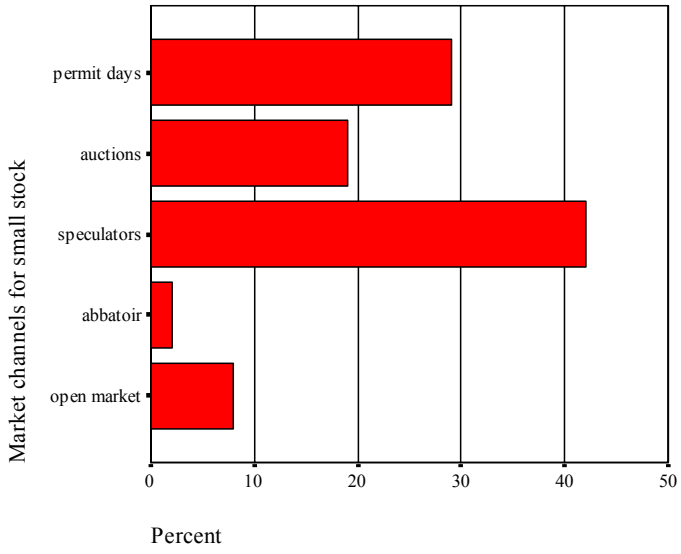


Variable	Category	Percent
Keeps livestock management records	Yes	59.3%

Nearly 60% of respondents reported keeping some livestock management records – be it production and/or financial. This answer tells us nothing of the content or quality of these records, something that requires further investigation.

6.3.13 Livestock marketing channels: markets animals on permit days, at auction, to speculators, abattoir, at open market.



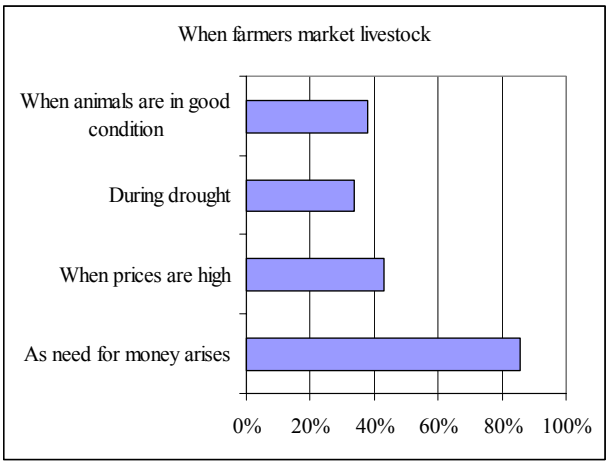


Variable	Category	Percent
Market large and small stock	Yes	91.1%
Market channels for large stock	Permit days	6.7%
	Auctions	58.9%
	Speculators	28.9%
	Abattoir	2.2%
	Open market	3.3%
Market channels for small stock	Permit days	29.3%
	Auctions	19.2%
	Speculators	41.4%
	Abattoir	2.0%
	Open market	8.1%
Received info on livestock marketing prices	Yes	67.5%
Aware of self quarantine system	Yes	77.8%
Source of info on self-quarantine	Extension	44.6%
	Radio	38.5%
	F.A	3.1%
	Other farmers	13.8%

91.1% of respondents reported that they sell livestock. The main marketing channel for cattle was auctions (for 58.9% of farmers), and for small stock was speculators (for 41.4% of farmers). The second main channel for cattle sales was also speculators (28.9%). Sales directly to abattoirs were negligible. The importance of sales to speculators suggests that there is significant room for improvement in marketing practices in the sub-region. Only two thirds of respondents said they had received information on livestock marketing prices.

Three quarters of respondents stated that they had received in information on self-quarantining. This mainly refers to sales of animals from the surveillance zone.

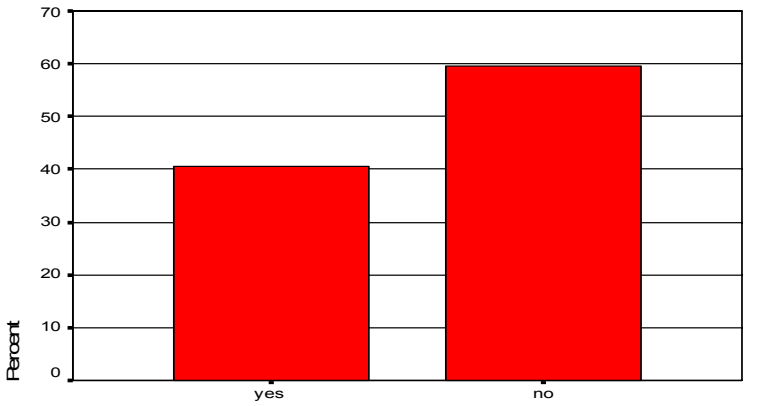
6.3.14 When farmers market livestock



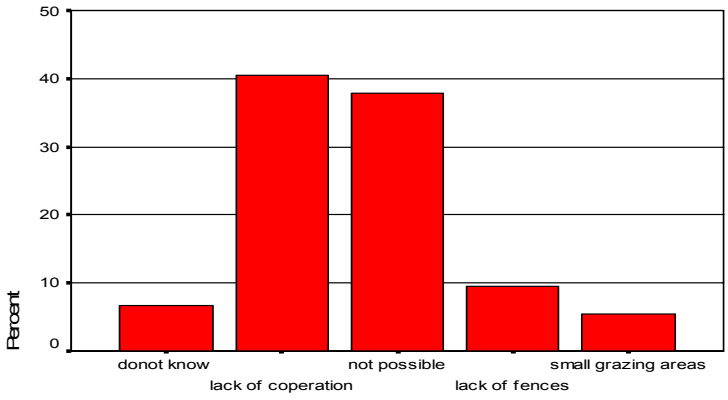
Variable	Category	Percent
Sell livestock has needs for money arise	Yes	85.6%
Sell livestock when prices are high	Yes	43.2%
Sell livestock during drought	Yes	33.9%
Sell livestock when animals are in good condition	Yes	38.1%

Farmers were not asked to identify the main reason for selling livestock; rather they were able to give multiple affirmative answers to this question. It appears that most farmers sell animals when the need for money arises rather than for the other three reasons given which mainly suggest rational management decision making. However, this result does not tell us about the number of animals sold. It is likely that systematic marketing at auctions and by other channels does involve larger numbers than ad hoc marketing when the need for cash occurs.

6.3.15 Farmer Perception as to whether effective ways of ensuring availability of adequate grazing can be practiced in communal areas



Whether effective way for enough grazing can be praticed in comr

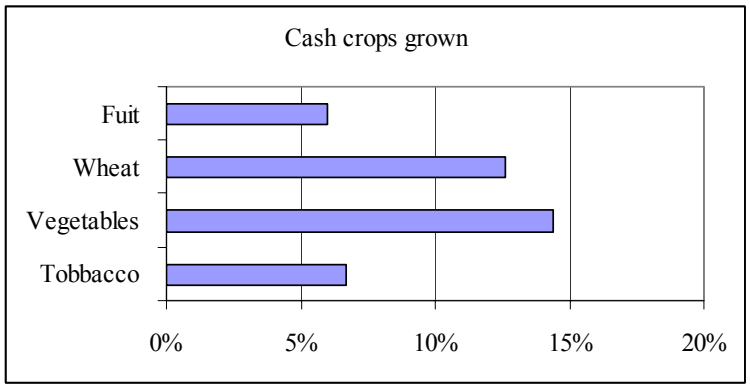


Reasons for not using the effective way for enough grazing

Variable	Category	Percent
Enough grazing for livestock throughout the year	Yes	45.3%
Effective way of having adequate grazing whole year	Nothing	12.2%
	Fencing	33.9%
	Herding	6.1%
	Resettle strong farmers in commercial areas	16.5%
	Fencing and resting some areas	31.3%
Whether effective way for enough grazing can be practiced in communal area	Yes	40.0%
Reasons for not using the effective way for enough grazing	Do not know	6.8%
	Lack of cooperation	40.5%
	Not possible	37.8%
	Lack of fences	9.5%
	Small grazing areas	5.4%

Some 55% of farmers said they do not have adequate grazing throughout the year. It may be that this question was understood to refer to the current year, rather than in general. 60% of respondents said that they did not think it was possible to practice effective grazing management in communal areas. More than 60% of respondents identified fencing – which may be taken to mean the possibility of keeping the livestock of other farmers off the grazing, in other words exclusive land user rights, as the most effective way of managing grazing. The main reasons given for this, and other ways not being possible was lack of cooperation amongst farmers. Very few farmers identified lack of grazing per se (e.g. "small grazing area") as the problem.

6.3.16 Types of cash crops grown

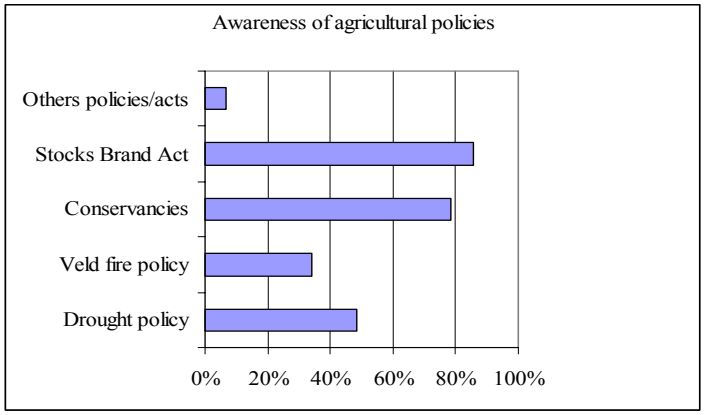


Usefulness of info received from extension on on cash crops

Variable	Category	Percent
Grows cash crops	Yes	13.7%
Grows tobacco as a cash crop	Yes	5.9%
Grows vegetables as a cash crop	Yes	13.7%
Grows wheat as a cash crop	Yes	11.9%
Grows fruit as a cash crop	Yes	6.0%
Main type of markets for produce	Local market	33.3%
	Neighbors	66.7%
Received info from extension on cash crops	Yes	16.3%
Usefulness of info received from extension on cash crops	Very useful	71.4%
	Useful	28.6%

As discussed in section 3 of this report, cropping is of limited importance in the region. Nevertheless 13.6% of farmers indicated they grew various crops for sale. Although the question was not asked it is clear that a much higher percentage grow crops, especially vegetables, on a small scale for home consumption. Only 16.3% of respondents report having received information from extension on crop production.

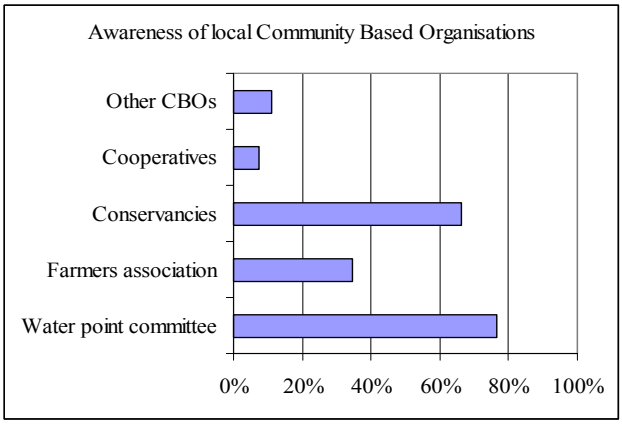
6.3.17 Awareness of policies and laws - drought, veld fire, conservancies, Stocks Brands Act and others



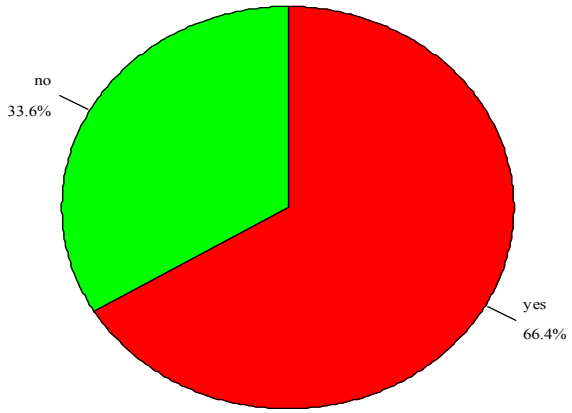
Variable	Category	Percent
Aware of agric-related laws, policy or act	Yes	95.8%
Drought policy	Yes	47.9%
Policy on veld fire	Yes	34.5%
Conservancies	Yes	78.2%
Stocks Brand Act	Yes	85.7%
Others policies/acts	Yes	6.7%
Agriculture extension official provides info on laws	Yes	54.7%
Obtained info about laws from radio	Yes	65.3%
Obtained info about laws from councilors	Yes	32.2%

In addition to informing farmers on production and marketing aspects of farming, extension aims to provide information on the broader context in which farmers farm, which includes relevant aspects of government policies and legislation. In their responses to questions farmers indicated their awareness of the existence of various policies and laws, but this does not tell us of the quality of that awareness. The main source of information on such matters is the radio.

6.3.18 Community Based Organisations



Member of Community Based Organisation



Variable	Category	Percent
Have CBOs in the area/village	Yes	88.0%
Water point committee	Yes	77.1%
Farmers association	Yes	34.2%
Conservancies	Yes	66.1%
Cooperatives	Yes	7.7%
Other CBOs	Yes	11.1%
Member of CBO	Yes	66.1%
Role respondent plays in CBO	Ordinary member	50.0%
	Executive member	50.0%
Regard CBO as useful	Yes	83.0%
One major importance of CBOs	Income generating	17.2%
	Decision making	28.0%
	Collective strength	50.5%
	Other	4.3%

Extension services aim to promote the participation of farmers in community based organisations firstly as a means of farmer empowerment and secondly to facilitate extension farmer contact. It is easier for extension workers to get information and advice to farmers who are organised and who can pass information amongst themselves. Such community-based organisations need not be specifically farming oriented; in rural areas all community-based organisations provide a platform for discussing a variety of issues of concern, including those related to farming. It is interesting to note that Water Point Committees have the highest presence (77.1% of respondents inidicated their awareness of one in their area). 66.1% said they were a member of one community based organisation or anther. Considering all types of community based organisations, 83% of respondents said they regard these organisations as useful and important.

6.4 CONCLUSIONS

6.4.1 Farmer Type

In broad terms, the findings of the questions investigating the typology of the farmers selected for the survey indicate that the sample is reasonably representative of the total population of the sub-region. For instance, in this sparsely populated area it is notable that 37.3% of the sample resided more than 40 kilometres from the nearest Agricultural Development Centre.

Also, concerning basic demographic indicators, it was found that quarter of the respondents were found to be over 65 years of age and about two thirds were men. It was notable that while formal educational levels of respondents were low (43.7% saying they had not attended school), the highest educational level of a member of the respondent's household was high (73% of households having a member who had completed secondary school).

61.9% of households stated that their farming activities satisfied their basic household food needs, a finding which corresponded with the finding that few households had alternative income sources, except in the case of old age pensions.

Concerning livestock ownership it was found that 18.5% of respondents did not own cattle and 4.2% did not own either goats or sheep. A further 29.4% owned between 1 and 10 cattle and 5.9% between 1 and 10 small stock. Only 27.7% of households farmed with more than 30 cattle, while 74.8% farmed with more than 30 small stock. Thirty head is a rough minimum number with which any sort of market-oriented herd or flock management practices could be implemented. The survey also revealed widespread ownership of equines.

Only 20.3% of respondents acknowledged planting crops of any sort, including vegetables and fruit. This may have excluded those having small backyard and seasonal gardens.

6.4.2 Farmer Extension Contact

Considering the extension worker to farm ratios discussed in section 4.2 of this report (1:232 for full-time farmers only and 1: 316 including part-time farmers), it may be said that the sub-region is well provided for in terms of staff. Indeed, this is borne out by the finding that 85.7% of respondents knew the name of their local AET, an indication of a fair degree of familiarity. Also, despite issues of distance and difficulties of communication, it is found that 68.4% of respondents stated that they had received information from their local AET in the last year. 82.4% of respondents said they found information from extensionists to have been useful, 42.4 saying it was very useful.

The findings also showed that radio is an important source of agricultural information. 71.3% of respondents said they heard agricultural information on the radio either daily (9.3%) or weekly (62%). Respondents also rated this information highly: 58.7% said that such information was very useful and 38% said it was quite useful.

It is important to recognise that extension and radio are acknowledged to fulfil complementary rather than alternative roles when it comes to informing and advising farmers. Radio is recognised as being suitable as a source of news and information of immediate relevance, and for creating initial awareness of farming innovations and developments. On the other hand, direct contact with extension workers aims at increasing understanding of a innovations,

developing associated skills, encouraging testing of an innovation by farmers, and finally supporting adoption by the farmer.

6.4.3 Extension Impact

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.

Concerning animal health issues, one of the main focuses of extension advice in response to farmer demand, responses reveal low rates of vaccination, as recommended, against the important cattle production diseases: Black quarter, Botulism, and Bruscellosis, and the important small stock disease Pasteurella. Of particular concern is the low percentage of farmers vaccinating cattle against anthrax, which is compulsory. It is also revealing that 50% of those not vaccinating say that this is because they do not know about vaccinations or see no need for vaccinations. While the extent of the problem of internal and external problem varies, the survey shows surprisingly low levels of recognition of parasites as a problem, particularly in the case of internal parasites. Only 41.2% of respondents recognise internal parasites as a problem and only 59.2% of these apply recommended treatment. Finally, it may be noted that 53% of respondents say they have received extension training related to animal health, nearly all of whom say they found it useful. It may be concluded that extension services should pay increased attention to issues of animal health.

Concerning routine animal husbandry practices, there is room for improvement with regard to dehorning of cattle, while rates of adoption of castration and use of registered brand marking are relatively high. Provision of licks is practiced by three quarters of farmers, but this is usually only salt block. It is likely that in some areas there is a need for licks containing minerals, particularly phosphorus.

Responses showed that 59.3% of respondents kept livestock management records. But this says nothing of the quality of these records, or whether they cover production and or financial matters.

In line with previous findings that farming is the key source of income in the sub-region, the survey showed that 91.1% of farmers do sell livestock. However, an analysis of main marketing channels shows that there is heavy reliance of speculators, particularly for small stock – which are the major livestock marketed in the area. This is supported by the finiding that farmers mainly sell livestock when the need for money arises – as opposed to selling according to a planned market oriented production system. Only two thirds of farmers say they have received information on livestock prices – this may be taken to extend to broader aspects of grading and pricing, if not marketing in general.

Concerning the fundamental issue of range management, 60% of respondents said that they did not think it was possible to practice effective grazing management in communal areas. More than 60% of respondents identified fencing – which may be taken to mean the possibility of keeping the livestock of other farmers off their grazing, in other words exclusive land user rights, as the most effective way of managing grazing. The main reasons given for this, and other ways not being possible was lack of cooperation amongst farmers. With the advent of the Communal Land Reform Act of 2002, this could be an area in which extension services can become more active.

The survey confirmed the limited importance of crop production in the sub-region. However, the questionnaire focussed exclusively of cash crop production, and thus did not capture small-

scale (also known as 'backyard' gardening) gardening, which is an important source of nutrients for some households.

Finally, the survey showed that 66.1% of participants were a member of one community based organisation or anther. Considering all types of community based organisations, 83% of respondents said they regard these organisations as useful and important.

Lastly, it is important to note that the findings presented in this report represent the results of preliminary analysis of the data. Further investigation using mulit-variate analysis (e.g cross-tabulation of answers) is likely to reveal more interesting information. This may be deemed worthwhile in relation to the final impact survey and report due in 2006/07.

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ANNEXURE A. FARMER QUESTIONNAIRE – KUNENE - SOUTH

A. Farmer type

1.	Enumerator..... Date.....ADC..... Village..... Constituency …… Distance from ADC Kms <10 ☐ 10-20 ☐ 2; 21-40 ☐ 3; >40 ☐ 4		Office use only 1.1 ☐
2.	2.1 Sex of respondent: Male ☐ 1 Female ☐ 2	2.2 Age; < 30 ☐ 1 31-60 ☐ 2 >60 ☐ 3	2.1 ☐ 2.2 ☐
3.	3.1 Respondent is: household head ☐ wife of household head ☐ other ☐	3.2 Household size (Number of household members) 1-5 ☐ 6-10 ☐ >10 ☐ 3.3 Number of household members helping regularly… <2 6-10 >6	3.1 ☐ 3.2 ☐ 3.3 ☐
4.	Education: resp.(4.1) highest (4.2) No school ☐1 ☐1 Part primary ☐2 ☐2 Part Secondary ☐3 ☐3 > Secondary ☐4 ☐4	4.3 Does farming satisfy basic h.h. needs Yes ☐1 No ☐2 Don't know ☐3	4.1 ☐ 4.2 ☐ 4.3 ☐
5.	Total number livestock owned: Cattle (5.1) Goats (5.2) Sheep (5.3) 0 ☐ 1 ☐ 1 ☐ 1 1-10 ☐ 2 ☐ 2 ☐ 2 11-30 ☐ 3 ☐ 3 ☐ 3 31-50 ☐ 4 ☐ 4 ☐ 4 >50 ☐ 5 ☐ 5 ☐ 5 5.6What are the sources of labour? Household ☐ 1 Hired ☐ 2 None ☐ 3	5.4 Do you produce crops? Yes ☐ 1 No ☐ 2 5.5 What types of crops are planting? Maize ☐ 1 Vegetables ☐ 2 Wheat ☐ 3 5.7 Total crop area planted in 02/03 (ha) <3 ☐ 1 3-7 ☐ 2 >7 ☐ 3	5.1 ☐ 5.2 ☐ 5.3 ☐ 5.4 ☐ 5.5 ☐ 5.6 ☐ 5.7 ☐
6.	6.1 Other household income sources: Shop / Business ☐ 1		6.1☐

	Casual work for cash ☐ 2 Casual work for kind ☐ 3 Salary ☐ 4 Remittance ☐ 5 Pension ☐ 6		

B. **Farmer extension contact**

7.	7.1 Is there an AET working in your area? Yes ☐1 No ☐2 7.2 Do you know his/her name? Yes ☐1 No ☐2 (enumerator to check)	7.3 Did you get farming related information from AET/extension in the last year? 1-3 times ☐1 > 3 times ☐2 Not at all ☐3	7.1 ☐ 7.2 ☐ 7.3 ☐
8.	8.1 How did you find the information given by the AET/extension? Not useful ☐1 Quite useful ☐2 Very useful ☐3 Give one example…….	8.2 Did you listen to agric. info. on the radio in the last year ? Yes ☐1 No ☐2	8.1☐ 8.2☐
9.	9.1 How often did you listen to the agric. info on the radio? Weekly ☐1 Monthly ☐2 Never ☐3	9.2 Have you found the agric. info. On the radio…. Not useful ☐1 Quite useful ☐2 Very useful ☐3 Give one example……..	9.1☐ 9.2 ☐
10	10.1 Do you (or a household member) participate in a farmer's group? Yes ☐ 1 None ☐ 2		10.1 ☐

C. Extension Impact

11.	**<u>Animal health</u>**: 11.1 What is the most Common cause of death in your animals? Diseases ☐ 1 Parasites ☐ 2 Poisonous plants ☐ 3 Don't know ☐ 4 Drought ☐ 5	11.2Do you vaccinate your animals? Yes ☐ 1 No ☐ 2	11.1 ☐ 11.2 ☐

	11.3 How often do you vaccinate? Monthly ☐ 1 After 6 months ☐ 2 Annually ☐ 3 After 2 years ☐ 4	11.4 What type of disease do you vaccinate against? Black quarter ☐ 1 Botulism ☐ 2 Anthrax ☐ 3 Brucellosis ☐ 4 Pasteurella ☐ 5	11.3 ☐ 11.4 ☐
	11.5 If, no why? Lack of drugs ☐ 1 Expensive ☐ 2 See no need ☐ 3 Don't know ☐ 4	11.6 Did you receive any training in prevention, diagnosis and treatment of the diseases from extension? No ☐ 1 Yes ☐ 2	11.5 ☐ 11.6 ☐
	11.7 If yes, how did you find the info/training? Very useful ☐ 1 Quite useful ☐ 2 Not useful ☐ 3	11.8 Do you experience internal/ external parasites in your area Yes ☐ 1 No ☐ 2	11.7 ☐ 11.8 ☐
	11.9 If yes, How do you control them? Dosing &dipping ☐ 1 Dosing ☐ 2 Dipping ☐ 3 None ☐4		11.9 ☐
12.	**Improve Livestock Production:** 12.1 Do you **de-horn** your animals? No ☐ 1 Yes ☐ 2	12.2 If yes, at what age? 3-6 months ☐ 1 6-12 months ☐ 2 >12 months ☐ 3	12.1 ☐ 12.2 ☐

	12.3 If no, why? Don't know ☐ 1 Culture ☐ 2 No need ☐ 3 No tool ☐ 4	12.4 For what reason do you de-horn? Improve animal growth ☐ 1 Reduce fighting ☐ 2 Reduce injuries ☐ 3 Good appearance ☐ 4	12.3 ☐ 12.4 ☐
	12.5 Do you castrate your animals? Yes ☐ 1 No ☐ 2	12.6 If yes, at what age? 3-6 months ☐ 1 6-12 months ☐ 2 >12 months ☐ 3	12.5 ☐ 12.6 ☐
	12.7 What method of castration do you practice often? Knife ☐ 1 Burdizzo ☐ 2 Rubber rings ☐3	12.8 For what reason do you castrate? Don't know ☐ 1 Control breeding ☐ 2 My neighbour does it ☐ 3 Draft animal power ☐ 4	12.7 ☐ 12.8 ☐
	12.9 Who castrate your animals? Yourself ☐ 1 Hired labour ☐ 2 Extension ☐ 3 Vets ☐ 4	12.10 At what time of the year do you castrate? Winter ☐ 1 Summer ☐ 2 Spring ☐ 3 Autumn ☐ 4	12.9 ☐ 12.10 ☐
	12.11 Do you brand you're a animals with a registered brand? Yes ☐ 1 No ☐ 2	12.12 If yes,why? Animal identification ☐ 1 To comply with the Stock Brands Act ☐2 Other ☐3	12.11 ☐ 12.12 ☐
	12.13 If no, why No knowledge ☐ 1 Not interested ☐ 2 Lack of manpower ☐ 3 Others ☐ 4	12.14Do you provide **licks** to your animals? Yes ☐ 1 No ☐ 2	12.13 ☐ 12.14 ☐
	12.15 If yes, why? Improve animals conditions ☐ 1 Supplement mineral deficiency ☐ 2 Improving calving rate ☐ 3 To supplement scare grazing ☐ 4	12.16 If no, why? Lack of money ☐ 1 Not necessary ☐ 2 Make animals sick ☐ 3 Licks supplier too far ☐ 4	12.15 ☐ 12.16 ☐
	12.17 What type of licks do you use? Summer lick ☐ 1 Winter lick ☐ 2 Salt blocks ☐ 3 Urea blocks ☐ 4	12.18 Which animal do you supplement? Heifers ☐ 1 Bulls ☐ 2 Dry cows ☐ 3 Lactating cows ☐ 4	12.17 ☐ 12.18 ☐
	12.19 How often do you supplement? Daily ☐ 1 Weekly ☐ 2 Monthly ☐ 3 Once in a while ☐ 4		12.19 ☐

13.	**Cash crops:** 13.1 Do you grow any cash crop? Yes ☐ 1 No ☐ 2	13.2 If yes, what type of crops? Tobacco ☐ 1 Vegetables ☐ 2 Wheat ☐ 3 Green pepper ☐ 4	13.1 ☐ 13.2 ☐
	13.3 Where do you market your produce? Local market ☐ 1 Organized market ☐ 2 Neighbours ☐ 3	13.4 Did you receive info from extension on the cash crops you grow? Yes ☐ 1 No ☐ 2	13.3 ☐ 13.4 ☐
	13.5 If yes, How did you find the info Very useful ☐ 1 Useful ☐ 2 Not useful ☐ 3		13.5 ☐
14.	**Livestock marketing:** 14.1 Do you have a market for your animals? Yes ☐ 1 No ☐ 2	14.2 If yes, where do you market your animals? Permit days ☐ 1 Auction ☐ 2 Speculators ☐ 3 Abattoir ☐ 4 Open market ☐ 5	14.1 ☐ 14.2 ☐
	14.3 Are you satisfied with the prices you get for your animals? Yes ☐ 1 No ☐ 2	14.4 Are you aware of the self-quarantine system? Yes ☐ 1 On ☐ 2	14.3 ☐ 14.4 ☐
	14.5 Do you receive any marketing info? Yes ☐ 1 No ☐ 2 14.7 When do you sell your animals? As needs of money arise ☐ 1 When prices are high ☐ 2 During droughts ☐ 3 When animals are good condition ☐ 4	14.6 If yes, from whom? Extension ☐ 1 Radio ☐ 2 F.A. ☐ 3 Other ☐ 4	14.5 ☐ 14.6 ☐ 14.7 ☐
15.	**Range management:** 15.1 Do you have enough grazing for your animals through the year? Yes ☐ 1 No ☐ 2	15.2 What can you do to have grazing through out the year? Nothing ☐ 1 Fencing ☐ 2 Herding the animals ☐ 3 Resettle strong farmers in commercial areas ☐ 4 Fencing and resting some areas ☐ 5	15.1 ☐ 15.2 ☐
	15.3 Can you practice in communal areas? Yes ☐ 1 No ☐ 2	15.4 If not, why? **Don't know ☐ 1** Lack of cooperation ☐ 2 Not possible ☐ 3 Lack of fences ☐ 4 **Lack of knowledge ☐ 5** Small grazing area ☐ 6	15.3 ☐ 15.4 ☐

16.	**Laws & legislation:** 16.1Are you aware of any agric. related laws? Yes ☐ 1 No ☐ 2	16.2f yes, which one? Drought policy ☐ 1 Veld fire ☐ 2 Conservancies ☐ 3 Others ☐ 4	16.1 ☐ 16.2 ☐
	16.3Where did you get the info. About these policies from? Agric. Ext officials ☐ 1 Radio ☐ 2 Councilors ☐ 3		16.3 ☐
17	**Community Based Organization:** 17.1 Do you have any CBO`s in your area/village? Yes ☐ 1 No ☐ 2	17. 2 If yes, which one? Water point committee ☐ 1 Farmers association ☐ 2 Conservancies ☐ 3 Co-operatives ☐ 4 Others ☐ 5	17.1 ☐ 17.2 ☐
	17..3 Are you a member of any CBO? Yes ☐ 1 No ☐ 2	17.4 If yes, what role do you play in this CBO? Ordinary member☐ 1 Executive member☐ 2	17.3 ☐ 17.4 ☐
	17.5 Do you regard this CBO as important /useful? Yes ☐ 1 No ☐ 2	17.6 If yes, how? Income generating☐ 1 Decision making ☐ 2 Collective strength ☐ 3 Other ☐ 4	17.5 ☐ 17.6 ☐

ANNEXURE 2. QUESTIONNAIRE RESULTS TABLES

Percentages are calculated based on valid responses and excluding missing data.
The total sample size was 120.

A. FARMER TYPE

Distance from ADC

Variable	Category	Percent of Households
Distance from ADC	< 10Km	19.5%
	10-20 Km	17.8%
	21-40Km	25.4%
	> 40Km	37.3%

Selected Demographic Variables and Farmer Characteristics

Variable	Category	Percent of Households
Age of respondent	< 25	2.5%
	25-35	17.6%
	36-64	55.5%
	>65	24.4%
Sex of respondent	Male	64.7
	Female	35.3
Respondent type	Head of household	62.2%
	Wife of household head	19.3%
	Other	18.5%
Household size	1-5	58.8%
	6-10	24.4%
	>10	16.8%
Family members working on the farm excluding respondent	<2	58.0%
	3-5	26.8%
	>6	15.2%
Hired labour	<2	75.0%
	3-5	18.2%
	>6	6.8%

Education level of respondent and of member of household to have achived highest level of education

Variable	Category	Percent of Households
Education level of respondent	No school	43.7%
	Part primary	27.7%
	Part secondary	16.0%
	Above secondary	12.6%
Highest education level of a member in the household	No school	.9%
	Part primary	5.4%
	Part secondary	20.7%
	Above secondary	73.0%

Farming satisfies basic household needs

Variable	Category	Percent of Households
Farming satisfies basic household food needs	Yes	61.9%
	No	36.4%
	Don't know	1.7%

Total number of cattle, goats and sheep owned

Number of animals	Livestock ownership (% of households)		
	Cattle	Sheep and Goats	Equines
0	18.5%	4.2%	17.6%
1-10	29.4%	5.9%	65.5%
11-30	24.4%	15.1%	15.1%
30-50	13.4%	11.8%	.8%
>50	14.3%	63.0%	.8%

Crop production

Variable	Category	Percent
Crop producer	yes	20.3%
Fruits planted	yes	10.2%
Vegetables planted	yes	20.3%
Total harvested vegetables	<50Kg	56.0%
	51-100 Kg	28.0%
	>101 Kg	16.0%
Total fruit harvested	<50Kg	53.8%
	51-100 Kg	23.1%
	>101 Kg	23.1%

Main Sources of Income Other than Farming

Variable	Category	(% of Households)
Shop/business	Yes	5.9%
Casual work for cash	Yes	7.6%
Casual work for kind	Yes	5.9%
Salary	Yes	17.8%
Remittances	Yes	12.9%
Pension	Yes	51.7%
None	Yes	3.4%

B. FARMER EXTENSION CONTACT

Farmer knows that Extensionist (AET) exists and works in the area and knows the name of the AET

Variable	Category	(% of Households)
AET exist and works in the area	Yes	88.2%
Knows the name of AET	Yes	85.7%

Times Farm family got information from extension last year

Variable	Category	(% of Households)
Times farmer got information from AET/extension in last year	1-3 times	39.3%
	>3 times	29.1%
	Not at all	31.6%

Usefulness of information given by the extensionist

Variable	Category	(% of Households)
Usefulness of information given by the extensionist	Not useful	17.6%
	Quite useful	40.0%
	Very useful	42.4%

Extension contact by Radio

Variable	Category	(% of Households)
Heard agric information on the radio in the last year.	Yes	78.1%
Reasons for not listening to agric info on radio	No radio	57.7%
	Not interested	19.2%
	Programme timing	15.4%
	Do not know	7.7%
Times listened to agric. Info on the radio	Daily	9.3%
	Weekly	62.0%
	Monthly	16.7%
	Never	12.0%

Usefulness of agricultural information on the radio

Variable	Category	(% of Households)
Usefulness of info on the radio	Not useful	3.3%
	Quite useful	38.0%
	Very useful	58.7%
List of example heard on the radio	Diseases, breed selection, treatment of animals, vaccinate	

C. EXTENSION IMPACT

Animal Health

Variable	Category	Percent
Most common cause of death in large/small stock	Diseases	54.4%
	Parasites	3.5%
	Poisonous plants	13.2%
	Don't know	7.9%
	Drought	21.1%
Vaccinates large stock	Yes	86.1%
Vaccinates small stock	Yes	70.3%
Times to vaccinate	Monthly	3.2%
	After 6 months	38.9%
	Annually	55.8%
	After 2 years	2.1%

Vaccinates against Black quarter only, Botulism only, Anthrax, Brucellosis, Black quarter & Brucellosis

Variable	Category	Percent
Vaccinates against Black quarter	Yes	5.0%
Vaccinates against Botulism	Yes	30.3%
Vaccinates against Anthrax	Yes	13.4%
Vaccinates against Brucellosis	Yes	2.5%
Vaccinates against Pasteurella	Yes	31.9%

Reasons for not vaccinating

Variable	Category	Percent
Reason for not vaccinating	Lack of vaccines	4.0%
	Expensive	36.0%
	See no need	24.0%
	Do not know	36.0%

Received extension info/training in prevention, diagnosis and treatment of diseases.

Variable	Category	Percent
Received extension training in prevention, diagnosis and treatment of diseases	Yes	53.0%
Usefulness of animal health info/training	Very useful	60.4%
	Quite useful	37.7%
	Not useful	1.9%

Methods used to control internal parasites: dosing, traditional remedies, no method

Variable	Category	Percent
Livestock affected by internal parasites	Yes	41.2%
Methods to control internal parasites	Dosing	59.2%
	None	24.5%
	Traditional remedies	16.3%

Methods used to control external parasites: dipping, injection, grease, spray, picking

Variable	Category	Percent
Livestock experience external parasites	Yes	67.2%
Methods to control external parasites	None	7.5%
	Dipping	66.3%
	Inject	1.3%
	Apply grease	18.8%
	Pick by hand	6.3%

Cattle de-horning

Variable	Category	Percent
Cattle de-horning	Yes	69.2%
Age at dehorning	3-6 months	42.9%
	6-12 months	42.9%
	>12 months	14.3%
Reasons for not dehorning	Don't know how	32.1%
	Culture	25.0%
	No need	14.3%
	No tool	28.6%
Advantages of dehorning	Improved animal growth	43.1%
	Reduce fighting	12.5%
	Reduce injuries	23.6%
	Good appearance	20.8%

Castration of large and small stock

Variable	Category	Percent
Castration of large and small-stock	Yes	98.3%
Age at castration	3-6 months	51.3%
	6-12 months	39.8%
	>12	8.8%
Castration method often practiced	Knife	12.6%
	Burdizzo	28.8%
	Rubber ring	58.6%
Reasons for castration	Do not know	3.6%
	Control breeding	96.4%
Received info from extension on castration	Yes	42.7%
Person who castrates your animals	Yourself	98.2%
	Hired labour	1.8%
Time of year for castration	Winter	85.8%
	Summer	3.5%
	Autumn	10.6%

Animals are branded with registered brand

Variable	Category	Percent
Animals are register branded	Yes	82.7%
Reasons for not branding	No knowledge	46.7%
	Others	53.3%
Has received info from extension on branding	Yes	58.3%

Types of licks used

Variable	Category	Percent
Provide cattle licks	Yes	75.7%
Reason for not providing licks	Lack of money	56.0%
	Not necessary	24.0%
	Licks supplier too far	8.0%
	Don't know	12.0%
Types of licks used	Winter licks	3.7%
	Salt blocks	82.7%
	Energy licks	13.6%
Kind of animals supplemented	Heifers	1.3%
	All cattle	98.7%

Livestock management records

Variable	Category	Percent
Keeps livestock management records	Yes	59.3%

Livestock marketing channels: markets animals on permit days, at auction, to speculators, abattoir, at open market.

Variable	Category	Percent
Market large and small stock	Yes	91.1%
Market channels for large stock	Permit days	6.7%
	Auctions	58.9%
	Speculators	28.9%
	Abattoir	2.2%
	Open market	3.3%
Market channels for small stock	Permit days	29.3%
	Auctions	19.2%
	Speculators	41.4%
	Abattoir	2.0%
	Open market	8.1%
Received info on livestock marketing prices	Yes	67.5%
Aware of self quarantine system	Yes	77.8%
Source of info on self-quarantine	Extension	44.6%
	Radio	38.5%
	F.A	3.1%
	Other farmers	13.8%

When farmers market livestock

Variable	Category	Percent
Sell livestock has needs for money arise	Yes	85.6%
Sell livestock when prices are high	Yes	43.2%
Sell livestock during drought	Yes	33.9%
Sell livestock when animals are in good condition	Yes	38.1%

Farmer Perception as to whether effective ways of ensuring availability of adequate grazing can be practiced in communal areas

Variable	Category	Percent
Enough grazing for livestock throughout the year	Yes	45.3%
Effective way of having adequate grazing whole year	Nothing	12.2%
	Fencing	33.9%
	Herding	6.1%
	Resettle strong farmers in commercial areas	16.5%
	Fencing and resting some areas	31.3%
Whether effective way for enough grazing can be practiced in communal area	Yes	40.0%
Reasons for not using the effective way for enough grazing	Do not know	6.8%
	Lack of cooperation	40.5%
	Not possible	37.8%
	Lack of fences	9.5%
	Small grazing areas	5.4%

Types of cash crops grown

Variable	Category	Percent
Grows cash crops	Yes	13.6%
Grows tobacco as a cash crop	Yes	5.9%
Grows vegetables as a cash crop	Yes	13.7%
Grows wheat as a cash crop	Yes	11.9%
Grows fruit as a cash crop	Yes	6.0%
Main type of markets for Produce	Local market	33.3%
	Neighbors	66.7%
Received info from extension on cash crops	Yes	16.3%
Usefulness of info received from extension on cash crops	Very useful	71.4%
	Useful	28.6%

6.1.1 Awareness of policies and laws- drought, veld fire, conservancies, stocks brand Act and others

Variable	Category	Percent
Aware of agric-related laws, policy or act	Yes	95.8%
Drought policy	Yes	47.9%
Policy on veld fire	Yes	34.5%
Conservancies	Yes	78.2%
Stocks Brand Act	Yes	85.7%
Others policies/acts	Yes	6.7%
Agriculture extension official provides info on laws	Yes	54.7%
Obtained info about laws from radio	Yes	65.3%
Obtained info about laws from councilors	Yes	32.2%
	No	67.8%

6.1.2 Community Based Organisations

Variable	Category	Percent
Have CBOs in the area/village	Yes	88.0%
Water point committee	Yes	77.1%
farmers association	Yes	34.2%
Conservancies	Yes	66.1%
Cooperatives	Yes	7.7%
Other CBOs	Yes	11.1%
Member of CBO	Yes	66.1%
Role respondent plays in CBO	Ordinary member	50.0%
	Executive member	50.0%
Regard CBO as useful	Yes	83.0%
One major importance of CBOs	Income generating	17.2%
	Decision making	28.0%
	Collective strength	50.5%
	Other	4.3%