

**PROVINCIAL REPORT ON EDUCATION AND
TRAINING FOR AGRICULTURE AND RURAL DEVELOPMENT\
IN KWA-ZULU NATAL (KZN)**

By Provincial Research Officers:

**HLONIPHANI NGCOBO
BENEDICTA DLADLA**

With assistance of:

**STEVE WORTH
Centre for Rural Development Systems
University of Natal
Pietermaritzburg**

KZN DEPARTMENT OF AGRICULTURE

21 NOVEMBER 2002

| |
|--------------------------|
| TABLE OF CONTENTS |
|--------------------------|

EXECUTIVE SUMMARY

| |
|----------------------------------|
| CHAPTER ONE: INTRODUCTION |
|----------------------------------|

- 1.1 Background of study
- 1.2 Purpose of study
- 1.3 Research methodology
- 1.4 Description of the study area and stakeholders

| |
|---|
| CHAPTER TWO: AN OVERVIEW OF THE AGRICULTURAL SECTOR IN KZN |
|---|

- 2.1 Introduction
- 2.2 Geographical features
- 2.3 Demographic features
- 2.4 Agricultural Landscape
- 2.5 Agricultural production
- 2.6 Non-agricultural activities in rural communities
- 2.7 Agricultural education and training in KZN
- 2.8 Provincial, national and global imperatives
- 2.9 Challenges and implications of development needs on agricultural education and Training
- 2.10 Conclusion

| |
|--|
| CHAPTER THREE: AGRICULTURAL EDUCATION AND TRAINING NEEDS FOR AGRICULTURAL DEVELOPMENT |
|--|

- 3.1 Introduction
- 3.2 Demographics of respondents
- 3.3 Qualifications of respondents
- 3.4 Youth-in-agriculture
- 3.5 Service providers
- 3.6 Educators
- 3.7 Conclusion/Summary

| |
|--|
| CHAPTER FOUR: PROVISION OF AGRICULTURAL EDUCATION |
|--|

- 4.1 Introduction
- 4.2 Providers of non-formal education (agriculture)
- 4.3 Providers of non-formal education
- 4.4 Formal education and training provision (by Higher, Further and Basic Education)
- 4.5 Non-formal education and training provision
- 4.6 Conclusion/Summary

CHAPTER FIVE: AGRICULTURAL EDUCATION AND TRAINING GAPS

- 5.1 Introduction
- 5.2 Who are the clients?
- 5.3 Providers of Agricultural Education and Training versus clients needs
- 5.4 Addressing of clients needs
- 5.5 Affordability of the cost of tuition
- 5.6 Admission requirements
- 5.7 The resources and capacity of providers
- 5.8 Conclusion/Summary

CHAPTER SIX: CONCLUSIONS AND RECOMENDATIONS

- 6.1 Conclusion
- 6.2 Recommendations

EXECUTIVE SUMMARY

1. Introduction

The KwaZulu-Natal (KZN) report for the Agricultural Education and Training initiative represents the gathering and interpretation of data in accordance with the AET initiative and training.

The many stakeholders such as Government departments, colleges, farmers, universities, private organizations and NGOs which are all custodians of agricultural development in KZN, were all given an opportunity to contribute each according to their respective interests, mandates and capacities, thus ensuring that these diversities are given specific attention in the national strategy.

Data was collected using a Participatory Action Research (PAR) approach and utilizing various participatory research methodologies (primarily semi-structured interviews, workshops and group discussions) and structured questionnaires.

2. Agriculture in KwaZulu-Natal

Agriculture is a major economic and social force in the province. It touches on the livelihoods and households of millions in the province. Sugar, cattle, forestry and staple grains are the dominant crops in the province. Other crops include pineapples, banana, vegetables and nuts. Agricultural potential is very high and current production is well below this potential.

3. Research findings

3.1 Adult farmers

Farmers perceived Government laws regulating agriculture, as their main concern followed by business management, marketing and buying skills, respectively. Farmers perceived agriculture as a business entity, which is regulated by Government. They perceive the need for Government, private organizations and NGOs to intervene to build their capacity in these areas.

Sugarcane farmers perceived business management and marketing skills as the major areas that needed serious attention. In terms of resources, land ownership rights and financial resources emerged as their first priority as a key to accessing credit.

3.2 Youth-in-Agriculture

Youth-in-agriculture comprises out of school young people who are engaged in agricultural activities. The majority of them completed high school qualifications, but cannot get jobs. To them agricultural skills/

knowledge is very important. Knowledge on business management and good communication skills were also perceived as very important, with government as the main provider of training needs. Other fundamental issues raised by this group were financial resources, productive land and perceptions of other organizations towards agriculture.

3.3 Service providers

3.3.1 Extension Officers

The most important skills for extension officers were: extension, communication, marketing, management skills; followed by: business management, planning (budgeting) and computer literacy; followed by: technical knowledge and project (resources) management skills. The gaps were computer and project management skills, followed by marketing skills, followed by financial management skills.

3.3.2 Managers

Top skills were management of extension and support, perceived knowledge of extension and communication skills, followed by management functions and leadership skills, were the second most important skills, followed by budgeting, project management, strategic management and computer literacy. The gaps were computer literacy and project and resources management; followed by budgeting and finance management skills; followed by leadership management functions and strategic management.

4. KZN Agricultural education and training

KZN has 2 universities, 2 agricultural colleges and 1 technikon providing formal agricultural education. The Provincial Departments of Agriculture and Environment Affairs and of Labour and some NGOs provide non-formal education. Other institutions such as banks provide support in the form of financial assistance or in kind. Non-certificated training and certificated training from diplomas to PhDs are obtainable in the province. Costs are generally high and not easily affordable to farmers in particular.

5. Basic conclusions

Education and training institutions should accomplish the following:

- Assess the training needs of the clients very accurately
- Understand importance of multi-disciplinary approach
- Integrate with each other
- Align courses according to present and future clients' needs
- Design programmes with client participation
- Address cost issue

- Review Admission requirements
- Increase capacity to provide training and education

6. Recommendations

- 6.1 Cost of training is beyond the means of those needing it most. Government should provide means, mechanisms and structures to facilitate the needed training.
- 6.2 Programmes and courses provided by AET providers should be redesigned with the participation of those involved in agriculture (e.g. students, farmers, employers, etc.).
- 6.3 Financial institutions must also develop an effective communication strategy to assist potential clients to access information about available financial products.
- 6.4 AET providers should have a forum to discuss their programmes to co-ordinate training to eliminate unnecessary duplication and costs.
- 6.5 Support the educational unification process for higher education, requires effective monitoring and evaluation.
- 6.6 Examine (and change) the articulation of admission requirements for tertiary education with agricultural education at high school level.
- 6.7 Research the effectiveness of agricultural extension education offered at tertiary level in South Africa (Research proposal by the Centre for Rural Development Systems, University of Natal – Pietermaritzburg is awaiting funding).
- 6.8 Similar in-depth research into the training of agricultural teachers at primary and secondary levels is also indicated by this study.
9. Provision of certificated/accredited short-courses for existing extension practitioners and agricultural teachers is urgently recommended.

AGRICULTURAL EDUCATION AND TRAINING IN KWAZULU-NATAL

CHAPTER ONE: INTRODUCTION

1.1 Background of the study

This report on agricultural education and training in KwaZulu Natal is part of a long-term and structured process to develop a national strategy on agricultural education and training (AET) in South Africa. The initiative to write a national strategy for AET is part of the continuing effort on the part of Government to reform education in post-Apartheid South Africa in which AET has featured prominently.

The role of agricultural education is to create a cadre of people who value and understand the vital role of agriculture, communities (rural and urban) and natural resource system in advancing agricultural and overall economic development of the country (Abalu 2001). Agriculture is a dual competency. The National Department of Agriculture (NDA) has a responsibility for policy development for the creation of the environment in which the agricultural sector is served by the State. Provinces are responsible for delivery. A similar arrangement exists in education. Consequently, there is an opportunity and a need for close collaboration and co-operation across both functions (agriculture and education) as well as across both levels (national and provincial) to benefit from the collective perspective. This report has been developed in the spirit of that co-operation.

To facilitate the process, each province formed a Provincial Agricultural Education and Training Task Team (PAETTT) – drawing where possible from a wide range of provincial stakeholders and role-players to manage the programme in the nine provinces. This report is submitted by the KwaZulu-Natal PAETTT.

The expected outputs of the AET project are set out as follows:

An appropriate methodology for developing a national AET strategy which reflects the diverse needs of stakeholders, especially small-scale farmers around which organizations and individuals can unite for the betterment of the agricultural sector.

- A group of personnel in the National and Provincial Departments of Agriculture who are able to develop and use a demand-driven approach for developing a national strategy for agricultural education and training which meets the need of the agricultural sector in South Africa; and
- Greater participation by stakeholders at national and provincial level, public and private at different levels of education and training system including primary, secondary and higher education, in the planning of a national agricultural education and training strategy.

This report has been 12 months in the making, following the programme as outlined by the national formulation. The PAETTT in KZN has been driven primarily by the Provincial Department of Agriculture and Environmental Affairs, through the PAETTT Provincial Research Officers with support in the final write-up from the Centre for Rural Development Systems at the University of Natal, Pietermaritzburg. This report consolidates the research reports submitted by two Provincial Research officers which are appended to this document (Appendix A and Appendix B).

1.2 Purpose of the study

The primary purpose of this study is to provide input from KZN into the formulation of the national strategy for agricultural education and training. It is intended to convey the main issues, concerns and opportunities as perceived by key stakeholders in agriculture in KZN.

A further purpose of the study is to provide the province itself with an assessment of the state of AET in the province, to highlight some of the more critical issues faced by service providers and beneficiaries of AET programmes and to provide a framework for intervention at the provincial level.

The report itself is the product of a methodology adopted by the NDA to ensure that all relevant stakeholders and role-players would inform the proposed new strategy. Throughout the country, numerous stakeholders and role-players are extant and cover a range including those, which provide education and training and those who receive such training. The NDA-led initiative aims to bring together all the views, concerns, suggestions and creativity of these stakeholders, first provincially and then nationally, to act as a foundation for the ultimate drafting of a comprehensive national strategy for AET.

While being nationally led, the provinces were mandated to organize and manage the implementation of research and consultation with relevant stakeholders and role-players in their respective provinces. In KZN this was a formidable task given the large number and range of stakeholders and role-players in the province. The research and consultation was to cover an assessment of the status of agricultural development, of service providers and of clients as well as to identify priorities and important issues to be captured in the national strategy.

A central issue, which formed part of the background of the study in KZN, was the issue of access. This highlighted the importance of designing a system with harmonized and multi-disciplinary participation, ensuring that all relevant and interested parties were given a voice in the development of the national strategy. The many stakeholders such as Government departments, colleges, farmers, universities, private organizations and NGOs which are all custodians

of agricultural development in KZN, were all given the opportunity to contribute, each according to their respective interests, mandates and capacities, thus ensuring that these diversities are given specific attention in the national strategy.

The engagement of these various and diverse stakeholders is, in itself, one of the outputs of the proposed new strategy which, in addition to providing a policy framework for AET *per se*, will entrench an ethos of a collaborative and reflective process in policy and practice touching on agriculture.

A further outcome of the process is the closer ties of collaboration established between KZN and the NDA and amongst the various provincial Departments of Agriculture. At the end of this process, there has been a clarification of the vision of agricultural department and a greater spirit of collaboration and support towards attaining a more commonly held goal.

To realize the above-mentioned purposes, the objectives of the study were as follows:

- To determine the training needs of farmers as users of agricultural education and training
- To determine the training needs of extension workers, as providers of agricultural education and training
- To determine the opinions of the above-mentioned stakeholders as to how education and training for agriculture should be provided
- To determine constraints to effective service delivery on the part of providers and constraints on the part of users

1.3 Research methodology

To facilitate the study, the research was divided between two provincial research officers who were trained by the National Strategy Team for the AET initiative. One researcher conducted the study in the North and North West regions of the province. The other conducted the study in the North East, South East and South West regions of the province. As noted earlier, detailed reports from each of the researchers are appended.

Data was collected using various participatory methodologies (primarily semi-structured interviews, workshops and group discussions) and structured questionnaires. These were administered and processed applying the general principles of Participatory Action Research (PAR).

Participatory Action Research (PAR) is a method of research where creating a positive social change is the predominant driving force. PAR grew out of social and educational research and exists today as one of the few research methods which embraces principles of participation

and reflection and empowerment and emancipation of groups seeking to improve their social situation (Seymour-Rolls & Hughes, 1995).

PAR is a participatory methodology developed with the notion that members of the team will approach the topic of appraisal from different view points since they have different skills, knowledge and background. It involves a set of principles, a process of communication and a menu of tools seeking people participation. Therefore, it enables people to share, enhance and analyse their knowledge of life experience. One of the advantages of the PAR is that it can also be used as a monitoring and evaluation instrument (Obrein, 1998).

The main thrust of the PAR is that the activities are done jointly with intended participants, through what is called multi-disciplinary participation. It gives more in-depth understanding of knowledge, skills and attitudes. It has a wide range of techniques such as workshops, analysis group discussion, preference ranking or scoring, focus group discussions, secondary data and many more. One of the key principles applied in this exercise was the following:

Participatory action research *is contingent on authentic participation* which involves a continuing spiral of *planning, acting* (implementing plans), *observing* (systematically), *reflecting* and then re-planning and so round the spiral again. The process can be initiated in different ways:

- Collect initial data in an area of general interest (a reconnaissance), reflect on it, and then make a plan for changed action
- Make an exploratory change, collect data on what happens, reflect and then build more refined plans of action (McTaggart, 1989).

Employing the PAR approach and methodologies provides a richer picture of the issues and opportunities than might be determined through more stilted quantitative methods. As such, while statistics are presented in this report, they are largely intended to provide the reader with a sense of the situation addressed, rather than a minutely accurate assessment which ignores the essential qualitative elements of the input to the strategy formulation demanded by the participatory nature of the objective of the study.

Having used this general approach is part of realizing the aims of establishing a demand-driven strategy.

1.3.1 Research instruments

Questionnaires were prepared and administered to collect quantitative information from individual respondents. The objective of using questionnaires was to obtain information that was not possible through participatory methodologies.

For individual interviews, face-to-face discussions were held with the respondents using checklists developed by the researchers to collect qualitative information. Individual interviews were conducted with respondents such as directors of organizations and chairpersons of associations.

For workshops and group discussions, guideline questions were utilized, also developed by the researchers. During workshops, meetings and group discussions, the participants were also requested to complete individual questionnaires.

1.3.2 Research activities

The research process started with arrangement of several workshops for different stakeholders. KZN has a huge number of stakeholders, therefore research was limited to major stakeholders as a priority, but included other stakeholders where capacity allowed.

The selection of stakeholders was done during a stakeholder analysis exercise during a provincial PAETTT forum meeting.

Using a point scoring system developed during the stakeholder forum, PAETTT identified the major stakeholders which included;

- Employees of the Department of Agriculture and Environmental Affairs (Extension Service and Administration)
- Cane Growers Association (Training Manager)
- Mill Cane Committee (Member of Development Committee)
- Farmer Support Group (FSG)(Director)
- Land Bank (Director)
- Department of Education (teachers of agricultural science)
- Farmers (commercial, small-holder and small-scale sugar cane producers)
- Colleges, Technikons, Universities (selected management and lecturers)
- Youth-in-Agriculture (selected members of the association)
- Managers from non-governmental organizations operating and based in the North and North West Regions.

A number of stakeholders had several categories of respondents, the detail of which is captured in the raw data. For example, the Provincial Department of Agriculture and Environmental Affairs had extension management staff, youth co-ordinators, extension staff, agricultural scientists, agricultural assistants and the Human Resource Committee. Working with such respondent groupings facilitated capturing varying needs within the provincial extension service. Other major stakeholders were accommodated similarly.

Several workshops were held with different respondent groups to allow them to contribute effectively during discussions. During workshops as highlighted earlier, individual participants were also given questionnaires to complete. Therefore, there were three sessions in the workshop, namely:

- Presentations
- Group discussions/interaction
- Individual questionnaire completion.

This approach was viewed to be very effective and time-saving since questionnaires were administered in the presence of the researcher.

Furthermore questionnaires were used to collect information, which could not be obtained during group discussions. The data collected through presentations, group discussions and questionnaires were later analysed. In some cases, the researcher attended additional stakeholder meetings (e.g. staff meetings) to collect additional information.

Individual interviews were conducted with representatives of the following organizations:

- FSG
- Land Bank
- Cane Growers
- Department of Agriculture and Environmental Affairs – Human Resource Committee

In the North and North West regions, commercial farmers were also interviewed individually. In most cases, the representatives of these institutions were directors and/or managers of organizations. It was taken that their views represented a perspective of the organization as far as training needs, physical and financial resources and human resource development programmes were concerned. These interviews were conducted by means of a semi-structured interview.

1.3.3 Data analysis

Questionnaires were analysed using quantitative data analysis methodologies. This involved using a computer programme. Qualitative data was not analysed quantitatively because of the methodology used to collect data. The overall objective of the study was not to reach consensus, but to generate perceptions and opinions. Data collected from different groups was organized according to study objectives, analysed and compared. Similar views were grouped together, then conclusions were drawn.

1.4 Description of the study area of stakeholders

Since the purpose of the study was to involve many stakeholders involved with agricultural development activities in KZN, the study area covers the whole province. However, some stakeholders are found and operate in only one part of the province, while others operate in wider areas within the province and others cover the whole of the province. Another main consideration was the fact that some stakeholders have more impact than others as far as agricultural education and training is concerned. The imperative of exploring issues in those stakeholders with greater impact in agricultural development, was imminent. However, the sampling strategy used the same division of the province, as is used by the DAEA, that is five regions; North(N), South East (SE), North East (NE), North West (NW) and South West (SW) regions as are used by the Department of Agriculture and Environmental Affairs. All five regions were canvassed in the study.

All in all about 650 people participated in the research, either through workshops, interviews or questionnaires. About half of these were farmers and the balance of participants were formal and non-formal training service providers. It should be noted, however, that extension officers and other non-formal training service providers are also part of the “recipient base” of AET.

1.4.1 AET service providers at school level

There are 94 high schools in the province which offer agriculture. One teacher from each school was interviewed for the study.

1.4.2 Institutions of formal AET at tertiary level

The universities were found in the North East (University of Zululand) and South West (University of Natal) regions. Other institutions of higher learning were Mangosuthu Technikon in the South East Region, Owen Sithole College of Agriculture in the North East Region and Cedara College in the South West Region. From these institutions, 40 lecturers participated in the survey.

1.4.3 Provincial Department of Agriculture

Again the five regions were used as the study area. Each region has several districts and therefore certain districts were selected to form part of the study area ensuring a good cross-section of the stakeholders throughout the province. A total of 213 non-management members of the extension service were interviewed. This included, Extension Officers, Youth Co-ordinators, Agricultural Scientists and Agricultural Assistants and Managers. A total of 51 managers in the extension service were surveyed.

1.4.4 Farmers

Some 303 farmers participated in the study. These included the following “categories” of farmers:

- Small holders/Emergent farmers
- Commercial farmers
- Small-scale sugarcane growers

It should be noted that during the course of the study there was no adopted definition of a farmer in the province. For the purpose of the study, commercial farms were defined as those farmers who produce for selling and operate in the formal market. Emergent farmers were those farmers who produce for selling but lack resources and organized markets. In this category were also farmers who produce for household use and sell if it happens that there is a surplus.

Small holder/Emergent farmers represent a large margin, the largest grouping of farmers and producers in the province. They were also the most difficult to engage in the research. Commercial farmers, while being much smaller in number, have a huge impact on agricultural production and its contribution to GGP in the province. In some cases, commercial farmers were represented by members of the relevant farmers association and in other cases were interviewed individually. The small-scale sugarcane growers were identified as their own group because of the significance of sugar production in KZN and because of the particular needs and opportunities of these particular producers.

Outline of the report

- | | |
|------------|---|
| Chapter 1: | Gives a background of the study and the purpose as well as the methodology used during the study process |
| Chapter 2: | Describes production activities in KZN. These production activities include crop production, livestock production and agro-forestry. It also describes roles of agricultural education and training institutions. |
| Chapter 3: | Deals with agricultural education and training needs of different role players such as farmers and extension staff. Training needs are influenced by several factors, like experience, knowledge and skills. |
| Chapter 4: | Deals with the provision of agricultural education and training by various service providers. This provision can be formal, informal and non-formal. |

Chapter 5: Is about agricultural education and training gaps. It defines the relationship between service providers and clients.

Chapter 6: Provides conclusions and recommendations about agricultural education and training.

| |
|---|
| CHAPTER TWO: AN OVERVIEW OF THE AGRICULTURAL SECTOR IN KWAZULU-NATAL |
|---|

2.1 Introduction

This chapter provides an overview of the agricultural sector in KZN. It looks at geographic and demographic features of the province, agricultural and non-agricultural activities that rural communities were involved with. Agricultural education and training in the provinces is explored, specifically an overview of providers of agricultural education and training. Brief comment is made regarding the implications that these factors have at national, provincial and global levels as well as for agricultural education and training.

2.2 Geographic features

KZN province lies between the Indian Ocean and the great Drakensberg Escarpment and occupies 8% of the South African geographical area. It has a population of approximately 9,3 million, making it the most populated of all nine provinces. In terms of size, it is South Africa's third smallest province, occupying about 92 000 square kilometers (9,2 million hectares). According to the Bio-resource Unit of the DAEA, only 12% of KZN land is arable. About 8% of the land in KZN is degraded as a result of inappropriate and uncontrolled land-use.

KZN has three climate zones, namely 1% tropical, 44% sub-tropical and 55% temperate. There are fourteen river catchments and diverse vegetation which consists of about twenty-three (23) groups. The average rainfall is between 600 and 2 000 mm.

KZN province is said to have the greatest agricultural potential of all South Africa due to its diversity of its natural resources.

2.3 Demographic features

KZN is the highest populated province in South Africa. According to the 1996 census, 20,7% of the total South African population resides in KZN.

In 1996 the population was 8,4 million with the growth rate estimated at 2,18% per annum (South African Yearbook, 1999). The prevalence of HIV/Aids will have a significant bearing on the long-term population and growth statistics.

Presently the majority of the population in KZN live in rural areas where the standard of living is low. [One of the conditions of poverty is the absence of development amenities including basic infra-structure such as housing, roads, electricity, water, etc. By contrast, the urban areas in the province are well-endowed with this infra-structure]. However, from 1980 to 1991 there has been a decrease in rural population. In 1980 the rural population was estimated at 68% and in 1991 dropped to 62% (KTT Publication and KwaZulu-Natal Province Report presented at the fifth international programme on strategies for sustainable agriculture and rural development).

In 1995 about 52% of the population were considered functionally urbanized. It is expected that by year 2020, 60% of the people would be living in urban areas (Donvard et al 2001).

This is an indication of urbanization trend. In 1987 the population in informal settlements around Durban was estimated at 1,7 million. This figure is for Durban only and does not include other cities in KZN. The other major centres in the province (notably Pietermaritzburg and Richards Bay) are significantly smaller but together account for approximately 2,5 million.

In 1996 the unemployment rate in KZN was estimated at 25.5. Lack of employment opportunities in the rural areas was the course of rapid urbanization in the province.

About 23% of all adults in the province have received no schooling, therefore the economy in the province experienced a shortage of skilled human resources.

Skills shortage issues in KZN was also revealed in the study conducted by KZN Training Trust in 1988. The findings were that the majority of Africans in the province lacked skills. This resulted in their poor representation in financial and business sectors, managerial and executive positions. In addition, there were few Africans in professional, semi-professional and technical occupations.

Pittendrigh et al recommended that a massive training initiative be implemented in the province which will concentrate on giving people the marketable skills required in the formal and informal sectors.

Recommendations were also made that entrepreneurial training schemes be launched with a facilitating agency responsible for market analysis, selection and training of people to enable them to meet market needs.

A large percentage (87%) of the province's labour force in agriculture falls into the segment in which labour skill requirements and wages are low (May, 1996).

There are several contributors toward the unlocking of the agricultural potential of KZN including agricultural producers, various agricultural institutions and educational and training institutions as well as the Department of Agriculture and Environmental Affairs and its partners in the so-called “three-pronged approach” and the KwaZulu-Natal Development Forum (KZNADF). Relevant collaboration and co-ordination among these role players and stakeholders and the agenda being pursued by the KZNADF, are an essential ingredient in realizing the ultimate agricultural goal of the province.

Because of its role in producing scientists and practitioners, it important to consider the issue of agricultural education and training. In this mix, institutions such as colleges, technikons and universities are important providers of primarily formal education in the training of agricultural scientists and field practitioners. Organizations such as NGOs as well as the provincial government provide primarily non-formal education to farmers. There are private-sector organizations such as the Land Bank and commercial input suppliers that provide training to their clients as part of a profit-making agenda. As with all the agricultural role players and stakeholders in the province and because of the interdependence among providers, the AET on the same geographical, economic, social and political environment, there is a need to ensure collaboration and co-ordination of services.

2.4 Agricultural landscape

Agriculture in KZN operates in a dualistic nature. There is a well-developed commercial sector and a poorly developed sector of which the majority are African women in rural areas who mainly practice subsistence farming. According to the provincial Department of Agriculture Annual Report for 1999/2000, some 4 400 farmers comprise the “commercial sector” and some 70 000 comprise the “developing sector”.

Although the number of farmers in the developing sector is large, they generally produce below subsistence level. Most of the farmers in the developing sector, farm either in home plots or as groups in community gardens. The majority produce staples and vegetables. According to the annual report for KDA about 53 740 emerging farmers were producing vegetables in community gardens.

While the number of commercial farmers is smaller than the number of developing farmers, they farm extensive areas and produce for the market. The majority farm as families and operate in their individual/family farms.

Agricultural production in the developing sector has been found to provide only supplementary earnings. The bulk of the household earning being derived from migrant remittances, informal trading and

from the State pensioners. This has been shown in many studies conducted in KZN.

According to Pittendright, the agriculture's low income generating capacity in rural areas has resulted in the loss of interest in agriculture as a working option for family support. It is important to relate agricultural training to this situation. An interest in agriculture can only be aroused if agriculture is seen to compete with urban employment in terms of income generating potential.

Although training can play an important role in upgrading the financial viability of agricultural production in the developing sector, it would not have much impact unless issues of markets and land tenure systems in rural areas are addressed.

Along the subsistence and commercial farmers, is a group of emerging farmers. Some of them have bought farms, some acquired farms through Land Distribution and Restitution programmes. During the time of this study there was no information obtained concerning their progress.

The commercial sector was supported much by the private sector while developing sector was largely supported by the public sector.

2.5 Agricultural production

In 1995 KZN contributed 15% of the total South African Gross Domestic Product (GDP). Agriculture contributed 5% of the total KZN Geographic Gross Product (GGP). This section gives an overview of agricultural activities of the commercial and the developing sectors.

2.5.1 Crop production

The following extract from "KwaZulu-Natal Review 2001/2002" provides a clear overview of the agricultural sector in the province:

"Agricultural production, is an important contributor not only to household food security but also to the economy. A large percentage of the country's total number of small-scale farmers is based in this fertile green province. Promoting the region as an ideal location of agricultural investment, KZN has embarked on an intensified international marketing campaign, with a 20-year programme aimed at unlocking the vast potential. Opportunities exist for donors and partners to participate in initiatives that include technical, management and development support, as well as urban, commercial and subsistence agriculture.

“Durban’s South Coast is covered in banana plantations, while Hluhluwe is known for pineapples, the Eshowe area for citrus and the Midlands for avocados. Forestry, annual crops and livestock can be found in the Midlands and northern areas, covering about 40 per cent of KZN. The agro-industrial sector (the largest in South Africa) sees downstream activities contributing an impressive percentage to the province’s GGP. Consisting of sugar factories, pulp and paper productions and meat processing, among others, this sub-sector employs a vast number of people.

“SUGAR INDUSTRY: Sugar is the single largest crop in the province. Half the estimated average of sugar per season is marketed in southern Africa, with the remainder exported to markets in Africa, the Middle East and Asia. The agricultural activities of sugarcane cultivation are combined with the industrial factory production of raw and refined sugars, syrups, specialized sugars and range of by-products. Over 85 percent of the national crop is grown in KZN, which also accounts for about half the production of confection and a quarter of beverages. The food and beverages sub-sector, contributing some 20 percent of KZN’s manufacturing output, has been built up largely around this industry.

“FORESTRY: The three largest forest owners in South Africa are the South African Forestry Company (Safcol), Mondi and Sappi. The forest and forest products industry is a major contributor to the GGP, with nearly half of all new affore-estation occurring in a province that boasts nearly 580 000 hectares of the country’s timber plantations. KZN is the country’s leading timber producer, with plantations processing well over half of all timber used in the country and a substantial percentage of all wood product sales are generated here. Growing conditions are excellent and forestry is a major source of income in the areas around Vryheid, Eshowe, Richmond and Harding. Timber production accounts for 6,5 percent of KZN’s agricultural output. South Africa’s second largest integrated pulp and paper mill and the only two woodchip export plants are located in Richards Bay. The wattle industry, producing extracts for tanning leather and adhesives as well as other timber products, is also centred in KZN .” (SA DEAT 2002).

2.5.1.1 Sugarcane

Sugarcane is the main crop in KZN. It is estimated that the sugar industry contributes R1,7 billion to the country’s foreign exchange. Sugarcane is grown in 15 cane producing areas, extending from Northern Pondoland in the Eastern Cape Province, through the coastal belt and midlands of KZN to the Mpumalanga Lowveld. Almost 90% of the sugarcane in South Africa comes from KZN. It is largely grown in coastal regions and in some inland parts.

There is a partnership between millers and growers in the form of associations. These associations are known as the South African Cane Growers Association (Cane Growers) and the South African Sugar Millers Association Limited. There are 47 000 registered cane growers and 96% of them are small-scale growers farming on tribal authority land with 4% being large-scale commercial farmers (farming on freehold property). According to KDA Annual Report, there were about 13 835 developing farmers in this industry, growing sugarcane on a smaller scale. The sugar industry through sugar mill farms, redistributes land to medium-scale farmers (previously disadvantaged individuals) to grow sugarcane.

2.5.1.2 Maize

Maize is also one of the major crops grown in KZN. Major areas growing maize in the province are Utrecht, Newcastle, Danhauser, Glencoe, Vryheid, Bergville, Estcourt and Dundee. There are two types of maize, namely yellow and white maize. In 1993, more than 36 000 hectares were planted. More than 140 000 tons of white maize was produced. These figures exclude yellow maize and maize grown in areas where statistics of production were not available.

For the past ten years, the total average of maize production in the province was more than 80 000 tons with an average of 3,19 ton per hectare. In the past years, sunflowers were not a prominent crop in the province. However, in 2000/2001 seasons more than 90 ton of sunflowers were produced from 45 hectares. The statistics show that sorghum was grown in the province, but it shows a skew variation in terms of production. The data was obtained from the Statistics Section of the National Department of Agriculture.

About five hundred and sixty (560) developing farmers were said to grow maize. There is one maize mill for African farmers in Bergville. The number of farmers in the developing sector, who were growing maize (a staple food for most Africans) were very few and the majority concentrated on community gardens. Just over half of African rural households in KZN (53%) had access to land for cultivation of crops, which is said is an advantage to the rest of rural areas in the country. The average size of land for households was estimated at two hectares (South Africa Labour and Development Research Unit (SALDRU)). This is an indication of under-utilization of land.

The study conducted by the University of Natal, Durban Centre for Social and Development Studies in Nkandla (1995), revealed that although all households had access to fields, only a quarter of households had planted all their land the previous summer. This is an indication of under-utilization of land.

There is a likelihood that the development agents, extension agents leaders have influenced rural communities into community gardens. The study conducted by Elizabeth Ardington at Nkandla revealed that responses of people surveyed were that they had been told by a developing agency, to start vegetable gardens otherwise they would not get any nutrition relief. Some said that the headman initiated the idea and some said extension agents.

While vegetables are still important and have market value, there is a need that the developing farmers be exposed and assisted to explore other agricultural opportunities other than vegetables only. Field crops are important to balance vegetables.

2.5.1.3 Dry Beans

Statistics show that dry beans are grown in the province. In the past 10 years, an average of 2 000 tons were produced from 2 000 hectares. Groundnuts did very well in the past ten years, where an average of 1 000 tons were produced. However, the areas of production declined in the late nineties and an average of 100 tons were produced. There are other crop grown like madumbe, sweet potatoes and potatoes, though the statistics about the production crops are not available. Fruit production, like oranges, bananas, pineapple and mangos, are doing well in the province. Oranges are grown mainly at Nkwalini Valley in the north-east region. Bananas are grown primarily along the coastal belt of KZN. Pineapples are grown in the north of the province.

2.5.1.4 Horticultural Crops

In 1995 horticultural production contributed 5,2% to the total South African production. The following are the horticultural crops grown in KZN:

- **Vegetables:** Vegetables are grown in most areas in the province, cabbage is grown mostly in the Midlands, Camperdown and Greytown districts. Pongola area has a high tomato production. About 53 940 developing farmers were said to grow vegetables in community gardens.
- **Citrus:** Citrus is concentrated mostly in the irrigated areas of Nkwealini, Muden and Richmond districts.
- **Sub-tropical fruits:** Avocados, bananas, guavas, paw-paw, mangos are grown largely in Northern Zululand (lower Umfolozi and Manguzi areas).

2.5.2 Livestock production

Livestock production in KZN contributed 16,20% of the total South African production in 1995. Livestock production is mostly

concentrated on the Midlands. About one hundred and forty (140) developing farmers were said to be involved in livestock production.

The livestock sector in the province is based on two orientations, namely:

- Commercially oriented and centred on private land ownership
- Communally oriented and centred on communal land tenure.

In all, livestock plays an important role in the lives of people in the province. However, livestock production in the communal land is characterized by low levels of productivity and is subsistence based.

In the commercial industry, livestock and cattle in particular, are kept for business purposes and are a source of income. There are different objectives for holding livestock as far as commercial farming and communal farming are concerned. Rural households in particular, perceive the role played by livestock indifferently and these perceptions are not clearly understood. The following table gives an indication of the number of livestock in total and two orientations.

Table 1: Livestock production in KZN

| Livestock | Communal | Commercial | Total |
|-----------|---------------|---------------|------------|
| Cattle | >1 000 000 | 50 000 | 2 235 460 |
| Sheep | 12 0000 | <54 000 | 662 840 |
| Goats | >46 000 | 16 000 | 631 878 |
| Poultry | Not available | Not available | 12 803 725 |

There are different types of livestock in the province, such as cattle, sheep, goats, pigs and poultry. Communal farmers keep more than one million cattle. It is an interesting fact showing that they have slight edge over commercial farmers. The number of sheep produced by commercial farmers in the province at present, is more than 54 000 while communal farmers produce approximately 12 000 sheep.

Communal farmers produced more than 46 000 of goats while 16 thousand was produced by commercial farmers. The record showed that more than 12 million of poultry was produced in the province (Mtshali 2001).

Livestock production enterprises are mainly beef (meat) and milk production. Due to climatic factors certain breeds are adapted in the province. Nguni breed is the main cattle breed found in the province. Both commercial farmers and communal farmers across the province keep this breed. Commercial farmers mostly keep Drakensberg

breed, but as the name suggests, communal farmers along the Drakensberg Mountains do have this breed. Dairy breeds, commonly found in the province, are Friesland and Jersey. Communal farmers prefer Friesland since it is more extensive than the Jersey breed. The province is well suited to extensive livestock production and this makes livestock management easier.

The major effect on communal land tenures is the stocking rate, which is very high as compared to private tenure. Higher stocking rate levels reduce forage production potential, especially when climate is a determining factor. These will increase grazing pressure to the system to the level it will be an irreversible threshold. Besides providing income and wealth, livestock provides “amasi” (curled milk), hides (skin), draught power (ploughing), security and milk for human consumption.

2.6 Non-agricultural activities of rural communities

Rural people are engaged in a wide range of activities in order to generate a livelihood. They are involved in informal trading, manufacturing and in many other activities including block-making, sewing, baking, handcraft and savings clubs. This section will touch on the few activities that rural people are involved in. Many of these activities are supported by the Department specifically by the Home Economists. Although many people in rural areas were involved in these manufacturing activities, they were not yet developed to a market quality standards.

Some of the factors that affect its development are lack of proper training, access to appropriate technologies, market and Government regulations in the past, for example, bread manufacturing. Rural manufacturers did not have access to subsidized flour that the big companies were having access to (Rudman 1988 in KTT publication). The Government has now stopped subsidizing bread. The rural people supported by the Department of Agriculture, during the time of this study, were still involved in baking activities. It is not economically and financially viable for the developing sector to produce bread without it being subsidized.

Because many people in the rural area are poor and unemployed, the buying power is low. There is a need that the Government should empower manufacturing initiatives in the rural areas because they are one of the options for rural development along agriculture, for example clothing was a leading industry in KZN according to the study conducted by the Development Bank of South Africa in 1987. This industry will always have a market.

There is a need to expose rural manufacturers to appropriate technologies like industrial sewing machines and baking equipment suitable for business. There is also need for the big businesses to link with the rural emerging businesses, to stimulate relationship so that both parties can decide where they can meet each other. This can address the issue of marketing. The facilitating body is required to do this.

As indicated in the beginning, there were rural block-making initiatives identified in the rural areas of KZN. Building contractors could be established in rural areas. The Department of Housing can play an important role in this.

2.7 Agricultural education and training in KZN

KZN has various service providers of agricultural education and training. Formal AET offered by the two universities (Natal and Zululand), the two colleges (Cedara and Owen Sithole), the one technikon (Mangosuthu).

Some 94 high schools, including 4 agricultural high schools, offer varying levels of formal AET in the province.

The Government (via the Department of Agriculture and Environment Affairs and the Department of Labour) and some NGOs provide non-formal education. Other institutions such as banks provide support in the form of financial assistance or in kind.

Details about the offerings of these institutions are recorded in Chapter 3.

2.8 Provincial, National and Global Imperatives

Geographic and demographic issues raised in the previous sections of the report were land degradation, skills shortages in KZN, unemployment and urbanization.

Gaps in agricultural activities in the developing sector were identified. Non-agricultural activities in the rural sector were explored and factors that affected its development were identified. A need was identified not to view agricultural development in isolation to rural development.

Thus, the following emerge as requiring urgent attention at provincial, national and global levels:

- Programmes to address land degradation problems need to be implemented in the province. Land degradation is a threat to the future of agriculture in the province.
- National, provincial and local government need to have a focused programme that is aimed at improving rural livelihood. Integrated

rural development approach needs to be implemented rather than stakeholders working in isolation.

- There is a need for a scheme to ensure that people do something after training, particularly linking producers to markets.

2.9 Challenges and implications of development needs on agricultural education and training

Some of the challenges emerging from the scoping of the agricultural landscape and AET landscape are as follows:

- AET to produce people who see agriculture as a business
- In addition to producing advisors, AET to produce qualified people to run businesses for the development of the rural sector. This means that the institutions must consider to prepare people for self-employment as well.
- Looking at land degradation problems in KZN, AET to produce people with the knowledge of land use planning, veld management, pasture science and soil conservation are required. Campaigns to train people on landcare are required.
- Issues raised indicated that agriculture and rural development cannot be viewed in isolation, but can be taken as a system, therefore there is a need for training for agriculture and rural development jointly. In addition to agricultural training, higher learning institutions could incorporate in their training packages, courses that cover areas like development studies, rural development, sociology, integrated development approaches, partnership development, participatory approaches and gender studies (Note this is done with the B Agric RRM [Extension] at the University of Natal).
- Make the programmes offered by the many AET providers outcome based. It should be clear as to where all the trainees are going to be absorbed.
- Form a body at provincial level which will focus on giving direction to agricultural education and training in the province.

2.10 Conclusion

Due to the diversity of natural resources, KZN has the greatest agricultural potential of all in South Africa. Yet land degradation as a result of inappropriate and uncontrolled land uses, poses a threat to the future of agriculture in the province. There is a need for people who have knowledge and skills of animal science, veld management, pasture science and land-use planning.

The majority of farmers in KZN are farmers in the developing sectors, yet the majority in this sector produce below subsistence level. Farmers in the developing sector did not see agriculture as working options for family support. Thus there was a high rate of urbanization

as a result of shortage of employment opportunities in rural areas. The land available to rural households is under-utilized.

An interest in agriculture can only be aroused if agriculture is seen to compete with urban employment in terms of income generating potential. While agricultural education and training is important in upgrading the financial viability of agriculture in developing the sector, it would not have much impact unless issues of markets are taken into consideration.

There is a need to expose and assist developing farmers to explore other agricultural opportunities beyond current production.

The majority of rural communities, especially women, were involved in informal trading and manufacturing activities. Developing this sector can strengthen the rural development, therefore it is important that agricultural development is not viewed in isolation to rural development.

Focused rural development programmes to improve rural livelihoods need to be established and implemented. If rural areas could be made a better place to live, urbanization rate could decrease. Challenges facing providers of education and training at lower and higher levels is to produce people, who could see agriculture as a business, prepared for self-employment. There are many agricultural education and training service providers in the province. The challenge is that the training should be outcome based. It should be clear as to where all the trained people are going to be absorbed. There should be strategies in place to address this issue. Bodies at provincial and national levels could be formed to explore market and skills development opportunities.

There is a need that higher learning institutions train people for agriculture and rural development adding into their agricultural training packages, human sciences.

Lastly there is also a need for agricultural education and training bodies which could focus on giving direction to agricultural education and training in the province.

CHAPTER THREE: AGRICULTURAL EDUCATION AND TRAINING NEEDS FOR AGRICULTURAL DEVELOPMENT

3.1 Introduction

This chapter provides an overview of the training needs of the stakeholders for agricultural education and training. Questionnaires, group discussions and interviews were used to collect information. These methods were used to compliment each other in serving the objectives of the study. Questionnaires were used to collect quantitative information. Group discussions and interviews were used to collect qualitative data. These are the perceptions and feelings of participants. Since the overall objective study was not to take a decision or to reach a consensus, but to see the trends to get opinions and feelings, qualitative data was not analysed quantitatively. Opinions and feelings raised by different groups were organized according to the study objectives. Analysed and similar views were grouped together so that conclusions could be drawn.

Training need analyses were undertaken by firstly identifying skills and knowledge perceived by farmers, as well as service providers in the study areas. There are different types of farmers, such as small-holder (emerging) farmers, small-scale sugarcane farmers and commercial farmers. In some cases, farmers associations represented commercial farmers. In the case of service providers, similar approaches were followed. The major service providers were extension staff, agricultural scientists, youth co-ordinators, managers of extension and agricultural assistants. Inferences were also made with regard to other organizations such as NGOs and private organizations.

3.2 Demographics of respondents

3.2.1 Gender composition of respondents

3.2.1.1 Gender composition of farmers

The commercial farmers and sugar cane farmers were predominantly men, while the subsistence farmers were predominantly women.

3.2.1.2 Gender composition of service providers

DAEA generally found that there was a relatively even balance between men and women at the extension/technician level. Management was dominated by men.

3.2.2 Qualifications of respondents

3.2.2.1 Qualifications of farmers

The majority of small-scale farmers reported to have either no formal education or only a primary education. The commercial farmers all had tertiary level qualifications, including diplomas in agriculture and up to a 4-year degree in agriculture.

3.2.2.2 Qualifications of service providers

The most common qualification in the extension service is a diploma. A few have Bachelors degrees, a few B.Sc Agriculture and a few B.Tech (Agriculture). The diplomas and B degrees cover agricultural sciences (e.g. plant production, animal production, soil sciences, etc.), home economics and rural resource management. The vast majority (80% to 90% of extension officers and technicians have diplomas. The most common diploma is in plant production.

Some 24% of the youth co-ordinators were found to have B degrees with the balance (76%) having diplomas.

A similar picture emerges for extension management where approximately 60% of the managers have diplomas, 25% have B degrees and 15% have post-graduate degrees.

Agricultural scientists tended to have higher qualifications with only 11% having diplomas, 47% having B degrees and 42% having post-graduate qualifications.

None of the extension staff or management or scientists were found to hold a PhD.

Lecturers at the tertiary institutions were found to have the highest percentage of higher qualifications with 7% having diplomas, 17% having B degrees, 37% having honours, 27% having a masters and 13% having a PhD.

3.2.3 Experience of respondents

3.2.3.1 Experience of farmers

For the farmers experience refers to the number of year in farming. For service providers experience refers to the number of years providing that service, e.g. the number of years an extension officer has been engaged in providing extension. The aggregated figures demonstrate what is often expressed by farmers that they generally have more experience than the extension staff who services them. Details of the range of years of experience of the Government respondents are presented in the relevant appendices.

Experience as farmers is difficult to measure with accuracy. For the Zulu farmers, where farming is tied up with traditional land rights, “experience” was taken to start from the first time the respondent was granted any piece of land by his father (or other relevant elders). In most cases this was between the ages of 12 to 15.

For the commercial farmers, no qualification was made and it was assumed that “experience” commenced from the time they assumed a measure of responsibility on their own or a family farm.

Further types of experience vary. Commercial farmers have greater experience in market-orientated production, dealing with large management units, capital intensive technologies, etc. whereas the small-scale/emerging farmers have more experience in indigenous crops, food security systems, etc.

The data reveals that both groups of farmers generally perceive themselves to be experienced in farming. The commercial farmers ranged consistently in all the regions at about 25 years’ experience. The other categories of farmers were less homogeneous and rated their experience on average from 10 years in the North and North West to 30 years for the small-holders in the South, South West and North East regions. The average for the small-scale cane growers was 18 years.

3.2.3.2 Experience of service providers

The extension staff and management of the DAEA Extension Service show a very different picture. Extension officers and technicians and youth co-ordinators show nine and six years respectively. Management showed an average of 20 years’ experience. Agricultural scientists average 11 years.

It would appear that years of service is a key factor in promotion from the “front-line” into managerial and supervisory positions. The close correlation between experience and age implies that the DAEA in KZN has relied on experience and age of respective staff members when appointing management staff and that most of the managers in the Department of Agriculture are senior staff by virtue of age and years of service.

High school teachers had an average of 9 years’ experience, college lecturers indicated 11 years, technikon lecturers indicated 5 years and university lecturers averaged at 12 years.

3.2.4 Conclusions

While better educated/qualified, extension staff are often very much less experienced than the farmers they serve. As will be discussed later, the content of the qualifications (particularly its lack of practicality) is often found wanting in the “real world of the farmer.

This has implications for the receptivity of “junior” and less experienced extension staff by farmers who perceive themselves to be better experienced.

3.3 Farmers

3.3.1 Knowledge and skills of farmers

Farmers were asked to identify knowledge and skills, which they perceived, were required to be a successful farmer. Priority ranking was then used to determine the perceived importance of these knowledge and skills.

The top ranking skills were:

- Business management
- Human resource management
- Time management
- Technical (practical) agricultural production (emerging farmers)

The next ranking skills were:

- Government Acts Knowledge
- Communication Skills
- Theory/Practical Skills (commercial farmers)

The balance of the skills identified were:

- Mechanical knowledge
- Delegation skills

The results show that both business knowledge and human resources management skills, together with agricultural production skills, are perceived by farmers to be priority elements of successful farming. Closely akin to these, are time management and communication skills. These were ranked second together with knowledge on laws regulating agricultural sector and theoretical knowledge.

3.3.2 Knowledge and skills gaps of farmers

Farmers identified and ranked the gaps in the important knowledge and skills:

The priority areas identified are:

- Knowledge of Government Acts
- Institutional development
- Technical production

The above priority areas identified were followed by:

- Business Management Skills
- Marketing and Buying

These were followed by:

- Human Resources Management
- Policy Analysis

These were followed by:

- Labour Laws
- Communication
- Mechanics
- Delegation

According to the results, farmers perceived Government laws regulating agriculture, institutional development and agricultural production (emergent farmers) as their current major concern inhibiting success. The listing of business management, marketing and buying skills, followed by human resources management and policy analysis indicate that farmers perceived agriculture as a business entity, which is to some extent regulated by the Government.

Discussions following ranking, indicated that farmers perceive a need for Government, private organizations and NGOs to intervene to build farmer capacity in the gap areas. Although training was an obvious solution, the issue of availability of resources emerged. They perceived that capacity development programmes could not be successful, unless major resources such as water, effective institutional support, financial resources, land and marketing were provided. Training without opportunity is useless.

3.4 Youth-in-Agriculture

The “Youth-in-Agriculture (YIA) category seeks to capture the perceptions of young out-of-school adults who are engaged in agricultural activities, primarily on small-holdings. The majority of them completed high school qualifications but cannot get jobs. Through the intervention of the DAEA they were inspired to turn to agriculture as a livelihood strategy.

The DAEA appointed special extension officers “youth co-ordinators” to support these youth in dealing with agricultural projects. The extension support includes advice, training and technology transfer. YIA participated in the research process as an independent stakeholder. The results regarding knowledge/skills and gaps of this group, reflects on the needs of the young generation small-holding farmers.

3.4.1 Knowledge and skills required by the Youth-in Agriculture

YIA participants identified the following knowledge and skills required for successful farming:

The most important skill is:

- Agricultural production

The most important skills are followed by:

- Agriculture Business Management/Planning
- Communication Skills

These are followed by:

- Agricultural Qualification
- Management /Leadership

These are followed by:

- Computer Literacy
- Research/Analytical

The YIA group rated agricultural skills/knowledge as very important for youth to become successful in farming. Ranked second were knowledge of business management and good communication skills. Completing the top three on the table were technical knowledge and marketing skills. These results imply that the youth also view farming as a business, founded on sound agricultural and business management skills.

3.4.2 Youth-in-Agriculture knowledge and skills gap

As shown in the lists below, youth perceived agricultural qualifications to be the main gap. Business planning and management was second, management and leadership skills third, followed by other knowledge and skills such as technical skills, computer, research and analytical skills.

- Agricultural Qualification
- Business Planning/Management
- Management/Leadership skills
- Technical skills
- Computer literacy
- Research/analytical skills

The youth perceive the Government to be the main provider of training to meet needs. This will assist them to become commercial farmers. Other fundamental issues were also raised by this group, including financial resources, productive land, and perceptions of other organizations towards agriculture.

3.5 Service providers

Various categories of DAEA providers participated in the study, including extension staff, agricultural scientists, youth co-ordinators and educators. Extension staff and youth co-ordinators have similar qualifications, that is, an agricultural diploma with different major subjects. While variations occur on the ground, extension staff deal primarily with more established (adult) farmers and youth co-ordinators, dealing primarily with the Youth-in-Agriculture (young adult) farmers.

3.5.1 Extension staff and youth co-ordinators

The majority (47%) of extension staff did general science subjects at school with agriculture included and only 14% of extension staff did pure science (e.g. mathematics and physical science). Based on the data gathered, it appears that, in most cases, pure science subjects were not a pre-requisite to study agriculture at the tertiary institutions attended by the respondents. Almost 70% of extension officers did social science related subjects at high school level.

Discussions were held to elicit perceptions about what the job of an extension worker entailed. Extension workers perceived their duties to be as follows:

- Provide training and advisory services to farming community on agricultural production/home economics
- Facilitate establishment of agricultural projects
- Facilitate establishment of extension structures, development committees and farmers associations.

- Facilitate marketing of agricultural products of the farmers
- Organize field days and shows
- Conduct trial demonstration
- Supervisory duties (technicians only)

3.5.1.1 Knowledge and skills needs of extension staff and youth co-ordinators

The following outlines the range of knowledge and skills service providers perceive they need to be successful in their category of service provision.

The most important skills and knowledge are:

- Extension/Communication/Community organizing (this category is very broad and includes the full range of extension skills)
- Project planning/economic assessment
- Marketing/Human Relations

These are followed by:

- Management/Leadership
- Business Management (Agriculture)
- Computer Literacy
- Planning/Budgeting

These are followed by:

- Technical Knowledge
- Project/Resource Management

These are followed by:

- Research/Analytical

3.5.1.2 Knowledge and skills gaps of extension staff and youth co-ordinators

In terms of gaps, extension staff ranked computer and project management skills highest. Marketing skills were second and financial management skills third. Most important skills perceived by the extension staff was limited.

The urgent gaps are:

- Computer Literacy
- Project Analysis Planning/Management

These are followed by:

- Marketing Skills
- Financial Management
- Planning/Budgeting Skills
- Funding Skills
- Teaching/Training Aids Used Skills

The following were the knowledge skills required by Home Economists. All of them were seen as gaps:

- Advanced Baking and Sewing Skills
- Skills to use Industrial Sewing Machines
- Value Adding
- Interior Designing
- Indigenous Food Technologies

Generalist Plant and Animal Production Technicians identified areas for focusing training. They include:

- Natural Resource Utilization
- Veld Assessment
- Soil Classification
- Land-use Planning

Specialized knowledge:

- Aquaculture
- Hydroponics Establishment and Management
- Nursery Establishment and Management
- Orchard Establishment and Management
- Organic Farming

Production related aspects

- Irrigation
- Artificial Insemination

Social sciences:

- Training Skills
- Research Methodology
- Communication
- Persuasion Skills

Management:

- Conflict Management
- Supervisory Skills

3.5.2 DAEA Managers of extension and support services

Data concerning knowledge and skills of the managers and extension services was collected from managers in the regions and support services. The top management of the DAEA was not included. Furthermore, the term managers refers to different levels of managers such as Directors, Deputy Directors, Assistant Directors, Control Development Technicians, Engineers, etc. According to this study, they were not stratified into different levels. Their views, opinions, knowledge and skills represented a viewpoint of managers of extension and support services.

3.5.2.1 Knowledge and skills needs of DAEA Managers

In reviewing requirements to manage extension effectively, managers of extension and support, ranked knowledge of extension and communication skills (including letter and report writing) first, management functions and leadership skills were the second most important skill and budgeting, project management, strategic management and computer literacy third. The complete list in ranked order is as follows:

- Extension/Communication Skills
- Management/Leadership
- Project/Resource Management
- Budget/Finance Management
- Strategic Management
- Computer Literacy
- Technical Knowledge (Land Care, Business Planning and Management)
- Marketing/Human Relations
- Procurements/Operational
- Demonstration/Presentation
- Training/Teaching Aids Skills
- Formal Qualification
- Time/Stress Management
- Group Dynamics/Problem Solving
- Labour Relations

3.5.2.2 Knowledge and skills gaps of DAEA Managers

In terms of skills and knowledge gaps, computer literacy, project and resources management were perceived to be urgent knowledge and skills gaps to be filled. Budgeting and finance management skills were ranked second followed by leadership management functions and strategic management knowledge. The list below provides details in ranked order:

- Computer Literacy

- Performance Management
- Project/Resource Management
- Budget/Finance Management
- Management/Leadership
- Strategic Management
- Risk Management
- Extension/Communication Skills
- Technical Knowledge

3.6 Educators

A total of 117 educators in agriculture, including high schools, technikons and universities participated in the study.

3.6.1 Lecturers at universities, colleges and technikons

As shown below, the university, college and technikon lecturers identified research and technical skills as the most important for success in their field. This is followed by communication and presentation skills. Of special note is the ranking of theoretical skills (ranked 5). This appears to be in keeping with the national educational strategy of outcomes-based education.

| Skills/Knowledge | Ranking |
|----------------------------|---------|
| Research | 1 |
| Technical Skills | 1 |
| Communication Skills | 2 |
| Presentation | 2 |
| Practical | 3 |
| Monitoring/Evaluation | 3 |
| Computer Literacy | 3 |
| Teaching | 4 |
| Facilitation/Co-ordination | 4 |
| Theoretical | 4 |
| Other (4<) | 5 |

3.6.1.2 Knowledge and skills gaps for lecturers

As set out in the table below, lecturers identified practical “real life” experience as the priority gap in the lecturer knowledge and skill base, followed by “collective institutions” (e.g. development structures, group work, etc.) and then by an understanding, systems within which agriculture and farming operate.

| Skills/Knowledge | Ranking |
|---|---------|
| Knowledge Skills | 1 |
| Practical “real life” experience | 2 |
| Collective Institution Systems (Management, Finance, Marketing, Business Economics) | 3 |
| Communication Skills and Post-Harvest Skills | 4 |
| Understanding Policy Framework | 5 |

3.6.2 High School Teachers

3.6.2.1 Knowledge and skills for high school teachers

The 94 teacher participating in the study presented the following ranked list of knowledge and skills required to be a successful teacher of agriculture in high schools.

The highest priority is given to:

- Research Skills
- Practical Agricultural Skills

These are followed by:

- Technical Skills
- Communication Skills

These are followed by:

- Theoretical Skills
- Observation Skills

These were followed by:

- Computer Literacy
- Maths/Science

- Demonstration
- Interpretation

3.6.2.2 Knowledge and skills gaps for high school teachers

The highest priority is given to:

- Research Skills
- Practical Agricultural Skills

These are followed by:

- Technical Skills
- Communication Skills

These are followed by:

- Theoretical Skills
- Observation Skills

These are followed by:

- Computer literacy
- Maths/Science
- Demonstration
- Interpretation

3.6.3 NGOs

3.6.3.1 Training needs for non-governmental organizations involved in rural development

Two managers from non-governmental organizations involved in rural development operation and based in the North and North West regions, were surveyed. The purpose was to understand their services and get their views as to how agricultural education and training should be structured. This section will give an overview of their services, opinions and concerns regarding agricultural education, training and rural development.

3.6.4 Core functions of the non-governmental organization surveyed

The core function of these organizations is the involvement in development facilitation, provision of agricultural advisory services to the rural communities and provision of specialized training in marketing, business management and institutional capacity building. Employees of these organizations have agricultural and rural development backgrounds.

3.6.5 Training gaps identified

Gaps identified were the lack of in-service training. This was said to be the result of the policies in the organizations. There was no standing policy for training. Funds were also said to be a limiting factor. The organizations focus on delivery rather than on other things, like providing in-service training to staff. Therefore they are outdated in other things.

3.6.6 Suggestions

Suggestions were that there was a need to work with the Department of Agriculture. A need was expressed to form a body that would focus on in-service training for all the people involved in extension and rural development. The universities were seen as suitable to co-ordinate this.

3.6.7 Concerns

Concerns identified were related to the poor functioning of development structures in the communities. There was a feeling that they needed to be trained on the principles of development.

3.7 Conclusion/Summary

Different and varied stakeholders participated in the research. They cited different knowledge and skills required to excel in their areas of expertise. These stakeholders were categorized as service providers and recipients. Service providers included DAEA extension staff, youth co-ordinators and educators. Recipients included different categories of farmers and participants in Youth-in-Agriculture. Using PAR methodologies and priority ranking, important knowledge, skills and gaps therein were identified and prioritized by the study participants.

3.7.1 Priority knowledge and skills

The following table outlines the diversity of knowledge and skills that stakeholders perceive from their unique vantage points as having a significant impact on successful agriculture in KZN. Yet in this diversity there is a harmony, a whole, which points to, a need for service providers to be multi-skilled and flexible as the knowledge and skills requirements of farmers develop and change.

| Knowledge/Skills Need | Priority for |
|--------------------------------|--|
| Business Management Skills | Farmers |
| Human Resources Skills | Farmers |
| Agricultural Skills | Youth-in-Agriculture |
| Extension/Communication Skills | DAEA Extension and Youth Co-ordinators |
| Marketing/Human Relations | DAEA Extension and Youth Co-ordinators |
| Management/leadership | DAEA Extension and Youth Co-ordinators |
| Extension/Communication Skills | DAEA Managers of Extension and Support |
| Research | Educators |
| Technical Skills | Educators |

3.7.2 Knowledge and skills gaps

As demonstrated in the following table, Agricultural Qualification, Computer Literacy, Government Acts Knowledge, Practical “Real life” Experience, Project/ Resource Management, Project Management and Business Management are the top knowledge and skills areas identified by the respondents in the study, This, coupled with the previous ranking of knowledge and skills, important to success in agriculture, creates a starting point for investigations for adjusting short-, medium- and long-term educational and training programmes and curricula.

| Knowledge/Skills Need | Rank | Priority for |
|----------------------------------|------|--|
| Agricultural Qualification | 1 | Youth-in-Agriculture |
| Computer Literacy | 1 | DAEA Managers of Extension and Support |
| | 1 | DAEA Extension and Youth Co-ordinators |
| Government Act Knowledge | 1 | Farmers |
| Practical "Real life" Experience | 1 | Educators |
| Project/Resource Management | 1 | DAEA Managers of Extension and Support |
| Project Management | 1 | DAEA Extension and Youth Co-ordinators |
| Budget/Finance Management | 2 | DAEA Managers of Extension and Support |
| Business Management Skills | 2 | Farmers |
| Collective Institutions | 2 | Educators |
| Marketing and Buying | 2 | Farmers |
| Marketing Skills | 2 | DAEA Extension and Youth Co-ordination |

3.7.3 Other important factors

Farmers in particular highlighted the fact that even more pressing than knowledge and skills was the issue of access to resources required for successful farming. Finance, land and water emerged as not adequately available and therefore needed serious consideration.

On the issue of land, the farmers in general, felt there should be greater access and ease of access to farming land. This access, the farmers indicated, should be facilitated by the Government.

On the issue of finance, the commercial farmers, the youth and the small-scale cane growers perceived finance as a particular problem, limiting their success in farming. Especially the resource-poor farmers feel that financial institutions have no space for them and that they were excluded by the criteria for obtaining loans, chiefly due to security for loans and credit history.

On the contrary, the financial institutions surveyed, indicated that they had provision to accommodate different categories of clients. The clients are categorized in various risk categories. This categorization, according to the financial institutions, makes it possible for the institutions to provide better focus in meeting the needs of the emergent farmers, while continuing to support the commercial farmers. According to the annual report of the Land Bank 2000, approximately 70 000 emergent farmers were financially assisted in 2000. This is 10 000 above the target of 60 000 set for the year.

Other issues raised by farmers included:

- Access to inputs
- Access to markets
- Unplanned and insufficient grazing land
- Dipping tanks which were not functioning because the Department of Agriculture has pulled out its dip tank assistant workers and other support in terms of dip tank material.

According to the farmers information, co-operatives were seen as a solution for inputs and marketing problems, but they expressed a problem of not knowing how to form and operate co-operatives. This meant that there was a need to train emergent farmers in co-operative principles, co-operative law and law of contracts.

Farmers felt that the problem of grazing land required community effort to be solved, but did not know how to bring the community's concerns together to solve the problem. This created a need for institutional development training in terms of leadership development so that people would be able to organize themselves. Incorporated in this leadership development, is the issue of dip tank mentioned above.

Other issues are captured in the detailed report appended.

CHAPTER FOUR: PROVISION OF AGRICULTURAL EDUCATION AND TRAINING

4.1 Introduction

As stated in Chapter Two, KZN has various service providers of agricultural education and training. Formal AET is offered by the two universities (Natal and Zululand), the two colleges (Cedara and Owen Sithole) and the one technikon (Mangosuthu).

Some 94 high schools, including 4 agricultural high schools, offer varying levels of formal AET in the province.

The Government (via the Department of Agriculture and Environment Affairs and the Department of Labour) and some NGOs provide non-formal education. Other institutions such as banks provide support in the form of financial assistance or in kind.

The Department of Labour is included due to its Skills Development Act and Skills Development Strategy Levy Act. Skills Development Levy Act lays down regulations on how money collected through levies, paid by employers. This money is to be used by Sector Education and Training Authority (SETAs) such as Primary Agricultural Education and Training Authority (PAETA) for skills development purposes. The Skills Development Act was enacted to improve the working skills of South African through better quality learning, so that the economy can grow.

4.2 Providers of formal education (agriculture)

“Providers of formal education in agriculture” refers to universities, colleges and technikons that provide education and training after completion of secondary (high school) education. They offer certificates accredited by the South African Qualifications Authority (SAQA). These institutions play a significant and meaningful role in shaping up the provincial agricultural structure.

Many of the current employees in the agricultural sector (including provincial Department of Agriculture and Environmental Affairs, the NGO sector and the private sector, are the products of these institutions. Their training and practice influences both policy and practice.

There are two universities in the province, namely the University of Natal and the University of Zululand, that offer agricultural subjects and qualifications. The University of Zululand has a Department of Agriculture within a Faculty of Science. The University of Natal finds several agricultural disciplines within a Faculty of Science and Agriculture. Together these two universities offer a considerable combined contribution towards agricultural development in the province.

There are three other educational institutions that offer agricultural diplomas, namely Cedara College and Owen Sithole College of Agriculture (both under the umbrella of the provincial Department of Agriculture and Environmental Affairs) and Mangosuthu Technikon (under the Department of Education). In addition agricultural education and training is provided at schools as well.

Department of Education/Schools: More than five hundred schools in KZN were said to offer agriculture as a subject. There are four agricultural high schools in KZN. They are as follows:

4.2.1 James Nxumalo Agricultural High School

A Government school taking pupils from Grade 8 to 12 situated in Ulundi. The school enrolls both boys and girls. The school has a farm with beef, dairy and land for crops.

4.2.2 Weston Agricultural College

A semi-private agricultural college for boys from Grade 7 to 12, situated in Mooi River. The college operates on a 1 200 hectare farm, providing hands-on practical training. It was formerly a white college but has since changed into a multi-racial college. The college is registered with the Department of Education and Culture.

4.2.3 Zakhe Agricultural College

A semi-private agricultural college for boys from Grade 8 to 12, situated in Baynesfield in Pietermaritzburg. The college operates on a 500 hectare farm, providing hands-on practical training. It is registered with the Department of Education. The college also provides non-formal training to people in agriculture.

4.2.4 Vryheid Agricultural High School

A semi-private high school for boys and girls from Grade 8 to 12 situated in Vryheid in the Northern KZN, was formerly a White school. The school has a farm and provides hand-on practical training.

All the above-mentioned agricultural high schools or colleges offer maths, physical science, biology, geography and accounting in addition to agricultural subjects.

4.2.5 Mangosutho Technikon

Mangosutho Technikon offers formal AET. It offers the following qualifications:

- National Diploma: Agriculture
- National Diploma: Agriculture Animal Production
- National Diploma: Community Extension
- National Diploma: Nature Conservation
- B.Tech: Nature Conservation

4.2.6 Cedara Agricultural College

Cedara College is part of the DAEA. It offers formal and non-formal AET. Two courses are currently presented at Cedara College:

- Higher Certificate in Agriculture: This is a two-year qualification, for which a Senior Certificate or equivalent is the minimum requirement for admission
- Diploma in Agriculture: The Higher Certificate course constitutes the first two years of study for the Diploma, with the full duration of the Diploma course being three years.

Both qualifications have been accredited by the Certification Council for Technikon Education (SERTEC) and are recognized nationally.

4.2.7 Owen Sithole College of Agriculture

Owen Sithole is part of the DAEA. It offers formal AET. It offers the following qualifications:

- Two-year Higher Certificate in Agriculture
- Two-year Higher Certificate in Agriculture and Home Economics
- Three year Diploma in Agriculture
- Three year Diploma in Agriculture and Home Economics

4.2.8 University of Zululand (Empangeni)

Unizul offers the following qualifications through its agricultural department in its Science Faculty:

- B.Sc Agronomy
- B.Sc Animal Science
- B.Sc Extension and Rural Development
- B.Sc Agricultural Economics (Agri-business Management Option)
- B.Sc Agricultural Economics (Development Economics Option)

4.2.9 University of Natal (Pietermaritzburg)

The University of Natal offers a range of qualifications, including:

- Diploma in Rural Resource Management (Extension)
- B. Agriculture in Rural Resource Management (Extension)
- B.Sc Agriculture in wide range of agricultural sciences

- B. Social Science with a range of relevant majors, including Community Resource Management
- Post graduate Diploma in rural Resource Management (Extension)
- Master of Agriculture in Rural Resource Management (Extension)
- M.Sc Agriculture in a wide range of agricultural sciences
- M.Sc Social Science with a range of relevant majors, including Community Resources Management
- PhD in Rural Resource Management (Extension) and in a wide range of agricultural sciences as well as in a wide range of social sciences, including Community Resources Management

4.3 Providers of non-formal education

In this category, various agricultural organizations other than those offering formal education are included, such as the Government, NGOs and private organizations. The Department of Agriculture and Environmental Affairs is a major role player because it has a number of personnel providing education and training to farmers. This indicates that farmers as a group are major role player as recipients of agricultural education and training. The Government is also responsible for creating and enabling an environment for other organizations to operate.

4.3.1 Government

The mission of the Department of Agriculture and Environmental Affairs “to promote, in partnership with relevant role players, a prosperous community through sound agricultural and environmental management practices”. Several partnerships with role players have emerged where the Department strives to realize its mission.

The birth of KZN Agricultural Development Forum (KZNBADF) is one example. One of KZNADF objectives is to effect linkages between NGO’s, agricultural consultants, The Department of Agriculture and Environment Affairs (DAEA), private organizations and individual interested in promoting agricultural development in KZN (KZNADF Constitution: 2001).

Agricultural extension is a kind of tool used by most agricultural organizations to transfer information to people in order to improve their lives. Within agricultural extension as a process, there are extension systems, strategies and programmes (education and training). In the province, the Government and NGOs use extension tools to transfer and educate farmers about agricultural information.

The KZN DAEA is a main service provider for agricultural education and training. It provides formal and informal training to people in agriculture. The Department has two Chief Directorates that deal with Agricultural Education and Training. They are as follows:

4.3.1.1 Chief Directorate: Extension and Rural Development

Regional extension services fall under this Chief Directorate. The target clients for regional services are farmers, out of school youth and women groups. The core function of this Chief Directorate is extension and advisory services. It also focuses on agricultural project development.

4.3.1.2 Chief Directorate: Technology Development

The two agricultural colleges also fall under this Chief Directorate and offer non-formal training to people in agriculture by means of short courses as well as the staff of the department.

4.3.2 Non-Governmental organizations

There are many non-governmental organizations in KZN that offer non-formal training in agriculture, targeting rural, urban and peri-urban communities. It is beyond the scope of this document to list them all. Most of them are affiliated with the KZN Agricultural Development Forum and/or with Midnet (Midlands Rural Development Network).

4.3.3 Private sector

The private sector, like the South African Sugar Association, provide extension service on sugarcane growing, targeting both small and large scale farmers. It works in partnership with the Department of Agriculture.

4.3.4 Issues merging from the scoping of AET providers

A number of issues emerged from the scoping of AET providers in the provinces

- Lack of co-ordination among AET providers – tendency to work in isolation
- Agriculture at lower levels of education in KZN was not taken as a priority (study conducted by KZN Training Trust in 1988)
- Five hundred (500) schools were teaching agriculture as a subject but less than fifty (50) teachers were qualified to teach agriculture
- Education, research and extension linkages are said to be the key to agricultural development, but there is little or no integration of this in the province (except notably at the Centre for Rural Development Systems at the University of Natal where they are developing such a model)

4.2 Formal education and training provision (by Higher, Further and Basic Education)

There are a huge variety of courses offered by the institutions of Higher learning in KZN. For colleges and technikons, the primary qualification is a diploma. However, colleges do offer certificates after completing the first and the second year, depending on the need of the respective students. The diploma is offered to students who have completed the third year. There is no difference in terms of curriculum for diploma courses and higher certificate courses, except that students take courses for a diploma in the third year. There are primarily two areas of specialization such as animal production specialization and crop production specialization in these colleges.

There is only one technikon in the province that offers diplomas in agriculture. There are also three areas of specialization such as plant production, animal production and community extension. The curriculum differs according to the areas of specialization each respective student pursues. There is apparently no provision for specialization in agricultural economics courses for the colleges of agriculture and the technikons in KZN. Information obtained from colleges of agriculture and the technikons suggested that there was a slight variation of target groups. To a certain extent, colleges target purely students and those who intend becoming farmers.

In terms of the universities, there were quite a number of specializations. Agricultural economics is one of the areas of specialization. The major qualifications at the universities are as follows:

- Bachelor of science in agriculture to be completed after four years
- Agricultural management degree completed after three years of study
- Post-graduate degrees
- PhD

Courses offered by the institutions differ according to the areas of specialization. The target groups also vary from scientists or researchers to academia.

Method of training was primarily lecturing using different training aids. Group discussions, individual assignments and presentations were some of the methods used across the board by the institutions of higher learning. Practical sessions were planned and organized for students as another method of providing training. In some cases, students are exposed to experiential learning before getting their final qualifications. There are variations concerning experiential learning because some institutions of higher learning have adequate resources to expose their students on practical experience.

The cost of tuition for different institutions varies significantly. However, the tuition fees at Cedara college and the University of Natal

as shown in the tables below, are used as an example to show fees at the institutions of higher learning.

Fees at Cedara College

| | 1 st Year | 2 nd Year | 3 rd Year | 4 th Year |
|---------------|----------------------|----------------------|----------------------|----------------------|
| CSU* | R2 060 | R1 860 | R 2 135 | |
| Academic Fees | R8 per credit | R8 per credit | R8 per credit | |
| Accommodation | R5 500 | R5 500 | R3 750 | |

(Source: Cedara 2002) *Cedara Student Union

Tuition Fees at the University of Natal

| Qualification | 1 st Year | 2 nd Year | 3 rd Year | 4 th Year |
|-----------------------|----------------------|----------------------|----------------------|----------------------|
| B.Sc Agric/B. Agric* | R12 250 | R13 680 | R13 680 | R9 650 |
| Post-graduate Diploma | R10 100 | | | |
| Masters | R8 900 per year | | | |
| PhD | R10 440 per year | | | |

(Source: University of Natal 2002) *B.Agric is a three year programme)

4.7 Provision of non-formal education and training

Several organizations such as Department of Agriculture, NGOs and Institutions of Higher learning provide non-formal education and training. For the purpose of this chapter, emphasis will be made on the Government and NGOs. These organizations provide education and training to their clients and offer any certificate that is necessarily not accredited by SAQA. Most of the courses offered are to enhance the capacity of the clients. There are different forms of non-formal education and training such as internal training and external training. Internal training or in-service training emphasizes training of employees of the organization in order to improve their skills level. External training is the training provided to the clients (farmers) to enhance their quality of life.

The DAEA offers short courses to their staff and farmers. Some of these courses include vegetable production, crop production, agricultural extension, animal production, marketing, etc. The cost of these courses vary according to the duration of the course. The

duration of these courses vary between one day and five days, depending on the course content. The most expensive course is R750 and the least expensive course is R70. Additional to the in-service training, the DAEA provides bursaries for its employees who want to pursue further training in different disciplines as shown in the table below.

Holders of bursaries in the technical field of agriculture for the year 2002

| Discipline/Qualification | Number | Male % | Female % | Total % |
|--------------------------|--------|--------|----------|---------|
| Diploma | 114 | 53 | 47 | 100 |
| B.Tech | 14 | 86 | 14 | 100 |
| B.Sc/M.Sc/PhD | 24 | 58 | 42 | 100 |

Results indicate that the provincial DAEA is committed in developing capacity of its staff. Most staff members who were awarded bursaries are diplomats and very few in the B.Technology discipline. Furthermore, more males than females were awarded bursaries by the DAEA. However, the results in the table above did not include other bursary holders, particularly in the administration component, such as human resources, finance, computer programmes, etc.

4.4 Conclusion and summary

Most agricultural education and training organizations have development programmes for their employees as well as clients. They differ in the way in which they provide training. One of the major concerns was the financial resource, which did not only affect the running of the training programmes, but also the quality of staff and service to clients. There is a huge gap in terms of enrolment between different training institutions, such as colleges and universities. The gap is due to the capacity and resources the agricultural education and training organizations have. Partnership approach and multi-disciplinary approach to agricultural development appears to be the solution to address such discrepancies. Intervention of other departments, like Department of Labour in skills development, add an impetus in solving these resources disparities.

CHAPTER FIVE: AGRICULTURAL EDUCATION AND TRAINING

5.1 Introduction

In identifying the agricultural education gaps, it helps to visualize the full extent of the industry which the intended education would serve. The following research notes on agricultural education from the Centre for Rural Development Systems, University of Natal, Pietermaritzburg, provide a useful description:

“Agriculture is more than merely primary production on the farm; it is a huge industry with forward and backward linkages with complex relationships. It is hugely competitive, high risk and essential to society and to the economy. It is dynamic - dynamic in the sense that the assets and vulnerabilities of its primary players – input manufacturers, and suppliers, farmers and processors – are constantly shifting due to pressures in the market place, the advancement of technologies and changes in the political arena and nowhere is this perhaps more true than in South Africa as it passes through the post-Apartheid processes of transformation and reform which touches on the issues of access by the previously disenfranchised to the very essentials of farming – land, finance, markets, input supply, information and skills, technology and infra-structure – and to the collective institutions which define the industry.”

For some, agriculture is an exercise in survival – an integral part of livelihood and income strategies. For others it is a family heritage. For others it is a commercial enterprise aiming at profit making. For some it is a burden to escape, for others an opportunity out-of-reach. Linked as it is to land, culture and history, it carries with it an emotional charge and forms part of a political agenda which often out-weighs its primary function: providing the population and the economy with food, fibre and fuel.” (Worth: 2002)

Given the foregoing accounting, education and training in agriculture must receive the highest priority. The education and training must be as flexible and dynamic as the industry it serves. The following two tables from Chapter 3 provide a foundation for discussing the training gaps between providers of agricultural training and their clients.

| Knowledge/Skills Need | Priority for |
|--------------------------------|--|
| Business Management Skills | Farmers |
| Human Resources Skills | Farmers |
| Agricultural Skills | Youth-in-Agriculture |
| Extension/Communication Skills | DAEA Extension and Youth Co-ordinators |
| Marketing/Human Relations | DAEA Extension and Youth Co-ordinators |
| Management/leadership | DAEA Extension and Youth Co-ordinators |
| Extension/Communication Skills | DAEA Managers of Extension and Support |
| Research | Educators |
| Technical Skills | Educators |

| Knowledge/Skills Need | Rank | Priority for |
|----------------------------------|------|--|
| Agricultural Qualification | 1 | Youth-in-Agriculture |
| Computer Literacy | 1 | DAEA Managers of Extension and Support DAEA Extension and Youth Co-ordinators |
| Government Act Knowledge | 1 | Farmers |
| Practical "Real life" Experience | 1 | Educators |
| Project/Resource Management | 1 | DAEA Managers of Extension and Support |
| Project Management | 1 | DAEA Extension and Youth Co-ordinators |
| Budget/Finance Management | 2 | DAEA Managers of Extension and Support |
| Business Management Skills | 2 | Farmers |
| Collective Institutions | 2 | Educators |
| Marketing and Buying | 2 | Farmers |
| Marketing Skills | 2 | DAEA Extension and Youth Co-ordination |

5.2 Who are the clients?

From this study it has been shown that the range of clients who seek training and education is varied. It can perhaps be divided into three broad categories:

- Farmers (those who use the training to produce food, fibre and fuel)
- Value-adders (those who process food, fibre and fuel)
- Service providers (those who assist farmers and value-adders in their undertakings)

If one operates from the basis that farmer training will be provided by Government and NGO service providers, that extension is implemented as a form of distant education, then the primary clients of formal education institutions would be potential and existing functionaries among service providers. Value adders too would be part of their client base.

At present this is more or less the current client base of formal education and training institutions in the province. The notable exceptions are the two colleges of agriculture who do provide training for farmers and would be farmers as well as extension staff.

The clients of non-formal training would be primarily farmers. Providers of non-formal education know this, but the problem they face is capacity. Such agencies, including the extension service, will need to assess priorities against resources and clearly identify which sectors of their client base will have the greatest impact on agriculture and its objectives and to focus their resources there. Such agencies would be well advised to investigate positioning women at the core of their client base.

The question then is then about the content of education and training. What skills are given to those (e.g. extension officers) who will engage directly with farmers in meeting their training requirements? What skills should be given?

5.3 Providers of agricultural Education and Training versus clients needs

The foregoing lists indicate a wide range of education and training issues, which indicate that farming and agriculture, in the eyes of those intimately involved, extends far beyond the issues of mere agricultural production practice. However, the various training institutions focus primarily on production technologies and techniques. Rarely do agricultural certificates, diplomas and degrees offer non-production options and electives. This represents a primary gap in the provision of agricultural education and training.

Clearly bringing business management, communication, understanding of Government policy, computer training, marketing, etc. into the mainstream of agricultural education and training, seems imperative. Providing diplomas and degrees, which represent technology training, only seems inappropriately based on what farmers in particular indicate they need help with.

This study has not attempted to identify in specific the training and education needs of those working in agriculture in KZN. Rather it has attempted to contribute its share of intended foundation upon which to start building the National Strategy for Agricultural Education and Training. Thus, a challenge facing the providers of agricultural education and training will assess the training needs of the clients very accurately and periodically. These assessments will ensure that:

- Service providers are very close to their clients
- There will be more quality labour market in the agricultural industry
- There will be more independent progressive farmers
- There will be a significant reduction in unnecessary expenditure

A lot of improvement needs to be made on issues like effective communication strategies and individualism. One of the major reasons for failure of the service providers to provide appropriate content was a lack of understanding the importance of the multi-disciplinary nature of agriculture as highlighted in the two summarized rankings. Equally, there appears to be inadequate co-ordination between providers of agricultural education and training. This issue was vigorously raised by many stakeholders, that participated in the research.

5.4 Addressing of client-needs by service providers

It is a daunting task facing providers of agricultural education and training. Needs and perceptions of need are dynamic and ever-changing. Two of the principles of Maslow's hierarchy of needs (i.e. people always want more and their needs depend on what they possess and people's needs are arranged in order of importance). When one need has been partially satisfied, the next need will come forward to be satisfied (Cronje and Smit: 1997). This implies that some needs are interwoven. Therefore, it is very difficult for any service provider to address this issue. Looking generally at courses and programmes of several institutions, more efforts must be made to align these courses according to the present and future needs of the client. Small-holder farmers, as major clients of extension services, echoed their dissatisfaction as far as progression was concerned. "We are still small farmers and who have not graduated since starting farming" was a made statement by one of the group of small-holder farmers. There was also concern about the lack of effective extension strategy, which clearly stipulates how the needs of clients should be addressed.

Furthermore, the respective institutions designed their course programmes with little to no participation by and consultation with the targeted clients and other role players. This approach had a negative impact when the clients ventured into areas outside the institutions. In cases of students, it is difficult for them to adapt in practical situations (real life experience) because most institutions of higher learning concentrate more on theoretical aspects than on practical aspects.

5.5 Affordability of the cost of tuition

Many people do not consider agriculture as the important field to pursue in terms of training. Furthermore, agriculture is a very risky industry since it relies heavily on uncontrollable or unpredictable environmental factors. It therefore does not easily attract funding from donors or finance institutions. The state of economy of the country also plays a big role in determining the affordability of tuition fees. Several institutions also do not categorize clients in terms of their fields of study. This means that tuition costs are set for all students including those who do not study agriculture.

General analysis made from this is that students are struggling to settle their accounts at the institutions of higher learning. The situation has a negative effect for new entrants who cannot prove to donors that they have the ability to succeed. Students however appear to be able to access loans and/or bursaries depending on their performance. For non-formal education, the resource-poor farms cannot afford to pay for the courses. According to the survey there was no smallholder farmer who attended the courses. They relied on extension service provided by the extension officers, which they perceived was ineffective.

5.6 Admission requirements

There are standard admission requirements for all universities. Colleges also have similar standard requirements. Because there is no co-ordination between the > demand side and the supply side <, the potential clients are somehow excluded. For example, students may be admitted in the Faculty of Science and Agriculture, provided that they do some foundation courses. These foundation courses are science subjects, such as mathematics, physical science and biology and they do not include agriculture. Furthermore, these courses do not add credit points in the agricultural programme, instead they increase study by one year.

Most schools combine agricultural subjects with general or social science related disciplines as the package. In so doing, they deny relevant potential clients admission to science disciplines. This means the institutions of higher learning and high schools wrongly perceive agricultural subjects. High schools are the supply side for the institutions of higher learning. The institutions of higher learning are the supply side for the employment industries, like the Government.

Therefore, the majority of service providers in particular educators and extension staff did not have admission requirements to pursue agriculture at the university after completing high school qualifications. Based on that, the admission requirement does not suite the potential clients. The main reason is that agriculture is not well-placed, particularly at high school level. This has further repercussions at the institutions of higher learning like universities.

5.7 The resources and capacity of providers

There are different types of resources that affect agricultural education and training. These are human resources, physical resources, financial resources, inputs and facilities. Financial resources stemmed as the main resource, which was determining and limiting because all other resources relied heavily on it. Besides limiting other resources, it also constrained budgeting and achievement of desired objectives.

In terms of human resource and development, quality and commitment were major issues that emerged. Both management of extension and support raised these issues. Most of staff across, believed that unavailability of motivational incentives within the agricultural sector exacerbates the lack of commitment. Some of the incentives suggested were improvement of salaries and provision of appropriate facilities. The Government was ranked first and was followed by the banks as provider of these incentives mentioned. This means that unless something is done to improve the situation, training requirements of clients will not be met.

5.8 Conclusion/Summary

The teaching of agriculture, at the institutions of higher learning, is not well tuned for end-user or market requirements. This was the view of the end-users of the product from institutions. Furthermore, clients felt that the transition from learning situations to real life expectations, needed more consideration. For instance, theory is more emphasized than practical in most institutions of higher learning. This is contrary to the fact that agriculture is a practical orientated subject.

There is a serious need to align course programmes in order to suit the needs of the potential clients. The ability to sustain agricultural development is affected by many factors such as resources, socio-economic factors and the economy of the country. These factors have a bearing on the effective provision of training because they influence the needs of target clients.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusion

The study shows that despite the high magnitude of providers of education and training institutions, many stakeholders are very independent. However, their independency does not benefit clients of agricultural development who are farmers, students, youth and employees. For example, farmers are influenced negatively by an inability of service providers to address their needs.

There was a big gap in terms of practical knowledge and skills in most providers of agricultural education and training. This gap was mostly related to the fact that the majority of clients did not have adequate access to resources to sustain agricultural development. The extension service or system in the province is faced with major problems, such as lack of commitment and little motivation from the staff. Educators at high schools also raised these problems. They also highlighted the fact that agriculture was not recognized as a major science subject by the Department of Education. Furthermore, there are no explicit policies and institutional arrangements to address agricultural education and training in a holistic way.

In most cases, communication was the major problem either between the institutions or within the institutions. For example, farmers were not aware of the strategy used by the Government and NGOs. In the Government's point of view, the development of the extension strategy is under consideration. The general view is that the Government department of agriculture should concentrate on providing efficient and effective extension services. For extension services to be effective, committed and dedicated staff must be properly managed extension personnel.

Farmers including youth need to have access to productive resources such as finance, water and land for agricultural purposes. Most farmers were concerned that they were categorized by scale size, such as small-scale farmers and this was not acceptable. The farmers preferred to be graded by the objective of their farming enterprises. Other stakeholders echoed this view as well and there is a need to redefine the farmer typology.

6.2 Recommendations

Some of the recommendations that follow, are being attended to, to a certain extent:

- 6.2.1 Since agriculture is very dynamic, private provision of training and facilities is beyond the means of most Africans. Therefore, the Government should play a meaningful role in this regard. Furthermore the Government should provide a firm linkage with other role players in this regard by developing a good communication strategy.
- 6.2.2 Farming is expensive and risky, and if responsibility is solely left to financial institutions and clients only, this is not adequate. Therefore, the Government has a role to play either through provision of subsidies or guarantees to safeguard against the adverse conditions that are beyond a farmer's control.
- 6.2.3 Programmes and courses provided by the providers of education and training should be re-designed after proper and effective communication with the potential clients. More so institutions need to redefine their clients in a way that was suitable and intended clients to reap benefits.
- 6.2.4 Financial institutions such as commercial banks, must also develop an effective communications strategy. This will assist the potential clients to access information on available products.
- 6.2.5 A body formed by stakeholders of agricultural education and training from the public and private sector should be established to co-ordinate training and implementation of strategy to be developed. Other functions that can be done by these bodies would be to explore the agricultural market opportunities and skills development opportunities. This will give formal and non-formal AET providers a forum to discuss their strengths and weaknesses. These will solve the problem of unnecessary duplication of activities at the expense of clients.
- 6.2.6 The current proposal to unite some of the institutions of higher learning is recommended, as it will solve the problem of quality of agricultural education and training. However, it is imminent that the effective monitoring and evaluation systems are in place.
- 6.2.7 Thorough research into effectiveness and efficacy of agricultural extension education (curricula) offered at tertiary level in South Africa is highly warranted. (Such research has been proposed by the Centre for Rural Development Systems, University of Natal, Pietermaritzburg and is awaiting funding).
- 6.2.8 The content of agricultural education programmes at all levels should be adapted to the practical needs of the country and adjust training to suit the requirements of a dynamic agricultural development.

- 6.2.9 Similar in-depth research into the training of agricultural educators at primary and secondary levels is also indicated in this study.
- 6.2.10 A system approach should be put in place to teach agricultural subjects together with other science subjects such as mathematics and physical science.
- 6.2.11 Higher learning institutions should consider a campaign to train people for agriculture and rural development and for agricultural business.
- 6.2.12 Non-agricultural activities that are related to home economics need to be incorporated in the strategy for agricultural education and training – as these activities are part of rural development.
- 6.2.13 Youth development programmes in agriculture need to be developed that will target in-school and out of school youth.
- 6.2.14 Specific programmes aimed at training women to have at least an equal access to agriculture as do men.
- 6.2.15 Recommendation for Rural Development: Integrated development approach needed to be implemented. A body formed by people from different levels of Government, private sector, professional and rural people representatives, could be established. This body should focus on developing intervention strategies for rural development.
- 6.2.16 Recommendation for Rural Development: A campaign targeting local Government councilors in rural and community resource management.

REFERENCES

- Abalu G I (2001) *Education in the Political Economy of African Agricultural Knowledge systems: Staying Abreast of the Changing Environment*. Paper Presented at the 20001 –CIEA Seminar on Excellence in Agricultural Education, a Challenge for Africa. Hosted by Elsenburg College of Education, Stellenbosch, South Africa, 3-4 December 2001.
- Ardington, E (1995). *The Third Survey in a Longitudinal Stud of Rural Community in Kwazulu-Natal: Centre for Social and Development Studies – University of Natal, Durban.*
- Cedara College of Agriculture, (2002) Prospectus.
- DAEA (2001). *Annual Report 20-01: Allerton Report for the Directorate: Veterinary Services, KwaZulu-Natal.*
- Kars, A A, Van Rooyen, T and Govender, K (1995): *Country: Report – South Africa paper presented at the 5th International Programme on Strategies for Sustainable Agriculture and Rural Development.*
- KwaZulu-Natal Department of Agriculture Annual Report 1999-2000.
- KwaZulu-Natal Training Trust (Undated reference).
- May, J (1996) *Assets, Income and Livelihoods in Rural KwaZulu-Natal*, in Fellis and M Lipton (eds), *Land, Labour and Livelihoods in Rural South Africa. Volume 2: KwaZulu-Natal and Northern Province*. Indicator Press, Durban.
- McTaggart, R (1998) *16 Tenets of Participatory Action Research*. Internet publication: The Caledonia Centre for Social Development. <http://www.caledonia.org.uk/par.htm> (Accessed 2002).
- Moser, C O N (1995) *Gender Planning and Development*.
- Mtshali, 2001. *Personal communication with Dr Mtshali (Deputy Director: Veterinary Section, KZN Provincial Department of Agriculture) 9th September 2001.*
- Municipal Demarcation Board, 1996: *Census Report. South African Explorer.*
- NDA (undated): *Statistics of different crops produced in the provinces.*
- Obrien, R (1998) *An Overview of the Methodological Approach of Action Research*. Internet published paper <http://www.web.net/~robrien/papers/arfinal.htm> (Accessed 2002)

SA DEAT (2000) *KwaZulu-Natal Review*. Internet publication published by the SA Department of Economic Affairs and Tourism.
www.kzn-deat.gov.za/downloads/kzn_review.doc (Accessed 2002)

Seymour-Rolls, K and Hughes, I (1995) *Participatory Research: Getting the Job Done*. Action Research Electronic Reader
casino.cchs.usyd.edu.au/arow/reader/rseymour.htm (Accessed 2002)

University of Natal (2002) Faculty of Science and Agriculture, Prospectus.

Worth, S (2002) Unpublished research notes from the Centre for Rural Development Systems of Natal – Pietermaritzburg.

APPENDICES

| |
|-------------------|
| APPENDIX 1 |
|-------------------|

16 Tenets of Participatory Action Research
Robin McTaggart (1989)
www.caledonia.org.uk/par.htm

1. Participatory action research *is an approach to improving social practice by changing it* and learning from the consequences of change.
2. Participatory action research *is contingent on authentic participation* which involves a continuing spiral of *planning, acting* (Implementing plans), *observing* (systematically), *reflecting* and then re-planning and so round the spiral again . The process can be initiated in different ways:
 - Collect initial data in an area of general interest (a reconnaissance), reflect on it and then make a plan for changed action
 - Make an exploratory change, collect data on what happens, reflect and build more refined plans of action.

In both cases, if the Lewinian action/reflection spiral is thoughtfully and systematically followed, preferably in group context, then issues and understanding on the one hand and the practices themselves, on the other, will develop and evolve.

3. Participatory action research *is collaborative*: those responsible for action are involved in improving it. The collaborating group is widened from those most directly involved to directly involved as many times as possible of those affected by the practices concerned.
4. Participatory action research *establishes self-critical communities* of people participating and collaborating in the research processes of planning, acting, observing and reflecting. It aims to build communities of people committed to *enlightening* themselves about the relationship between circumstance, action and consequence and to *emancipating* themselves from the institutional and personal constraints which limit their power to live their legitimate and freely chosen social values.
5. Participatory action research is *a systematic learning process* in which people act deliberately through remaining open to surprise and responsive to opportunities. It is a process of using *critical intelligence* to inform action and developing it so that social action becomes *praxis* (critically informed, committed action).

6. Participatory action research *involves people in theorizing about their practices*. This involves them in being *inquisitive* about and coming to *understand* the relationship between circumstances, action and consequences in their own lives. The theories that participatory action research develops may be expressed initially in the form of *rationales* for practice. These initial rationales are then subject to critical scrutiny through the participatory action research process.
7. Participatory action research *requires that people put their practices, ideas and assumptions about institutions to the test* by gathering compelling evidence for substantiation.
8. Participatory action research not only *keeping records* which describe what is happening as accurately as possible, but also *collecting and analyzing the groups, judgements, reactions and impressions* about what is going on.
9. Participatory action research involves participants in *objectifying their own experiences*. This can be done by keeping a *personal journal* in which participants record their progress and their reflections about two parallel sets of learnings: (a) about the practices themselves (how the individual and collective practices are developing and (b) about the process of studying the practices (how the action research project is going).
10. Participatory action research is a *political process* because it involves people in making changes that will affect others. For this reason it sometimes creates resistance to change, both in the participants themselves and in others.
11. Participatory action research *involves making critical analyses* of the institutionally structured situations (projects, programmes, systems) in which people work. The resistance to change felt by a researcher is due to conflicts between the proposed new practices and the accepted practices (e.g. concerning communication, decision-making and educational work) of the institution. This critical analysis will help the participatory action researcher to act politically by (a) involving others collaboratively in the research process and inviting them to explore their practices and (b) by working in the wider institutional context towards more rational understandings, more just processes of decision-making, and more fulfilling forms of work for all involved.
12. Participatory action research *starts small* by working on minor changes which individuals can manage and control and working towards more extensive patterns of change. These might include critiques of ideas of institutions which might lead to ideas for the general reforms of projects, programmes or system-wide policies and practices.

Participants should be able to present evidence on how they *articulated the thematic concern* which holds their group together and how they *established authentically shared agreements* in the group.

13. Participatory action research *with small cycles* of planning, acting, observing and reflecting which can define issues, ideas and assumptions more clearly so than those involved can define more *powerful questions* for themselves as their work progresses.
14. Participatory action research *starts with small groups* of collaborators but widens the community of participating action researches so that it gradually includes more and more of those involved and affected by the practices of question.
15. Participatory action research *allows and requires participants to build records* of their improvements:
 - Records of their changing *activities and practices*
 - Records of the changes in the *language and discourse* in which they describe, explain and justify their practices
 - Records of change in the *social relationships and forms of organization* which characterize and constrain their practice
 - Records of the development of their expertise in the conducting of *acting research*

Participants must be able to demonstrate evidence of a group climate where people expect and give evidence to support each other's claims. They must show respect for the value of rigorously gather and analysed evidence and be able *to show and defend evidence* to convince others.

16. Participatory action research *allows and requires participants to give a reasoned justification of their social (educational) work to others* because they can show how the evidence they have gathered and the critical reflection they have done have helped them to create a developed, tested and critically examined rationale for what they are doing. Having developed such a rationale, they may legitimately ask others to justify their own practices in terms of their own theories and the evidence of their own critical self-reflection

APPENDIX 2

**AGRICULTURAL EDUCATION AND TRAINING
IN KWAZULU-NATAL (KZN)**

DETAILED REPORT FOR THE:

**NORTH EAST
SOUTH EAST
AND
SOUTH WEST
REGIONS**

**Prepared by Holonipani Ngcobo
KZN Department of Agriculture and Environmental Affairs**

NOVEMBER 2002

| |
|-------------------|
| APPENDIX 2 |
|-------------------|

AGRICULTURAL EDUCATION AND TRAINING IN KWAZULU-NATAL

North East, South East and South West Regions

INTRODUCTION

This report has been 12 months in the making, following the programme as outlined by the national formulation. The PAETTT in KZN has been driven primarily by the Provincial Department of Agriculture and Environmental Affairs, through the PAETTT Provincial Research Officers, with support in the final write-up from the Centre for Rural Development Systems at the University of Natal, Pietermaritzburg.

This section of the report provides details on the research and findings for the North East, South East and South West regions of the Department of Agriculture and Environmental Affairs in KZN.

1.3.2 Research activities

The research process started with arrangements for several workshops for different stakeholders. KwaZulu-Natal has a huge number of stakeholders, therefore research was limited to major stakeholders as a priority, but included other stakeholders where capacity allowed. The selection of stakeholders was done during a stakeholder analysis exercise during provincial PAETTT forum meeting.

Using a point scoring system developed during the stakeholder forum, PAETTT identified the major stakeholders which included:

- Employees of the Department of Agriculture and Environmental Affairs (Extension Service and Administration)
- Cane Growers Association (Training Manager)
- Mill Cane Committee (Member of Development Committee)
- Farmer Support Group (FSG) (Director)
- Land Bank (Director)
- Department of Education (Teachers of Agricultural Science)
- Farmers (commercial, small-holder and small-scale sugar cane producers)
- Colleges, Technikons, Universities (selected management and lecturers)
- Youth-in-Agriculture

A number of stakeholders had several categories of respondents, the detail of which is captured in the raw data. For example, the Provincial Department of Agriculture and Environmental Affairs had extension management staff, youth co-ordinators, extension staff, agricultural scientists, agricultural assistants and the Human Resource Committee. Working with such respondent groupings, facilitated capturing varying needs with the provincial extension service. Other major stakeholders were accommodated similarly.

Several workshops held with different respondent groups to allow them to contribute effectively during discussions. During workshops as highlighted earlier, individual participants were also given questionnaires to complete. Therefore, there were three sessions in the workshop:

- Presentations
- Group discussions/interaction
- Individual questionnaires completed

This approach was viewed to be very effective and time-saving since questionnaires were administered in the presence of the researcher.

Furthermore, questionnaires were used to collect information, which could not be obtained during group discussions. The data collected through presentations, group discussions and questionnaires was later analysed. In some cases, the researcher attended additional stakeholder meetings (e.g. staff meetings) to collect additional information.

Individual interviews were conducted with representatives of the following organizations: FSG, Land Bank, Cane Growers and the Department of Agriculture and Environmental Affairs, Human Resource Committee. In most cases, the representatives of these institutions were directors and/or managers of the organizations. It was taken that their views represented a perspective of the organization as far as training needs, physical and financial resources and human resource development programmes were concerned. These interviews were conducted by means of a semi-structured interview.

1.4 Description of the study area

Since the purpose of the study was to involve many stakeholders involved with agricultural development activities in KZN, the study area covers the whole province. However, some stakeholders were found operating in only one part of the province, while others operated in wider areas within the province. Another main consideration was the fact that some stakeholders had more impact than others as far as agricultural education and training were concerned. The imperative of exploring issues in those stakeholders with greater impact in agricultural development, was eminent. However, the sampling

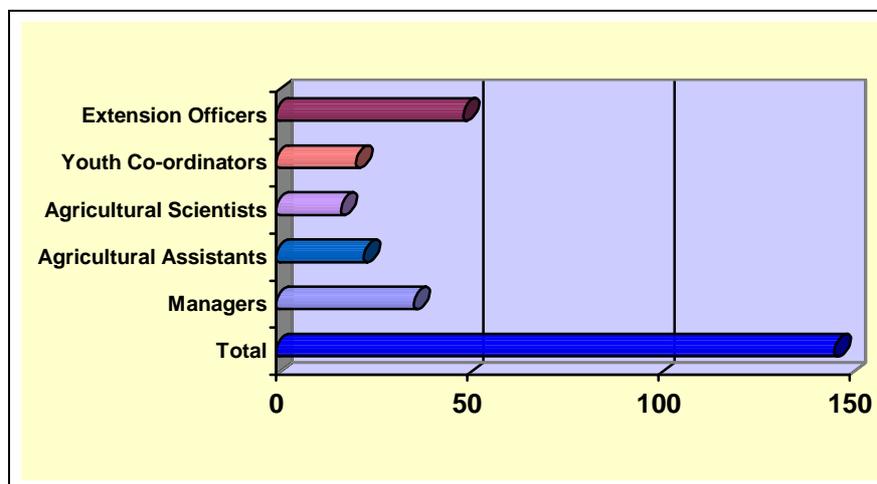
strategy was to divide the province into five agricultural regions such as North (N), South East (SE), North East (NE), North West (NW) and South West (SW) regions as are used by the Department of Agriculture and Environmental Affairs.

Concerning the provincial department of agriculture and farmers, again the five regions were used as the study area. Each region has several districts and therefore certain districts were randomly to form part of the study area. These districts were selected for different purposes. For example, Hlabisa was selected because it has predominantly subsistence farmers, while Underberg has predominantly commercial farmers. The main objective of the research survey was to determine training needs and gaps for different stakeholders as perceived by the participants. However, other issues such as resources availability and affordability emerged.

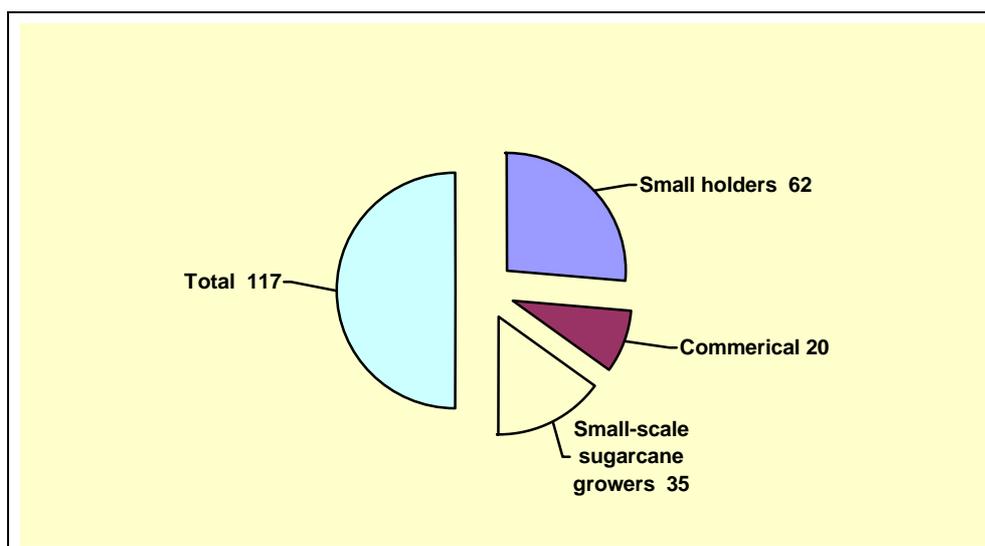
Because of the complexity of the study, it was difficult to maintain a concrete framework as well as consistency in sampling and selecting study areas. However, data collected from different stakeholders, shows the status of agricultural education and training in KZN as far as training needs and training gaps are concerned.

The following graph provides a picture of the range, scope and size of the project as well as the number of people engaged in the research:

Respondents of the Provincial Department of Agriculture



Respondents among farmers



Small holders by far represent the largest grouping of farmers and producers in the province. They are also the most difficult to engage in research. Commercial farmers, while being much smaller in number, have a huge impact on agricultural production and its contribution to GGP in the province. Commercial farmers were represented by members of the Underberg Farmers' Association. The small-scale sugarcane growers were identified as their own group because of the significance of sugar production in KZN and because of the particular needs and opportunities of these particular producers.

Agricultural Educators

| Respondent sub-groupings | Number of respondents/ participants |
|---|-------------------------------------|
| Agricultural Science Teachers at High Schools | 94 |
| Mangosuthu Technikon | 9 |
| Cedara Agricultural College | 10 |
| Owen Sithole Agricultural College | 7 |
| University of Zululand | 6 |
| University of Natal | 8 |
| TOTAL | 134 |

CHAPTER THREE: AGRICULTURAL EDUCATION AND TRAINING NEEDS FOR AGRICULTURAL DEVELOPMENT

3.1 Introduction

Training need analysis were undertaken by first identifying skills and knowledge perceived by farmers as well as service providers in the study areas. There were different types of farmers, such as small-holder (emerging) farmers, small-scale sugarcane farmers and commercial farmers. In case of service providers, similar approaches are followed. The major service providers were extension staff, agricultural scientists, youth co-ordinators, managers of extension and agricultural assistants. Inferences were also made with regard to other organizations such as NGOs and private organizations. There are three categories of results. The first covers the following:

- Gender composition of respondents
- Experience of respondents
- Skills and knowledge required
- Skills and knowledge gaps

The second category addresses the resources required, as perceived by respondents, to sustain agricultural development. The last category looks at solutions to address problems mentioned in the categories. Since a majority of small holder farmers did not have high school standard education, the results of subjects taken by them was not included. They were however reported as service providers.

Gender composition of Government extension staff respondents

| Respondent Group | Number | Female % | Male % | Total % |
|-------------------------|--------|----------|--------|---------|
| Extension Staff | 49 | 51 | 49 | 100 |
| Youth Co-ordinators | 49 | 51 | 49 | 100 |
| Agricultural Scientists | 17 | 41 | 59 | 100 |
| Agricultural Assistants | 23 | 90 | 10 | 100 |
| Managers | 36 | 31 | 69 | 100 |

Gender composition of farmer respondents

| Farmer Group | Number | Female % | Male % | Total % |
|-------------------------|--------|----------|--------|---------|
| Small holder | 61 | 62 | 38 | 100 |
| Commercial | 20 | 0 | 100 | 100 |
| Small-scale sugarcane | 35 | 54 | 46 | 100 |
| Agricultural Assistants | 23 | 90 | 10 | 100 |
| Managers | 36 | 31 | 69 | 100 |

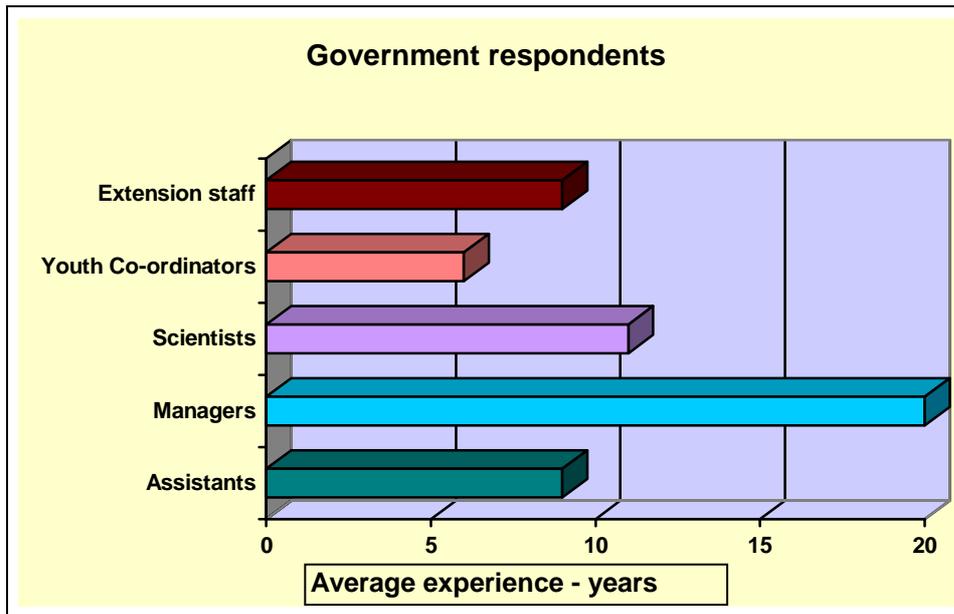
3.2 Experience of respondents

Experience of farmers in the farming sector was determined. In cases of service providers, experience was determined by years in which respondents were engaged in extension service. The following two tables are included to give a very general picture of the perceived experience of service providers and their clients (farmers). These are aggregated figures to demonstrate what is often expressed by farmers that they generally have more experience than the extension staff who service them. Details of the range of years of experience of the Government respondents are presented in the relevant appendix.

Furthermore, experience of farmers is difficult to measure with accuracy. For the Zulu farmers, where farming is tied up with traditional land rights, experience was taken to start from the first time the respondent was granted any piece of land by his father (or other relevant elder). In most cases this was between the ages of 12-15.

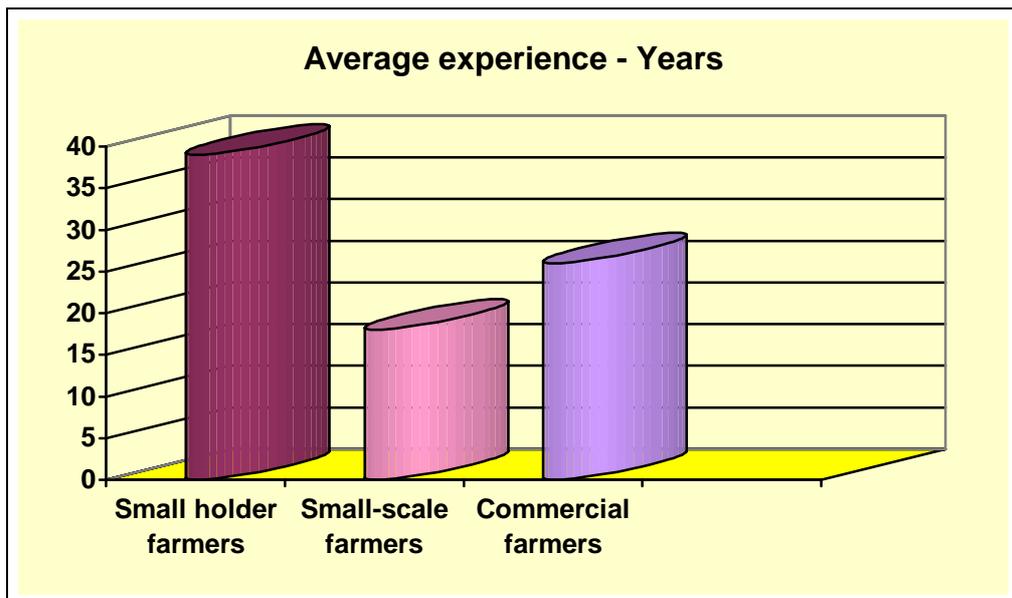
For the commercial farmers, no qualification made and it was assumed that experience commenced from the time they assumed a measure of responsibility on their own or a family farm.

Experience of Government respondents



The results show that a number of years in the extension service appears to have played a significant role in being promoted to a management or supervisory position. The close correlation between experience and age implies that the DAEA in KZN has relied on experience and age of respective staff members when appointing management staff and that most of the managers in the Department of Agriculture are senior staff members by virtue of age and years of service.

Experience of farmers respondents as farmers



Results show that both small holder farmers and commercial farmers in study areas perceived themselves to have long experience in farming. This has implications for their receptivity of junior and less experienced extension staff.

3.2 Farmers

3.3.1 Knowledge and skills of farmers

Farmers were asked to identify knowledge and skills, which they perceived, were required to be a successful farmer. Priority ranking was then used to determine the perceived importance of these knowledge and skills. The skills and knowledge identified and their ranking by the farmers are shown in the table below:

Skills/Knowledge ranked by farmers

| Skills/Knowledge | Ranking |
|----------------------------|-----------|
| Business Management Skills | 1 |
| Human Resource Skills | 1 |
| Time Management Skills | 2 |
| Government Acts Knowledge | 2 |
| Communication Skills | 2 |
| Theory/Practical Skills | 2 |
| Technical Knowledge | 3 |
| Mechanical Knowledge | 4 |
| Delegation Skills | 4 |
| Other Skills/Knowledge | 5 |
| Total response | 56 |

Results show that both business and human resource management skills are perceived by farmers to be priority elements of successful farming. Closely akin to these are time management and communication skills. These were ranked second together with knowledge of laws regulating agricultural sector and theoretical knowledge and practical skills.

3.3.1 Knowledge and skills gaps of farmers

The table below sets out the farmers ranking of gaps in knowledge and skills for successful farming.

| Skills/Knowledge | Ranking |
|-----------------------------------|-----------|
| Government Act Knowledge | 1 |
| Business Management Skills | 2 |
| Marketing and Buying Skills | 2 |
| Human Resources Management Skills | 3 |
| Policy Analytical Skills | 3 |
| Labour Laws Knowledge | 4 |
| Communication Skills | 4 |
| Mechanical Knowledge | 4 |
| Delegation Knowledge | 5 |
| Total response | 56 |

According to the results, farmers perceived Government laws regulating agriculture as their current major concern inhibiting success. Business management, marketing and buying skills, followed accordingly. Human resources management and policy analytical skills completed the top three on the table. Therefore, the results showed that farmers perceived agriculture as a business entity, which is to some extent regulated by the Government.

Discussions following ranking indicated that farmers perceived a need for Government, private organizations and NGOs to intervene to build farmer capacity in the gap areas. Although training was an obvious solution, the issue of resources availability emerged. They perceived that capacity development programme could not be successful unless major resources, such as water, effective institutional support, financial resources, land and marketing are provided. Training without opportunity is useless.

The small-scale sugarcane farmers had come from those who were previously disadvantaged. Their views and perceptions did not differ much from other farmers. They perceived business management and marketing skills as the major areas that needed serious attention. In terms of resources, land ownership rights and financial resources, emerged as the first priority. They felt that they could not access credit

from financial institutions because they did not have ownership rights to land they farm on.

3.4 Youth-in-Agriculture

The Youth-in-Agriculture (YIA) category seeks to capture the perceptions of young out-of-school adults who are engaged in agricultural activities, primarily on small holdings. The majority of them completed high school qualifications but could not get jobs. Through the intervention of the DAEA they were inspired to turn to agriculture as a livelihood strategy.

The DAEA appointed special extension officer as youth co-ordinators to support these youth in dealing with agricultural projects. The extension support includes advice, training and technology transfer. YIA participated in the research process as an independent stakeholder. The results regarding knowledge/skills and gaps of this group are taken to reflect the needs of the younger generation small holder farmers.

3.4.1 Knowledge and skills required by the Youth-in Agriculture

The table which follows captures, the perceptions of YIA stakeholder groups with regard to knowledge and skills required for successful farming:

Knowledge and skills for the Youth-in-Agriculture

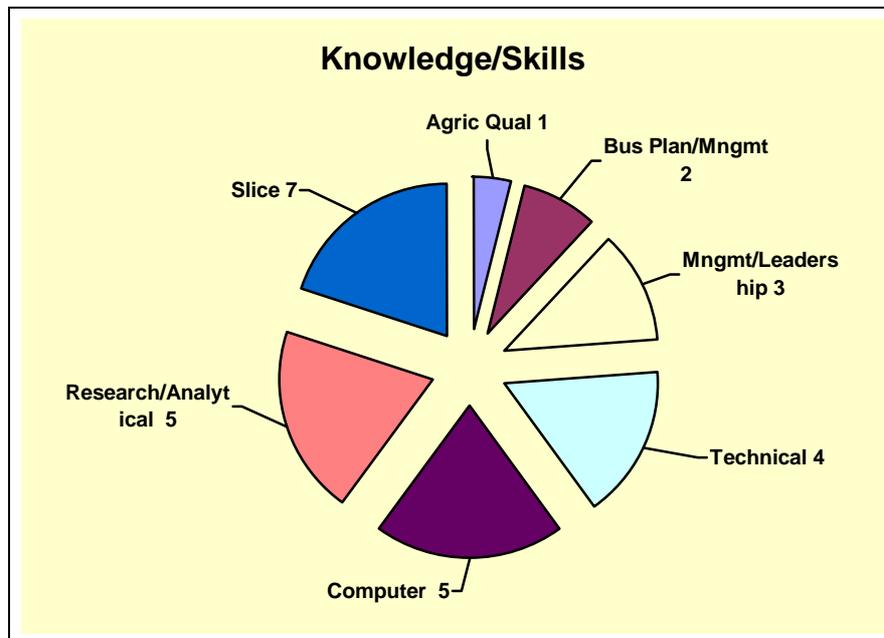
| Skills/Knowledge | Ranking |
|--|---------|
| Agricultural Skills | 1 |
| Business Management/Planning (Agriculture) | 2 |
| Communication Skills | 2 |
| Technical Skills | 3 |
| Marketing/Processing Skills | 3 |
| Agricultural Qualification | 4 |
| Management Leadership | 4 |
| Computer Literacy | 5 |
| Research/Analytical | 5 |
| Other | 6 |
| Total response (46) | |

The YIA group rated agricultural skills/knowledge as very important for youth to become successful farmers. Ranked second were knowledge of business management and good communication skills. Completing the top three on the table were technical knowledge and marketing skills. These results imply that the youth also views farming as a business, founded on sound agricultural and business management skills.

3.4.2 Youth-in-Agriculture knowledge and skills gap

As shown in the table below, youth perceived agricultural qualification to be the main gap. Business planning and management was second, management and leadership skills third, followed by other knowledge and skills such as technical skills, computer literacy, research and analytical skills.

Knowledge and skills gaps for the Youth-in-Agriculture



The youth perceives the Government to be the main provider of training to meet needs. This will assist them to become commercial farmers. Other fundamental issues were also raised by this group, including financial resources, productive land and perceptions of other organizations towards agriculture.

3.5 Service providers

Various categories of DAEA providers participated in the study, including extension staff, agricultural scientists youth co-ordinators and educators. Extension staff and youth co-ordinators have similar qualifications, that is, an agricultural diploma with different major

subjects. While variations occur on the ground, extension staff deal primarily with more established (adult) farmers and youth co-ordinators deal primarily with the Youth-in-Agriculture (young adult) farmers.

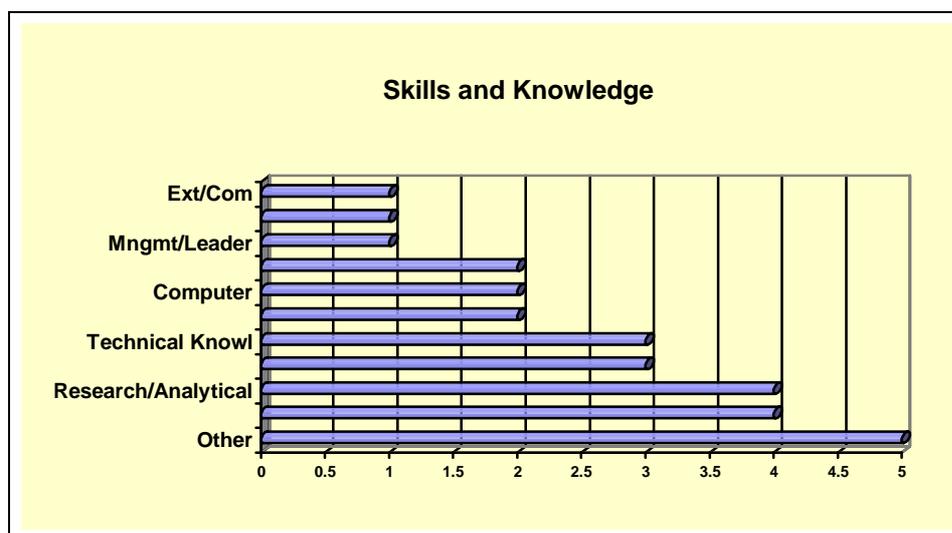
3.5.1 Extension staff and youth co-ordinators

The majority (47%) of extension staff did general science subjects at school with agriculture included and only 14% of extension staff did pure science (e.g. mathematics and physical science). Based on the data gathered, it appears that, in most cases, pure science subjects were not a pre-requisite to study agriculture at the tertiary institutions attended by the respondents. Almost 70% of extension officers did social science related subjects at high school level.

3.5.1.1 Knowledge and skills needed for extension staff and youth co-ordinators

The following table outlines ranking of knowledge and skills service providers perceive they need to be successful in their category of service provision.

Knowledge and skills required by extension staff and youth co-ordinators



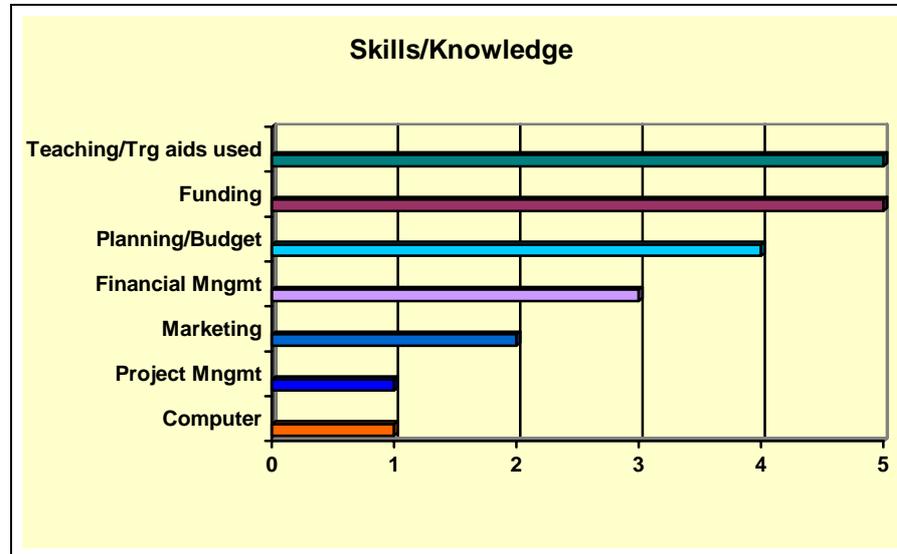
Total responses (67)

Extension, communication, marketing and management skills were ranked as the most important skills for the extension officers and youth co-ordinators. Business management, planning (budgeting) and computer literacy were ranked second important knowledge and skills followed by technical knowledge and project (resources) management skills.

3.5.1.2 Knowledge and skills gaps of extension staff and youth co-ordinators

In terms of gaps, extension staff ranked computer and project management skills highest. Marketing skills were second and financial management skills third. Most important skills perceived by the extension staff are limited.

Knowledge and skills gaps of the extension staff



3.5.2 DAEA Managers of extension and support services

Data concerning knowledge and skills of managers of extension services was collected from managers in the regions and support services. The top management of the Department of Agriculture is not included. Furthermore the term managers referred to are different levels of managers such as Directors, Deputy Directors, Assistant Directors, Control Development Technicians, Engineers, etc. According to this study, they were not stratified into different levels. Their views, opinions, knowledge and skills represented a viewpoint of managers of extension and support services.

3.5.2.1 Knowledge and skills needs of DAEA Managers

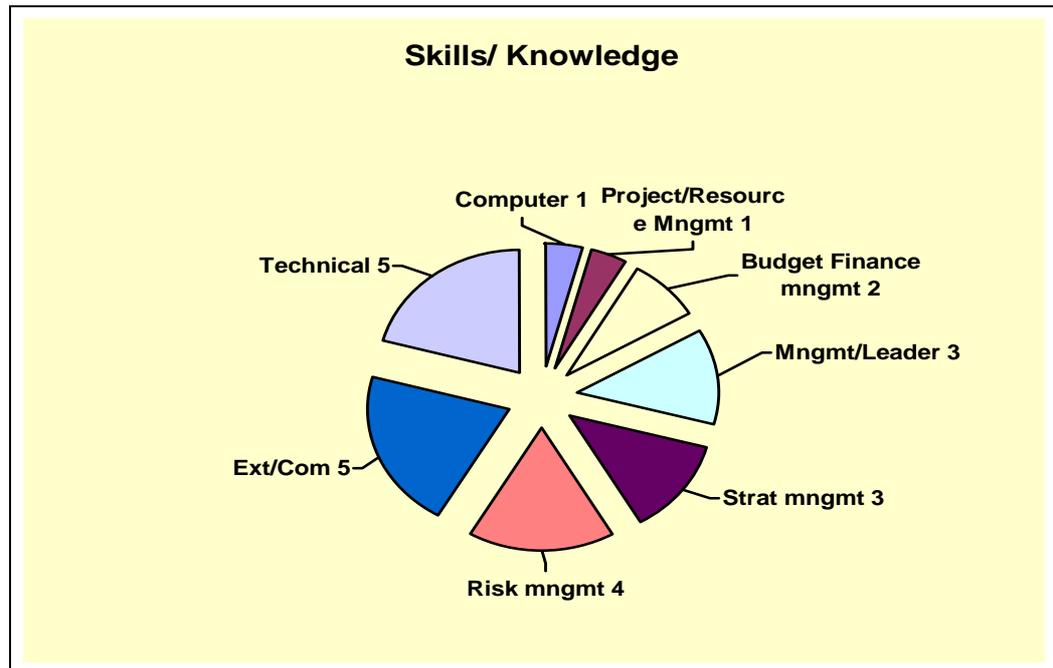
In reviewing requirements to manage extension effectively, managers of extension and support ranked knowledge of extension and communication skills first, management functions and leadership skills were the second most important skills and budgeting, project management, strategic management and computer literacy third.

| Skills/Knowledge | Ranking |
|--------------------------------|-----------|
| Extension/Communication skills | 1 |
| Management/leadership | 2 |
| Project/Resource management | 3 |
| Budget/Finance management | 3 |
| Strategic management | 3 |
| Computer literacy | 3 |
| Technical knowledge | 4 |
| Agricultural laws/policies | 5 |
| Marketing/Human relations | 5 |
| Procurement/Operational | 5 |
| Demonstration /Presentation | 6 |
| Training/Training aids skills | 6 |
| Formal Qualification | 7 |
| Time/Stress management | 7 |
| Group Dynamics/Problem solving | 7 |
| Labour relations | 7 |
| Other | 7 |
| Total response | 78 |

3.5.2.2 Knowledge and skills gaps of DAEA Managers

In terms of skills and knowledge gaps, computer literacy and project and resources management were perceived to be urgent and skills gaps should be filled. Budgeting and finance management skills were ranked second followed by leadership management functions and strategic management knowledge.

Knowledge and skills gaps of managers of extension and support



3.6 Educators

A total of 117 educators in agriculture including high schools, technikons and universities participated in the study.

3.7.1 Knowledge and skills needs of lecturers (Institutions of Higher Learning)

As shown in the table below, the university, college and technikon lecturers identified research and technical skills as the most important skills for success in their fields. This is followed by communication and presentation skills. Of special note is the ranking of theoretical skills (ranked 5). This appears to be in keeping with the principles of the national educational strategy of outcomes-based education.

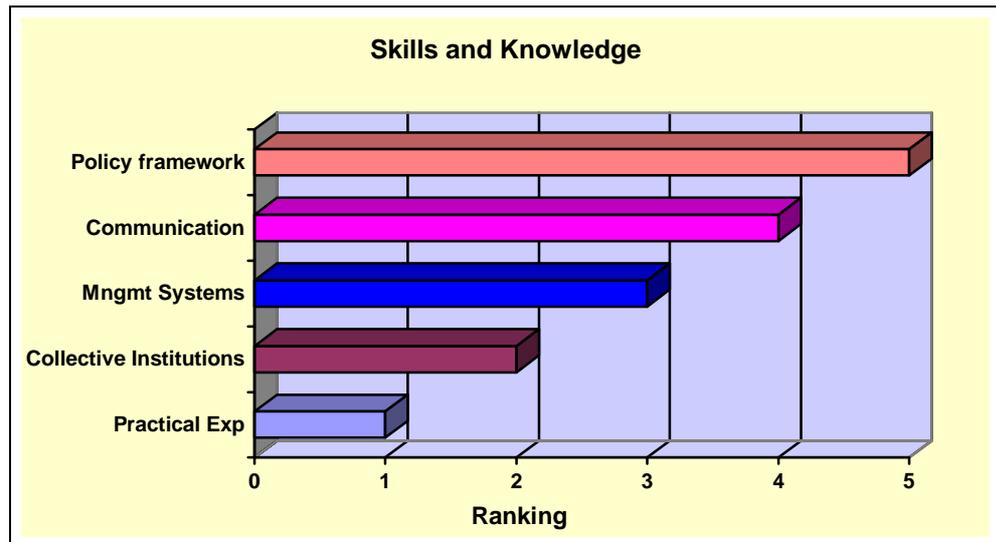
Knowledge and skills needs of lecturers at Institutions of Higher Learning

| Skills/Knowledge | Ranking |
|----------------------------|---------|
| Research | 1 |
| Technical skills | 1 |
| Communication skills | 2 |
| Presentation | 2 |
| Practical | 3 |
| Monitoring/evaluation | 3 |
| Computer literacy | 3 |
| Teaching | 4 |
| Facilitation/Co-ordination | 4 |
| Theoretical | 4 |
| Other (4<) | 5 |

3.7.2 Knowledge and skills gaps for lecturers

As set out in the table below, lecturers identified practical “real life” experiences as the priority gap in the lecturers’ knowledge and skills base, followed by “collective institutions” (e.g. development structures, group work, etc.) and then by an understanding of the systems within which agriculture and farming operate.

Knowledge and skills gaps for the lecturers



3.8 Conclusion/Summary

Different and varied stakeholders participated in the research. They cited different knowledge and skills required to excel in their areas of expertise. These stakeholders were categorized as service providers and recipients. Service providers included DAESA extension staff, youth co-ordinators and educators. Recipients included different categories of farmers and participants in Youth-in-Agriculture. Using PAR methodologies and priority ranking, important knowledge and skills and gaps therein, were identified and prioritized by the study participants.

3.8.1 Priority knowledge and skills

The following table outlines the diversity of knowledge and skills that stakeholders perceive from their unique vantage points as having significant impact on successful agriculture in KZN. Yet in this diversity there is a harmony, a whole, which points to a need for service providers to be multi-skilled and flexible as the knowledge and skills requirements of farmers develop and change.

Priority knowledge and skills all categories of respondents

| Knowledge and Skills Need | Priority for |
|--------------------------------|--|
| Business Management Skills | Farmers |
| Human Resource Skills | Farmers |
| Agricultural Skills | Youth-in-Agriculture |
| Extension/Communication Skills | DAEA Extension and Youth Co-ordinators |
| Marketing/Human Relations | DAEA Extension and Youth Co-ordinators |
| Extension/Communication Skills | DAEA Managers of Extension and Support |
| Research | Educators |
| Technical skills | Educators |

3.8.2 Knowledge and Skills gaps

As demonstrated in the following table, Agricultural Qualifications, Computer Literacy, Government Acts, Knowledge, Practical “real life” Experience, Project/Resource Management, Project Management and Business Management are the top knowledge and skill areas identified by the respondents in the study. This, coupled to the previous ranking of knowledge and skills, is important to the success in agriculture, creates a starting point for investigations for adjusting short-, medium- and long-term educational and training programmes and curricula.

| Knowledge/Skills Gap | Rank | Priority for |
|----------------------------------|------|--|
| Agricultural Qualification | 1 | Youth-in-Agriculture |
| Computer literacy | 1 | DAEA Managers of Extension and Support |
| | 1 | DAE Extension and Youth Co-ordinators |
| Government Acts Knowledge | 1 | Farmers |
| Practical “Real Life” Experience | 1 | Educators |
| Project/Resource Management | 1 | DAEA Managers of Extension and Support |
| Project Management | 1 | DAEA Extension and Youth Co-ordinators |
| Budget/Financial Management | 2 | DAEA Managers of Extension and Support |
| Business Management Skills | 2 | Farmers |
| Business Planning/Management | 2 | Youth-in-Agriculture |
| Collective Institutions | 2 | Educators |
| Marketing and Buying | 2 | Farmers |
| Marketing Skills | 2 | DAEA Extension and Youth Co-ordinators |

3.8.3 Other important factors

Farmers in particular highlighted the fact that even more pressing than knowledge and skills, was the issue of access to resources required for successful farming. Finance, land and water emerged as not adequately available and therefore needing serious consideration.

On the issue of land, the farmers in general felt there should be greater access and ease of access to farming land. This access, the farmers indicated, should be facilitated by the Government.

On the issue of finance, the commercial farmers, the youth and the small scale cane growers perceived finance as a particular problem, limiting their success in farming. Especially the resource-poor farmers felt that financial institutions have no space for them and that they are excluded by the criteria for obtaining loans, chiefly security for the loan and a credit history. This sentiment is particularly true with regard to small-scale farmers.

On the contrary, the financial institutions surveyed, indicated they had provisions to accommodate different categories of clients. The clients were categorized in various risk categories. The categorization, according to the financial institutions, makes it possible for the institutions to provide better focus on meeting the needs of emergent farmers, while continuing to support the commercial farmers. According to the annual report of Land Bank 2000, approximately 70 000 emergent farmers were financially assisted in 2000. This is 10 000 more than the target of 60 000 set for the year.

CHAPTER FOUR: PROVISION OF AGRICULTURAL EDUCATION AND TRAINING

4.1 Introduction

There were various service providers of agricultural education and training in KZN. For formal education, universities (2), colleges (2) and Technikon (1), are the major service providers. The Government (Department of Agriculture and Environment Affairs and the Department of Labour) and some NGOs provide non-formal education. Other institutions such as banks provide support in the form of financial assistance or in kind.

The Department of labour is included due to its Skills Development Act and Skills Development Strategy Levy Act. The Skills Development Levy Act lays down the regulations on how money should be collected through levies paid by the employers.

4.2 Formal education and training provision (by Higher, Further and Basic education)

There are a huge variety of courses offered by the institution of higher learning in KZN. For colleges and technikons, the primary qualification is a diploma. However, colleges do offer certificates after completing first and/or second year, depending on the need of respective students. The diploma is offered to students who have completed the third year. There is no difference in terms of curriculum for diploma courses and the higher certificate courses, except that students take courses for diploma in the third year. There are primarily two areas of specialization, namely animal production and crop production in these colleges.

There is only one Technikon in the province that offers diplomas in agriculture. There are also three areas of specialization, namely plant production, animal production and community extension. The curriculum differs according to the areas of specialization, each respective student pursues. There is apparently no provision for specialization in agricultural economics courses for the colleges of agriculture and the technikon in KZN. Information obtained from colleges of agriculture and the technikon suggested that there was a slight variation of target groups. To a certain extent, colleges target purely students and those who intend to become farmers.

In terms of the universities, there were quite a number of specializations. Agricultural economics was one of the areas of specialization. The major qualifications at the universities were as follows:

- Bachelor of Science in Agriculture to be completed after four years.
- Agricultural Management degree completed after three years of study
- Post graduate degrees
- PhD

Courses offered in the institutions differ according to areas of specialization. The target groups also vary from scientists or researchers to academia.

Method of training was primarily lecturing, using different teaching aids. Group discussions, individual assignments and presentations were some of the methods used across the board by the institutions of higher learning. Practical sessions were planned and organized for students as another method of providing training. In some cases, students are exposed to experiential learning before getting their final qualifications. There are variations concerning experiential learning because some institutions of higher learning have adequate resources to expose their students to practical experience.

The cost of tuition for different institutions varies significantly. However, the tuition fees at Cedara College and the University of Natal are shown, as an example in the tables below:

Fees at Cedara College

| Fees | 1st Year | 2nd Year | 3rd Year |
|----------------------------|----------------------------|----------------------------|----------------------------|
| Cedara Student Union (CSU) | R2 050 | R1 860 | R2 135 |
| Academic Fees | R8 per credit | R8 per credit | R8 per credit |
| Accommodation | R5 500 | R5 500 | R3 750 |

Source: Cedara 2000.

| Fees | 1st Year | 2nd Year | 3rd Year | 4th Year |
|---------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| B.Sc Agric/B.Agric* | R12 250 | R13 680 | R13 680 | R9 650 |
| Honours | R10 100 | | | |
| Masters | R8 900 | | | |
| PhDs | R10 440 | | | |

Source: University of Natal

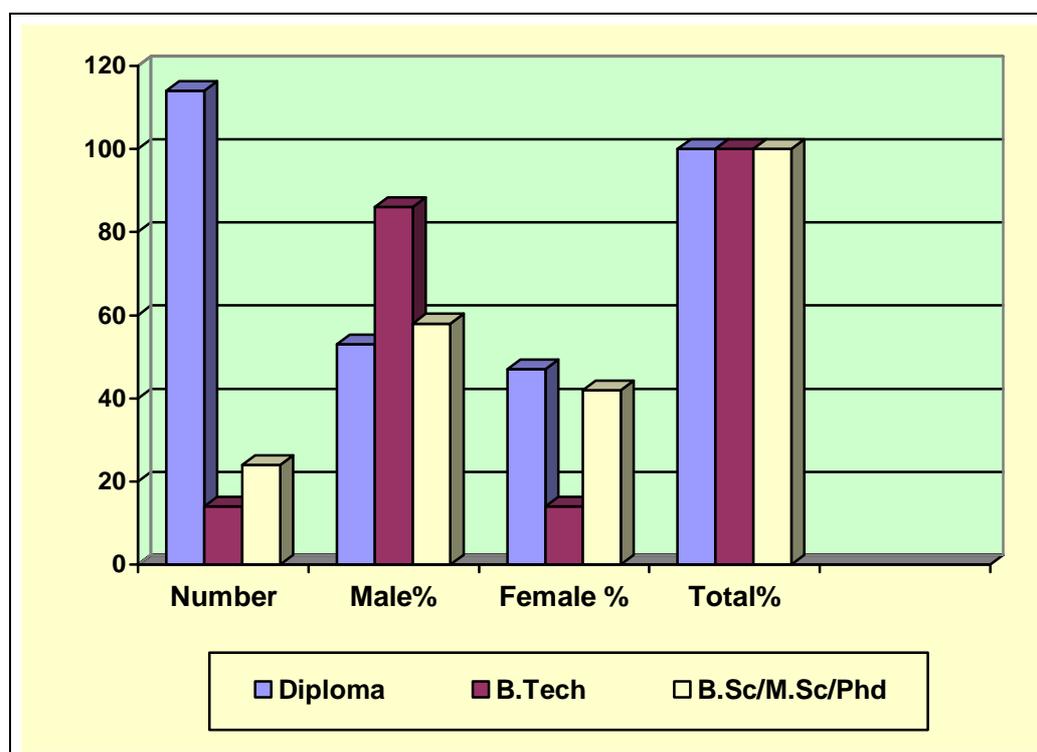
*B.Agric is a three-year programme

4.3 Provision of non-formal education and training

Several organizations such as the Department of Agriculture, NGOs and institutions of higher learning provide non-formal education and training. For the purpose of this chapter, emphasis will be made on the Government and NGOs. These organizations provide education and training to their clients and offer any certificates that are necessarily not accredited by SAQA. Most of the courses offered are to enhance the capacity of the clients. There are different forms of non-formal education and training such as internal training and external training. Internal training or in-service training emphasize training of employees of the organization in order to improve their skills level. External training is the training provided to clients (farmers) to enhance their quality of life.

The DAEA offers short courses for its staff and farmers. Some of these courses include vegetable production, crop production, agricultural extension, animal production, marketing, etc. The cost of these courses varies according to the duration of the course. The duration of these courses varies between one day and five days depending on the course content. The most expensive course is R750 and the least expensive course is R70. Additional to the in-service training, the DAEA provides bursaries for its employees who want to pursue further training in different disciplines as shown in the graph below:

Holders of bursaries in the technical field of agriculture for the year 2000



Results indicate that the provincial DAEA is committed in developing capacity of staff. Most staff members that were awarded bursaries, were diplomats and very few in the B.Technology discipline. Furthermore, more males than females were awarded bursaries by the DAEA. However, the results in the table above did not include other bursary holders, particularly in the administration component such as human resource, finance, computer programmes, etc.

4.4 Conclusion and summary

Most agricultural education and training organizations have development programmes for their employees as well as clients. They differ in the way in which they provide training. One of the major concerns was the financial resource, which did not only affect the running of training programmes, but also the quality of staff and service to clients. There is a huge gap in terms of enrolment between different training institutions such as colleges and universities. The gap is due to the capacity and resources that agricultural education and training organizations have. Partnership approach and multi-disciplinary approach to agricultural development, appears to be the solution in addressing such discrepancies. Intervention in skills development by other departments like the Department of Labour, add impetus in solving these resources disparities.

CHAPTER FIVE: AGRICULTURAL EDUCATION AND TRAINING GAPS

5.1 Introduction

In identifying the agricultural education and training gaps, it is helpful to visualize the full extent of the industry the intended education serves. The following research notes on agricultural education and training provides a useful description, from the Centre for Rural Development Systems, University of Natal, Pietermaritzburg

“Agriculture is more than merely primary production on the farm; it is a huge industry with forward and backward linkages with complex relationships. It is hugely competitive, high risk and essential to society and to the economy. It is dynamic - dynamic in the sense that the assets and vulnerabilities of its primary players – input manufacturers, and suppliers, farmers and processors – are constantly shifting due to pressures in the market place, the advancement of technologies and changes in the political arena and nowhere is this perhaps more true than in South Africa as it passes through the post-Apartheid processes of transformation and reform which touches on the issues of access by the previously disenfranchised to the very essentials of farming – land, finance, markets, input supply, information and skills, technology and infra-structure – and to the collective institutions which define the industry.”

For some, agriculture is an exercise in survival – an integral part of livelihood and income strategies. For others it is a family heritage. For others it is a commercial enterprise aiming at profit making. For some it is a burden to escape, for others an opportunity out-of-reach. Linked as it is to land, culture and history, it carries with it an emotional charge and forms part of a political agenda which often out-weighs its primary function: providing the population and the economy with food, fibre and fuel.” (Worth: 2002)

Given the foregoing accounting, education and training in agriculture must receive the highest priority. The education and training must be a flexible and dynamic as the industry it serves. The following two tables from Chapter 3 provide a foundation for discussion of the training gaps between providers of agricultural training and their clients.

Priority knowledge and skills for all categories of respondents

| Knowledge and Skills Need | Priority for |
|----------------------------------|--|
| Business Management Skills | Farmers |
| Human Resource Skills | Farmers |
| Agricultural Skills | Youth-in-Agriculture |
| Extension/Communication Skills | DAEA Extension and Youth Co-ordinators |
| Marketing/Human Relations | DAEA Extension and Youth Co-ordinators |
| Extension/Communication Skills | DAEA Managers of Extension and Support |
| Research | Educators |
| Technical skills | Educators |

Knowledge and skills gap priorities for all respondents

| Knowledge/Skills Gap | Rank | Priority for |
|----------------------------------|-------------|--|
| Agricultural Qualification | 1 | Youth-in-Agriculture |
| Computer literacy | 1 | DAEA Managers of Extension and Support |
| | 1 | DAE Extension and Youth Co-ordinators |
| Government Acts Knowledge | 1 | Farmers |
| Practical "Real Life" Experience | 1 | Educators |
| Project/Resource Management | 1 | DAEA Managers of Extension and Support |
| Project Management | 1 | DAEA Extension and Youth Co-ordinators |
| Budget/Financial Management | 2 | DAEA Managers of Extension and Support |
| Business Management Skills | 2 | Farmers |
| Business Planning/Management | 2 | Youth-in-Agriculture |
| Collective Institutions | 2 | Educators |
| Marketing and Buying | 2 | Farmers |
| Marketing Skills | 2 | DAEA Extension and Youth Co-ordinators |

5.2 Who are the clients

From this study it has been shown that the range of clients, who seek training and education, is varied. It can perhaps be divided into three broad categories: farmers (those who use the training to produce food, fibre and fuel), value-adders (those who process food fibre and fuel) and service providers (those who assist farmers and value-adders in their undertakings).

If one operates from the basis that farmer training will be provided by Government and NGO service providers, that extension is implemented as a form of distance education, then the primary clients of formal education institutions would be potential and existing functionaries among the service providers. Value-adders too would be part of their client base.

The clients of non-formal training would be primarily farmers. Providers of non-formal education know this, but the problem they face is capacity. Such agencies, including the extension service will need to assess priorities against resources and clearly identify which sectors of their client base will have the greatest impact on agriculture and its objectives and to focus their resources there. Such agencies would be well-advised to investigate positioning women at the core of their client base.

The question then is about content of education and training. What skills would be given to those (e.g. extension officers) who would engage directly with farmers in meeting their training requirements? What skills should be given?

5.3 Providers of agricultural education and training versus clients needs

The foregoing list indicates a wide range of education and training issues, which indicate that farming and agriculture, in the eyes of those intimately involved, extends far beyond the issues of mere agricultural production practices. However, the various training institutions focus primarily on production technologies and techniques. Rarely do agricultural certificates, diplomas and degrees offer non-production options and electives. This represents a primary gap in the provision of agricultural education and training.

Clearly bringing business management, communication, understanding of government policy, computer training, marketing, etc. into the mainstream of agricultural education and training seems imperative. Providing diplomas and degrees, which represent technology training, only seem inappropriate, based on what farmers in particular indicated they needed to be helped with.

This study has not attempted to identify specifically the training and educational needs of those working in agriculture in KZN. Rather it has attempted to contribute its share of the intended foundation, upon which to start building the National Strategy for Agricultural Education and Training. Thus a challenge, facing the providers of agricultural education and training, will be to assess the training needs of the clients very accurately and periodically. These assessments will ensure:

- Service providers are very close to their clients
- There will be more quality labour markets in the agricultural industry
- There will be more independent progressive farmers
- There will be a significant reduction in unnecessary expenditure

A lot of improvement needs to be made on issues like effective communication strategies and individualism. One of the major reasons for failure of the service providers to provide appropriate content, was a lack of understanding the importance of the multi-disciplinary nature of agriculture, as highlighted in the two summarized rankings. Equally, there appears to be inadequate co-ordination between providers of agricultural education and training. This issue was vigorously raised by many stakeholders participating in the research.

5.4 Addressing client needs by service providers

It is a daunting task facing providers of agricultural education and training. Needs and perceptions of need, are dynamic and ever changing. Two of the principles of Maslow's hierarchy on needs are that people always want more and their needs depend on what they possess and people's needs are arranged in order of importance. When one need has been partially satisfied, the next need will come forward to be satisfied (Cronje and Smit: 1997). This implies that some needs are interwoven. Therefore, it is very difficult for any service provider to address this issue. Looking generally at the courses and programmes of several institutions, more effort must be made to align these courses according to the present and future client needs. Small holder farmers, as major clients of extension services, echoed their dissatisfaction as far as progression was concerned. "We are still small farmers who have not graduated since we started farming" was a statement made by one of a group of small holder farmers. There was also a concern about the lack of the effective extension strategy, which clearly stipulates how the needs of client should be addressed.

Furthermore the respective institutions design their course programmes with little or no participation by and consultation with the targeted clients and other role players. This approach had a negative impact when clients ventured into areas outside the institutions. In cases of students, it is difficult for them to adapt in practical situations (real life experience) because most institutions of higher learning concentrated more on theoretical aspects than on practical aspects.

5.5 Affordability of the cost of tuition

Many people do not consider agriculture as the important field to pursue in terms of training. Furthermore, agriculture is a very risky industry since it relies heavily on uncontrollable or unpredictable environmental factors. It therefore does not easily attract funding from donors or financial institutions. The state of economy of the country also plays a big role in determining the affordability of tuition fees. Several institutions also do not categorize clients in terms of their field of study. This means that tuition cost is set for all students including those who do not study agriculture.

The general analysis drawn from this is that students are struggling to settle their accounts at the institutions of higher learning. The situation has a negative effect for new entrants who cannot prove to donors that they have the ability to succeed. Students, however, appear to be able to access loans and/or bursaries depending on their performance. For non-formal education, the resource poor farmers cannot afford to pay the courses. There was no small holder farmer surveyed, who attended the courses. They relied on extension services provided by extension officers, which they perceived, was not effective.

5.6 Admission requirements

There are standard admission requirements for all universities. Colleges also have similar standard requirements. Because there is no co-ordination between the demand side and the supply side, the potential clients are somehow excluded. For example, students may be admitted to the Faculty of Science in Agriculture, provided they did some foundation courses. These foundation courses are science subjects such as mathematics, physical science and biology. They did not include agriculture. Furthermore, these courses did not add credit points in the agricultural programmes, instead they increased study by one year.

Most schools combine agricultural subjects with general or social science related disciplines, as a package. In so doing, they deny relevant potential clients admission to science disciplines. This means the institutions of higher learning and high schools wrongly perceive agricultural subjects. High schools are the supply side for the institutions of higher learning. The institutions of higher learning are the supply side for the employment industries, e.g. the Government. Therefore, the majority of service providers, in particular educators and extension staff did not have admission requirements to pursue agriculture at university, after completing high school qualifications. Based on that, the admission requirement does not suit the potential clients. The main reason is that agriculture is not well-placed, particularly at high school level. This has further repercussions at the institutions of higher learning, like universities.

5.7 The resources and capacity of providers

There are different types of resources to effect agricultural education and training. These are human resources, physical resources, financial resources, inputs and facilities. Financial resources stemmed as the main resource, which was determining and limiting because all other resources heavily relied on it. Besides limiting other resources, it also constrains budgeting and achievement of desired objectives.

In terms of human resources and development, quality and commitment were major issues that emerged. Both management of extension and support raised these issues. Most of the staff across the province, believed that unavailability of motivational incentives within the agricultural sector, exacerbates the lack of commitment. Some of the incentives suggested, were the improvement of salaries and provision of appropriate facilities. The Government was ranked first and was followed by the banks as provider of the incentives mentioned. This means that unless something is done to improve the situation, training requirements of clients will not be met.

5.8 Conclusion/Summary

The teaching of agriculture at the institutions of higher learning is not well-tuned for the end-user or market requirements. This was the view of the end-users of the product from institutions. Furthermore, clients felt that the transition from learning situations to real life expectations needs more consideration. For instance, theory is more emphasized than practical in most institutions of higher learning. This is contrary to the fact that agriculture is a practical orientated subject.

There is a serious need to align course programmes in order to suit the needs of the potential clients. The ability of clients to sustain agricultural development is affected by many factors such as resources, socio-economic factors and the economy of the country. These factors have bearings on the effective provision of training because they influence the needs of target clients.

CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusion

The study shows that despite the high magnitude of providers of education and training institutions, many stakeholders are very independent. However, their independency does not benefit clients of agricultural development who are farmers, students, youth and employees. For example, farmers are influenced negatively by an inability of service providers to address their needs.

There was a big gap in terms of practical knowledge and skills in most providers of agricultural education and training. This gap was mostly related to the fact that the majority of clients did not have adequate access to resources to sustain agricultural development. The extension service or system in the province is faced with major problems, such as lack of commitment and little motivation from the staff. Educators at high schools also raised these problems. They also highlighted the fact that agriculture was not recognized as a major science subject by the Department of Education. Furthermore, there are no explicit policies and institutional arrangements to address agricultural education and training in a holistic way.

In most cases, communication was the major problem either between the institutions or within the institutions. For example, farmers were not aware of the strategy used by the Government and NGOs. In the Government's point of view, the development of the extension strategy is under consideration. The general view is that the Government department of agriculture should concentrate on providing efficient and effective extension services. For extension services to be effective, committed and dedicated staff must be properly managed extension personnel.

Farmers including youth need to have access to productive resources such as finance, water and land for agricultural purposes. Most farmers were concerned that they were categorized by scale size, such as small-scale farmers and this was not acceptable. The farmers preferred to be graded by the objective of their farming enterprises. Other stakeholders echoed this view as well and there is a need to redefine the farmer typology.

6.2 Recommendations

Some of the recommendations that follow, are being attended to, to a certain extent:

- 6.2.1 Since agriculture is very dynamic, private provision of training and facilities is beyond the means of most Africans. Therefore, the Government should play a meaningful role in this regard. Furthermore the Government should provide a firm linkage with other role players in this regard by developing a good communication strategy.
- 6.2.2 Farming is expensive and risky, and if responsibility is solely left to financial institutions and clients only, this is not adequate. Therefore, the Government has a role to play either through provision of subsidies or guarantees to safeguard against the adverse conditions that are beyond a farmer's control.
- 6.2.3 Programmes and courses provided by the providers of education and training should be re-designed after proper and effective communication with the potential clients. More so institutions need to redefine their clients in a way that was suitable and intended clients to reap benefits.
- 6.2.4 Financial institutions such as commercial banks, must also develop an effective communications strategy. This will assist the potential clients to access information on available products.
- 6.2.5 A body formed by stakeholders of agricultural education and training from the public and private sector should be established to co-ordinate training and implementation of strategy to be developed. Other functions that can be done by these bodies would be to explore the agricultural market opportunities and skills development opportunities. This will give formal and non-formal AET providers a forum to discuss their strengths and weaknesses. These will solve the problem of unnecessary duplication of activities at the expense of clients.
- 6.2.6 The current proposal to unite some of the institutions of higher learning is recommended, as it will solve the problem of quality of agricultural education and training. However, it is imminent that the effective monitoring and evaluation systems are in place.
- 6.2.7 Thorough research into effectiveness and efficacy of agricultural extension education (curricula) offered at tertiary level in South Africa is highly warranted. (Such research has been proposed by the Centre for Rural Development Systems, University of Natal, Pietermaritzburg and is awaiting funding).
- 6.2.8 The content of agricultural education programmes at all levels should be adapted to the practical needs of the country and adjust training to suit the requirements of a dynamic agricultural development.

- 6.2.9 Similar in-depth research into the training of agricultural educators at primary and secondary levels is also indicated in this study.
- 6.2.10 A system approach should be put in place to teach agricultural subjects together with other science subjects such as mathematics and physical science.

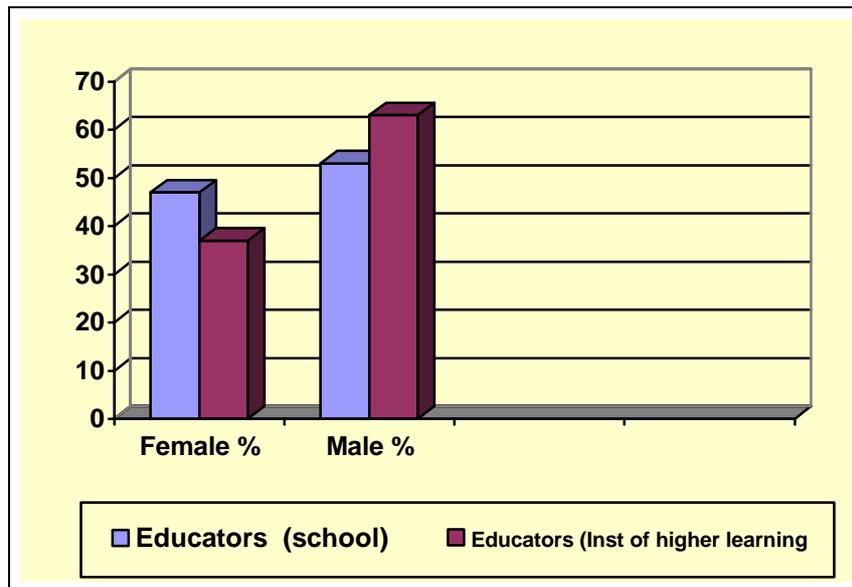
DATA REPORTING DETAILS

1. QUANTITATIVE DATA REPORT

1.1 Gender composition

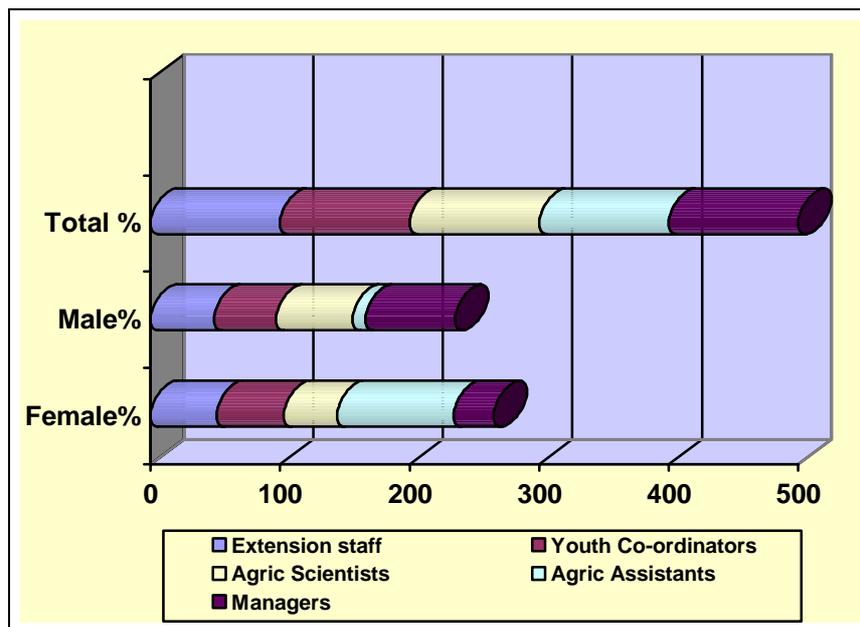
The gender composition of stakeholders of agricultural education and training were surveyed:

1.1.1 Educators



1.1.2 Government officials

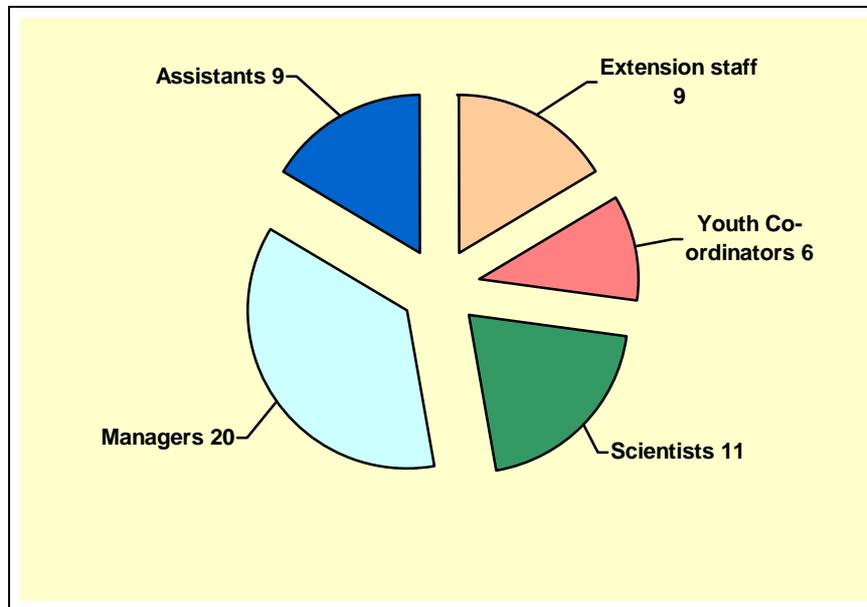
1.1.3



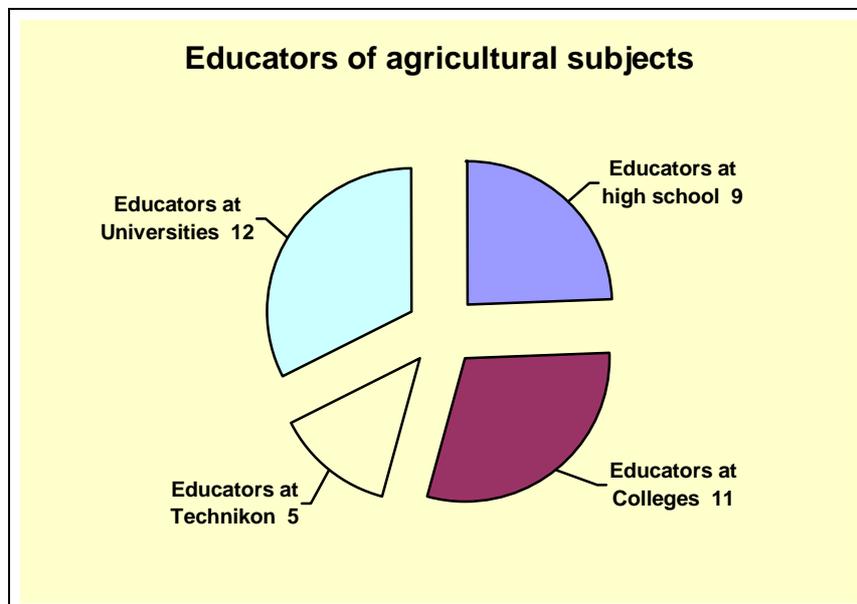
1.2 Experience

The average years of experience of surveyed respondents from stakeholders of education and training:

1.2.1 The government officials in extension services



1.2.2 Educators



1.3 Content subjects at school

Content subjects refer to the subjects, excluding languages, undertaken by individual respondents at matriculation level. Only subject groups undertaken by more than one percent of respondents

were entered into the report. Gender composition of respondents within the stakeholder group were included.

1.3.1 Respondent Group: Managers of Extension

| Grouping | Female % | Male % | Total % |
|--|-----------|-----------|------------|
| Group1: Pure Science and Light Science (Non-Science) Mathematics, Science, Biology/Geography | 8 | 11 | 19 |
| Group 2: Pure Earth Science Mathematics, Science, Agriculture, Biology/Geography | 6 | 13 | 19 |
| Group 3: Earth Science Agriculture, Mathematics Biology/Geography | 0 | 0 | 0 |
| Group 4: Commercial Earth Science Agriculture, Economics, Business Economics | 0 | 3 | 3 |
| Group 5: General Earth Science Agriculture, Biology, Geography/History/Business Economics | 8 | 34 | 42 |
| Group 6: Social Science Biology, History, Business Economics/Bibs/Geography | 6 | 11 | 17 |
| Group 7: Other | 0 | 0 | 0 |
| TOTAL (N = 36) | 31 | 69 | 100 |

1.3.2 Respondent Group: Educators (School)

| Grouping | Female % | Male % | Total % |
|---|-----------|-----------|------------|
| Group1: Pure Science Mathematics, Science, Biology/Geography | 3 | 13 | 16 |
| Group 2: Pure Earth Science Mathematics, Science, Agriculture, Biology/Geography | 6 | 4 | 10 |
| Group 3: Earth Science Agriculture, Mathematics Biology/Geography | 0 | 1 | 1 |
| Group 4: Commercial Earth Science Agriculture, Economics, Business Economics | 0 | 0 | 0 |
| Group 5: General Earth Science Agriculture, Biology, Geography/History/Business Economics | 36 | 30 | 66 |
| Group 6: Social Science Biology, History, Business Economics/Bibs/Geography | 1 | 3 | 4 |
| Group 7: Other | 1 | 2 | 3 |
| TOTAL (N = 94) | 47 | 53 | 100 |

1.3.3 Respondent Group: Managers of Extension

| Grouping | Female % | Male % | Total % |
|--|-----------|-----------|------------|
| Group1: Pure Science and Light Science (Non-Science) Mathematics, Science, biology/Geography | 10 | 4 | 14 |
| Group 2: Pure Earth Science Mathematics, Science, Agriculture, Biology/Geography | 0 | 0 | 0 |
| Group 3: Earth Science Agriculture, Mathematics Biology/Geography | 2 | 10 | 12 |
| Group 4: Commercial Earth Science Agriculture, Economics, Business Economics | 0 | 0 | 0 |
| Group 5: General Earth Science Agriculture, Biology, Geography/History/Business economics | 20 | 27 | 47 |
| Group 6: Social Science Biology, History, Business Economics/Bibs/Geography | 19 | 8 | 27 |
| Group 7: Other | 0 | 0 | 0 |
| TOTAL (N = 49) | 51 | 49 | 100 |

1.3.4 Respondent Group: Youth Co-ordinators

| Grouping | Female % | Male % | Total % |
|--|-----------|-----------|------------|
| Group1: Pure Science and Light Science (Non-Science) Mathematics, Science, biology/Geography | 23 | 10 | 33 |
| Group 2: Pure Earth Science Mathematics, Science, Agriculture, Biology/Geography | 0 | 5 | 5 |
| Group 3: Earth Science Agriculture, Mathematics Biology/Geography | 4 | 10 | 14 |
| Group 4: Commercial Earth Science Agriculture, Economics, Business Economics | 0 | 0 | 0 |
| Group 5: General Earth Science Agriculture, Biology, Geography/History/Business Economics | 5 | 14 | 19 |
| Group 6: Social Science Biology, History, Business Economics/Bibs/Geography | 19 | 10 | 29 |
| Group 7: Other | 0 | 0 | 0 |
| TOTAL (N = 21) | 52 | 48 | 100 |

1.3.5 Respondent Group: Agricultural Scientists/Support Staff

| Grouping | Female % | Male % | Total % |
|--|----------|--------|---------|
| Group1: Pure Science and Light Science (Non-Science) Mathematics, Science, biology/Geography | 17 | 42 | 59 |
| Group 2: Pure Earth Science Mathematics, Science, Agriculture, Biology/Geography | 0 | 0 | 0 |
| Group 3: Earth Science Agriculture, Mathematics Biology/Geography | 0 | 0 | 0 |
| Group 4: Commercial Earth Science Agriculture, Economics, Business Economics | 0 | 0 | 0 |
| Group 5: General Earth Science Agriculture, Biology, Geography/History/Business Economics | 12 | 12 | 24 |
| Group 6: Social Science Biology, History, Business Economics/Bibs/Geography | 11 | 6 | 17 |
| Group 7: Other | 0 | 0 | 0 |
| TOTAL N = 17 | 41 | 59 | 100 |

1.3.6 Respondent Group: Educators (Institutions of Higher Learning)

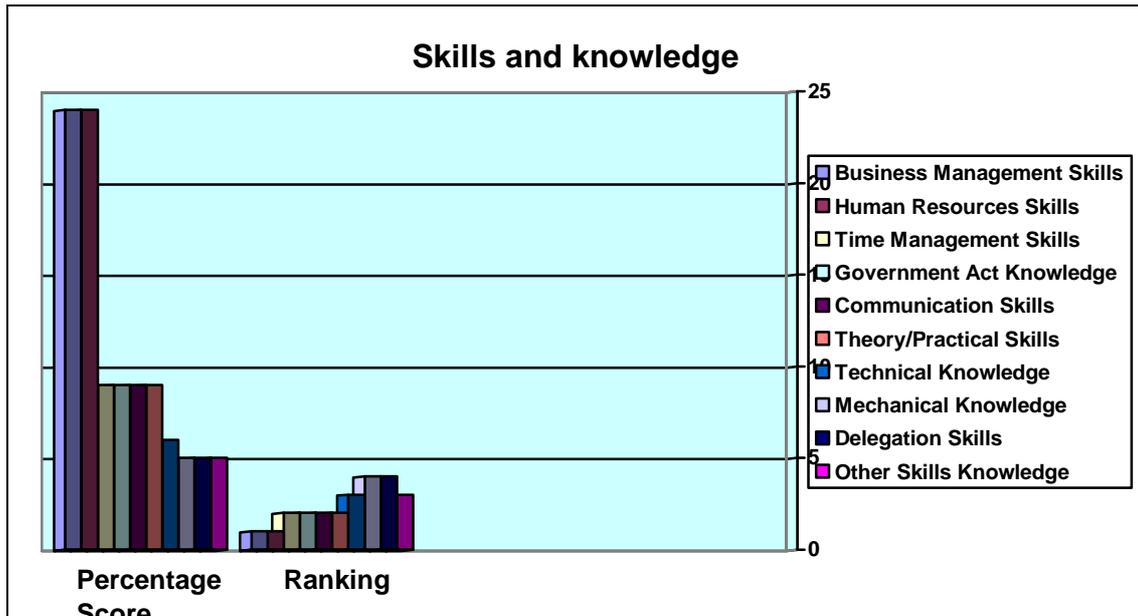
| Grouping | Female % | Male % | Total % |
|--|----------|--------|---------|
| Group1: Pure Science and Light Science (Non-Science) Mathematics, Science, biology/Geography | 26 | 51 | 77 |
| Group 2: Pure Earth Science Mathematics, Science, Agriculture, Biology/Geography | 0 | 4 | 4 |
| Group 3: Earth Science Agriculture, Mathematics Biology/Geography | 4 | 0 | 4 |
| Group 4: Commercial Earth Science Agriculture, Economics, Business Economics | 0 | 0 | 0 |
| Group 5: General Earth Science Agriculture, Biology, Geography/History/Business Economics | 7 | 4 | 11 |
| Group 6: Social Science Biology, History, Business Economics/Bibs/Geography | 0 | 4 | 4 |
| Group 7: Other | 0 | 0 | 0 |
| TOTAL N = 27 | 37 | 63 | 100 |

2. QUALITATIVE DATA REPORT

2.1 Knowledge/skills required by the stakeholder groups

2.1.1 Farmers Associations – Priority ranking of skills/knowledge

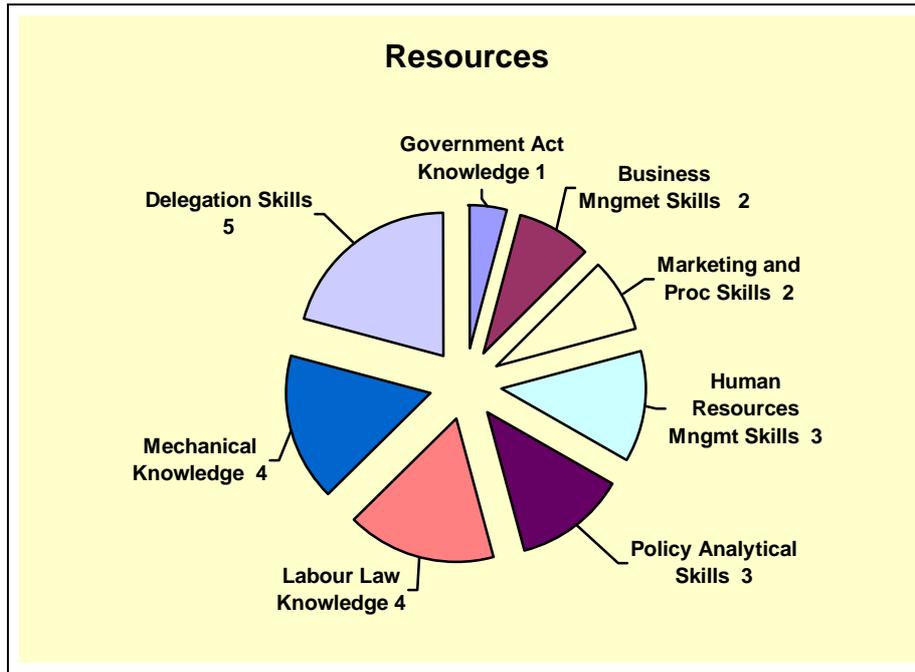
Priority ranking of Skills/Knowledge required by stakeholders are listed below:



Total responses = 56

2.1.2 Farmers/Associations – resources and facilities

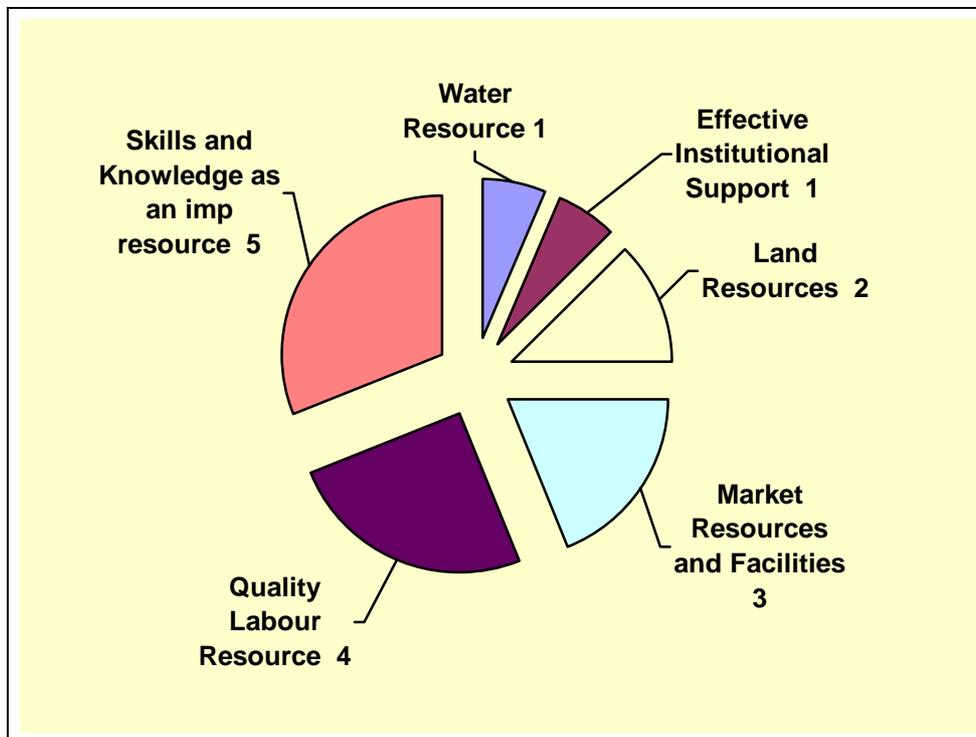
Resources and facilities that were limited or experienced shortages as perceived by the under-mentioned stakeholders in order of priority:



Total resources = 56

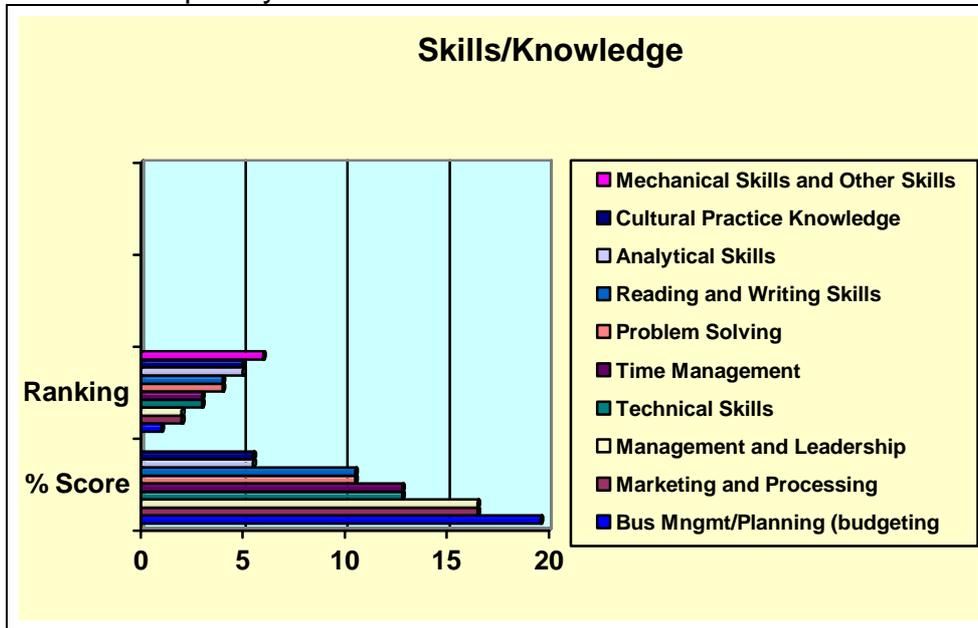
2.1.3 Farmers/Associations – limited resources and facilities

Resources and facilities that were limited or shortages that were perceived by the under-mentioned stakeholders in order of priority:



2.1.4 Commodity Group: Sugarcane – skills/knowledge

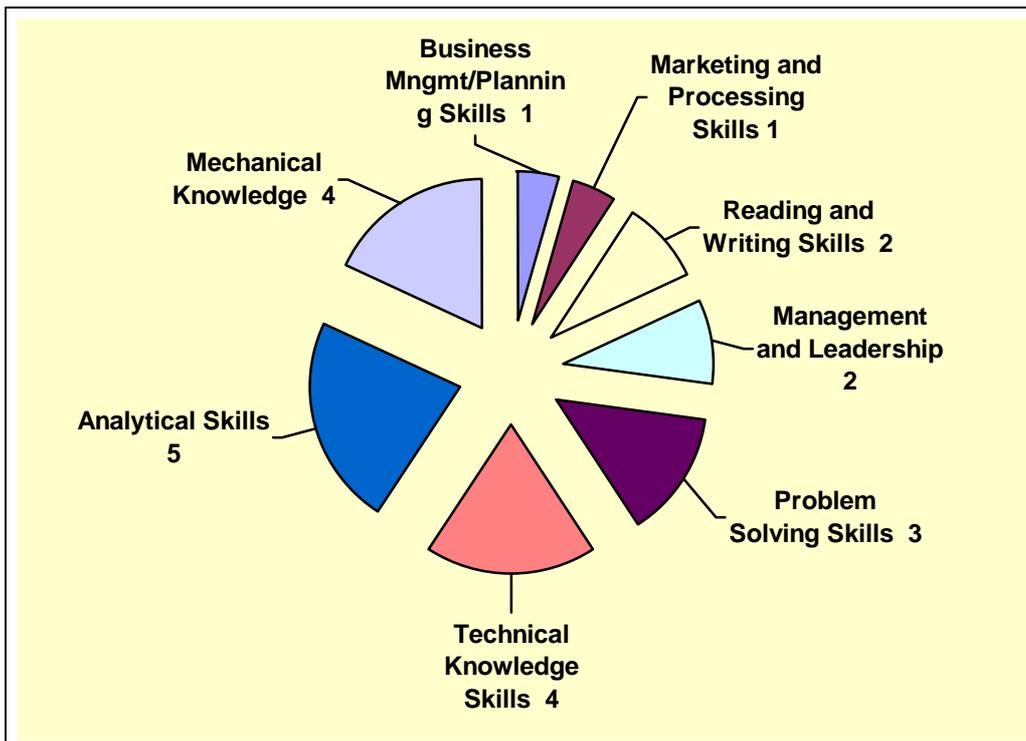
The skills/knowledge required by the under-mentioned stakeholders in order of priority:



Total responses = 49

2.1.5 Commodity Group: Sugarcane – limited skills/knowledge

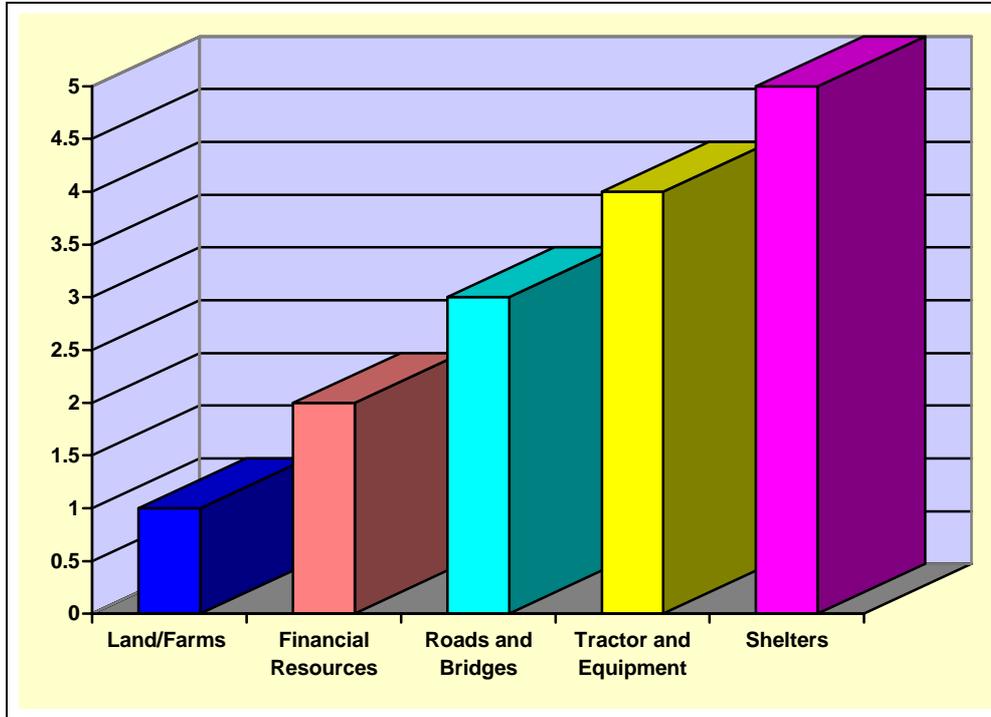
The skills and knowledge that were limited or shortages experienced as perceived by the under-mentioned stakeholders in order of priority:



Total responses = 49

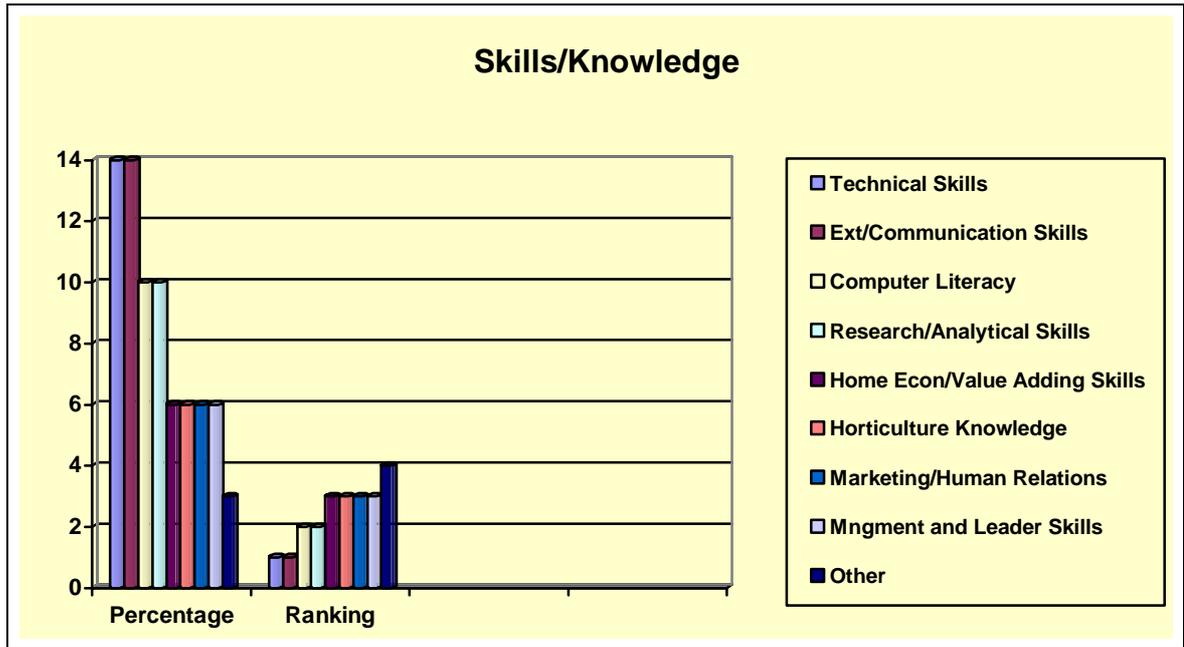
2.1.6 Commodity Group: Sugarcane – resources and facilities

The resources and facilities that were limited or were shortages were experienced as perceived by the under-mentioned stakeholders in order of priority.



2.1.7 Agricultural Scientist/Support Staff – Priority ranking of skills/knowledge

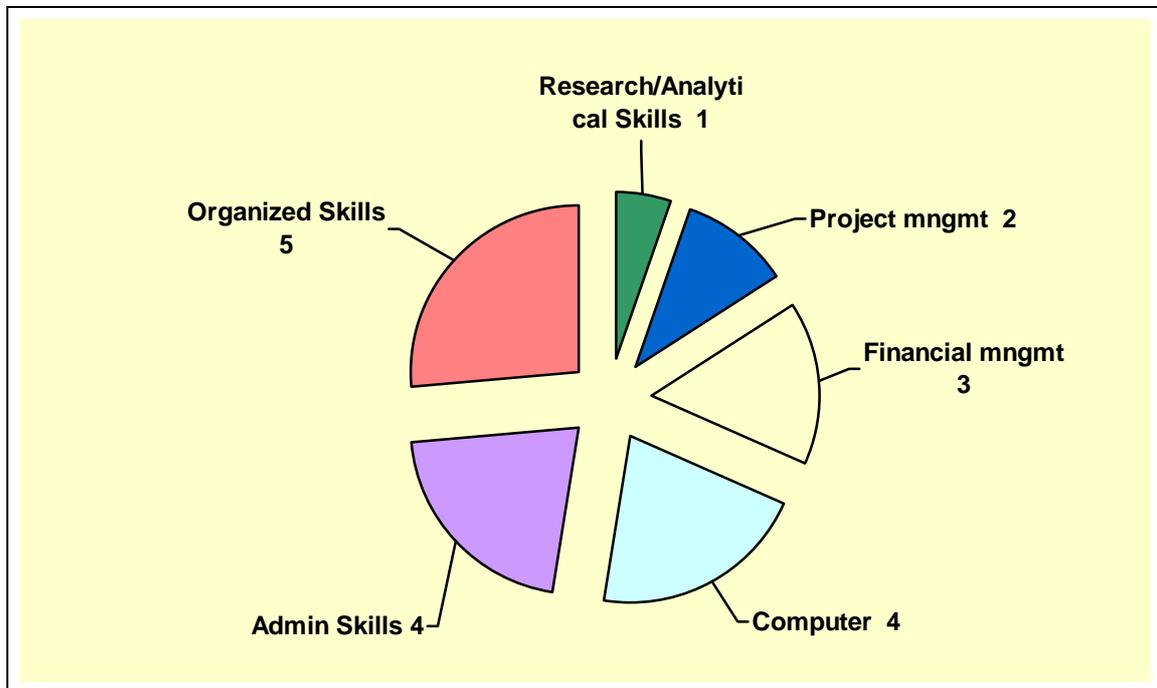
Priority ranking of skills/knowledge required by the under-mentioned stakeholders:



Total response = 29

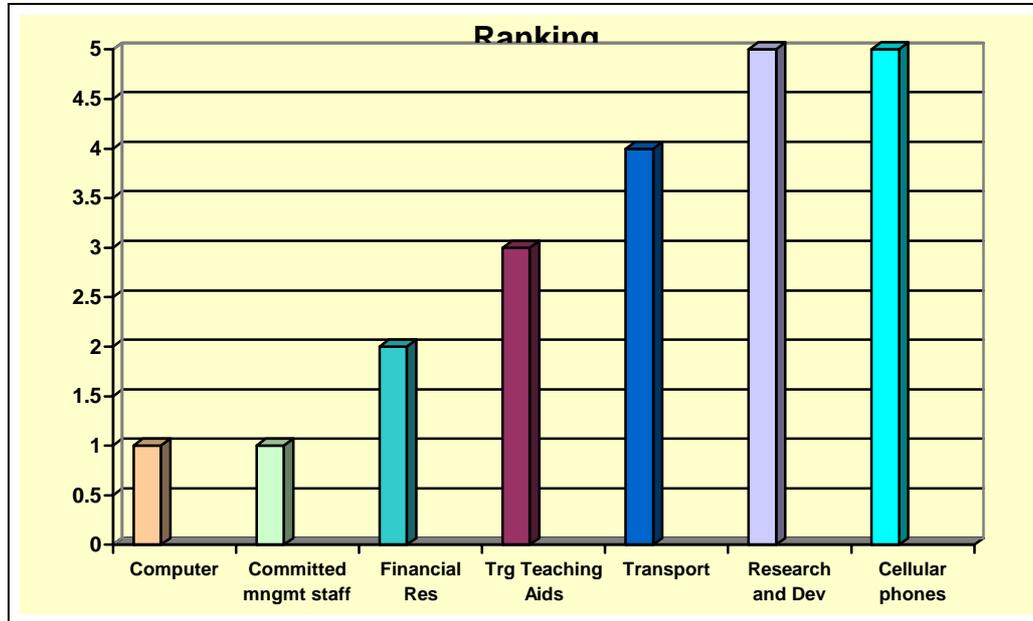
2.1.8 Agricultural Scientists/Support staff – limited skills/knowledge

Skills/Knowledge that were limited or a shortage was perceived by the under-mentioned stakeholders in order of priority:



2.1.9 Agricultural Scientists/Support staff – resources and facilities

The resources and facilities that were limited or shortage as perceived by the under-mentioned stakeholders in order of priority:



2.1.10 Extension staff – priority ranking of skills/knowledge

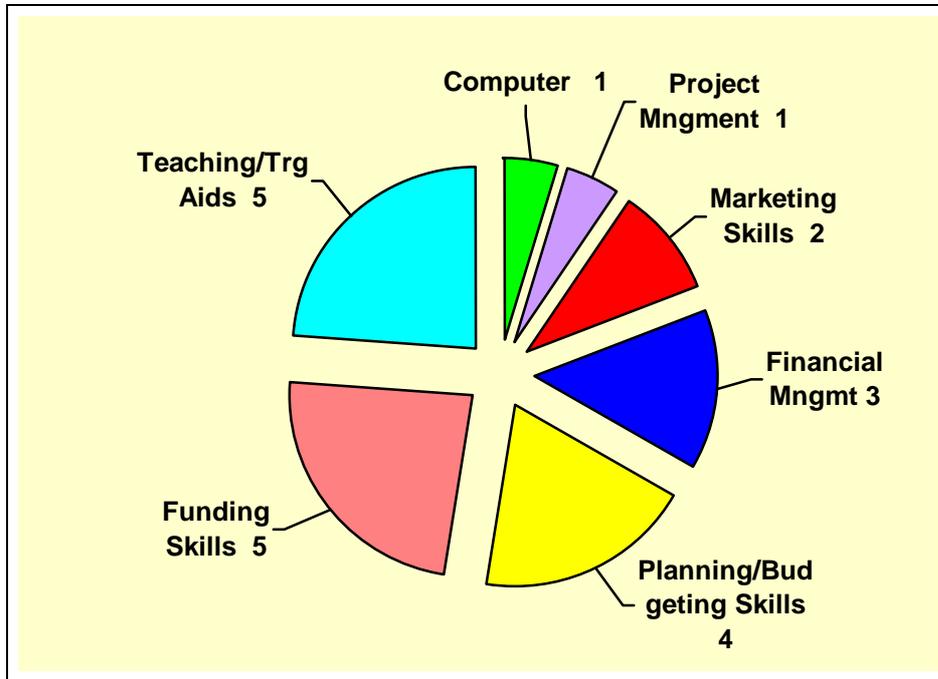
Priority ranking of skills/knowledge required by under-mentioned stakeholders:

| Skills/Knowledge | Percentage Score | Ranking |
|-----------------------------------|------------------|---------|
| Extension/Communication Skills | 10 | 1 |
| Marketing/Human Relations | 10 | 1 |
| Management/Leadership | 10 | 1 |
| Business Management (Agriculture) | 9 | 2 |
| Computer Literacy | 9 | 2 |
| Planning/Budgeting | 9 | 2 |
| Technical Knowledge | 7 | 3 |
| Project/Resource Management | 7 | 3 |
| Research/Analytical | 6 | 4 |
| Demonstration/Presentation | 6 | 4 |
| Other | 6 | 6 |

Total responses = 67

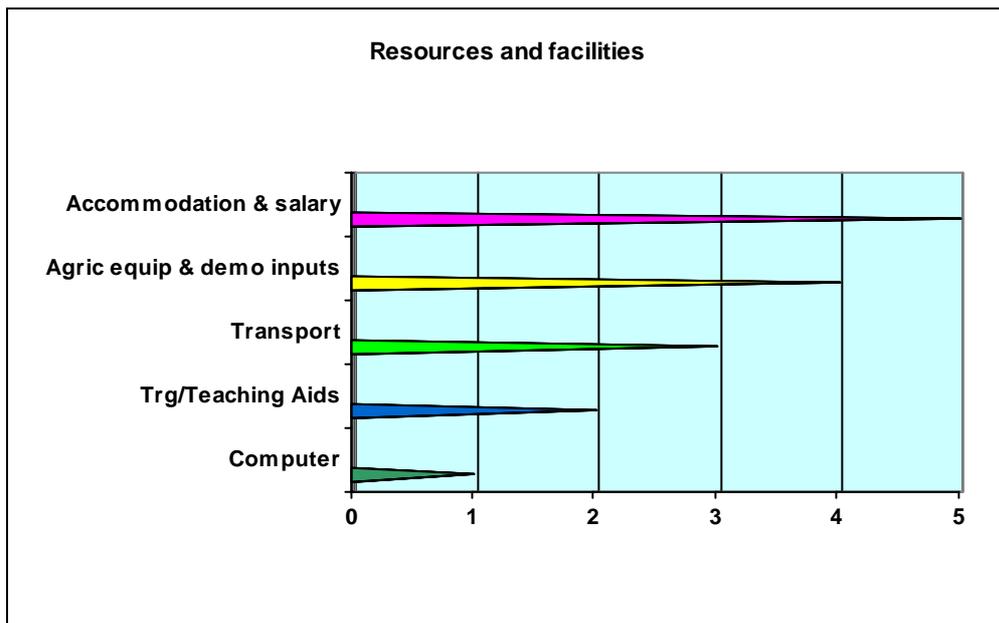
2.1.10 Extension Staff – limited skills/knowledge

Skills and knowledge that were limited or were shortages were experience by the under-mentioned stakeholders in order of priority:



2.1.11 Extension Staff – resources and facilities

Resources and facilities that were limited or were shortages were experienced by the under-mentioned stakeholders in order of priority:



2.1.12 Youth-in-Agriculture (out-of-school youth) – priority ranking

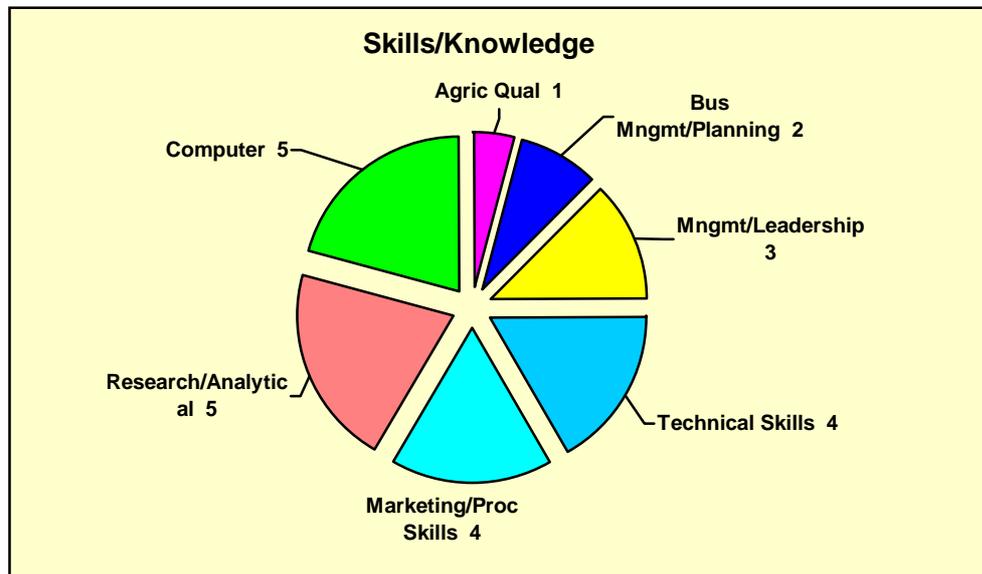
Priority ranking of skills/knowledge required by the under-mentioned stakeholders:

| Skills/Knowledge | Percentage Score | Ranking |
|--|------------------|---------|
| Agricultural skills | 15.2 | 1 |
| Business Management/Planning (Agriculture) | 13.0 | 2 |
| Communication Skills | 13.0 | 2 |
| Technical Skills | 10.8 | 3 |
| Marketing/Processing Skills | 10.8 | 3 |
| Agricultural Qualifications | 8.6 | 4 |
| Management/Leadership | 8.6 | 4 |
| Computer Literacy | 6.5 | 5 |
| Research Analytical | 6.5 | 5 |
| Other | 6.5 | 6 |

Total respondents = 46

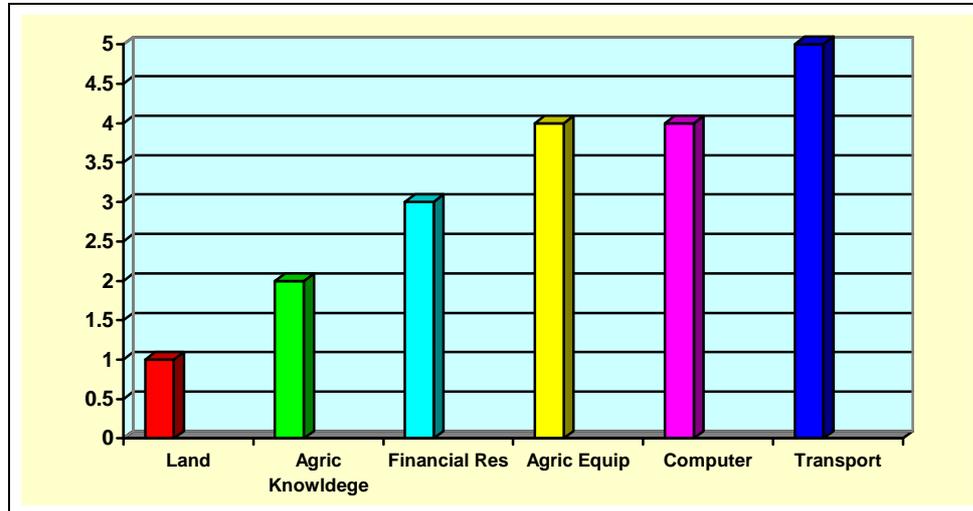
2.1.13 Youth-in-Agriculture (out-of-school youth) – limited skills/knowledge

Skills and knowledge that were limited or were shortages were experienced by the under-mentioned stakeholders in order of priority:



2.1.14 Youth-in-Agriculture (out-of-school youth) – resources and facilities

Resources and facilities that were limited or were shortages were perceived by the under-mentioned stakeholders in order of priority:



2.1.14 Extension Managers – Priority ranking of skills/knowledge

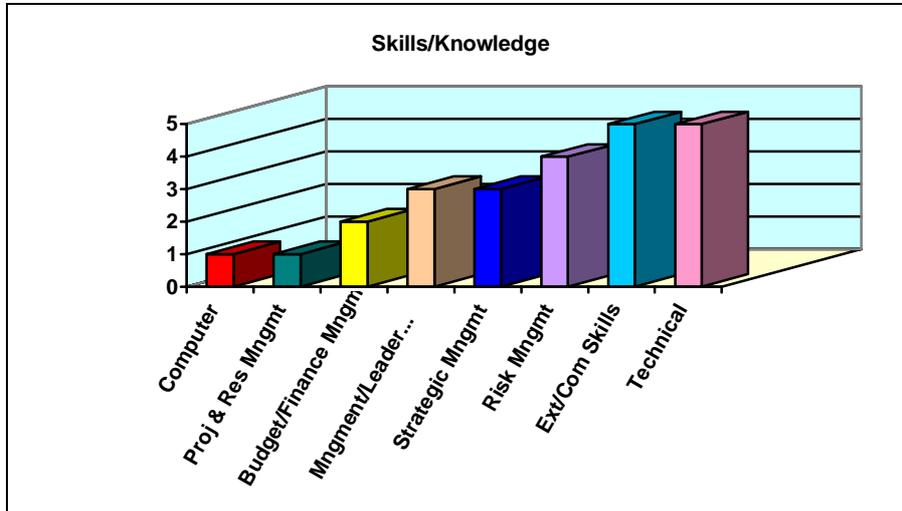
Priority ranking of skills/knowledge required by under-mentioned stakeholders:

| Skills/Knowledge | Percentage Score | Ranking |
|--------------------------------|------------------|---------|
| Extension/Communication Skills | 12.8 | 1 |
| Management/Leadership | 8.9 | 2 |
| Project/Resource Management | 7.7 | 3 |
| Budget/Finance Management | 7.7 | 3 |
| Strategic Management | 7.7 | 3 |
| Computer Literacy | 7.7 | 3 |
| Technical Knowledge | 6.4 | 4 |
| Agricultural Laws/Policies | 5.1 | 5 |
| Marketing/Human Relations | 5.1 | 5 |
| Procurement/Operational | 5.1 | 5 |
| Training/Teaching Aids Skills | 3.8 | 6 |
| Formal Qualifications | 2.5 | 7 |
| Time/Stress Management | 2.5 | 7 |
| Group Dynamics/Problem Solving | 2.5 | 7 |
| Labour Relations | 2.5 | 7 |
| Other | 2.5 | 8 |

Total respondents = 78

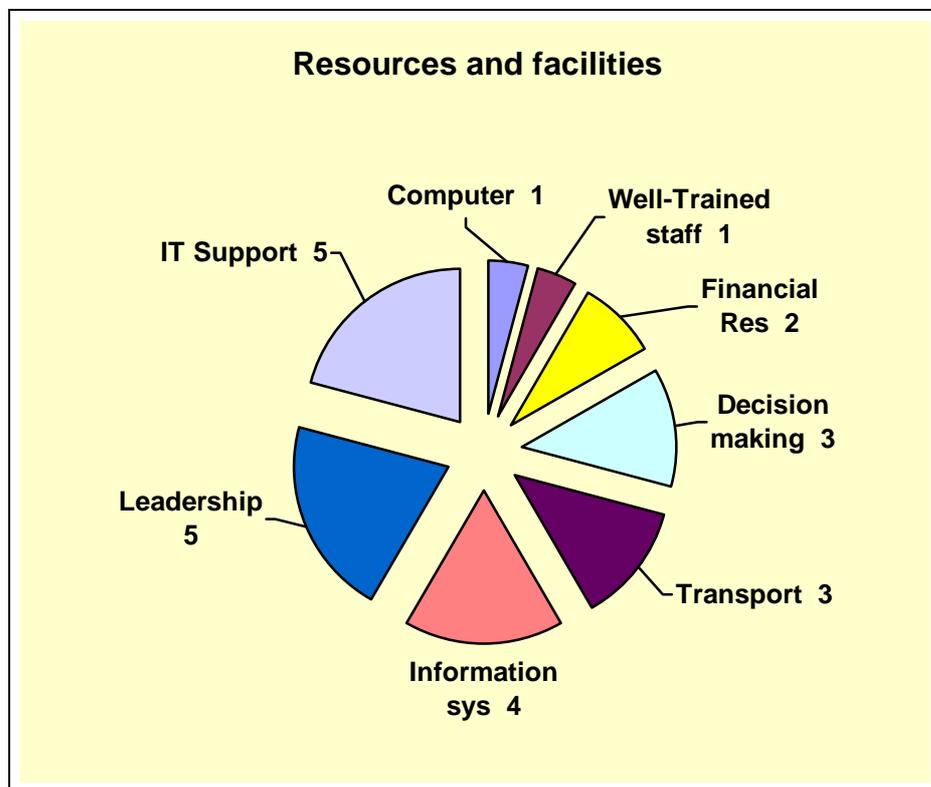
2.1.15 Extension Managers – limited skills/knowledge

Skills/Knowledge that were limited or were shortages were experienced by the under-mentioned stakeholders in order of priority:



2.1.16 Extension Managers – resources and facilities

Resources and facilities that were limited or were shortages were experienced by the under-mentioned stakeholders in order of priority:



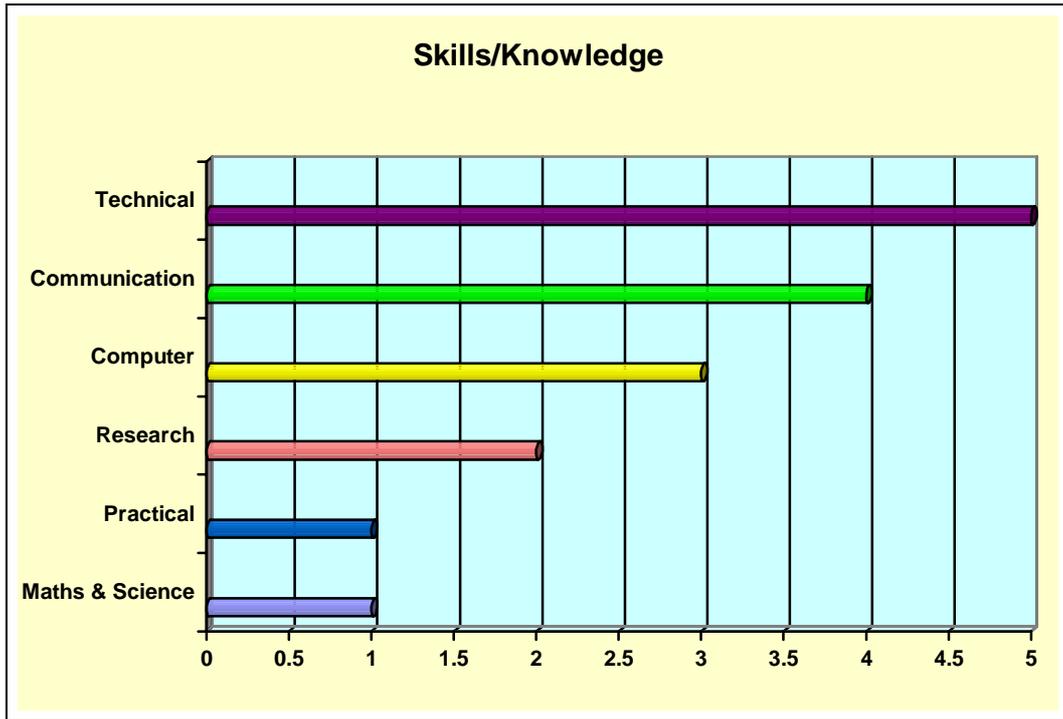
2.1.17 Educators of Agriculture – priority ranking of skills/knowledge

| Skills/Knowledge | Percentage Score | Ranking |
|-------------------------|-------------------------|----------------|
| Research | 15 | 1 |
| Practical Skills | 15 | 1 |
| Technical Knowledge | 9 | 2 |
| Communication | 9 | 2 |
| Theoretical Knowledge | 6 | 3 |
| Observation Skills | 6 | 3 |
| Computer Literacy | 4 | 4 |
| Mathematics and Science | 4 | 4 |
| Demonstration Skills | 4 | 4 |
| Interpretation Skills | 4 | 4 |
| Other | 2 | 5 |

Total respondents = 44

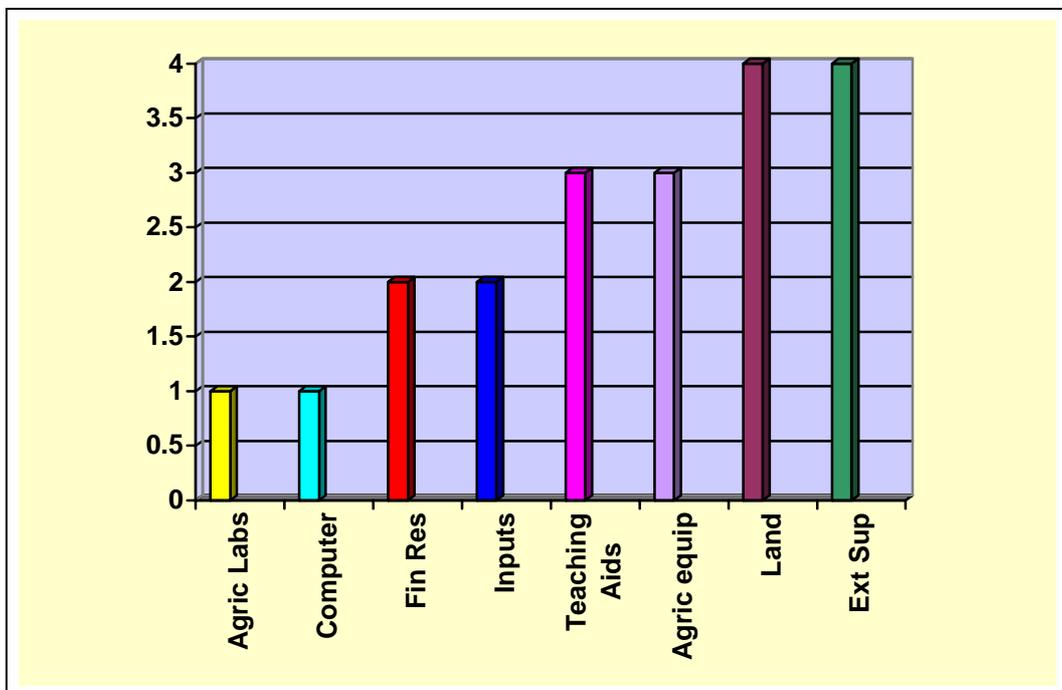
2.1.18 Educators of Agriculture (High Schools) – limited skills/knowledge

Skills/Knowledge that were limited or were shortages were perceived by the under-mentioned stakeholders in order of priority:



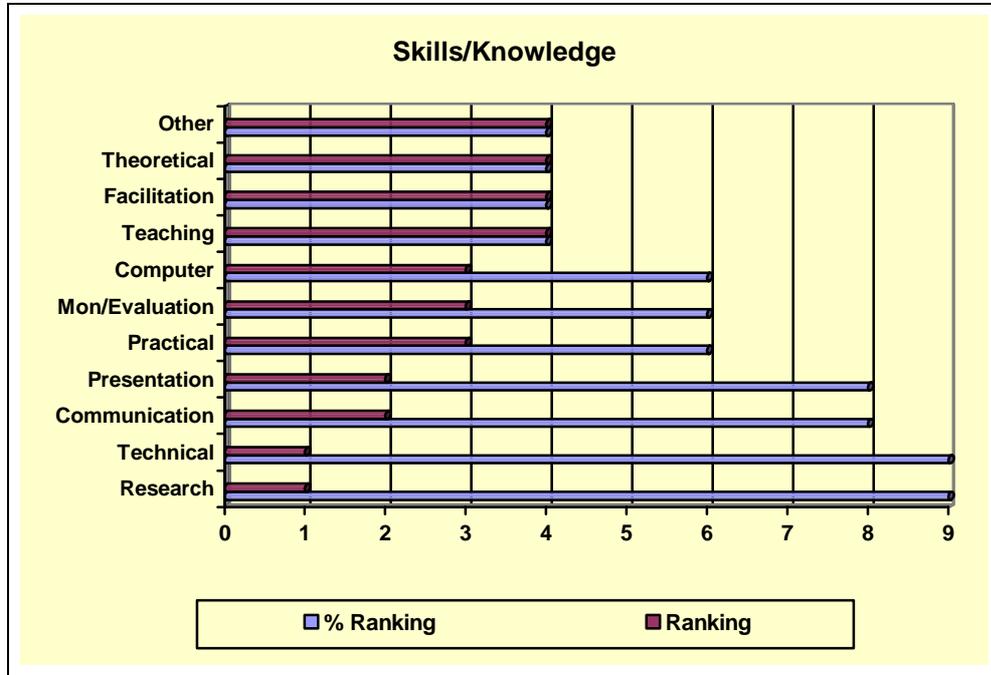
2.1.19 Educators of Agriculture (High Schools) – resources and facilities

Resources and facilities that were limited or were shortages were perceived by the under-mentioned stakeholders in order of priority.



2.1.20 Educators of Agriculture (Higher Learning Institutions) – priority ranking of skills/knowledge

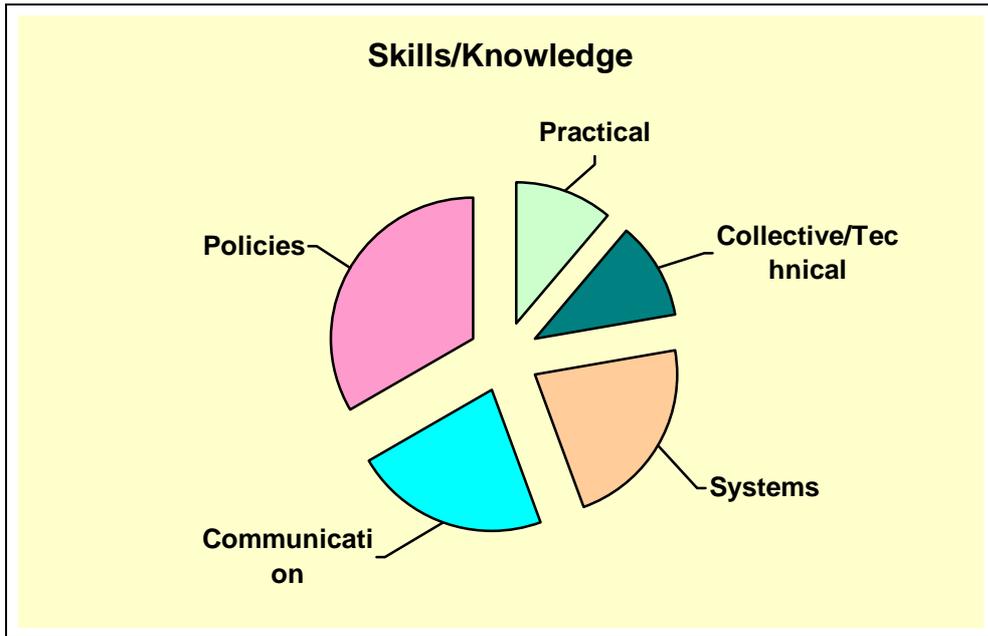
Priority ranking of skills/knowledge required by under-mentioned stakeholders:



Total responses = 44

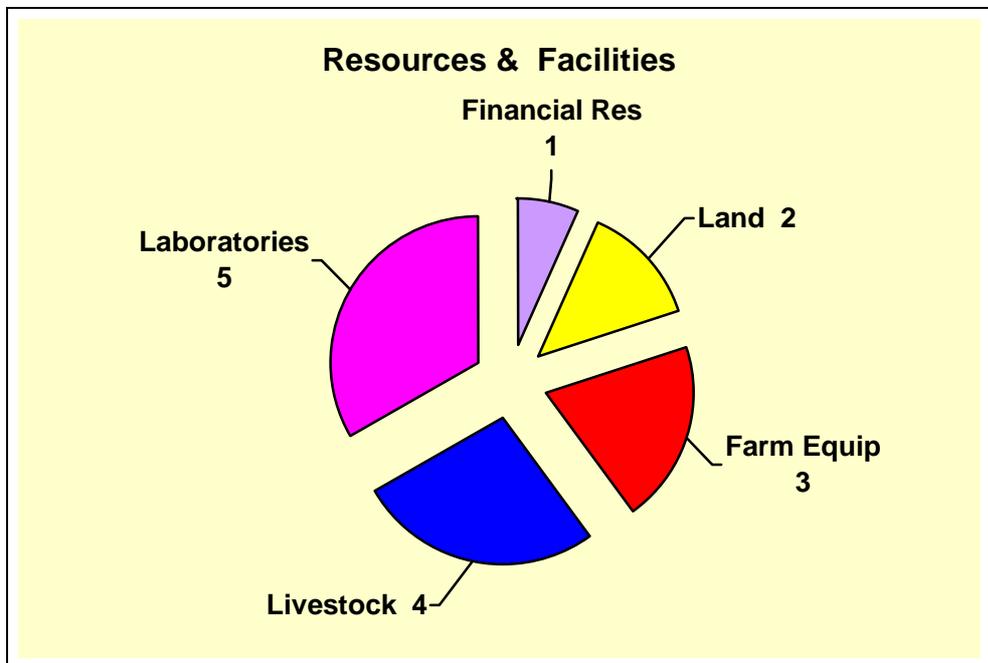
2.1.20 Educators of Agriculture (Higher Learning Institutions) – limited skills/knowledge

Skills/Knowledge that were limited or were shortages were perceived by the under-mentioned stakeholders in order of priority:



2.1.21 Educators of Agriculture (Higher Learning Institutions – resources and facilities

Resources and facilities that were limited or were shortages were perceived by the under-mentioned stakeholders in order of priority:



2.1.21 Students of Higher Learning – priority ranking of skills/knowledge

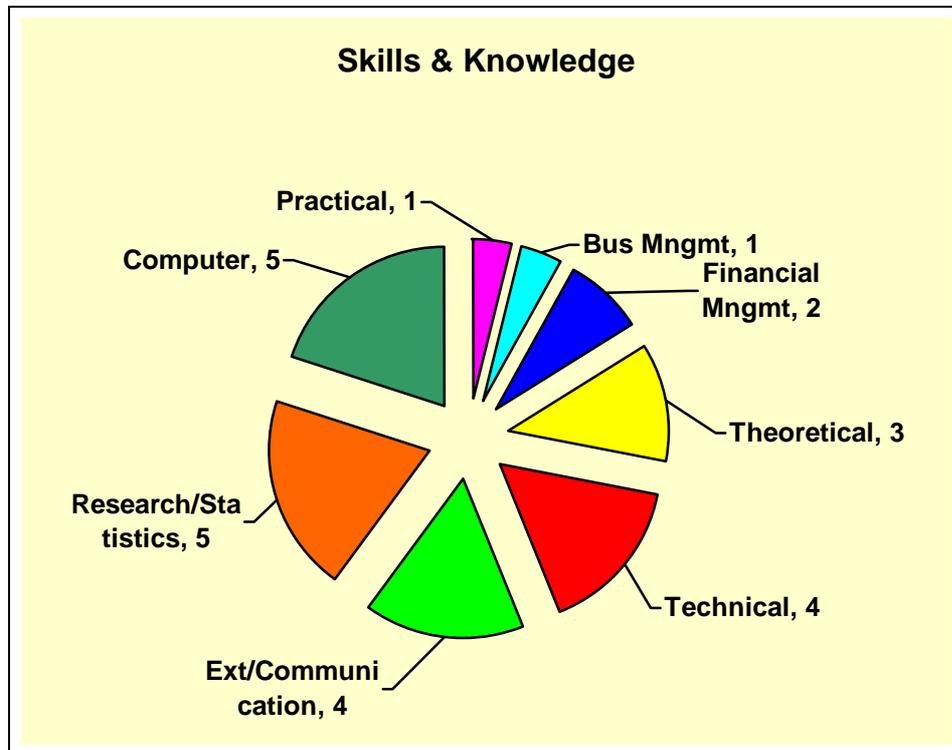
Priority ranking of skills/knowledge required by the under-mentioned stakeholders:

| Skills/Knowledge | Percentage Score | Ranking |
|-----------------------------|------------------|---------|
| Agricultural Qualification | 10.2 | 1 |
| Mathematics and Science | 10.2 | 1 |
| Theoretical Knowledge | 8.2 | 2 |
| Practical Knowledge | 8.2 | 2 |
| Communication Skills | 8.2 | 2 |
| Technical Skills | 6.2 | 3 |
| Business Management (Agric) | 6.1 | 3 |
| Extension Knowledge | 6.1 | 3 |
| Computer Literacy | 6.1 | 3 |
| Marketing | 6.1 | 3 |
| Reading/Listening Skills | 4.1 | 4 |
| Financial Management | 4.1 | 4 |
| Mechanical Skills | 4.1 | 4 |
| Statistics/Other | 2..0 | 5 |

Total respondents = 49

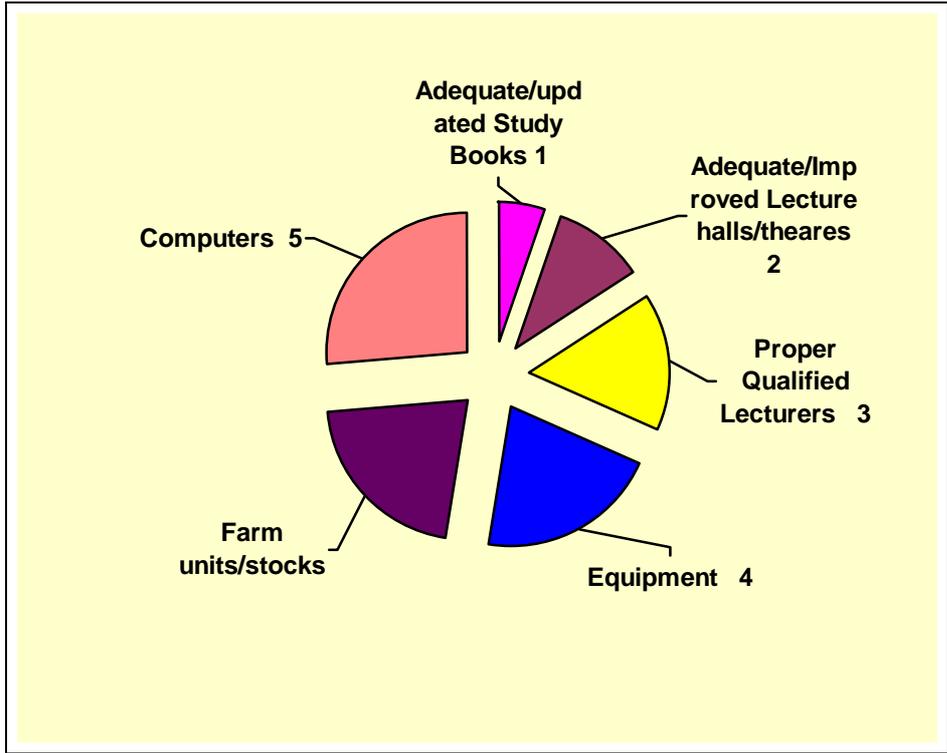
2.1.22 Students of Institutions of Higher Learning – limited skills/knowledge

Skills/knowledge that were limited or were shortages were perceived by the under-mentioned stakeholders in order of priority:



2.1.23 Students of Institutions of Higher Learning – resources and facilities

Resources and facilities that were limited or were shortages were perceived by the under-mentioned stakeholders in order of priority:



APPENDIX 3

**AGRICULTURAL EDUCATION AND TRAINING
IN KWAZULU-NATAL (KZN)**

DETAILED REPORT FOR THE:

**NORTH
AND
NORTH WEST
REGIONS**

**Prepared by B Dladla
KZN Department of Agriculture and Environmental Affairs**

NOVEMBER 2002

APPENDIX 3

CHAPTER 1: INTRODUCTION

1.1 Introduction

This report has been 12 months in the making, following the programme as outlined by the National formulation. The PAETTT in KZN has been driven primarily by the Provincial Department of Agriculture and Environmental Affairs, through the PAETTT Provincial Research Officer, with support in the final write-up from the Centre for Rural Development Systems at the University of Natal, Pietermaritzburg.

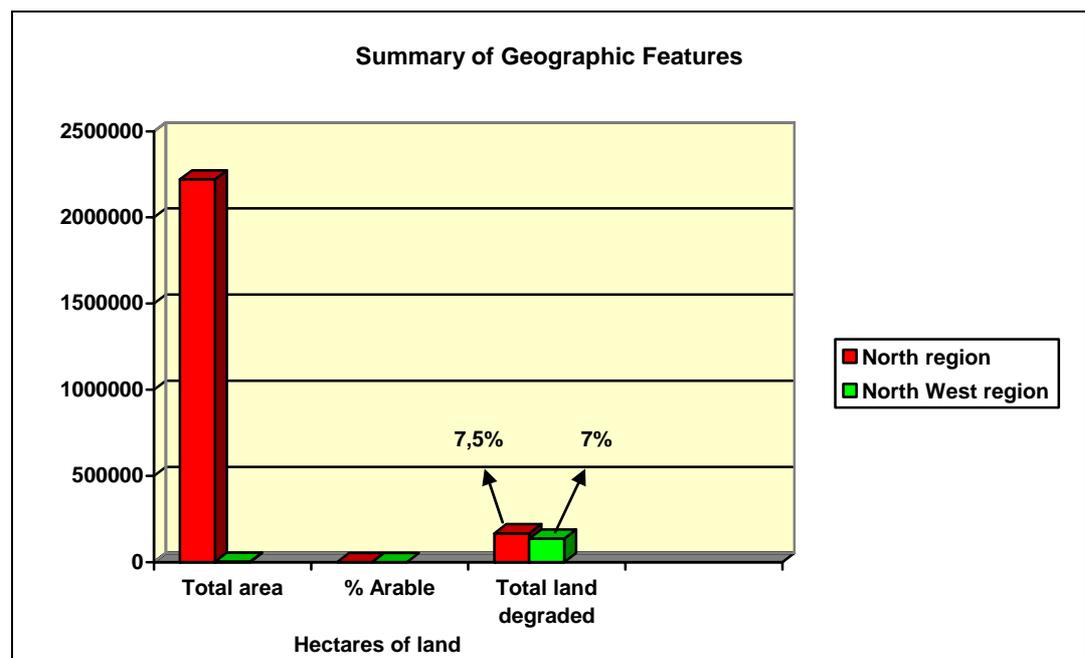
This section of the report provides details on the research and findings of the North and North West regions of the Department of Agriculture and Environmental Affairs.

1.2 Description of study Areas: North and North West regions of KZN

1.2.1 Geographic information

About 45% of KZN land is occupied by the North and North West regions. It is where the highest percentage of livestock production in KZN is concentrated. Sub-tropical crops are suitable for these areas. The two regions are faced with a serious problem of land degradation, focused programmes, to address land degradation where required.

Summary of the geographic features of the two regions



Source: Bio-resource Unite: Cedara

Demographic features of the North and North West regions

| Features | North Region | North West Region |
|--------------|--------------|-------------------|
| Population | 1 022 984 | 869 262 |
| Unemployment | 6% | 5% |

Source: Municipal Demarcation Board 1996 Census Report in SA Explorer.

According to the above-mentioned statistics the population in the two regions constituted 23% of the total KwaZulu Natal population. The highest percentage of population in this regions was in the age categories 5-19 and 30-49 year old (SA Explorer, 1996).

There were about nine hundred commercial farmers in the North Region concentrated in Vryheid, Ngotshe and Paulpietersburg Districts. No statistics were obtained for commercial farmers in the North West region during the period of study (Provincial Department of Agriculture Annual Report (1999-2000)).

The majority of farmers in the developing sector, farmed as groups and were producing vegetables. According to 1999/2000 statistics there were about five hundred and forty (540) community gardens in the North and two-hundred and twenty-two (222) in the North West region.

The Department of Agriculture was the main service provider in these two regions.

1.2.2 Population of the study

The population of the study consisted of the following:

- Farmers: Commercial and emerging farmers
- Extension workers from the Government Department of Agriculture (technicians and agricultural assistants)
- Managers: Agricultural extension managers from the Department of Agriculture
- Manager from non-governmental organizations operating and based in the North and North West Region.

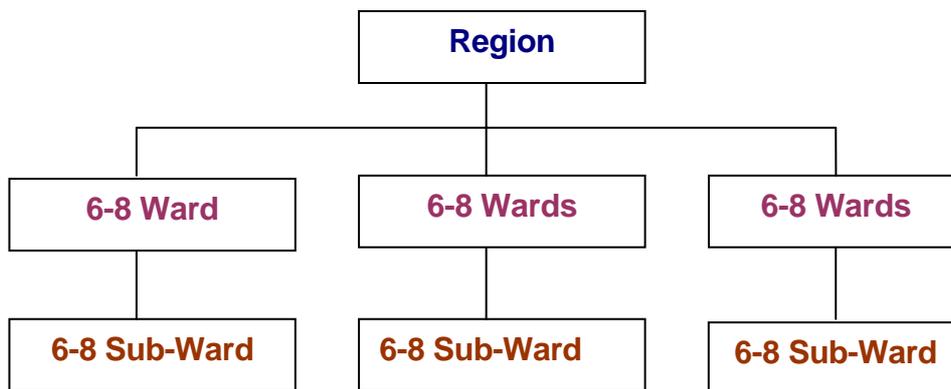
1.2.3 Sampling Frame

Firstly, the study used purposive methods of sampling the criteria used to select these regions for study, since the North and North West regions were the regions in KZN that did not have big industries and big cities to absorb people. Secondly, it is where the majority of deep rural areas are located especially in the North region.

The Department of Agriculture was the main service provider in these regions therefore the study purposefully selected extension staff and extension managers in the region.

Selection of study areas was done in consultation with the regional extension management in two regions. District extension staff and district farmer associations were consulted to organize farmer studies.

Each region had six districts and under districts were wards and sub-wards. This is clearly illustrated in the structure below:



Four districts per region were selected for study according to the types of farmers and commodities.

Sampling was done as follows:

1.2.3.1 Farmers

Commercial and emergent farmers were selected for study. During the time of study there was no adopted definition of a farmer in the province. For the purpose of the study, commercial farmers were defined as those farmers who produce for selling and operate in the formal market. Emergent farmers were those farmers who produced for selling, but lacked the resources and organized markets. In this category were also farmers who produced for household purposes and sold if there was a surplus.

The targeted sample for emergent farmers was three hundred (150 per region). Final sample was one hundred and seventy-nine (179). One district per region was targeted for commercial farmers. Targeted sample was twenty (ten per region) final sample was seven.

1.2.3.2 Extension staff

Extension staff, in the selected districts for farmers, were targeted. Two districts were added (one per region) this was done for the sake of representatives of the sample for the extension staff.

The sample for the extension staff consisted technicians in different fields and agricultural assistant staff. The targeted sample was one hundred (fifty per region). The final sample was one hundred and three.

1.2.3.3 Extension managers

The sample for managers consisted of district and regional extension managers. All the districts and regional extension managers for the Department were targeted for the study. Targeted sample was twenty-two. The final sample was fifteen.

1.2.3.3 Non-Governmental organizations

Managers for rural development were targeted for study. Sample size was two.

1.3.6 Data Collection

Questionnaires, group discussions and interviews were used to collect data. These methods were used to compliment each other in serving the objectives of the study. Questionnaires were used to collect quantitative data. Group discussions and interviews were used to collect qualitative data. For group discussions structured discussion guides were used to keep groups focused on the objectives of the study. Semi-structured interview guides were used for interviews.

1.3.6 Data Collection Process

From February to March 2002 activities involved development of questionnaires, holding and planning meetings with the following stakeholders:

- Regional managers
- District heads and staff
- District farmer Associations

Data collection was undertaken from March to June 2002. A total of thirteen workshops were organized in different regions and districts. Six workshops were organized for emergent farmers. The farms were from different wards and sub-wards in the districts. Five workshops were for the extension staff and two for extension managers.

Commercial farmers were visited individually at their farms for interviews.

1.3.7 Data Analysis

Questionnaires were analyzed using quantitative data analysis methodologies. This involved using a computer programme. Qualitative data was not analyzed quantitatively because of the methodology used to collect data. The overall objective of the study was not to reach consensus, but to generate perceptions and opinions. Data collected from different groups was organized according to study objectives, analyzed and compared. Similar views were group together then conclusions were drawn.

1.4 Outline of areas covered by the report

- | | |
|------------|---|
| Chapter 1: | Gives the background, purpose and the methodology for the study. |
| Chapter 2: | Provides an overview of the agricultural sector in KZN province as well as the challenges and implications of development needs on agricultural education and training. |
| Chapter 3: | Education and training needs for Agriculture in Rural Development. |
| Chapter 4: | Conclusions and recommendations. |

CHAPTER 2: AN OVERVIEW OF THE AGRICULTURAL SECTOR IN KZN**2.1 Introduction**

This chapter provides an overview of the agricultural sector in KZN. It looks at geographic and demographic features of the province, agricultural and non-agricultural activities that rural communities were involved in. Agricultural education and training in the province is explored, specifically an overview of providers of agricultural education and training. Lastly, the resulting implications that these factors have at National, Provincial and Global level, as well as for agricultural education and training, are far reaching.

2.2 Geographic features

KZN province lies between the Indian Ocean and the great Drakensberg Escarpment. The province occupies 8% of the South African geographic area and is the third smallest province in terms of size when it is compared to Gauteng and Mpumalanga Province.

The total area for KZN land is 9 210 000 hectares. Only 12% of KZN land is arable. About 8% of the land in KZN is degraded as a result of inappropriate and uncontrolled land uses (Bio-Resource Unit, Cedara).

KZN has three climate zones, 1% tropical, 44% sub-tropical and 55% temperate. There are fourteen river catchments and diverse vegetation which consists of about twenty-three (23) groups. Average annual rainfall is between 600 and 2000 mm.

KZN Province is said to have the greatest agricultural potential of all South Africa due to its diversity of natural resources.

2.3 Demographic features

KZN is the highest populated province in South Africa. According to 1996 census, 20,7% of the total South African population was living in KZN.

In 1996 the population was 8,4 million, with a growth rate estimated at 2,18% per annum (South African Yearbook, 1999). With the prevalence of the HIV/Aids epidemic the size of the population might have decreased not increased.

The higher percentage of the population in KZN was living in the rural areas. From 1980 to 1991 there has been a decrease in the rural population. In 1980 the rural population was estimated at 68% and in 1991 dropped to 62% (KTT Publication and KwaZulu-Natal Province Report Presented at the fifth International Programme on Strategies for Sustainable Agriculture and Rural Development).

In 1995 about 52% of the population was considered functionally urbanized. It is expected that by the year 2020, 60% of the people would be living in urban areas (Andrew Donvard, et al 2001).

This is an indication of the urbanization trend. In 1987 the population in informal settlements around Durban was said to be 1 731 562. This figure is for Durban only and does not include other cities in KZN. This means if they can be included the figure might double or triple.

In 1996 the unemployment rate at KZN was estimated at 25,6%. Lack of employment opportunities in the rural areas was the course of rapid urbanization in the province.

About 23% of adults in the province have received no schooling, therefore the economy in the province experienced a shortage of skilled human resources.

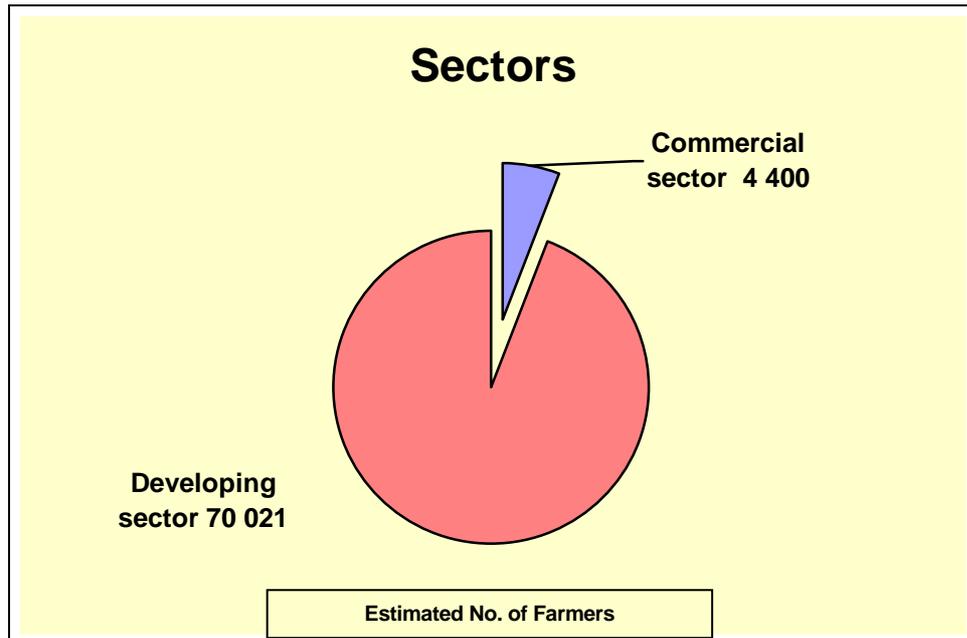
Skills shortage issues in KZN were also revealed in the study conducted by KZN Training Trust in 1988. The findings were that the majority of Africans in the province lacked skills. This resulted in their poor representation in financial and business sectors, managerial and executive positions. In addition there were few Africans in professional, semi-professional and technical occupations.

Dr A Pittendrigh et al recommended that a massive training initiative be implemented in the province which will concentrate on giving people the marketable skills required in the formal and informal sectors.

Recommendations were also made that entrepreneurial training schemes be launched with a facilitating agency responsible for market analysis, selection and training of people, to enable them to meet market needs.

2.3.1 Type of farmers in KZN

Agriculture in KZN operates in a dualistic nature. There is a well-developed commercial sector and a poorly developed sector of which the majority are African women in rural areas who mainly practice subsistence farming. The table below shows the estimated number of farmers in different sectors in the province.



Source: Provincial Department of Agriculture Annual Report for 1999/2000

Although the number for farmers in the developing sector is big, they are said to produce below subsistence level. Most of the farms in the developing sector farm as groups in community gardens and the majority produce vegetables. According to the annual report for KDA about 53 740 emerging farmers were producing vegetable in community gardens.

The number of commercial farmers is smaller than those for developing farmers. They cover a big area of production, thus a higher level of agricultural production. Most of them farm as families and operate in their individual farms.

Agricultural production in the developing sector has been found to provide only supplementary earnings, the bulk of the household earnings being derived from migrant remittances, informal trading and from the State pensions. This has been shown in many studies conducted in KZN.

According to Dr A Pittendright, the agriculture's low income generating capacity in rural areas, has resulted in the loss of interest in agriculture as a working option for family support.

It is important to relate agricultural training to this situation. An interest in agriculture can only be aroused if agriculture is seen to compete with urban employment in terms of income generating potential.

Although training can play an important role in upgrading the financial viability of agricultural production in the developing sector, it would not

have much impact unless issues of markets and land tenure systems in rural areas are addressed.

Along with the subsistence and commercial farmers there is a group of emerging farmers. Some of them have bought farms and some acquired farms through the Land Distribution and Restitution programmes. During the time of this study there was no information obtained concerning the progress.

The commercial sector was supported much by the private sector while the developing sector was largely supported by the public sector.

2.4 Agricultural activities

In 1995 KZN contributed to 15% of the total South African Gross Domestic Product (GDP). Agriculture contributed to 5% of the total KZN Geographic Gross Product (GGP). This section gives an overview of agricultural activities of the commercial and the developing sectors.

2.4.1 Agricultural activities of commercial and developing sectors

2.4.1.1 Sugarcane production

Almost 90% of sugarcane in South Africa comes from KZN. It is largely grown in the coastal regions and in some inland parts. According to THE KDA Annual Report there were about 13 835 crops grown in KZN.

2.4.1.2 Horticultural crops

In 1995 horticultural production contributed to 5.2% of the total South African production. The following are the horticultural crops grown in KZN:

- Vegetables are grown in most areas in the province, cabbage is grown much in the Midlands, Camperdown and Greytown districts. Pongola areas had high tomato production. About 53 940 developing farmers were said to grow vegetables in community gardens.
- Citrus is mostly concentrated in the irrigated areas of Nkwalini, Muden and Richmond districts.
- Sub-tropical fruits (avocados, bananas, guavas, paw-paws, mangos) are grown largely in Northern Zululand (lower Umfolozi and Manguzi areas).

2.4.1.3 Livestock production

Livestock production in KZN contributed to 16,20% of the total South African production (1995). It is concentrated much in the Midlands. About one hundred and forty (140) developing farmers were said to be involved in livestock production.

2.4.1.4 Maize production

Maize is largely grown in the Midlands. About five hundred and sixty (560) developing farmers were said to grow maize. There is one maize mill for African farmers in Bergville.

The number of farmers in the developing sector, who were growing maize (the staple food for most Africans), were very few and the majority concentrate on community gardens. Just over half of African rural households in KZN (53%) had access to land for the cultivation of crops, which is said to be an advantage for the rest of the rural areas in the country. The average size of land for households was estimated at two hectares (South African Labour and Development Research Unit [SALDRU]). This is an indication of under-utilization of land.

The study conducted by the University of Natal, Durban Centre for Social and Development Studies in Nkandla (1995), revealed that although all households had access to fields, only a quarter of households had planted on all parts of their land the previous summer. This is an indication of under-utilization of land.

There is a likelihood that the development agents, extension agents and leaders influenced the rural communities into community gardens. The study conducted by Elizabeth Ardington at Nkandla revealed that from responses of people surveyed, that they were told by a developing agency to start vegetable gardens, otherwise they would not get any nutrition relief, some said the headman initiated the idea and some said the extension agents were involved.

While vegetables are still important and have a market potential, there is a need that the developing farmers be exposed and assisted in exploring other agricultural opportunities other than vegetables only. Field crops are important to balance vegetables.

The fact that many farmers produce vegetables could strengthen the rural farmers to establish bigger markets for their produce, which is as yet not in place. What is important is that vegetable production in rural areas need to be accompanied by provision of post harvest technologies, because of their shelf life.

There are many factors that inhibited the development of the rural agriculture in the KZN sector, like the shortage of credit and labour. The labour that is available is mostly women who have triple roles.

The farmers that were determined to farm were hindered by the land tenure system in the rural areas, which had an influence in preventing them to get credit from banks.

Nevertheless there are initiatives no in place in KZN rural areas trying to address the land issue. A land rental scheme has been started in the North West region by Lima (NGO) where farmers lease land from people who have land that is not being utilized. This organization is involved in training people on how the land rental scheme functions. This is a big strength for the development of the rural agricultural sector.

2.5 Non-Agricultural activities of rural committees in KZN

Rural people are engaged in a wide range of activities in order to generate a livelihood. They are involved in informal trading, manufacturing and in many other activities. This section will touch on a few activities that rural people are involved in. The following table shows some of the activities that rural communities in KZN are involved in. This information has been derived from the Annual Report of the KZN Department of Agriculture for 1999-2000.

| Activities | No. of people involved |
|---|------------------------|
| Block making | 750 |
| Home Economics related activities, e.g. sewing and baking, Handcrafts, Savings Club | 33 274 |

Many of the above-mentioned activities were supported by the Department, specifically by the Home Economists.

Although many people in rural areas were involved in these manufacturing activities, they were not yet developed to the required standards.

Some of the factors that affected its development in the past were lack of proper training, access to appropriate technologies, markets and Government regulations.

For example in the case of bread manufacturing, rural manufacturers did not have access to subsidized flour that the big companies had access to (Rudman 1988) in KTT Publication). The Government has now stopped to subsidize bread. The rural people, supported by the Department of Agriculture, during the time of this study were still involved in baking activities. It is not economical and financially viable for the developing sector to produce bread without subsidies

Because many people in the rural areas are poor and unemployed, the buying power is low.

There is a need that the Government should empower manufacturing initiatives in the rural areas because they are one of the options for rural development along agriculture, for example, clothing was a leading industry in KZN according to the study conducted by the Development Bank of South Africa in 1987. This industry will always have a market.

There is a need to expose rural manufacturers to appropriate technologies, like industrial sewing machines and baking equipment suitable for a business. There is also a need for big businesses to link with the rural emerging businesses, to stimulate relationships so that both parties can decide on where they can meet each other. This can address the issue of marketing. A facilitating body is required to do this.

As indicated in the beginning, there were rural block making initiatives identified in the rural areas of KZN. Building contractors could be established in rural areas. The Department of Housing can play an important role in this.

2.6 Agricultural Education and Training in KZN Province

This section will give an overview of providers of agricultural education and training in KZN.

2.6.1 Provincial Department of Agriculture

KZN Provincial Department of Agriculture is the main service provider for agricultural education and training. It provides formal and informal training to people in agriculture. The Department has two Chief Directorates that deal with agricultural education and training. They are as follows:

2.6.1.1 Chief Directorate: Extension and Rural Development

Regional extension services fall under this Chief Directorate. The target clients for regional services are farmers, out of school youth and women groups. The main core function of this Chief Directorate is extension and advisory services.

2.6.1.2 Chief Directorate: Technology Development

Under this Chief Directorate the following reside:

- **Agricultural Colleges** – Two agricultural colleges provide formal training to matriculants who wish to be farmers and agricultural advisors

- **Non-formal training** – Focuses on providing training to people in agriculture by means of short courses as well as the staff of the department
- **Research stations** – responsible for animal and crop technology development

2.6.2 Department of Education

More than five hundred schools in KZN were said to offer agriculture as a subject. There are four agricultural colleges or high schools in KZN. They are as follows:

2.6.2.1 James Nxumalo Agricultural High School

A Government school taking pupils from Grade 8 to 12 situated in Ulundi. The school enrolls both boys and girls. The school has a farm with beef, dairy and land for crops.

2.6.2.2 Weston Agricultural College

A semi-private agricultural college for boys from Grade 7 to 12, situated in Mooi River. The college operates on a 1 200 hectares farm, provides hand-on practical training. It was formerly a White college, but has since changed into a multi-racial college. The college is registered with the Department of Education and Culture.

2.6.2.3 Zakhe Agricultural College

A semi-private agricultural college for boys from Grade 8 to 12 situated in Baynesfield, Pietermaritzburg. The college operates on a 500 hectare farm. It is registered with the Department of Education. The college also provides non-formal training to people in agriculture.

2.6.2.4 Vryheid Agricultural High School

A semi-private agricultural high school for boys and girls from Grade 8 to 12 situated in Vryheid in Northern KZN and formerly a White school. The school has a farm and provides hands-on practical training.

All the above-mentioned agricultural high schools and colleges offer maths, physics, biology, geography and accounting in addition to agricultural subjects.

2.6.3 Universities and Technikons

There are two universities that offer degrees in agriculture and one technikon. The University of Natal and University of Zululand have Faculties for Agriculture.

2.6.4 Non-Governmental organizations

There are many Non-Governmental organizations in KZN that offer non-formal training in agriculture targeting rural, urban and peri-urban communities.

2.6.5 Private sector

The private sector like South African Sugar Association provides extension services to sugarcane growers, targeting both small and large-scale farmers. It worked in partnership with the Department of Agriculture. There are gaps in service providers of agricultural education and training in KZN, since there was a lack of co-ordination among service providers.

2.7 Provincial, national and global imperatives

Geographic and demographic issues raised in the previous sections of the report were:

- Land degradation
- Skills shortages
- Unemployment
- Urbanization

Gaps in agricultural activities in the developing sector were identified. Non-agricultural activities in the rural sector were explored and factors that affected its development were identified. A need was identified not to view agricultural development in isolation to rural development.

Thus, the following is what needs to be done at Provincial, National and Global levels:

A programme to address land degradation problems, needs to be implemented in the province. This could be done by the Department of Agriculture and Environmental Affairs, together with other stakeholders that deal with environmental care. Funds and other support services from the National Department of Agriculture and Environmental Affairs together with foreign aid could assist in land reclamation programmes. Land degradation is a threat to the future of agriculture in the province.

National, Provincial and Local Government needs to have a focused programme that is aimed at improving rural livelihood. Integrated rural development approach needs to be implemented rather than stakeholders working in isolation. There could be a body formed by people in different levels of Government (departments, private sector [NGOs, business people], professionals [universities, colleges, etc], local government and rural people representatives.

This body focuses on the developing intervention strategies on rural development. Maybe they can achieve in making rural areas a better place to live, thus urbanization will be controlled.

There is a need for a scheme to ensure that people do something after training. The agricultural development body at provincial and national level could be formed. The role of this body could be to do market analysis and inform skills providers of the market needs. The beneficiaries for this body could be developing farmers, prospective people for agriculture who are students in college and universities. Market opportunities explored, could be for self-employment and for employment. The body at national level could have contact with outside work to explore market and skills development opportunities.

2.8 Challenges and implication of development needs in agricultural education and training

Challenges for agricultural education systems at lower and higher levels are to produce people who can see agriculture as a business. As much as competent advisors are required, qualified people are needed to run the agricultural business for the development of the rural sector. This means that the institutions must consider preparing people for self-employment as well.

Looking at land degradation problems in KZN, it looks as if people with knowledge of land-use planning, veld management, pasture science and soil conservation, are required. Campaigns to train people on landcare, are required.

Issues raised indicated that agriculture and rural development cannot be viewed in isolation, but can be taken as a system, therefore there is a need for training in agriculture and rural development. That means in addition to agricultural training, higher learning institutions could incorporate in their training packages, courses that cover areas, e.g. development studies, rural development, sociology, integrated development approaches, partnership development, participatory approaches and gender studies.

There are many service providers for agricultural education and training in the province. The challenge is that the training should be outcome based. It should be clear as to where all the trainees are going to be absorbed.

A body needs to be formed at provincial level, which will focus on giving direction to agricultural education and training in the province.

2.10 Conclusion

KZN has got the greatest agricultural potential of all South Africa due to the diversity of its natural resources, yet land degradation as a result of inappropriate and uncontrolled land uses, poses a threat to the future of agriculture in the province. There is a need for people who have knowledge and skills of animal science, veld management, pasture management, pasture science and land-use planning.

The majority of farmers in KZN are farmers in the developing sectors, yet the majority in this produce below subsistence level. Farmers in the developing sector did not see agriculture as a working option for family support. Thus there was a high rate of urbanization as a result of shortage of employment opportunities in rural areas. The land available to rural households is under-utilized.

An interest in agriculture can only be aroused if agriculture is seen to compete with urban employment in terms of income-generating potential. While agricultural education and training is important in upgrading the financial viability of agriculture in the developing sector, it would not have much impact unless issues of markets are taken into consideration.

There is a difference in terms of what the farmers in the commercial sector produces and what the developing sector produces. The majority of farmers in the developing sector produce vegetables in community gardens. Training is needed to be provided on post-harvest technologies because of the shelf-life of vegetables. While this is a strength that can enable developing farmers to form bigger markets for their produce, there is still a need to expose and assist developing farmers in exploring other agricultural opportunities.

The majority of rural communities, especially women, were involved in informal trading and manufacturing activities. Developing this sector can be strength for rural development therefore it is important that agricultural development is not viewed in isolation to rural development. Integrated rural development strategies need to be implemented.

Focused rural development programmes to improve livelihoods, need to be established and implemented. If rural areas could be made a better place to live, urbanization rates could decrease. Challenges facing providers of education and training at lower and higher levels, is to produce people who can see agriculture as a business, prepared for self-employment. There are many agricultural education and training service providers in the province. The challenge is that training should be outcome-based. It should be clear as to where all the trained people could be absorbed. There should be strategies in place to address this issue. Bodies at provincial and national levels could be formed to explore market and skills development opportunities.

There is a need that higher learning institutions train people for agriculture and rural development, adding into their agricultural training packages human sciences.

Lastly there is also a need for agricultural education and training bodies who could focus on giving direction to agricultural education and training in the province.

CHAPTER 3: EDUCATION AND TRAINING NEEDS FOR AGRICULTURE AND RURAL DEVELOPMENT

3.1 Introduction

This chapter provides an overview of the training needs of the stakeholders for agricultural education and training. Questionnaires, group discussions and interviews were used to collect the information. These methods were used to compliment each other in serving the objectives of the study. Questionnaires were used to collect quantitative information. Group discussions and interviews were used to collect qualitative data regarding the perceptions and feelings of the participants. Since the overall objective study was not to take a decision or reach a consensus, but to see the trends to obtain opinions and feelings, qualitative data was not analyzed quantitatively. Opinions and feelings raised by different groups were organized according to the study objectives, analyzed and similar views were grouped together and a conclusion was drawn.

The following issues will be explored:

- Background of the above-mentioned stakeholders (ages, gender, education, position, occupation and experience)
- Activities or duties of the stakeholders surveyed
- Training required to perform work effectively
- Knowledge and skills gaps
- Preferred methods of training and providers
- Challenges for agricultural education and training systems as perceived by stakeholders
- Concerns or constraints to effective service delivery.

3.2 Knowledge and skills needs of farmers

A total of hundred and eighty six (186) farmers were surveyed in the North and North West Regions of KwaZulu Natal. About 92% of the farmers surveyed were emergent farmers and 8% commercial farmers.

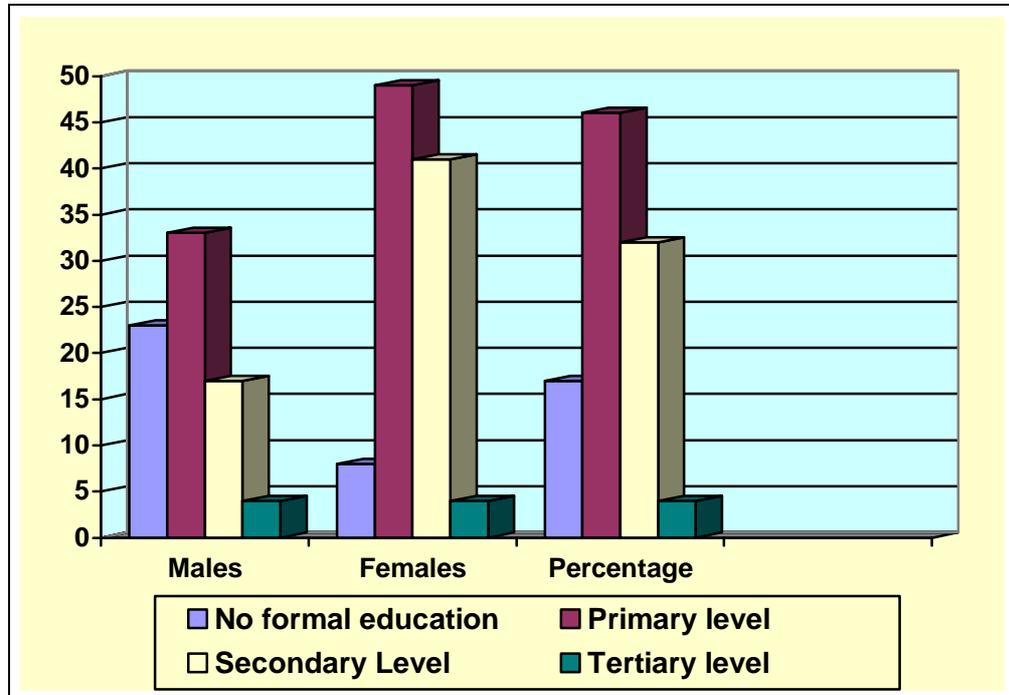
3.2.1 Questionnaire Results

3.2.1.1 Emergent farmers

Emergent farmers surveyed were a hundred and seventy-nine (179). 58% were females and 43% males. Although females were still in the majority in the developing sector, there was a significant change from the findings of the studies done in KZN in the past. The study done in KZN in 1988 by the KwaZulu-Natal Training Trust revealed a ratio of females to males of 75:25. Results are a clear indication that men are moving into the sector, this can be attributed as a strength for the developing sector of which its development might have among other

things, been affected by the fact that women were in the majority. Although women work hard, but the issue of the triple role, has been a limiting factor. Many studies indicated this issue. This means that there should be appropriate programmes and policies for these groups, taking equity into consideration.

Educational status

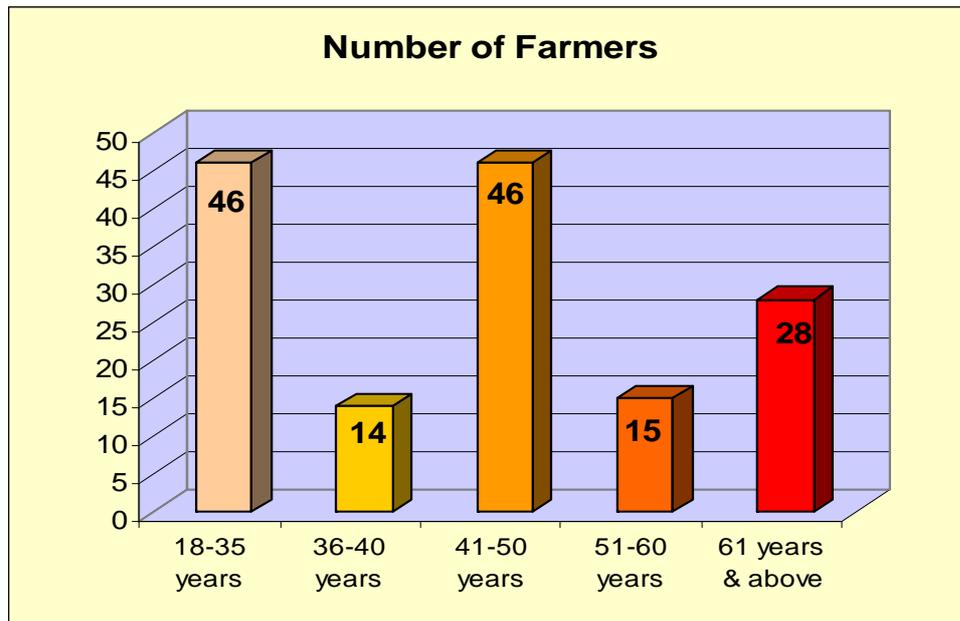


The above graph indicates that the majority (46%) of emergent farmers surveyed had primary level education, which means that they can read and write, and very few (17%) farmers were illiterate, whilst 32% had a secondary level of education and very few had post-school qualifications. Farmers that had post-school qualification levels had the following qualifications:

- Pharmacy
- Prison warden
- Community health certificate
- Business management certificate
- Project management certificate
- Fashion designing

The other two did not specify the qualifications they had. Of the farmers that had post-school qualification levels, not one indicated as having qualifications in agriculture

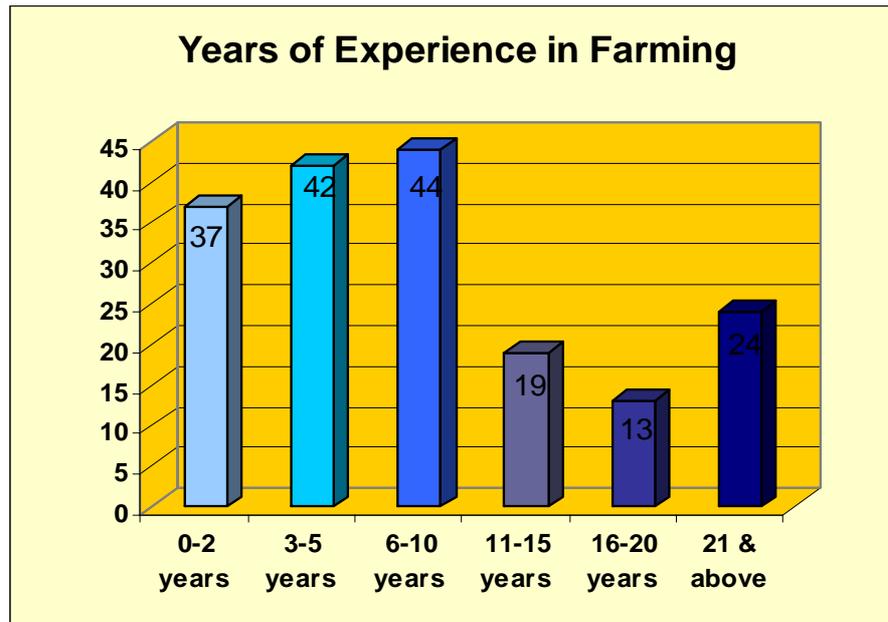
Age



Total farmers surveyed: 179

The majority of emergent farmers surveyed in these two regions were in the age categories 18-35 and 41-50 years, as shown. This might be due to the fact the highest population in these two regions was at the ages 5-19 years and 30-49 according to the 1996 census report. The majority of emergent farmers surveyed were in the ages between 18 and 50 years. This indicated a decrease in the number of old farmers in the developing sector. The findings indicate a potential for growth of this sector, given the movement of young people who are still at the age of being economically active. On the other side movement of young people into the sector requires proper training accompanied by mentoring.

Experience in farming



Total No. of emerging farmers = 179

Average experience = 10 years

Most of the farmers (24,58%) had 6 to 10 years experience in farming, while the majority (43,69%), were below ten years.

Farming Systems - Almost 52,12% of farmers surveyed practised mixed farming, producing either two or three commodities. The commodities produced were as follows:

Vegetables - About 60% of emergent farmers were growing vegetables. The majority (69,44%) of vegetable growers were women. Most vegetables were grown in community gardens.

Field crops – Almost 59,77% of farmers were growing field crops, that is maize, beans or potatoes. Differences in terms of percentage between males and females growing field crops were very slight, about 1%. (Women were 50,46% and males 49,53%. Field crops were said to be grown on individual family fields.

Poultry – Only 21,78% of farmers were involved in poultry production. Poultry production was done as individuals and as groups.

Livestock – About 29,60% of farmers said to be involved in livestock production. The majority (79,24%) being males. This is an indication that African culture has not change in terms of ownership.

The fact that most farmers in the developing sector were farming as groups might have contributed to the poor development of agriculture in this sector, because agriculture resulted into being a women's thing and did not involve all the family members. Instead women from different families were doing business together. This might have

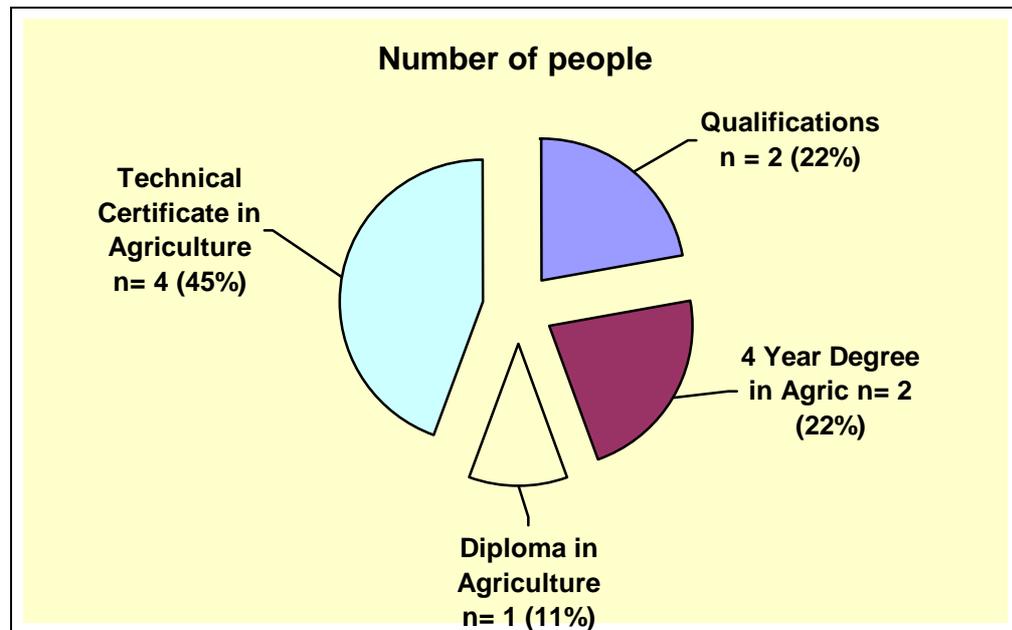
resulted in a generation that did not recognize agriculture as a key to development, as youth is said to be not interested in agriculture. There is a need for approaches that will encourage families to work together, because some big companies that are present today started as a family business.

3.2.1.2 Commercial farmers

Gender – A total of seven farmers were surveyed in the North and North West regions. All the farmers surveyed were males and White. This differed from the developing sector. Males in the developed sector are leading.

Educational status – All the commercial farmers surveyed had qualifications. The following were qualifications that commercial farmers had

Qualifications



Total number of farmers = 7

The above chart shows that farmers are well-educated. This is an indication that education among other things might have contributed to the success of the commercial sector in the province. This also indicates that the farmers in this sector were somehow independent and requiring less support.

Experience – Commercial farmers surveyed had twenty-five years of farming experience on average. This shows that they have in-depth knowledge of skills in agriculture. Considering the experience that the commercial farmers surveyed had and linking it together with the education they have, means that the commercial farmer can play an

important role in working together with other service providers in mentoring farmers in the developing sector.

3.2.2 Qualitative results

Information on knowledge and skills needs on emergent farmers was captured through group discussions. Emergent farmers were divided according to commodities. There were about 29 discussion groups comprising of 6-15 people. Seventeen (17) groups were for vegetables and field crop growers', six were for livestock producers and six for poultry producers. In workshops discussion groups ranged from three to four. During group discussions, groups had to select group leaders to ensure that discussions did not lose focus and see to it that everyone participated as well as keeping track thereof by writing down what happened during the proceedings. Groups were given structured discussion guides.

At the end all groups came together to present their views, so that the whole groups views could be discussed. In the case of commercial farmers, information was captured by holding interviews with individual farmers.

3.2.2.1 Emergent farmers

Perceptions on knowledge and skills required by a farmer

Generic knowledge and skills perceived as requirements by emergent farmers, were technical, management and business.

The emergent farmers felt that the technical knowledge of agriculture (animal/plant production/poultry) was a basic requirement. In addition, the knowledge of farm business management, which includes production planning and marketing and business skills, which include bookkeeping and budgeting skills, are requirements.

The following were specialized knowledge and skills perceived as requirement by some of the commodity groups:

- Fertilizer production
- Poultry Feed Production
- Egg hatching
- Technical building skills

3.2.2.2 Commercial farmers

Perceptions on knowledge and skills required by a farmer

Almost all commercial farmers surveyed felt that the knowledge and skills of agricultural production and other production related aspects, like irrigation, engineering, animal nutrition, etc. as a requirement for a

farmer. In addition to agricultural knowledge, the following were the knowledge and skills that commercial farmers felt were needed.

- Business Management
- Marketing
- Financial Management
- Human Resources Management
- Communication

3.2.3 Knowledge and skills gaps of farmers

Problems encountered by emergent farmers

Problems encountered by emergent farmers were as follows:

- Institutional Development Training

Problems raised by farmers

Problems raised by farmers were as follows:

- Problems of getting inputs
- Problems of marketing their crops and livestock
- Problems of unplanned and insufficient grazing land
- Dipping tanks which were not functioning because the Department of Agriculture has pulled out its dip tank assistant workers and other support in terms of dip tank material.

According to the farmers formation of co-operatives were seen as a solution for inputs and marketing problems, but they expressed their concern of not knowing how **to form and operate co-operatives**. This means that there is a need to train emergent farmers in **co-operative law and law of contracts**.

Farmers felt that the problem of grazing land required community effort in solving the problem, but did not know how to get the community involved. This created a need for institutional development training in terms of **leadership development** so that people could be able to organize themselves. Incorporated in this leadership development was the issue of dip tanks mentioned above.

Resource utilization and management

Almost all livestock farmers surveyed, expressed a problem of unplanned and insufficient grazing land and veld burning. Suggestions were that research should be conducted to determine the amount of grazing land available in their areas.

Some of the groups for vegetables and field crops, expressed a problem of invading mulberry plants and soil erosion.

3.2.4 Knowledge and skills gaps as perceived by emergent farmers

Knowledge and skills gaps of emergent farmers were divided into specific requirements by commodity groups or those that were generic. This is illustrated in the table below:

| Livestock (small and large) | Crops (vegetables and field crops) | Poultry | Generic skills required |
|---|--|--|--|
| <ul style="list-style-type: none"> • Disease identification and control • Calving • Veld management • Animal breeding | <ul style="list-style-type: none"> • Cultivar selection for specific seasons • Pest identification and control • Fertilization • Knowledge of planting times • Crop rotation • Fruit production • Preservation of vegetables • Fertilizer production | <ul style="list-style-type: none"> • Disease identification and control • Egg hatching • Poultry feed production • Building skills | <ul style="list-style-type: none"> • Marketing • Bookkeeping • Budgeting • Production Planning |

The table above indicates that there is a need to develop a training package for emergent farmers which will cover business skills in addition to production aspects.

Some of the skills required by emergent farmers were far-fetched, e.g. the one to produce fertilizers. It would not be financially viable. Another alternative could be to train them in permaculture principles. The reason for these farmers to require training in fertilizers, poultry feed production and egg hatching, was due to of the high expense of fertilizers and poultry feed.

3.2.4.1 Preferred training methods and providers

The majority of groups required training in the way of short courses, preferably in their localities. Very few groups indicated any interest in going outside their localities for training. Emerging farmers expressed a need for training centres in their areas.

There were different views in terms of who should provide training. The following were the providers that emergent farmers felt, should provide training:

- College of Agriculture
- Extension Officers
- Commercial farmers
- Institutions that provided agricultural training (Government and Non-Government)

3.4.2.2 Concerns of the emergent farmers

The emergent farmers indicated that as much as they required training, the issues of funding, marketing and land should be addressed.

Theft problems were also indicated by most emergent farmers. A feeling was that there should be a law enforcement, which would force everyone, who had land, to use it. They felt that this would solve the problem of stealing from other people.

The second concern was the involvement of youth in agriculture. They felt that the Department of Agriculture should put more focus on youth because they were the people who still had a lot of energy to work.

3.2.5 Knowledge and skills needs for commercial farmers

The commercial farmers could not come up with suggestions for skills training for themselves, but expressed skills training needs for their farm workers. Five out of seven commercial farmers had permanent farm workers. Two indicated that they were seasonal labour. The total number of permanent farm workers, in the surveys undertaken, indicated that there were one hundred and eighty permanent farm workers.

The duties of the farm workers included the handling of machines, selling of farm produce, preparation of produce for the market and involvement in crop and animal production.

According to the farmers their farm workers had fairly good skills regarding crops and livestock production.

Training needs for farm workers as perceived by farm owners, were divided into those for general labourers and those for farm foremen. They were as follows:

3.2.5.1 General laborers

- Farm machinery handling and maintenance
- Other production related aspects like irrigation
- Marketing – grading and packing of agricultural produce
- Bookkeeping

3.2.5.2 Farm Foreman/Farm Managers

- Handling and maintenance of farm machinery
- Bookkeeping
- Leadership and supervision

3.2.5.3 Preferred training methods and providers

Commercial farmers felt that training should be provided by any of the following stakeholders:

- Colleges of agriculture
- Agricultural high schools
- Agricultural development centres
- Research institutions

For the training of their farm workers, who are general workers, they preferred that training be provided on the farm and should take no longer than two weeks.

Training for farm foremen should be six months at the training institution and thereafter another six months practical training on a commercial farm, in order to gain practical experience.

The following suggestions were also made by farmers:

- Courses intended for commercial farms should be advertised properly so that they could choose which one they could attend
- Training needs assessment should be done from time to time to determine the training needs of farmers and farm workers.
- People who were experts in agriculture should come and assess farm workers to determine if there were areas that needed improvement
- Literacy programmes should be organized for farm workers.

3.2.5.4 Concerns raised by commercial farmers

The commercial farmers expressed concern about farms being given to people who were not trained in agriculture. The feeling was that people who were given farms should undergo training first. They suggested that people should receive six months hands-on training on a commercial farm.

Secondly the concern was that most commercial farmers were moving into forestry. They felt this could have a negative effect on food security and that this was already affecting people living on farms.

3.2.6 Knowledge and skills needs of service providers

A total of hundred and three (103) extension staff and seventeen (17) managers from the North and North West Region have been surveyed. Extension staff respondents were technicians and agricultural assistants. Technicians composed of Home Economists, Plant Production Technicians and Animal Production Technicians.

Agricultural assistants were the staff that worked under the supervision of the technicians. They performed the same duties as the technicians. There were those that focused on providing home economics related services, others worked as generalists providing plant and animal production advisory services to the communities.

Managers respondents composed of district managers and regional extension managers, who were Directors, Deputy-Directors and Control Technicians.

Questionnaires and group discussion methods were used to collect information from extension staff and managers. The study examined the functions of extension staff and managers in determining knowledge and skills required by the extension staff to perform duties more effectively. This knowledge could determine the skills gaps as well as the views as to how the needs could be met.

3.3 Questionnaire results

3.3.1 Extension staff

Gender composition and positions

| Respondent groups | Male | Female | Respondent Group % |
|--------------------------|--------------|--------------|--------------------|
| Agricultural assistants | 10 | 41 | 45.12% |
| Agricultural technicians | 36 | 26 | 55% |
| Total percentage | 41,22 | 58,77 | 100% |

The table indicates that the majority of extension staff in these regions was females and most of them were employed as agricultural assistants. Although the majority of staff were technicians in these regions, most of the technicians were males.

3.3.2 Agricultural technicians

Educational status and major subjects

| Highest qualifications | No. of people | Major subjects | No. of people |
|---|---------------|---|---------------|
| Diploma in Agriculture | 37 | Plant production | 25 |
| | | Plant and animal production | 6 |
| | | Animal production | 4 |
| | | Soil science and land-use planning/pasture science | 2 |
| Diploma in Agriculture Resource Utilization/University Diploma in Rural Resource Management | 2 | Agricultural Management/ Rural Resource Management Plant Production Production Economics/ Agricultural Economist | 2 |
| Diploma in Agricultural Home Economics/Community Extension | 12 | Home Economics Nutrition Extension and Rural Development | 12 |
| Bachelor of Home Economics | 5 | Home Economics Nutrition Housing and Clothing Extension and Rural Development | 5 |
| B.Sc Agriculture | 1 | Animal Science Animal Production Plant Science Plant Production | 1 |
| | 5 | Plant Production Strategic Planning Financial Management | 5 |

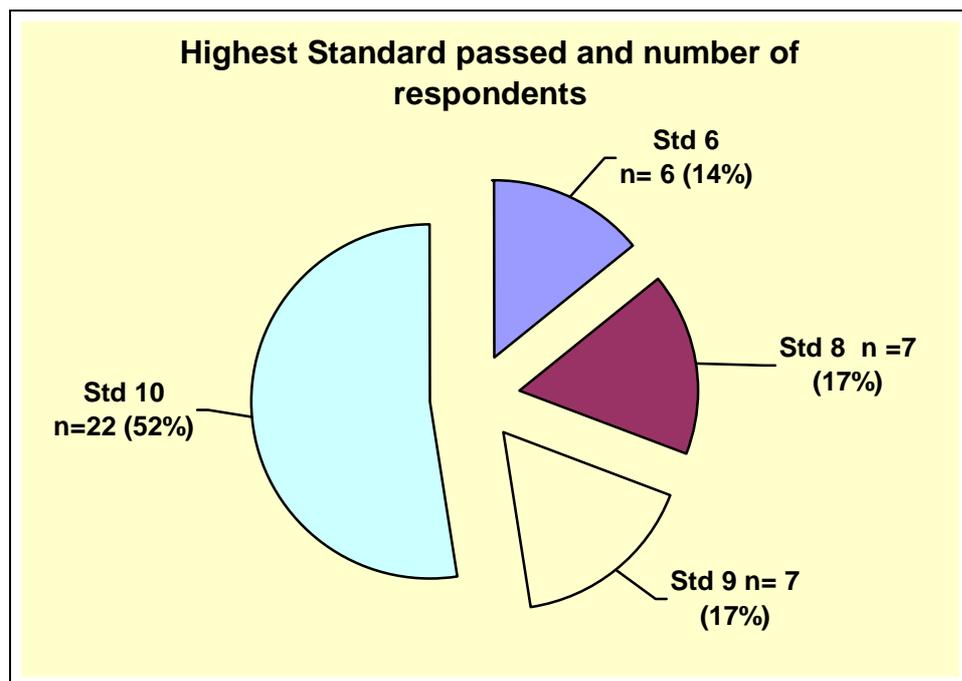
The table indicates that almost 73% of extension staff who had Degrees or Diplomas in Agriculture or Resource Utilization have majored in plant production. There were very few technicians who have majored in animal production, plant science, land-use planning, pasture science, financial management and agricultural economics.

This means that there is a gap in terms of skills required by farmers that the extension technician had. The skills required by farmers that were lacking in staff were financial management, veld and pasture management, farm business management, animal production and marketing.

3.3.3 Agricultural Assistant Staff

Because agricultural assistant staff did not have tertiary level education, the analysis of their education status was done in terms of school qualifications.

School qualifications



As indicated in the table the majority of assistant staff had standard ten. This can enable them, if given, a chance to further their studies in higher learning institutions. Within the group of assistants there were those who had standard six to nine. This group required a special programme, which can provide them with suitable qualifications, taking into consideration the experience as well as types of in-service courses or courses done elsewhere into considerations.

Experience in Extension Service: Technicians and Agricultural Assistants

| Years | Frequencies | | Total Percentage |
|--------------------|-------------|-------------------------|------------------|
| | Technicians | Agricultural Assistants | |
| 0-2 years | 28 | - | 25 |
| 3-5 years | 16 | 22 | 34 |
| 6-10 years | 2 | 28 | 27 |
| 11-15 years | 6 | - | 5 |
| 16-20 years | 8 | 1 | 8 |
| 21 years and above | 2 | - | - |

Looking at the experiences of the extension staff in these regions, the table indicates that agricultural assistants had longer years of experience than the technicians. The majority of technicians were in the year category 0-2 years, which means that there was a decrease in the number of newly qualified, experienced extension staff and a great number of qualified staff.

Further studies

Only 19% of extension staff surveyed, were involved in further training. The following were the fields of study which the extension workers were involved in on a part-time basis:

| | Field of study | No. of people | Major subjects |
|-------------|-------------------------------------|---------------|--|
| Technicians | Bachelor of Agricultural Technology | 8 | Plant production Strategic Planning Financial Management |
| | Higher Diploma in Extension | 7 | Communication Programme and Project Development Extension Evaluation Behavior intervention Extension Development |

The table indicates that the extension staff that was involved in further studies was doing courses that covered social sciences, plant production and financial management. While the courses studied by these officials were important and needed in extension services, there

was a shortage and need for people who studied animal production and science, soil science, land-use planning, pasture science.

3.3.4 Group discussion results

During group discussions extension staff was divided according to area of specialization. There were about eighteen discussion groups in total.

3.3.4.1 Perceptions on job requirements of Agricultural Extension Workers

Extension workers perceived their duties to be as follows:

- Providing training and advisory services to farming communities on agricultural production/home economics
- Facilitating establishment of agricultural projects
- Facilitating establishment of extension structures, development committees and farmer associations
- Facilitating marketing of agricultural products of farmers
- Organizing field days and shows
- Conducting trial demonstrations
- Supervisory duties (technicians only)

3.3.4.2 Perceptions on knowledge and skills required by an Extension Worker

Knowledge and skills perceived as requirements for extension staff were divided into two. There were those that were generic and those specific to staff in different areas of expertise and positions.

Generic skills were divided into those required by all extension staff (technicians and agricultural assistants) and those specifically for technicians.

Generic knowledge and skills perceived by technicians as required was management.

Generic knowledge and skills perceived as requirements by Extension Staff (technicians and agricultural assistant)

All extension staff discussion groups indicated that an extension worker should have technical knowledge and skills of his or her area of expertise as the basic requirement. In addition to technical knowledge he/she should have business and human sciences knowledge. The following were the business and human sciences knowledge and skills requirements for extension staff.

| Knowledge | Skills |
|---|--|
| Life skills (extension science, community development and sociology and training) | <ul style="list-style-type: none"> • Community organization skills • Communication skills • Presentation plan lecturers and demonstration skills (ability to motivate people to work) • Understanding cultural behavior of communities |
| Business skills | <ul style="list-style-type: none"> • Skills to assess economic and financial viability of projects (project planning) • Skills to write project proposals • Financial management skills • Computer • Marketing |

3.3.4.3 Generic knowledge and skills perceive as requirements by Technicians

The following generic knowledge and skills were perceived as requirements by technicians where management and research was concerned:

- Programme planning
- Supervisory skills
- Leadership skills
- Time management skills
- Inter-personal relations skills
- Conflict management skills

Knowledge and skills to conduct research were perceived as required.

3.3.4.4 Generic knowledge and skills gaps

Generic knowledge and skills gaps expressed by almost all the groups, were in the area of business and social sciences. The following were skills courses that extension staff felt they would like to attend:

Knowledge and skills gaps of extension staff

Knowledge and skills gaps perceived by extension staff were divided into two. There were those that were generic and those that were specific to staff in different areas of expertise and positions.

| Knowledge and skills | Description |
|-----------------------|---|
| Business skills | <ul style="list-style-type: none"> • Computer • Project analysis, planning and management • Marketing |
| Social/human sciences | <ul style="list-style-type: none"> • Training – presentation skills, group facilitation skills, train-the-trainer skills • Communication • Research and methodology • Persuasion skills |

3.3.4.4 Knowledge and skills gaps specific to staff in different areas of expertise

Generalist, Plant and Animal Production Technicians

Training required by plant and animal production technicians were mostly in the areas of resource utilization, specialized knowledge, production and related aspects, social sciences and management. They are shown in the following table.

| Knowledge and skills | Description |
|-------------------------------|--|
| Natural resources utilization | <ul style="list-style-type: none"> • Veldt assessment • Soil classification • Land-use planning |
| Specialized knowledge | <ul style="list-style-type: none"> • Aquaculture • Hydroponics establishment and management • Nursery establishment and management • Orchard establishment and management • Organic Farming |
| Production related aspects | <ul style="list-style-type: none"> • Irrigation • Artificial insemination |
| Social sciences | <ul style="list-style-type: none"> • Training skills – research methodology • Communication • Persuasion skills |
| Management | <ul style="list-style-type: none"> • Conflict management • Supervisory skills |

Home Economists skills gaps

Home economists were divided into two. There were those Home Economists who were specializing in home economics related aspects and there were generalists providing both home economics related services and also providing services on plant production and poultry. Their needs differed in that Home Economists who were generalists in addition to having home economics skill, required training in crop production.

The following knowledge and skills are required by Home Economists.

| Knowledge and skills | Description |
|--------------------------------|---|
| Technical knowledge and skills | <ul style="list-style-type: none"> • Advanced baking and sewing skills • Skills to use industrial sewing machines • Value adding skills • Interior designing skills • Indigenous food technologies |

3.3.4.5 Agricultural Assistant staff skills gaps

Agricultural assistants expressed a need to update themselves. They felt that they still needed training in agriculture or home economics. They felt that there should be a special programme designed for them to upgrade themselves.

Preferred training methods

The following suggestions were made:

- Training should be provided in a way of short courses. The Department should consider giving bursaries to people who wanted to attend short courses offered by other organizations that were not offered by the Department themselves/itself.
- Bursaries should be provided to people who wanted to further their studies full-time.
- There should be a regional co-ordinator who will co-ordinate training, working closely with staff in districts, to ensure that training needs assessment is done before courses are planned and ensure that those who require training are heard.

Challenges for agricultural education and training systems as perceived by the extension staff

Issues raised were as follows:

- The extension staff felt that agricultural education and training systems should provide more practical knowledge than theory. A business orientated training needs to be provided at lower levels of education.
- Department of Agriculture should consider making sites available for extension staff to do trials before teaching communities.
- Senior managers, scientist and research staff should work closely with extension staff on the ground and assist in giving direction on the work done there.
- Emergent livestock farmers breed indigenous cattle. Research should be done on how indigenous cattle breeding could be improved.
- The issue of generalists needs to be reviewed since, for example agriculturists who have done plant and animal production end up having bits and pieces of everything, but are not masters in both these areas.

Concerns of extension staff

Concerns raised by extension staff were that their service delivery did not have an impact because the farmers they worked with did not see agriculture as a business. They felt that the Department should consider finding individual farmers.

3.3.5 Agricultural extension managers

According to managers their core function was to co-ordinate extension and development of human resources management.

3.3.5.1 Gender

About 8% of managers surveyed were males. This was due to the fact that the majority holding management positions in these regions were males. This was an indication of gender inequality in the Department.

3.3.5.2 Highest qualifications

About 53% of extension managers had a degree qualification and 47% had diplomas.

3.3.5.3 Experience

The majority of extension managers had longer years of experience in extension services. The average years were twenty-five (25). The average experience in management was 7 years.

3.3.5.4 Further Training

Only 33% of extension managers indicated that they were involved in further studies. The following were the fields of study that extension managers were involved in:

| Field of Study | Major Subjects | No. of people |
|-------------------------------|--|---------------|
| Masters in Project Management | Financial Management Human Resources Management Project Management | 3 |
| Masters Inst. Agrar | Agricultural Marketing Socio-Cultural Foods Research Methodology | 1 |
| Bachelor of Commerce | Administration and Economics | 1 |

3.3.5.5 Perceptions on knowledge and skills required by extension managers

Knowledge and skills required as perceived by managers were divided into five categories, namely:

- General
- Management Skills
- Social Sciences
- Technical
- Knowledge of policies

There were areas of knowledge and skills that an extension manager was expected to be at noticeably better than average to above average level and those that required basic knowledge level.

Knowledge and skills requirements that extension managers were expected to be in noticeably better than average to above average level

| Knowledge and skills | Description |
|---|---|
| General Management | <ul style="list-style-type: none"> • Human Resources Management • Performance Management • Financial Management • Labour Relations • Leadership • Programme Planning • Time Management |
| Social Sciences (extension and communication) | <ul style="list-style-type: none"> • Letter • Extension and Training • Land Assessment • Landcare • Farm Business Planning and Management |
| Policies and Procedures | <ul style="list-style-type: none"> • Interpretation and Implementation |

Knowledge and skills requirements that extension manager was expected to be a noticeably better than average to average level and those that required basic knowledge level

| Knowledge and skills | Description |
|---|--|
| Project Management | <ul style="list-style-type: none"> • Understanding the principles of Project Management • Use of Breakdown Structures • Use of Bar Chart • |
| Policies and Procedures | <ul style="list-style-type: none"> • Policy formulation • |
| Technical | <ul style="list-style-type: none"> • Word Processing • Internet • Computer |
| Utilization of Agricultural Natural Resources Environment | <ul style="list-style-type: none"> • Knowledge of Climate, Geology, Vegetation, Bio-Resource Programme, Arial Photo Use, etc |

Knowledge and skills gaps of extension managers

Knowledge and skills gaps of managers identified were on technical, skills management, policies and procedures. The following were the areas of skills gaps identified:

- Management: Performance management
- Technical: Computer
- Policies and Procedures: Understanding of Land Reform Policies

3.3.5.6 Challenge for agricultural education and training as perceived by extension managers

Gaps identified were on the quality of staff. There was a feeling that there was an over-supply of human resources but lack of quality staff. Staff with basic knowledge of science were said to be lacking. Lack of staff thus provides services to commercial farmers. A need was identified to upgrade technicians into scientists and agricultural assistants into technicians.

A need to improve co-ordination of professional support services, research and district services were identified.

3.3.5.7 Concerns of extension managers

A challenge that was indicated by managers was that rural people still needed to be educated to see agriculture as a business. Attention needs to be paid to economic viability of projects for farmers in the developing sector.

3.3.6 Training needs for non-governmental organizations involved in rural development

Two managers from non-governmental organizations involved in rural development operating and based in the North and North West regions were surveyed. The purpose was to understand their services and get their views as to how agricultural education and training should be structured. This section will give an overview of their services, opinions and concerns regarding agricultural education, training and rural development.

3.3.6.1 Core functions of the non-governmental organizations surveyed

The core function of these organizations involves the development facilitation, providing agricultural advisory services to rural communities and providing specialized training in marketing, business management and institutional capacity building. Employees for these organizations have agricultural and rural development backgrounds.

3.3.6.2 Training gaps identified

Gaps identified were the lack of in-service training. This was said to be the result of the policies in the organizations. There was no standing policy for training. Funds were also said to be a limiting factor. The organizations focus on delivery rather than on other things, e.g. providing in-service training to staff. Therefore they are outdated in other things.

3.3.7 Suggestions

Suggestions were that there was a need to work with the Department of Agriculture. A need was expressed to form a body that would focus on in-service training for all the people involved in extension and rural development. The universities were seen as suitable to co-ordinate this.

3.3.8 Concerns

Concerns identified were related to poor functioning of development structures in communities. There was a feeling that they needed to be trained on the principles of development.

3.4 Conclusion

The majority of emergent farmers were women, whereas the majority of commercial farmers were males. The farmers surveyed had agricultural qualifications. Although females were in the majority, there has been a significant change from the findings of the studies done in KZN in previous years where the ratio of females to males was 75:25. The ratio for this survey was 57:43. This was an indication that men were moving into the sector, which could be taken as a strength for the developing sector of which its development might have among other things, been limited by the fact that women were in the majority. Although women work hard, the issue of triple roles has been a limiting factor as indicated in many studies.

Although the majority of farmers in the developing sector had primary level education, the findings show a move of people with secondary and tertiary level of education into the sector. There were very few (10%) farmers who did not have a formal education. This is also a strength in the developing sector.

The knowledge and skills that were required, both by emergent farmers and extension workers, were in the areas of businesses. The knowledge and skills required by emergent farmers that were also lacking in extension staff were veld management and soil conservation. The majority of extension staff majored in plant production. There was a shortage of staff with knowledge of animal production, animal sciences, veld management and pasture science.

This is an indication that there was a gap in terms of what was required by farmers and what the extension staff had.

The knowledge and skills required by extension staff who were agriculturists were in the areas of natural resources utilization, specialized knowledge, social sciences and in production of related aspects.

There was a feeling that providers, like the agricultural colleges, agricultural high schools, Department of Agriculture and non-governmental institutions should provide non-formal training for farmers and farm workers. Emergent farmers preferred training in the way of short courses. A programme was also recommended by commercial farmers for people who want to be commercial farmers.

A need has been raised to upgrade technicians to the level of scientists and agricultural scientists who are technicians.

Non-governmental organizations expressed a need to be supported by the Department in the provision of in-service training to their staff. Universities were seen to have a role to co-ordinate in-service training for staff involved in extension and rural development. It was recommended that a body be formed which will look at the in-service training for the extension and rural development staff.

Gaps were identified in agricultural education at higher levels that are too theoretical. There is a need for practical orientated education.

A concern was raised concerning the commitment of emergent farmers in agriculture. A need was identified to make farmers in the developing sector see agriculture as a business.

There was a concern about movement of commercial farmers into forestry instead of food production. This was seen as a threat to food security.

Emergent farmers raised the issue of resource shortages and concerns about the involvement of youth in agriculture. A need was indicated for the Department of Agriculture to focus more on youth development in agriculture.

CHAPTER 4: CONCLUSION AND RECOMMENDATION

KZN is the province that has got the greatest potential of all South Africa, yet land degradation issues pose a threat to the future of agriculture in the province. People with knowledge of animal science, veld management and pasture science are scarce.

The province is faced with a high rate of urbanization. It is expected to be 60% by the year 2020. The situation could be reversed if rural areas can be made a better place to live. Rural people, especially women, are involved in different non-agricultural activities which should be viewed along agriculture as part of rural development. Therefore agriculture needs not be viewed in isolation but as part of the system. Integrated rural development approaches need to be implemented. This indicated a need for training people for agriculture and rural development so that they have an understanding of the dynamics in rural areas.

Agriculture in the developing sector has not been seen as a viable option for family support. Interest will be aroused if agriculture is seen to be competing with urban employment and other businesses in terms of income generating potential. For this sector to develop, there is a need to take into consideration issues of market, labour and funds. This creates a need for training farmers in market co-operatives. Efforts should be made to attract youth in agriculture to run the businesses. Strategies to assist farmers to access credit needs to be developed.

Gaps in service provision have been identified. There was a gap in terms of what was required by farmers and what the extension staff had. Most skills required by farmers and extension workers were in the areas of business.

Colleges of agriculture, agricultural high schools, Department of Agriculture and non-governmental institutions were seen as the providers of non-formal training.

The role of universities was seen to be that of co-ordinating in-service training for staff involved in extension of rural development.

4.1 Recommendations

4.1.1 Recommendation for Agricultural Education and Training

- A body formed by stakeholders of AET from the public and private sector, needs to be established to co-ordinate training and implementation of strategies to be developed. Other functions that can be done by these bodies would be to explore agricultural market opportunities and skills development opportunities.
- Higher learning institutions should consider training people for agriculture and rural development and for agricultural businesses. This means that in a package for agricultural graduates business and social sciences (development studies, sociology, extension) can be included. A student could choose between the two.

- Non-agricultural activities that are related to home economics need to be incorporated in the strategy for agricultural education and training – as these activities are part of rural development.
- Youth development programmes in agriculture need to be developed that will target in-school and out of school youth.

4.1.2 Recommendation for rural development

- Integrated development approaches need to be implemented. A body formed by people from different levels of Government, private sector, professional and rural people representatives could be established. This body should focus on developing interventions strategies for rural development.
- There is also a need to develop a programme that will target local government people (councilors). These people require training on development. Training needs assessment has to be done.

| |
|---------------------|
| BIBLIOGRAPHY |
|---------------------|

A A Kars, Johannes Theodorids van Rooyen & Kubentheran Govender (1995):
Country: Report – South Africa paper presented at the 5th International
Programme for Sustainable Agriculture and Rural Development.

The Kwazulu Natal Training Trust.

The Kwazulu Natal Department of Agriculture Report 1999-2000.

Elizabeth Ardington (1995). The Third Survey in a Longitudinal Study of Rural
Community in KwaZulu-Natal: Centre for Social and Development Studies
– University of Natal, Durban.

Caroline O N Moser (1995). Gender Planning and Development

Bio-Resource Unit – Information Cedara.

Municipal Demarcation Board 1996: Census Report. South African Explorer.

APPENDIX 4

**MAP OF KWAZULU NATAL
(FIVE REGIONAL BOUNDARIES)**

North East Region

North Region

North West Region

South East Region

South West Region

Map not available.

APPENDIX 5

5.1 Qualifications for major service providers of AET

| Qualifications | | | | | | |
|-----------------------------|---------|------------|------|----|-----|-------|
| Service Providers | Diploma | Bachelor D | Hons | MA | PhD | Total |
| Extension (N=48) | 94 | 6 | | | | 100 |
| Youth Co-ordinators (N= 21) | 76 | 24 | | | | 100 |
| Agric Scientists (N=19) | 11 | 47 | 26 | 16 | | 100 |
| Managers (N = 38) | 74 | 25 | 1 | | | 100 |
| Lecturers | 7 | 17 | 37 | 26 | 13 | 100 |

5.2 Institutions where service providers of AET obtained latest qualifications

| Service Providers | Institutions | | | |
|--------------------------------|--------------|----------|------------|-------|
| | Technikons | Colleges | University | Total |
| Extension (N=48) | 63 | 35 | 2 | 100 |
| Youth Co-ordinators (N=21) | 62 | 14 | 24 | 100 |
| Agric Scientists (N=19) | 5 | 5 | 90 | 100 |
| Managers of Extension (N = 38) | 21 | 46 | 33 | 100 |
| Educators – High School (N=97) | 0 | 60 | 40 | 100 |
| Lecturers N = 30) | 4 | 4 | 92 | 100 |