

**FACTORS AFFECTING PERFORMANCE OF THE POULTRY FARMERS IN THE
AGRICULTURAL SECTOR IN SWAZILAND: A CASE OF THE POULTRY FARMERS
IN THE HHOHHO REGION.**

By

Luke Mfanuzile Malindzisa



**Assignment presented in partial fulfillment
of
the requirements for the degree of
Master of Philosophy at the University of Stellenbosch**

Supervisor: Prof. L.G. Ekermans

February 2003.

DECLARATION

I, the undersigned, hereby declare that the work contained in this assignment is my own work and that I have not previously in its entirety or in part submitted it at any University for a degree.

Signature:

Date:

Luke M. Malindzisa

ABSTRACT

The study was designed to describe the perceptions of poultry farmers concerning their level of satisfaction in terms of availability of: Transport, land, interest, feed supply, market, foundation stock, finance, water and pricing body and to describe the relationship that exists between each of the selected demographic characteristics of the poultry farmers and their perceptions on the performance of the poultry industry.

Results revealed that poultry farmers have a low level of satisfaction in terms of availability of finance and market. The results also revealed that poultry farmers are not skilled in some of the poultry production skills. These skills include ability to set the correct room temperature, timely detection of disease, timely detection of stress, setting and maintaining the correct room temperature, timely elimination of stress, timely elimination of disease and ability to categorize mortality caused by feed / nutrition.

The study highlights the need for Swaziland to consider engaging itself in a program of exchanging highly qualified experts with neighbouring and advanced countries in order to equip the poultry extension officers and poultry farmers with skills essential to run a modern poultry system.

ACKNOWLEDGEMENT

Several persons contributed to the completion of this study. To all poultry farmers for their cooperation and support during data collection process, I wish to express my sincere gratitude to you all.

I wish to pass special tribute to my supervisor, Prof. L.G. Ekermans, for his outstanding unlimited guidance, advice when critiquing the drafts of this assignment, encouragement, his patience, dedication, commitment and sacrifice throughout the course of this study.

Special thanks are also due to Dr Moses Sithole for the substance and sense of direction he provided in terms of the validity of the statistics and data analysis. To panel of experts who provided content validity of the instrument, I say thank-you.

I also wish to pay special thanks to Ms Samantha Ellis for her time and effort in seeing to it that this study becomes a success.

Without doubt, the most significant contribution which deserves acknowledgement goes to my wife Nonhlanhla for her unwavering support, patience and understanding during these trying times of my life, I really salute you.

	Table of contents	
Declaration		3
Abstract		4
Acknowledgement		5
Table of contents		6
List of tables		8
List of figures		9
CHAPTER 1	INTRODUCTION	10
	1.1 Statement of the problem	10
	1.2 Significance of the study	11
	1.3 Objectives	12
	1.4 Scope	12
	1.5 Limitations of the study	13
	1.6 Definition of terms	13
	1.7 List of abbreviations	13
CHAPTER 2	REVIEW OF RELATED LITERATURE	14
	2.1 The general agricultural sector in Swaziland	14
	2.2 Traditional farming	14
	2.3 Formal agriculture	14
	2.4 Poultry industry in Swaziland	15
	2.5 Local production	16
	2.5.1 Local broiler production	16
	2.5.2 Small scale abattoir output	18
	2.6 Broiler production figures on TDL	18
	2.6.1 Valley farm	18
	2.6.2 Ngwane poultry	19
	2.6.3 Swazi national chicks	19
	2.6.4 Swazi poultry processors	19
	2.7 Egg production	20
	2.8 Egg production figures for 2001	21
	2.9 Import figures	22
	2.10 Current local production	22
	2.11 Present market status	23
	2.12 Chapter summary	24
CHAPTER 3	RESEARCH METHODOLOGY	25
	3.1 Design of the study	25
	3.2 Subject selection	25
	3.3 Outcome measures	25
	3.4 Validity of the questionnaire	26
	3.5 Reliability of the questionnaire	26
	3.6 Collection of data	27
	3.7 Analysis of data	27
	3.8 Chapter summary	28
CHAPTER 4	RESULTS AND CONCLUSIONS	29
	4.1 Selected demographic variables of respondents	29
	4.2 General information about the poultry enterprise	33
	4.3 Relationship of respondent's selected demographic variables and their ratings	52
	4.4 Differences in perceptions of respondents	54

CHAPTER 5

SUMMARY, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS	55
5.1 Summary of findings	55
Perceptions of respondents	56
Relationship between selected characteristics of respondents and their perceptions	56
5.2 Conclusions	56
5.3 Implications of the findings	57
5.4 Recommendations	58
REFERENCES	61
APPENDIX	
A: Panel of experts	64
B: Cover letter to panel of experts	66
C: Cover letter to respondents	68
D: Research Instrument	70

LIST OF TABLES

Table 1: Day old broiler chick placing since 1995 on SNL	17
Table 2: Day old chick production figures according to regions	17
Table 3: Large scale broiler production figures 1999- 2001	19
Table 4: Point of lay figures according to regions	20
Table 5: Imported point of lay and eggs for hatching - 2001	21
Table 6: Egg production according to regions 1999 - 2001	21
Table 7: Egg production figures by private companies	22
Table 8: Descriptive and inferential statistics used	28
Table 9: General information about the poultry enterprise	35
Table 10: General information on resources and infrastructure	39
Table 11: Perceptions of respondents regarding how skilled and equipped	45
Table 12: General information on layer production	46
Table 13: Perceptions of respondents regarding how skilled and equipped	48
Table 14: General information on broiler production	49
Table 15: Relationships of selected demographic characteristics	52

LIST OF FIGURES

Figure 1: Description of respondents by gender	29
Figure 2: Description of respondents by age	30
Figure 3: Description of respondents by level of education	30
Figure 4: Description of respondents by number of years in the poultry industry	31
Figure 5: Description of respondents by citizenship	32
Figure 6: Description of respondents by position in the poultry farm	32
Figure 7: Description of respondents by location of the poultry farm	33

CHAPTER 1

INTRODUCTION

In developing countries, rural poultry production plays an important role as a source of animal protein in the household. In such areas where meat cannot be preserved for a long time, chickens provide a good protein source for one to two days consumption by a family. In these countries, poultry is generally scavenging around the houses where they find their own feed or sometimes supplemented with household waste.

Farmers in both the rural and urban areas of these countries, make a substantial impact on family diets and household budgets through their efforts in agricultural production. Participation of farmers in the socio economic development of their countries has in recent years become a topic of major concern. Since farming is the cornerstone of the economy of most developing countries, there is need for strengthening farmers' efforts in making improvements in several aspects of rural life such as food production and animal husbandry.

However, modern intensive systems are found mainly in urban and peri-urban areas and these are characterized by high investment costs in premises and high running costs. Available data show that poultry play a major role in the lives of individuals and also in the agricultural sector. Generally, there is also little technological advancement available to the poultry farmers for their agricultural production tasks. The knock-on effects include investments in the poultry industry by all types of people. Lamming (1983) reported that farmers in developing countries are restricted by credit for inputs for their agricultural activities. The poultry farmer generally has no access to credit facilities unless he / she belongs to some cooperative.

1.1 STATEMENT OF THE PROBLEM

During the early 1990's, Swazi farmers started to become aware of the viability and sustainability of utilizing agricultural land for poultry production, specifically land unsuited to crop farming. This saw poultry production increasing nationwide. However, these poultry farmers soon learned by experience that not only management routines are essential for good development of the poultry industry but also issues such as credit, markets, land, feed supply, foundation stock, water, transport etc are equally important. Besides these innovations, no systematic and comprehensive investigation has been made into the extent to which these supposedly real or assumed factors affect poultry farmers in the agricultural sector.

In this context, four practical issues related to poultry production were brought to the forefront. The first issue related to general information on the poultry production enterprise the farmer is involved in. The second issue was about the availability of resources and infrastructure in terms of finance; land, feed sources, water, transport and market availability.

The third one was how skilled and equipped these poultry farmers are in performing poultry production skills. The fourth sought information on demographic characteristics of these poultry farmers.

1.2 SIGNIFICANCE OF THE STUDY

Farms are usually small; they do not have adequate access to improved seed varieties, mechanical equipment to till land, fertilizer, irrigation water, etc. Their productivity is low as farm output depends to a large extent on their input of resources, time and physical energy. The above concerns / issues call for more research on poultry farmers to identify their “felt” needs and their priorities. They should be asked to indicate their needs, problems and possible solutions. Implementation of these suggestions could result in a reversal of decades of long neglect of poultry farmers. It is only through such reversal that poultry farmers can make a meaningful contribution to the country’s economy.

To provide an answer to these questions, a survey study using a questionnaire was developed to gather information that might help to improve/ modify poultry production in Swaziland.

1.3 OBJECTIVES

The following objectives were identified to guide the study:

- 1) To identify channels for marketing poultry products.
- 2) To describe the perceptions of poultry farmers concerning the level of satisfaction in terms of availability of:
 - a) Transport
 - b) Land for project
 - c) Interest
 - d) Feed supply
 - e) Market
 - f) Foundation stock
 - g) Finance
 - h) Water
 - i) Pricing body
- 3) To determine whether the perceptions held by poultry farmers regarding the assistance needed is significantly influenced by citizenship and location of farm.
- 4) To describe poultry farmers in terms of:
 - a) Age
 - b) Level of education
 - c) Number of years in poultry farming
 - d) Gender
 - e) Citizenship
 - f) Location of farm
- 5) To describe the relationship that exists between each of the selected characteristics (gender, age, level of education, citizenship, location of farm, number of years in the poultry production industry of the poultry farmers and their perceptions on the performance of the poultry industry).

1.4 SCOPE

The scope was limited to the poultry farmers in the Hhohho region in Swaziland.

1.5 LIMITATIONS

Absence of current (and scientific) information on poultry in Swaziland, affected the study. Even the Ministry of Agriculture and Cooperatives does not have current scientific information on the present status of poultry in Swaziland nor proper records or a profile for all the poultry farmers in the country. Due to lack of funds and time, the survey was confined to the Hhohho poultry farmers in the poultry production sector.

1.6 DEFINITION OF TERMS

The following terms were assigned meanings in the context in which the researcher used them in the study. Therefore, these definitions were only applicable for use in this study of which they may have different meaning when used outside the context of this study.

Small-scale farmer: a farmer raising between 0 – 5 000 birds.

Medium scale farmer: a farmer raising between 5 000 – 50 000 birds.

Large-scale farmer: a farmer raising over 50 000 birds.

Poultry: domesticated fowls kept for eggs and / or meat

Poultry farmers: those individuals who deal with chicken production specifically broilers and / or layers.

Region: part of a division in an area.

Skill: the ability to use knowledge readily, effectively and competently in performing a task.

Task: work that has to be finished within a given time frame.

1.7. LIST OF ABBREVIATIONS

MOAC: Ministry of Agriculture and Cooperatives.

POL: Point of Lay.

SNL: Swazi Nation Land.

SPP: Swazi Poultry Processors.

SPPA: Swazi Poultry Producers Association.

TDL: Title Deed Land.

CHAPTER 2

REVIEW OF RELATED LITERATURE

2.1 THE GENERAL AGRICULTURAL SECTOR IN SWAZILAND

Swaziland's diverse agricultural sector covers sugar, citrus fruit, maize, cotton forestry and livestock. Dlamini (2001) reported that this sector is a major export earner and contributed 9.8% of GDP in 1999/2000. This sector is also a key supplier to many of the country's manufacturing industries, particularly operations that utilize sugar and wood. However, self-sufficiency in basic foodstuff production continues to be a national objective, which is encouraged and pursued by government with due consideration to conservation and the development of water and soil resources. Swaziland's agricultural sector, which may be divided into formal and informal, or traditional sub-sectors, is the source of income for the majority of people in the country. This may be in terms of those who are benefiting directly by being directors or owners and or indirectly by being employed from these sectors or complimentary companies.

2.2 TRADITIONAL FARMING

Swazi Nation Land¹ (SNL) is acquired in terms of traditional law and custom, and subsistence farmers often carry out agricultural activities in these areas although this category is now starting to perform on a more commercial basis. Small cane growers, for example, produce commercially on SNL with the Swaziland Sugar Association and the major sugar estates playing a fundamental role in assisting them. Dlamini (2001) reported that small-scale farmers provide a certain proportion of maize, the staple food crop, and the production increased by 62% during the year 2000. The livestock sub sector is also becoming more commercial, with the assistance and advice from established producers and government.

2.3 FORMAL AGRICULTURE

This sector embraces the large sugar and citrus estates, forestry and other undertakings, which generate foreign exchange earnings. Formal agriculture also covers meat and poultry production, dairy farming and fruit and vegetable growing for mostly local consumption, although a baby vegetable export project was being developed during the year 2000. Since poultry production is an important line of farming throughout the world, in many of these countries the consumption of chicken meat exceeds that of beef and mutton.

¹ Land held in trust by the King for the people and by the people – a system of land tenure in Swaziland.

However, worldwide, as far as meat consumption is concerned, pork is still leading (Hayes and Saunders, 2001).

The importance of poultry production is not limited purely to the production of protein for human consumption, but also relates to the raw materials consumed by this industry. In countries where these are in abundance, the poultry production enterprises are viable (Hayes and Saunders, 2001). Chickens are one of the most efficient animals that convert feed energy and protein to meat. By utilizing maize as an energy source in poultry diets, protein sources such as sunflower, soya beans and animal by products, which on their own have unfavorable amino acid compositions, can be combined to supply the essential amino acids in ideal ratios needed by the chicken. Thus the chicken is used to convert not only low quality products but also products unacceptable in their natural state to humans, into a highly nutritious and very palatable product for human consumption.

2.4 POULTRY INDUSTRY IN SWAZILAND

Ndlovu (2000) reported that during the past 10 years, an estimated E²60 million has been invested in the local poultry industry, which, in conjunction with its infrastructure and support services, provides employment for in excess of 4000 people. Chickens play an integral part in Swaziland's rural economy and provide an ideal source of protein. Safaloah (1992) reported that chicken meat and eggs are considered to be tastier than those of other fowls as a result, most people prefer them. In Swaziland, poultry farmers are found in most farming communities. However, they are operating in different stages and as such they may be classified into small holders, medium and large-scale producers.

In the past years, medium and large farming enterprises were found in Title Deed Land³ but with the establishment of the Swazi Poultry Processors (SPP) in Matsapha industrial area, these categories are now found even on SNL. It is now a common feature to find a farmer raising between 5 000-20 000 birds on SNL. What is interesting is that a decade ago, the poultry market in Swaziland was dominated by South Africa. This resulted in the creation of a forum where both large and small producers of eggs, live chickens and slaughtered birds could meet. These producers realized the need for an official body to represent their interests and the Swaziland Poultry Producers Association (SPPA) was formed. This means that the SPPA looks after the interests of the industry and as an apex organization, it is an umbrella for all registered poultry cooperatives and poultry companies / enterprises in the country. There are 20 Cooperatives, two in the Hhohho, four in Lubombo, four in the Shiselweni and ten in the Manzini region (Ndlovu, 2000).

² Swazi currency

³ Privately owned land

2.5 LOCAL PRODUCTION

Mnguni (2001) stated that the poultry industry in Swaziland has shown an increase in broiler production of 31% since 1998. This is a huge increase, which can be attributed to the availability of marketing opportunities and also to the fact that the Swaziland Poultry Processors contracted more contract growers than the previous years. Egg production on the other hand, has continued to decline since 1999, reasons being low prices given by large-scale farmers, which small-scale farmers cannot compete with and also the high initial capital cost involved in setting up and running this enterprise. The large-scale egg- producer, Eagle's Nest, at Malkerns in the Manzini region, increased capacity from 80 000 to 110 000 layers and Usuthu Poultry at Mzimpofo, which started operating in May 1999, had a total of 10 000 layers.

Khumalo (2001) stated that these companies have low production costs compared to small-scale producers. As a result, the latter are steadily forced out of the market. As observed by Halcrow (1999), improvements in highways and the trucking industry including the development of refrigeration technology in adaptable trucks have caused meat-packaging firms to move their plant out of the central markets to areas where the production is. Such technological advances in the meat industry have tended to make the industry less concentrated and more dispersed geographically. In Swaziland this has seen the establishment of small regional abattoirs, which have also changed the trend of smallholder farming from keeping smaller numbers of between 1 000-5 000 broilers per cycle.

2.5.1 LOCAL BROILER PRODUCTION

With encouragement from government and commercial operations, the poultry enterprise is one of the fastest growing agricultural sub sectors, providing many income-generating opportunities. There are about 800 poultry farmers in the country, including small farmers working in cooperative groups to large concerns supplying around 20 000 chickens a week. The largest abattoir and processor process about 60 000 chickens a week – about 60% of the local requirement. (Dlamini, 2001)

However, very few of these poultry farmers are making meaningful progress. Some are striving towards progress, others are struggling to be viable, and the remainder is no longer operating. Generally, the performance of the poultry industry in the agricultural sector, particularly that of the farmers in the Hhohho region is not known. Mnguni (2001) reported that despite these advantages, the production is inherently low, resulting in low supply and availability of chicken meat and eggs. The question is why? Is it lack of resources, market, research and production technology that limits poultry production output or is it some other problem unknown to the investigator?

In Swaziland, day old broiler chicks are imported and to a lesser extent they are also hatched locally. The main day old chick importer is Kharafa Trading in Manzini. Other importers are Msilezi and Nhlanguano Lamthuthu in the Shiselweni region, which import from South Africa. Swaziland Broiler Breeders, Valley Farm and Ngwane Poultry import hatching eggs. Besides hatching the eggs for it's own, Ngwane Poultry also supplies farmers and exports some to Mozambique (Mhlongo, 2000).

Even though the country has not yet become self sufficient in the production of poultry meat, there is some evidence that shows that the poultry industry is moving towards that direction. This is shown by the trend of day old broiler chick's placing when compared according to regions from 1995 to 2001 as shown in Tables 1 and 2 (Khumalo, 2001).

Table 1 Day-old broiler chick placing since 1995 on SNL (Total per annum) (Khumalo, 2001)

Region	1995	1996	1997	1998	1999	2000	2001
Hhohho	281 900	301 500	251 400	323 000	378 300	401 700	472 302
Lubombo	32 200	54 900	75 300	148 400	120 100	133 100	163 310
Manzini	82 600	108 700	147 800	508 850	865 500	1063 526	939 070
Shiselweni	176 600	250 800	309 800	561 000	583 00	716 750	737 000
TOTALS	573 800	715 800	785 000	1 481 250	1 947 200	2315 076	2 311 682

Table 2 Day old chick production figures according to regions – 2001 (Total per month) (Khumalo, 2001)

Month	Hhohho	Lubombo	Manzini	Shiselweni
Jan	22 675	2 900	72 400	46 500
Feb	31 250	4 170	47 550	51 300
Mar	20 350	6 350	64 000	54 600
Apr	33 592	12 500	63 450	57 000
May	34 000	15 500	66 700	58 800
Jun	42 910	8 850	67 850	62 750
Jul	39 605	11 950	88 350	60 800
Aug	51 650	21 800	67 670	66 000
Sept	38 300	27 540	83 200	75 250
Oct	46 960	14 500	98 600	78 500
Nov	77 120	30 000	87 800	80 500
Dec	53 990	7 650	131 500	45 000
Total	472 302	163 310	939 070	737 000

2.6.3 SWAZI NATIONAL CHICKS⁶

Day old chicks hatched:	6 432 352
Day old chicks – exported to Maputo Jan – Dec:	1 269 754

2.6.4. SWAZI POULTRY PROCESSORS⁷

Broilers slaughtered:	3 169 000
Weight of slaughtered birds:	5 482 tonnes
Processed weight:	4 963 tonnes

The Swazi Poultry Processors (SPP) has contributed a great deal in the growth of the poultry industry on the broiler side. It has enabled large – scale broiler farming. A number of Swazi farmers have joined the contract scheme of the company even though they complain of the low selling price of E5.20/kg live weight. Mondlane (2001) reported that in the year 1999 there were 26 contract growers to the company and they supplied about 90% of the birds slaughtered, the rest was from the company farms. The company provides all inputs including veterinary service, the cost of which is deducted after sales of chickens to the company.

Large-scale broiler production is based mainly in the Manzini region. This is because the SPP used to prefer to give contracts to growers situated preferably within a 25 km radius to their site in an effort to cut transport costs. SPP is in Matsapha industrial site. This is a major producer in as far as broiler production is concerned in Swaziland.

Table 3 Large scale broiler production figures from 1999-2001 (Mnguni, 2001)

	1999	2000	2001
SPP	3 169 000	3 915 150	5 455 630
Valley Farm	75 600	792 000	1 845 500
Total	3 244 600	4 707 150	7 301 130

From Table 3 (Mnguni, 2001), it is observed that broiler production increased even with large-scale producers between 1999-2001. SPP alone increased placing by 23.5% and Valley Farm increased by 47.6%.

⁶ Swazi National Chicks, Box 36, Malkerns, Tel. 5283119

⁷ Swazi Poultry Processors, Box 1125, Matsapha, Tel. 5187147

The local increase in broiler production is firmly supported by the decrease in the importation of frozen chickens from South Africa. With a broiler placing figure of 2 315 076 and 4 707 150 for large-scale farmers and smallholder farmers respectively of the nationwide total of 7 022 226 broilers, it is clear that, the large-scale farmers are contributing 67% and the small farmers managing only 33%.

2.7 EGG PRODUCTION

Dlamini (1999) reported that in 1997, egg production generally increased from about 156 000 layers to 178 000 layers. This showed an increase of about 14%. Most of these layers were in title deed land farms. Layers in SNL constituted only 23.4% of all the layers in the country. Actually there has been a decrease of about 25% in layers in SNL, which basically means a major increase was seen elsewhere with large-scale farms. Usuthu Poultry Farm started production in May and had a capacity of 10 000 layers and it is situated at Mzimpofo in the Manzini region.

However, the importation of point-of-lay (pol) chickens from South Africa declined tremendously between 1999 and 2001. A total of 117 396 pol chickens was imported in 1999 as opposed to 86 000 for the year 2000. This indicates a decrease of 28.8%. This decline may be attributed mainly to the high initial capital cost involved in egg production. Many farmers prefer to go into broiler production.

There is a massive decline in pol placing in all the regions (Table 4) and in other egg suppliers (Table 5). Nationally there is a 32.9% decrease in layer placing. According to Mnguni (2001) this situation may be attributed to the switch from egg production to broiler production as stated earlier.

Table 4 Point of lay figures according to regions (Total per annum) (Mondlane, 2001)

Region	1999	2000	2001
Hhohho	10 651	2 722	1 035
Lubombo	10 910	7 928	5 465
Manzini	10 660	10 422	8 500
Shiselweni	9 630	6 875	4 980
TOTAL	41 850	28 086	19 980

Table 5 Imported point of lay and eggs for hatching – 2001 (Total per month) (Mondlane, 2001)

Month	Kharafa (pol)#s	Dehaza (pol)#s	Usuthu (pol)#s	Coops (pol)#s	S.B.B (Hatching eggs)
Jan	-				616 000
Feb	24 000		5 000		1544 000
Mar	6 000		5 000		1552 000
Apr					776 000
May	17 000	100			776 000
Jun	5 000				776 000
July	7 000			2 500	776 000
Aug	-				1 917 000
Sept	6 000				1 064 448
Oct					1 040 000
Nov	6 000				1 808 000
Dec					760 000
Total	71 000		10 000	2 500	13 405 448

2.8 EGG PRODUCTION FIGURES FOR 2001

The below figures show a steep decline of 49% for 2001 compared to 2000. This seems to be confirming that there is a shift from egg production to meat production by most farmers (Ndlovu, 2000). Small-scale farmers in the regions still continue to prefer broiler production to egg production due to the high initial capital involved in the latter.

Table 6 Small scale farmer's egg production in dozens for the years 1999 - 2001 according to regions (Total dozens per region per year) (Mondlane, 2001)

Region	1999 (dozens)	2000 (dozens)	2001 (dozens)
Hhohho	758 674	8 836	6 780
Lubombo	79 264	11 091	8 600
Manzini	251 642	216 000	102 500
Shiselweni	171 073	12 059	9 450
Total	1 260 653	248 436	127 330

According to Ndlovu (2000), private companies show some dominance in the egg production business over farmers on Swazi Nation Land. With a countrywide egg production

of 3 374 543 dozens for the year 2001, private companies contributed 88.5%. The Smallholder farmers only managed 11.5% egg production.

Table 7 Egg production figures for private companies from 1999 to 2001 (Total per year) (Mondlane, 2001)

	1999	2000	2001
Eagle's Nest	2 475 000	2 597 409	3 588 300
Usuthu Poultry	155 146	389 696	412 760
Total	2 630 146	2 987 105	4 001 060

2.9 IMPORT FIGURES

Even though there is some production going on, the country has not yet reached self-sufficiency in chicken meat and its product production, hence it is continuing to import⁸.

Day Old Broiler Chicks:	5 616 500
Hatching Eggs:	596 751
Table Eggs:	583 873
Point of Pullet:	117 396
Frozen Chickens:	2 432 MT

2.10 CURRENT LOCAL PRODUCTION

The government of the Kingdom of Swaziland legislated frozen poultry as a scheduled product. This forced importers to apply for permits and pay levies on all frozen poultry imports. Even though there were some objections to this, most people could appreciate the long-term benefits for Swaziland through the creation of a climate that encourages investment, provides employment and ensures continuity of supply.

The following 2000 figures,⁹ show the country's production:

Fresh and frozen

Slaughtered chicken:	650 000 kg per month
Table eggs:	1 800 000 kg per month
Live chickens:	120 000 kg per month
Day old chicks:	650 000 kg per month.

It is estimated that the poultry industry currently contributes in the region of E72 million a year to Swaziland's economy. In ten years, it has grown from a fledging sector,

⁸ Courtesy Of National Agricultural Marketing Board –2000 Annual Report.

⁹ Courtesy Of National Agricultural Marketing Board –2000 Annual Report.

which produced 10% of local requirements to a giant entity, which currently produces 90% and this is set to make Swaziland self-sufficient in poultry by end of 2003.

2.11 PRESENT MARKET STATUS

During the past ten years, poultry farming has developed into one of the more important agricultural sectors in Swaziland and together with the broiler industry, it forms the largest sector of agriculture which unfortunately it has been tried by most people, others have been successful others not. The poultry industry in general has a very large effect on the well being of other agricultural and related industries. The feed consumed by these broilers each week amounts to some 20 000 tons, almost 70% of which comprise maize, over a period of one year this is more than 25% of the maize consumed by the animal sector of this country (Tsabedze, 2000).

Even though the egg industry is declining, its importance is not limited to the production of an affordable and competitively priced food for human consumption, but egg products also make up raw material used within the baking, salad dressing and other industries. The efficiency with which the broiler / chicken converts feed to meat, makes broiler farming an attractive industry. In this regard, broilers perform far better on a commercial basis than the other mammalian species. The intensive nature of the industry also means that high production can be obtained from a small area. The financial returns are also fast. The period from the moment the day old chicks are started to the point where income is obtained can be as short as 38 days (Hayes and Saunders, 2001). All these factors have led many people to try farming with poultry, some have been successful while others have encountered more problems than they had foreseen. A very high level of attention and thorough technical background are necessary to produce good quality market ready broilers. Poor decisions with regard to house construction can have a negative effect on production from the start. Rearing techniques that are not followed properly or equipment that is poorly managed or staff that is not properly trained will have a negative effect. Not only these but also a number of equally important factors and issues need to be attended to, so that the industry becomes economically viable.

The industry is operating in a free market, which means it is extremely competitive thus the highest level of attention must be devoted to the enterprise from starting through the rearing phase to the marketing stage if one wishes to make success of a broiler business.

A decade ago, the market was almost completely dominated by imports from South Africa. This created problems for retailers and consumers in that supplies were erratic and depended on the state of that market. Surplus stocks would be dumped into neighboring countries such as Swaziland, Botswana and Lesotho at below cost. However, at times of

shortages, such as Christmas, New Year and Easter, South Africa would supply their own market first, thus creating a deficit in the local market where only 10% of requirements were met by Swazi producers at the time.

A single company presently provides the main market with frozen birds and their products and has about 60% of the market share and small holders are automatically barred from this market as consignments of at least 2 500 birds is required. Another barrier is the price paid which, at E5.20 per kg is too low to encourage more costly small-scale production. However, Namboard, which has a market share of 12%, pays small farmers E7.50 per kg and E8.50 per kg for fresh and frozen birds respectively. Large-scale producers, which account for about 70% of total production, dominate the local poultry market. Cooperative societies and individual producers have no formal market for eggs; producers negotiate with buyers such as hotels and retailers. Unfortunately, small producers are sidelined from the market when their large counterparts can sell their eggs at lower prices.

Key areas of concern to the poultry farmer include access to feed, medication and equipment. Suppliers of these vital inputs have subsequently put an effective network within the country which enables all producers, both small and large, to source their requirements locally. With the establishment of Arrowfeeds¹⁰, an animal feed company; poultry production inputs such as feed, equipment and genetic material are now sourced locally. This has brought the animal feed industry into shape since it has cut the monopoly and the tendency to have stale feed

2.12 CHAPTER SUMMARY

Recently, considerable progress in the poultry industry in Swaziland has been observed (Khumalo, 2001; Ndlovu, 2000) but still the industry is too far from making a meaningful contribution to the agricultural sector and economy of the country as observed by the non performance of some of the poultry farmers (Dludlu, 1993 and Mhlongo, 2000). Lack of current and up to date scientific information on the performance of the poultry industry in Swaziland somehow contributes to the poor performance of the industry since there is no profile of the skills the poultry farmers are skilled and equipped in. Determination of the factors affecting performance of the poultry farmers in the agricultural sector have not been investigated, hence this study was put in order

¹⁰ Arrowfeeds, Box 413, Manzini, Tel. 5184643

CHAPTER 3

METHODOLOGY

The procedures that were used in this study are described in this chapter. The methodological activities were encompassed by the following sections; research design, subject selection, outcome measures, conditions of testing, treatment and data analysis.

3.1 DESIGN OF STUDY

A descriptive survey type of research using the questionnaire technique was used in this study. The survey strategy has the advantage of providing information about the frequency of a phenomenon and about the perceptions of key individuals.

3.2 SUBJECT SELECTION

The target population of the study were poultry farmers in the Hhohho region of Swaziland (N=210). The population were selected because the respondents were in a better position to provide the information required to achieve the objectives of the study. This is mainly because they are actively involved in poultry production. Since the survey included a representative sample of all the poultry farmers in the Hhohho region, the respondents were an important source of data about the present status of the poultry production enterprise in the Hhohho region in Swaziland.

An up-to-date list of poultry farmers in the Hhohho region was obtained from the Senior Poultry Officer in the Ministry of Agriculture and Cooperation (MOAC). This procedure was followed to control frame error. The Senior Poultry Officer is the only person in the MOAC who has up-to-date information about poultry farmers in Swaziland. The list was purged to avoid duplication of respondents thus controlling selection error. Using the table for determining sample size developed by Krejcie and Morgan (1970), one hundred and forty eight poultry farmers as a subject were selected and surveyed (n =148).

3.3 OUTCOME MEASURES

An instrument in the form of a questionnaire (Appendix D) was developed. The instrument was a four-part questionnaire. Using questionnaires had the advantage of covering a wide geographical area because they can be posted, they avoid middle person bias, which is found in the other techniques such as interviews and if well constructed, are easy to complete.

The questionnaire consisted of close-ended questions. For part I and II, the respondents were asked to provide some information as per the items and the questions. For part III, the respondents were asked to rate how skilled and equipped they are in poultry production skills on a zero to four point Likert-type scale (Cooper and Schnindler, 2001) indicating the degree of being skilled and equipped in performing these skills. The rating scales were as follows: -

4	Very skilled and equipped	(VSE)
3	Skilled and equipped	(SE)
2	Fairly skilled and equipped	(FSE)
1	Least skilled and equipped	(LSE)
0	Not skilled and equipped	(NSE)

The highest possible score on the items was four (4) and the lowest was zero (0). Part IV of the instrument requested information on personal characteristics of the respondents: gender, qualification, position, years in poultry production and age. These were included to establish whether they significantly influence the farmer's perceptions on the performance of the poultry industry.

3.4 VALIDITY OF THE QUESTIONNAIRE

Content validity of all parts of the questionnaire was ascertained. First, an item was included in the instrument only if it was pertinent to poultry production. The second step was to ask a panel of experts to assess the instrument. Panel members consisted of five poultry extension officers at the Ministry of Agriculture and Cooperatives who are familiar with poultry production. Their suggestions were used to modify or change the items. Opinion of the course leader was also used to modify these items.

3.5 RELIABILITY OF THE QUESTIONNAIRE

Reliability is the accuracy or precision of a measuring instrument to obtain the same results over and over again (Ary *et al*, 1985). In this study, a pilot test was conducted among a similar group of participants in the Manzini region who are not involved in poultry production. This permitted no contamination of the target population. After pilot testing, the reliability was evaluated by Kuder – Richardson 21 formula (Cooper and Schnindler, 2001) method of assessing internal consistency. The Kuder – Richardson 21 can be used with uniform tests, therefore reliability were calculated. The coefficients for the items ranged from 0.68 – 0.94.

Simelane (1988) stated that reliability coefficients obtained from many of the carefully constructed commercially distributed tests are 0.90 or higher. Such careful test construction effort are not possible for most field tests; it would be expected to find reliability coefficients to be at least as 0.75 and preferably higher than 0.85.

3.6 COLLECTION OF DATA

Instrument distribution to respondents included an initial mail delivery, which contained the instrument and a cover letter. The instrument was compiled in a booklet fashion and was distributed as a package to 148 poultry farmers in Hhohho region of Swaziland. These were hand delivered to the poultry farmers. The cut off date was the 15th December 2001 of which a follow up collection and cut off date was set to be the 22nd December 2001. By the cut-off date, 109 respondents had returned usable questionnaires for a response rate of 73.6%. Comparing early respondents to late respondents was done to control non-response error. Results showed no statistical differences between the groups; hence, the results were generalized to the target population.

3.7 ANALYSIS OF DATA

To analyse data obtained from respondents, the researcher utilized frequencies and percentages to describe respondents in terms of their personal characteristics. The mean and standard deviation were utilized to describe perceptions regarding how skilled and equipped they are in performing poultry production skills. Appropriate descriptive and inferential statistics (Table 8) were used to a) determine whether the perceptions held by poultry farmers regarding how skilled they are in poultry production skills is significantly influenced by their citizenship, position in the farm and location of farm; and b) to describe the relationship between each of the selected characteristics (gender, age, level of education, number of years in poultry production) of poultry farmers and how skilled and equipped they are in performing poultry production skills. Chi-square was used to describe the perceptions of the poultry farmers concerning the level of satisfaction of the poultry farmers in terms of the availability of: transport, land for project, interest, feed supply, market, foundation stock, finance, water and pricing body.

An a priori level of 0.05 was utilized to test for differences among groups. Inferential statistics procedures were used as poultry farmers in the Hhohho region, as a subject, were sampled. Thus, findings of this study could be generalized to all poultry farmers in Swaziland. Data collected in this study were processed by the computer facilities at Hermann Gmeiner High School using the SPSS packages.

Table 8 Descriptive and inferential statistics used

VARIABLE	STATISTICS
Gender	ANOVA
Qualification	r_s
Position	ANOVA
Experience	r
Age	r
Citizenship	ANOVA

3.8 CHAPTER SUMMARY

Detailed descriptions of the research methodology used in the study were: subject selection, outcome measures, data collection and data analysis procedures utilized in the study were discussed. Statistics used to analyse and summarize the data were identified.

CHAPTER 4

RESULTS AND CONCLUSIONS

Findings and conclusions of the study are presented in this chapter.

4.1 SELECTED DERMOGRAPHIC VARIABLES OF RESPONDENTS

GENDER

The respondents were asked to indicate their gender on the questionnaire. Figure 1 showed the number of male and female respondents. A higher percentage (67.7 %) of the respondents were females as compared to 32.3%, which were males.

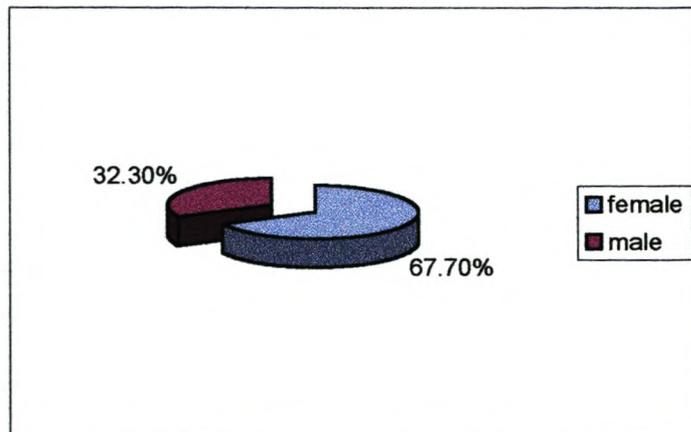


Figure 1: Description of respondents by gender.

AGE

Figure 2 presented the age of the poultry farmers in the Hhohho region in Swaziland. The age ranged from 22 years to 59 years. The mean age was 39.1 years. From these results, it was concluded that poultry farmers were relatively young.

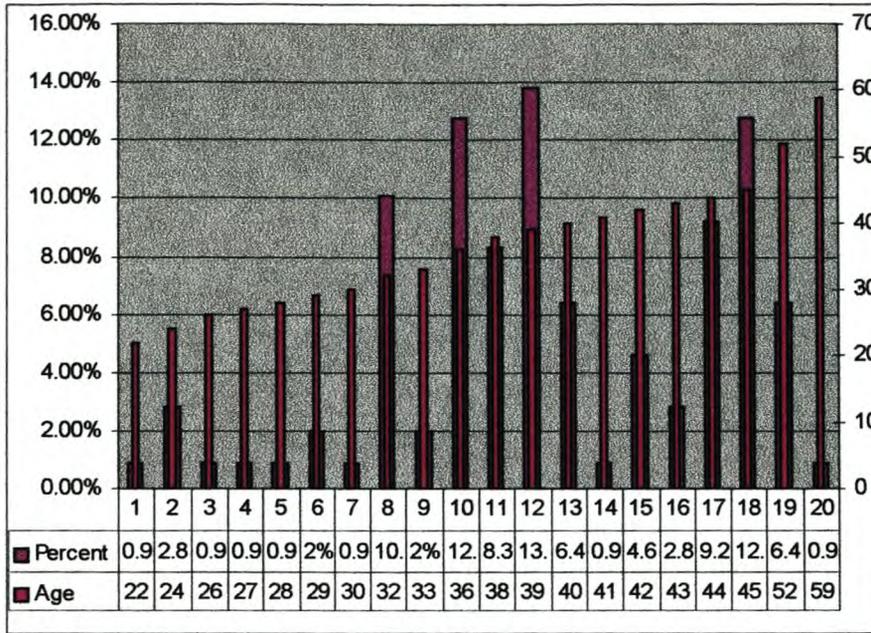


Figure 2: Description of respondents by age.

LEVEL OF EDUCATION

Poultry farmers were asked to indicate their highest level of education. Information contained in Figure 3 indicated that 42(56.9 %) of the poultry farmers had a General Certificate in Education (GCE) O'Level certificate, 38 (34.9%) had a Diploma qualification 6 (5.5%) had First Degree and only 3 (2.8 %) had Post Graduate qualification. The conclusion was drawn that a higher proportion of poultry farmers had a GCE O'Level qualification.

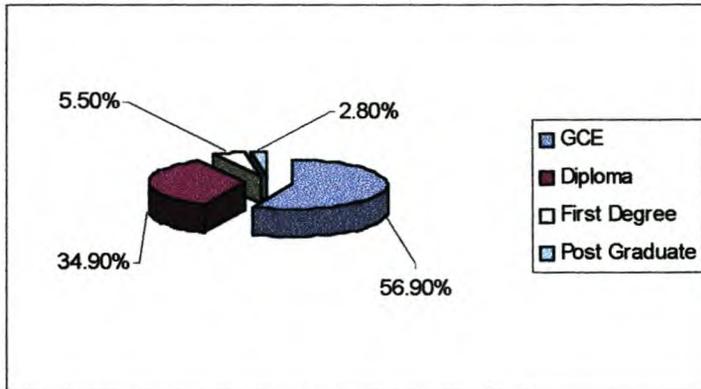


Figure 3: Description of respondents by level of education.

NUMBER OF YEARS IN THE POULTRY INDUSTRY

Poultry farmers were requested to indicate the number of years of work experience in poultry production. The information was compiled and presented in Figure 4. The years of work experience ranged from a half a year to 18 years. The majority of the respondents (22.9%) have been in poultry farming for 6 years and only 3.7% had been in poultry production for 18 years. The average number of years the respondents had worked in poultry production was 7.1 years.

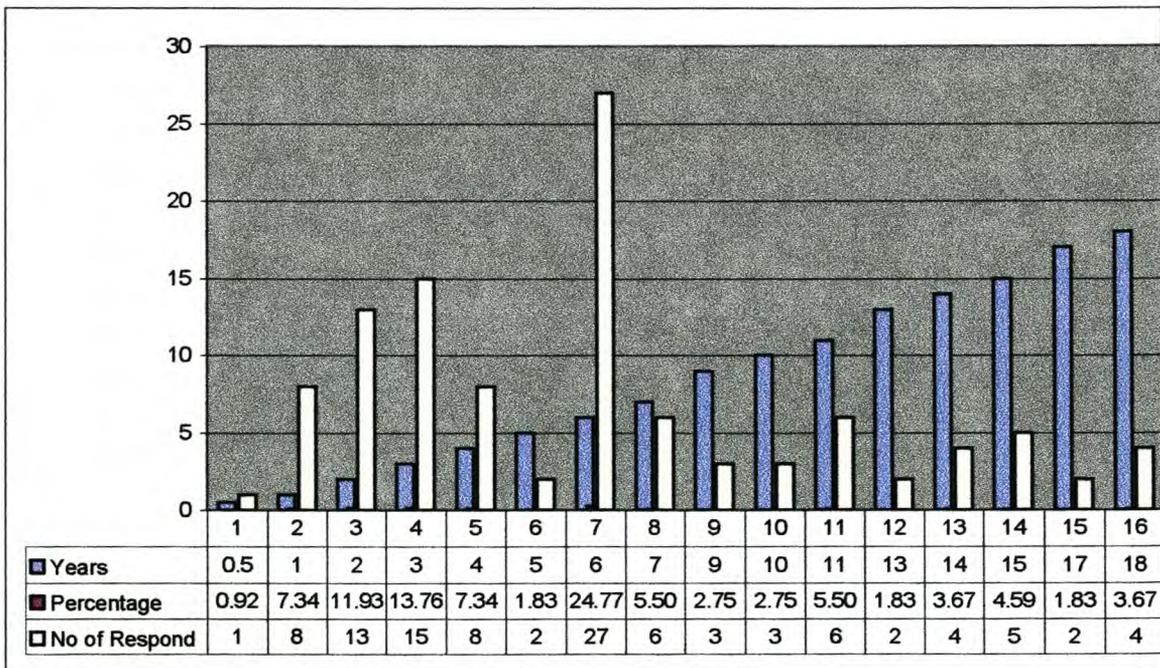


Figure 4: Description of respondents by number of years in the poultry industry.

CITIZENSHIP

Data were gathered to determine the number of respondents who were Swazis and those who were not Swazis. As shown in Figure 5, only a small percentage, 15,4% of the respondents were not Swazis as compared to 84.6% who were Swazis. The conclusion was drawn that the majority of the respondents were Swazis.

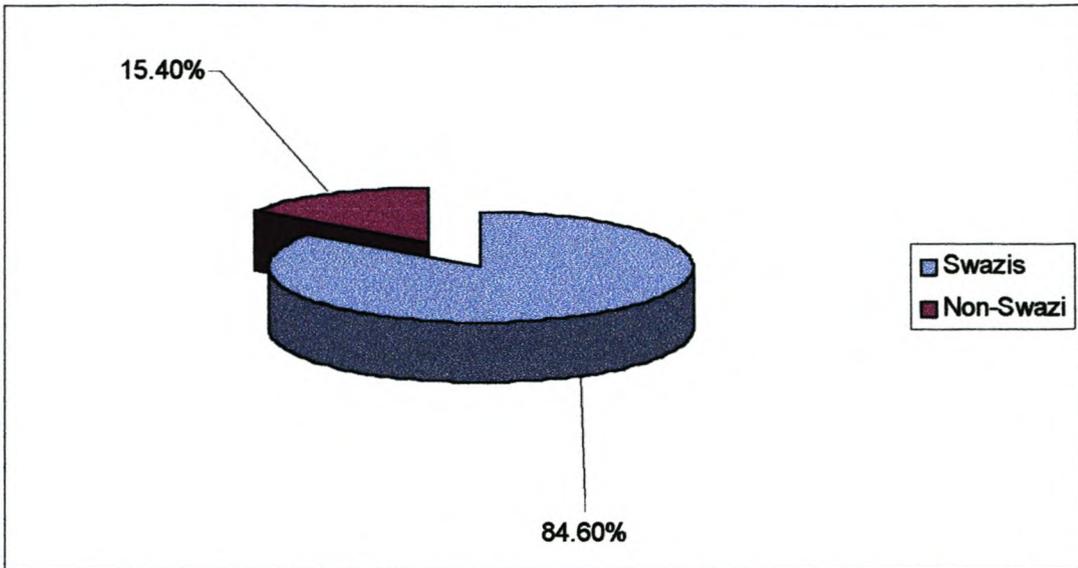


Figure 5: Description of respondents by citizenship.

POSITION IN THE POULTRY FARM

Respondents to this study indicated that 39 or 35.8 % and 56 or 51.4% were Farm Directors and Farm Managers respectively. About 14 or 12.8% did not indicate the position held in poultry farm. The information relating to respondents of this study was contained in Figure 6.

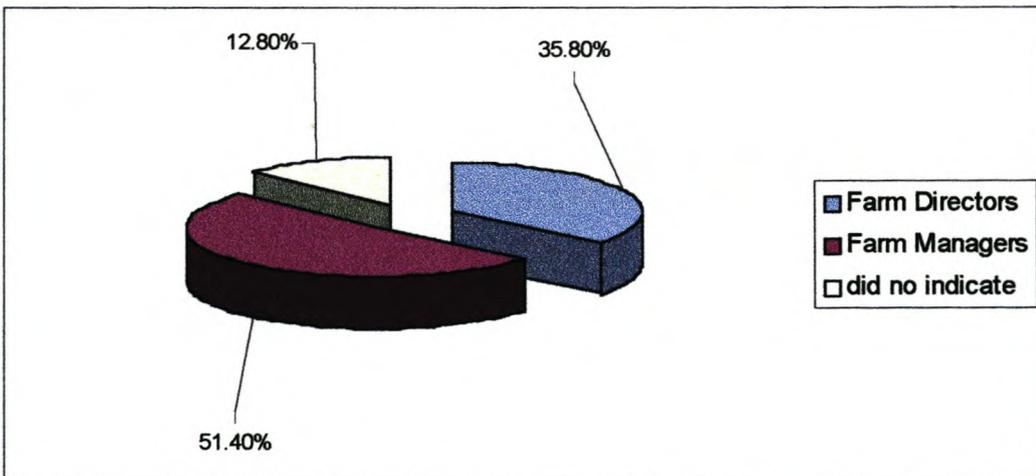


Figure 6: Description of respondents by position in the poultry farm.

LOCATION OF THE POULTRY FARM

Respondents were asked to indicate the location of their poultry farm in Swaziland in terms of Swazi Nation Land¹¹ and Title Deed Land¹². The information was compiled and presented in Figure 7. A higher percentage of the respondents were from Swazi Nation Land (56.9 %) as compared to poultry farms in Title Deed Land (43.1%). The conclusion was drawn that a higher proportion of the respondents were from Swazi Nation Land.

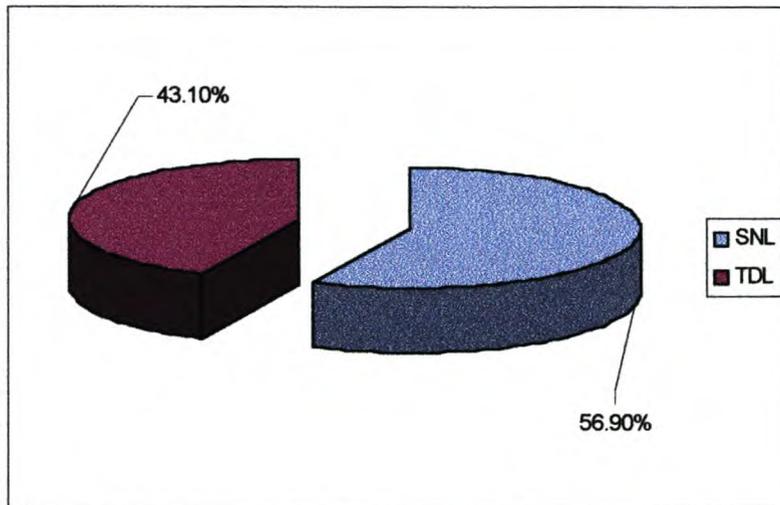


Figure 7: Description of respondents by location of the poultry farm.

4.2 GENERAL INFORMATION ABOUT THE POULTRY ENTERPRISE

Table 9 contains the summary of the general information regarding poultry production in the Hhohho region in Swaziland, the type of poultry enterprise the poultry farmer is involved in, whether or not he/she is a contract grower – the merits and demerits thereof, farmer’s membership or affiliation in terms of being a full member of an association or cooperative, form of assistance if any that he / she gets in running the project, other sources of income the farmer gets.

Most of the respondents were involved in broiler / meat production (67.9%) and only 32.1% of the respondents were involved in layer / egg production. About 69.7% of the respondents were not contract growers and only 30.3% were contract growers. All the respondents (100%) farmers who are contract growers stated the advantages of being thus as follows: ready market, supply of inputs is orderly and well organized; there is continual appraisal on latest production techniques.

¹¹ Land for the people held in trust by the King and for the people.

¹² Privately owned land.

A majority (61.5%) of the respondents stated as disadvantages of being contract growers that: profit margins are narrow and predetermined by the abattoir while only 38.5% stated that there is no room to exploit market opportunities. A majority (69.7%) of the respondents were full members of a poultry association / cooperative while only 30.3% were not. Of the respondents who were members of a poultry association/ cooperative, 55.3% of them were full members of poultry cooperative while only 44.7% were full members of a poultry association. Of those respondents who were full members of poultry cooperative, 66.7% were members of Philani Poultry Cooperative while only 33.3% were full members of Shibani poultry cooperative. Of those who were full members of a poultry association, 17.6% were full members of Lomshiyu poultry association, 11.8% of Injabulo Association, 14.7% of Siphwiwo Sabomake, 17.6% of Komati Broiler Association, 17.6% of Qinani Poultry Association and 20.6% of Hhukwini Broiler Association. All (100%) of the respondents who were full members of an association / cooperative stated that as benefits: their needs are met at the earliest possible convenience, they get subsidies when purchases are made, loans and grants are issued to them, technical assistance when needed is arranged. Those who were not members of a poultry association or cooperative stated that they enjoy their independence and instant decision-making.

Most of the respondents (69.7%) indicated that they were getting some form of assistance when running their projects while 30.3% of the respondents used to get assistance. Of those who were getting assistance, 39.5% were getting technical assistance from poultry and extension officers, 19.7% get technical help from extension officers from MOAC while 40.8% did not indicate where they get assistance. Of these respondents who got assistance, 26.3% got technical assistance, 46.1% got financial assistance and only 19.7% did not state what form of assistance. About 59.6% of the respondents indicated that they were using vegetable production as another source of income, while 12.8% were having it from dry land crops, 11.0% got it from off farm wages, 9.2% got it from handicraft and 7.3% got it from beer brewing.

Table 9 General information about the poultry enterprise in the Hhohho region of Swaziland

	Choices	Frequency	Percent	
1. In which type of poultry production are you involved? (Tick the appropriate)	Layers / egg production	35	32.1	
	Broiler/meat production	74	67.9	
	Both			
2. Are you a contract grower?	No	76	69.7	
	Yes	33	30.3	
If yes what are the: Advantages? Disadvantages?	Advantages:	Ready market; Supply of inputs orderly and well organized; Continual appraisal on latest production.	33	100
	Disadvantages:	Profit margins are narrow and predetermined by the abattoir;	20	61.5
		No room to exploit market opportunities.	13	38.5
3. Are you a full member of a poultry association/cooperative?	No	33	30.3	
	Yes	76	69.7	

If yes, name of association/cooperative?	Philani Poultry Coop.	28	66.7
	Shibani Poultry Coop.	14	33.3
	Lomshiyo Poultry Assoc.	6	17.6
	Siphiwo Sabomake Poultry Assoc.	5	14.7
	Komati Poultry Assoc.	6	17.6
	Qinani Poultry Assoc.	6	17.6
	Hhukwini Broiler Assoc.	7	20.6
	Injabulo Broiler Assoc.	4	11.8
What are the benefits do you receive and enjoy in your association/cooperative?	Needs met at the earliest possible convenience Technical assistance arranged when needed Loans and grants arranged and issued on the strength of the assoc. / coop. Subsidies when purchases are made thus bulk purchases easier		
If not, why?	Independence and instant decision making		
4. a) when running your project, do you get any form of assistance from somewhere?	No	33 used to	30.3
	Yes	76	69.7
b) If yes, from where?	SPP poultry officers	52	68.4
	MOAC extension officers	15	19.7
	Did not indicate	9	11.8
c) Form of assistance	Technical assistance	20	26.3
	Financial assistance	35	46.1
	Did not indicate	21	27.6
5. Who is the nearest poultry farmer to your farm?			

6. Apart from poultry production, what are your other sources of income (please tick from below)	Off farm wages	12	11.0
	Dry land crops	14	12.8
	Vegetable production	65	59.6
	Handicraft	10	9.2
	Animal production (cattle, sheep & goats)		
	Pig production		
	Beer brewing	8	7.3
Other (specify)			

Table 10 contains the summary of the information on resources and infrastructure that is needed and used by farmers in the poultry production enterprise in Swaziland. About finance, all the respondents indicated that they knew about the sources of credit available in their areas. Of these, 44.9% of the respondents knew about these sources of credit through their poultry extension officers, 27.2% knew through the radio, 13.7% knew through their cooperatives, 4.5% knew through newspapers, 4.5% knew through their poultry farm neighbors, 2.7% knew through the television and 1.8% did not specify. About 86.2% of the respondents indicated these funds are not readily available while only 13.8% indicated that these funds were readily available.

Of those respondents that stated that these funds are not readily available, they stated (42.6%) long bureaucratic procedures delay timely release of these funds, 28.7% stated that nepotism and corrupt methods are used to determine who to get the funds, dubious means are used to award those not in dire need of financial help ahead of those that are in financial strain. Only 10.6% did not state the constraints associated with the delay in the issuance and timely release of these funds. All (100%) of the respondents who stated that funds are readily available did not state how soon are these funds released. About 27.5% of the respondents used owner's funds to finance their projects, while 67.9% used loans and 4.6% used bank overdrafts. Of the respondents who used loans, 54.2% got it from Inhlanyelo Fund, 20.2% got it from 44 Million Funds, 16.2% got it from Micro Project and 9.4% got it from Swazi Bank. Loans ranged from E12 000 - E55 000. About 59.5% were short-term loans, 36.5% were medium term loan and only 4.0% were long-term loans.

About land, 72.5% of the respondents indicated that land was readily available for their projects while 27.5% indicated that land was not readily available. Of the respondents who were raising broilers, a majority of them (51.3%) had 0.3 ha of land for their project, 27.0% had 2.5 ha of land, 16.2% had 6ha of land and only 5.4% of the respondents indicated that they had 8 ha for their project. Of those respondents who were involved in layer

production, majority of the respondents (51.4%) had 1.5 ha of land, 40% had 4 ha of land and only 8.6% had 20 ha. About 73.4% of the respondents had their projects on Swazi Nation Land and 26.6% had their projects on Title Deed Land.

About feed, all the respondents (100%) indicated that feed supplies are readily available. All the respondents (100%) indicated that they use ready made feed. A majority of the respondents (56.9%) bought the feed on credit, 27.5% of the respondents bought feed cash and only 15.6% bought feed on contract. All those respondents who indicated that they bought feed on credit and on contract indicated that they settled their accounts after each production cycle. All the respondents (100%) indicated that they handled feed in bags. A majority of the respondents (55.0%) indicated that they purchased feed monthly per batch, 40.3% indicated that they purchased the feed per batch only 13.7% indicated that they purchased the feed weekly.

About water, all the respondents (100%) indicated that water is readily available for their project. A majority of the respondents (66.9%) indicated that community tap water was used, 25.7% indicated boreholes are used and only 7.3% indicated that a stream, river is used. All the respondents who used boreholes (100%) indicated that the water has not been tested except for quantitative yield and all of them indicated that Brisani Pumps¹³ tested it, 3.7% indicated that the Water and Services Cooperation¹⁴ have tested the water in the last two (2) months.

About transport a majority of the respondents (59.6%) indicated that as a mode of transport, refrigerated trucks were available in their area, 18.3% indicate that open trucks were available, 13.8% indicated that panel vans for hire were available and 8.3% indicated that panel vans were available in their area. The conclusion was drawn that the respondents mostly use refrigerated trucks. A majority of the respondents (59.6%) indicated that the available form of transport is privately owned while only 40.4% indicated that it is owned by individual farmer / self.

About market, a majority of the respondents (44.0%) indicated that they sold their products to Swazi Poultry Processors (SPP), 27.5% indicated that they sold their products to individual customers, 22.9% indicated that they sold their products to Namboard and 5.5% indicated that they sold their products to butcheries. About 34.8% of the respondents indicated that the abattoir sets the price for their products, 30.2% of the respondents indicated that SPP sets the price for their products, 18.3% indicated that they set the price for their products themselves, 9.1% indicated that Namboard sets the price for their products and 7.3% indicated that it is the market behavior that sets prices for their products. About 72.5% of the respondents indicated that the mode of payment is cash on delivery while only 27.5 %

¹³ Brisani Pumps Swaziland, Box 75, Matsapha, Tel. 5184085

¹⁴ Swaziland Water Services Corporation, Box 6511, Mbabane, Tel. 4043161

indicated that the mode of payment is credit. Of those who indicated that the mode of payment is credit, all (100%) indicated that payment is made after 21 days of the delivery.

Table 10 Information on resources and infrastructure relating to poultry in the Hhohho region in Swaziland

	Choices	Frequency	Percent
A. FINANCE			
7. What source of farm credit are available in your area?	Inhlanyelo Fund	55	50.5
	44 Million Fund	35	32.1
	Swazi Bank	10	9.2
	Micro project	9	8.3
	Cooperatives Other (Specify)		
8. How did you know about these sources of farm credit? (Tick the appropriate).	Poultry Extension Officer	49	44.9
	Neighbor	5	4.5
	Radio	30	27.2
	Television	3	2.7
	Credit Advisor		
	Cooperative	15	13.7
	Newspaper Other (Specify)	5 2 did not specify	4.5 1.8
9. Are these funds readily available?	No	94	86.2
	Yes	15	13.8
10. If not, what are the constraints.	Long beauracratc Procedures	40	42.6
	Some Ass/Coops Favoured against others	27	28.7
11. If these funds are readily available, how soon are they released?	After one week	Did not state	
	After one month		
	Other (specify)		

12. Source of finance used (tick the appropriate)	Owners funds		30	27.5
	Loan		74	67.9
	Other (specify) bank overdrafts		15	4.6
13. If loan was used, state the source and type of loan and approximate amount.	Source:	Inhlanyelo	40	54.1
		Fund	12	16.2
		Micro project	15	20.2
		44 million	7	9.4
		Fund		
		Swazi Bank		
	Type	Short term (E10 000-E20 000)	44	59.5
		Medium term (E21 000-E30 000)	27	36.5
		Long term (E21 000-E50 000)	3	4.0
	Approximate Amount	E12 000 E15 000 E21 000 E30 000 E55 000		
14. Have you repaid the loan?	No		3	4.1
	Yes		71	95.9

15. If yes, did that money for servicing the loan come from your poultry production proceeds?	No		8	10.2
	Yes		66	89.2
	If no state where it came from.			
	Salary		31	46.9
	Vegetable production		15	22.7
	Off farm wages		12	18.1
	Animal production		8	12.1
16. If you have not repaid the loan, what were the constraints?	Insufficient funds		1	16.6
	Project not viable		4	66.6
	High capital cost		1	16.6
B. LAND				
17. Is land for your project readily available?	No		30	27.5
	Yes		79	72.5
18. If no, what are the constraints?	No space for further development.		22	73.3
	Project located in a residential area.		3	10
	Non-flexible Municipal policies.		5	16.7
19. How much land in hectares, do you have for your project?	Broilers	0.3 ha	38	51.3
		2.5 ha	20	27.0
		6 ha	12	16.2
		8 ha	4	5.4
	Layers	1.5 ha	18	51.4
		4 ha	14	40.0
		20 ha	3	8.6
20. Where is your project located?	Swazi Nation Land		80	73.3
	Title Deed Land		29	26.7
C. FEED				
21. Is feed supplies readily available?	No			
	Yes		109	100

22. If no, what are the constraints?			
23. Do you use ready made feed or you mix your own?	Ready made	109	100
	Mix own		
24. How do you buy the feed?	Pay cash	30	27.5
	Credit	17	15.6
	Contract	62	56.9
	Other (specify)		
25. If it is bought on credit, when are you expected to settle your account?	After one (1) calendar month		
	After each production cycle	17	100
	Other (specify)		
26. If it is bought on contract, when are expected to settle your account?	After one (1) calendar month		
	After each production cycle	62	100
	Other (specify)		
27. Do you handle the feed in bulk or in bags?	In Bulk		
	In Bags	109	100
28. If it is handled in bags, how often are purchases made?	Weekly	15	13.8
	Monthly	60	55.0
	Other (specify) -Monthly per batch	34	31.2
D. WATER			
29. Is water for your project readily available?	No		
	Yes	109	100

30. If yes, what is the source (tick the appropriate)?	Community tape water					
	Stream, river			73		66.9
	Borehole			8		7.3
	Spring			28		25.7
	Other (specify)					
31. If no, what measures have you taken to provide water for your project?						
32. When last was the water tested?	Boreholes	No	For quantitative yield only	6 months ago	28	100
	Community tape water	Yes		last 2 months	73	100
	Stream river	No			8	100
Who tested it?	Boreholes		Brisan pumps		28	100
	Community tape water		Water and service cooperation		73	100
E. TRANSPORT						
33. What form / mode of transport is available in your area (tick the appropriate)?	Open trucks				20	18.3
	Panel vans for hire				15	13.8
	Refrigerated trucks				65	59.6
	Panel vans				9	8.3
	Other (specify)					
34. Who owns this form of available transport (tick the appropriate)			Individual farmer / self			
			Government		44	40.4
			Privately owned			
			Other specify		65	59.6

F. MARKET			
35. Where do you sell your product	Individual customers	30	27.5
	SPP	48	44.0
	Namboard	25	22.9
	Shops		
	Cooperative		
	Other (specify) butcheries	6	5.5
36. Who finds the market for your products?	Yourself	60	55.0
	Cooperative	49	44.9
	Government		
	Other (specify)		
37. Who sets the price for your products?	Yourself	20	18.3
	Government		
	Time of the year		
	Market behavior	8	7.3
	Other (specify)		
	Abattoir	38	34.8
	SPP	33	30.2
	Namboard	10	9.1
38. How is the mode of payment?	Pay in advance		
	Cash on delivery	79	72.5
	Other (specify) credit	30	27.5
39. If it is on credit, when is the payment made?	A month after delivery		
	Within two months		
	Other (specify) 21 days after delivery	30	100

Perceptions of poultry farmers regarding how skilled they are when performing poultry (layers) production skills

For purposes of data interpretation, mean values of 2.49 and below were considered to mean that the respondent was rating that he/she was not skilled and equipped when performing that particular poultry (layers) skills while mean values of 2.5 and above were considered to mean that the respondent was rating that he /she was skilled and equipped when performing that poultry (layers) skills. The mean values for each activity skill were determined by overall group responses. The results revealed that poultry farmers are skilled and equipped in performing poultry (layers) production skills as listed in Table 11.

Table 11 Perceptions of poultry farmers on how skilled and equipped they are in performing poultry (layers) production skills

Poultry layers Production skills	N	\bar{X}	SD
40. Preparation of the poultry house	35	3.81	0.57
41. Cleaning and disinfecting the poultry house	35	3.12	0.87
42. Sterilizing and disinfecting poultry house	35	3.12	1.12
43. Sterilizing and disinfecting poultry equipment	35	3.43	0.79
44. Providing good litter material	35	3.75	0.59
45. Managing litter material	35	2.90	1.27
46. Setting the correct ventilation.	35	2.79	1.12
47. Setting and maintaining the correct room temperature.	35	2.32	1.18
48. Providing light.	35	3.75	0.59
49. Placing the birds correctly in cages	35	3.81	0.57
50. Filling the feeders with feed.	35	3.65	0.44
51. Ability to handle feed.	35	3.81	0.61
52. Filling drinkers with water.	35	3.73	1.05
53. Correct handling of birds when placing them in cages.	35	3.16	0.97
54. Timely detection of stress factors.	35	2.48	1.11
55. Ability to eliminate / reduce stress.	35	2.11	0.78
56. Timely detection of disease	35	2.57	1.01
57. Timely detection of disease causing organisms	35	2.28	0.87
58. Timely detection of causes of mortality.	35	2.30	0.67
59. Ability to categorize mortality.	35	2.45	1.22
60. Ability to categorize mortality caused by feed / nutrition.	35	2.10	0.47

61. Ability to categorize mortality due to housing systems.	35	2.48	0.75
62. Ability of handling and using medication correctly.	35	2.60	1.01
63. Ability to handle medication.	35	3.21	0.66
64. Collection of eggs.	35	3.64	0.82
65. Correct cleaning of eggs.	35	3.54	0.74
66. Correct grading of eggs.	35	3.59	0.80
67. Correct storage of eggs.	35	3.49	1.05
68. Correct marketing strategies of product.	35	2.77	0.62
69. Record keeping.	35	2.69	1.18
70. Ability to identify good layers.	35	2.97	1.14
71. Ability to identify poor layers.	35	2.92	1.21
72. Ability to cull poor layers timely.	35	2.81	1.36
73. Ability to place orders for foundation stock in time.	35	3.53	1.36

Table 12 General information on poultry (layers) production

	Choices	Frequency	Percent
74. How many sheds do you use?	1	15	42.8
	3	9	25.7
	4	6	17.1
	5	5	14.2
75. What is the size of each poultry shed?	20m by 5m	8	23.7
	10 by 12m	5	14.2
	48m by 7m	12	28.5
	100m by 12m	10	34.2
76. How many birds do you keep?	500	4	11.4
	1 250	7	20.0
	3 500	9	25.7
	5 000	9	25.7
	10 800	3	8.5
	25 000	2	5.7
	40 000	1	2.8
77. At what stage do you buy your foundation stock (tick the appropriate)?	Day old Point of lay Other (specify)	Point of lay (35)	100

78. Where do you buy your foundation stock?	Kharafa Trading (Pty) Ltd.	30	85.7
	Imports from S.A.	5	14.3
79. For how long do you keep these birds in production?	10 months	29	82.9
	14 months	6	17.1
80. Where do you sell your eggs?	Individual customers SPP Namboard Shops Cooperative Other specify	35 of the respondents indicated that they sell to individual customers, shops and Namboard.	100
81. How do you sell your eggs (tick the appropriate)?	Loose units of eggs Dozens Cases Half a dozen Trays Other specify	All the 35 respondents indicated that they sell in half a dozens, dozens, trays and cases.	100
82. How much do you charge your product in terms of (fill where applicable)?	Loose units of eggs Half a dozen Dozens Trays Cases Other specify	E2.20 – E2.80 E6.40- E8.20 E12.60 – E13.00 E96.00 – E101.00	100
83. Who finds the market for your eggs?	Yourself Market behaviour Government Time of the year Other specify	35	100
84. Who sets the prices for your eggs?	Yourself Market behaviour Government Time of the year Other specify	All 35 respondents indicated yourself, market behaviour and time of the year.	100
85. How is the mode of payment?	Pay in advance Cash on delivery Other specify: credit	29	82.9
		6	17.1
86. If it is on credit, when is the payment made?	A month after delivery Within 2 months Other specify	6	100

Perceptions of poultry farmers regarding how skilled they are when performing poultry (broilers) production skills

For purposes of data interpretation, mean values of 2.49 and below were considered to mean that the respondent was rating that he/she was not skilled and equipped when performing that particular poultry (broilers) skills while mean values of 2.5 and above were considered to mean that the respondent was rating that he /she was skilled and equipped when performing that poultry (broilers) skills. The mean values for each activity skill were determined by overall group responses. The results revealed that poultry farmers are skilled and equipped in performing poultry (broilers) production skills as listed in Table 13.

Table 13 Perceptions of poultry farmers on how skilled and equipped they are in poultry (broilers) production skills

Poultry (broilers) production skills	N	X	SD
87. Ability to prepare house for the arrival of broiler chicks.	34	3.64	0.66
88. Ability to clean and disinfect the poultry house.	34	3.56	0.78
89. Ability to clean and sterilize poultry equipment.	34	3.11	1.11
90. Ability to prepare feeders before the arrival of broiler chicks.	34	2.98	1.18
91. Ability to place correctly good litter material.	34	2.62	1.32
92. Ability to follow correct brooding procedure.	34	3.24	0.88
93. Ability to set the correct ventilation.	34	3.21	0.90
94. Ability to set the correct room temperature.	34	2.29	1.23
95. Filling drinkers with water.	34	3.21	1.03
96. Filling feeders with feed.	34	2.97	1.16
97. Correct placing of day old chicks into pens.	34	2.58	1.28
98. Timely detection of stress factors.	34	2.25	1.23
99. Timely elimination of stress factors.	34	2.20	1.34
100. Timely detection of disease.	34	2.27	1.37
101. Timely detection of sickly chicks.	34	2.60	1.22
102. Timely isolating sickly chicks.	34	2.98	1.16
103. Timely provision of medication.	34	2.57	1.28
104. Handling medication correctly.	34	3.06	1.16
105. Following correctly flock vaccination program.	34	3.14	0.89
106. Litter management program.	34	2.94	1.27
107. Ability to categorize mortality caused by feed / nutrition.	34	2.40	1.08
108. Ability to categorize mortality caused by housing system.	34	2.11	1.33

109. Ability to handle feed correctly.	34	3.16	1.14
110. Ability to identify poor growers / runts.	34	3.26	1.01
111. Ability to maintain flock uniformity.	34	2.68	1.24
112. Ability to sample correctly within pens when weighing birds.	34	3.75	0.57
113. Ability to switch between feeds during changes in feeding phases without affecting the birds.	34	3.81	0.44
114. Ability to keep up to date records.	34	2.71	1.42
115. Correct catching procedure.	34	3.16	1.05
116. Correct procedure when placing chicks into crates.	34	3.10	1.22
117. Ability to reduce stress when transporting birds to abattoirs.	34	2.81	1.32
118. Early detection of disease	34	2.60	1.28
119. Ability to identify cause of mortality	34	2.48	1.21
120. Ability to categorize mortality caused by housing and housing system.	34	2.44	1.09
121. Ability to place orders for foundation stock in time.	34	3.54	0.82

Table 14 General information on poultry (broilers) production

122. How many sheds do you use?	1	21	28.3
	3	18	24.3
	4	26	35.1
	5	9	12.1
123. What is the size of each poultry shed?	27m by 10m	8	10.8
	20m by 10m	16	21.6
	30m by 10m	9	12.1
	46m by 10m	10	13.5
	100m by 12m	27	36.4
	100m by 12.5m	4	5.4
124. How many birds do you keep?	300	8	10.8
	500	4	5.4
	1000	10	13.5
	3500	5	6.7
	5000	18	24.3
	12000	26	35.1
	35000	2	2.7
	75000	1	1.3
125. At what stage do you buy your foundation stock (tick the appropriate)?	Day Old Chicks	74	100
	Two weeks		
	Other specify		

126. Where do you buy your foundation stock?	Swazi chicks	5	6.7
	Swazi National chicks	16	21.6
	Swazi Broiler Breeders	28	37.8
	Kharafa Trading (Pty) Ltd	25	33.7
127. For how long do you keep these birds?	38 – 42 days	74	100
128. Do you use your litter material?	Sawdust	74	100
	Straw		
	Wood shaving		
	Cut paper Other specify		
129. Where do you sell your product?	Individual customers	SPP only (34)	42.4
	SPP		
	Namboard Shops	Namboard only (27) Namboard plus individual customers	36.4
	Cooperative Other specify	(13)	17.5
130. How do you sell your product (tick the appropriate)?	Live birds	Live birds only (46)	62.2
	Fresh raw birds	Fresh raw birds and fresh slaughtered birds (8)	10.8
	Gizzards, feet & heads		
	Frozen meat	Fresh slaughtered birds and gizzards, feet and heads (20)	27.0
131. How much do you charge for your product in terms of (fill where applicable)?	Fresh slaughtered birds		
	Live raw birds (E18.00)	46	62.2
	Fresh raw birds (E12.00)	8	10.8
	Frozen meat		
132. Who finds the market for your product?	Fresh slaughtered (E9.00/Kg)		
	Frozen meat	20	27.0
	Gizzards, feet & head (E7.55/ 750g)		
	Other specify		
133. Who sets the prices for your product?	Yourselves	60	81.1
	Cooperative	14	18.9
	Government		
	Other specify		
133. Who sets the prices for your product?	Yourselves		
	Market behaviour	2	2.7
	Government		
	Time of the year	4	5.4
	Other specify		
	-SPP	32	43.2
	-Abattoir	28	37.8
-Namboard	8	10.8	

134. How is the mode of payment?	Pay in advance		
	Cash on delivery	44	59.5
	Other specify		
	- Credit	30	40.5
135. If it is on credit, when is the payment made?	A month after delivery	30	100
	Within 2 months		
	Other specify		
136. Do you sell your chickens live, dressed or both?	Live	8	10.8
	Dressed	46	62.2
	Sometimes both	20	27.0
138. If sold live and not via abattoir, what are the constraints for not dressing them? Tick the most appropriate	Lack of time		
	Lack of transport abattoir		
	Abattoir fees high		
	Lack of facilities		
	Not enough labour		
139. Do you send them via the abattoir?	No	4	5.4
	Yes	70	94.6
	If yes, what are the benefits of doing so?		
140. If you don't what are the limitations?	Lack of time	4	100
	Lack of transport		
	Lack of packing material		
	Costly and cumbersome		
	Unwarranted mortalities at abattoir		
	Many carcasses ungraded due to technical faults on scales		
	Temperature of scalding water sometimes too high thus carcasses roasted and underrated.		
	141. Are there any linkage between the farmers, the cooperative and abattoir?	No	74
Yes			
142. If yes, what are the benefits of doing so?			

4.3 RELATIONSHIP OF SELECTED DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS AND THEIR RATING OF HOW SKILLED AND EQUIPPED THEY ARE IN PERFORMING POULTRY PRODUCTION SKILLS

In this study, the relationship between each of the selected variables (Age, Qualification and Experience) of the respondents and their ratings of how skilled and equipped they are in performing poultry production skills were identified and described as shown in Table 15.

Table 15 Relationship of the selected demographic characteristics of the respondents and their ratings of how skilled and equipped they are in performing poultry production skills

	Age.	Qualification	Experience
	r	r _s	r
Poultry Production skills (layers)	0.06	0.19	0.03
Poultry production skills (broilers)	0.11	0.05	0.004

To describe the degree of association, the following scale by Davis (1971) as cited by Dlamini (1986) was used:

Coefficient	Description
0.70 or higher	Very strong Association
0.50 to 0.69	Substantial Association
0.30 to 0.49	Moderate Association
0.10 to 0.29	Low Association
0.01 to 0.09	Negligible Association

Relationship of Age and Perception of Respondents on how skilled and equipped they are when performing poultry production skills

Data presented in Table 15 showed the relationship between age and the perceptions of respondents. Pearson Product moment correlation (r) coefficients were used to describe the associations. Table 15 revealed a negligible to low relationship for all the skills that are performed by the poultry farmers. Thus the conclusion was drawn that age did not influence respondent's rating of how skilled and equipped they are in performing poultry production skills in Hhohho region of Swaziland.

Relationship of level of education and perceptions of respondents

Data presented in Table 15 showed the relationship between level of education (ordinal) and perceptions of respondents (interval data). Spearman coefficient correlations (r_s) were used to describe the associations. Correlation coefficients presented in Table 15 indicated a negligible to moderate degree of association. Therefore, the perception of the respondents regarding how skilled and equipped they are in performing poultry production skills tended to be slightly associated with the level of education.

Relationship of years of experience and perceptions of respondents

Table 15 indicated the relationship of years of experience (interval) and perceptions (interval) of respondents. Pearson correlation (r) were used to describe data. Negligible to low associations were found as shown in Table 7. The conclusion was that years of experience in poultry production of respondents were not closely related to rating how skilled and equipped are they in performing poultry production skills in the Hhohho region of Swaziland. The conclusion that the respondent's demographic characteristics did not influence their rating of how skilled and equipped in performing poultry production skills was drawn.

Perceptions of poultry farmers concerning the level of satisfaction in terms of availability of: transport, land for project, interest, feed supply, market, foundation stock, finance, water and pricing body were described using Chi square

The Chi-square values of finance for the project was 17.07 at the probability of 0.05 and market was 16.81 at the probability of 0.05 were found to be significant. The Chi-square values of the other factors were found to be non significant.

	d.f	X	
Transport	6	9.06	0.17
Land	9	5.49	0.24
Interest	6	10.72	0.79
Feed supply	9	15.54	0.08
Market	9	16.81	0.05
Foundation stock	9	16.33	0.06
Finance	9	17.07	0.05
Water	9	15.54	0.08
Pricing Body	9	11.51	0.08

4.4 DIFFERENCES IN PERCEPTIONS OF RESPONDENTS BY GENDER, CITIZENSHIP, POSITION IN THE FARM AND LOCATION OF FARM

The Chi-square test of significance was used to determine the influence of gender, citizenship, position in the poultry farm and location of the poultry farm of respondents and their perceptions regarding how skilled and equipped they are when performing poultry production skills in the Hhohho region of Swaziland. Results revealed no significant differences for all the skills (data not shown). Tables were not provided, since there were no significant differences.

CHAPTER 5

SUMMARY, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

5.1 SUMMARY OF FINDINGS

About 67.7 percent of the respondents stated that they were females while 32.3 percent stated that they were males. About 88.7 percent of the respondent indicated that they were between the ages 36 and 59 years while 11.3 percent of the respondents indicated that they were between the ages of 22 and 35 years. The mean age was about 39.1 years. About 56.9 percent of the respondent indicated to be having diploma 5.5 percent indicated to be having First Degree and 2.8 percent indicated to be having Post – Graduate Degree.

About 56.9 percent of the respondents indicated that they were from farms in SNL while 43.1 percent indicated that they were from farms in TDL. About 84.6 percent of the respondents indicated that they were Swazis while 15.4 percent were not. About 35.8 percent of the respondents indicated that they were Farm Managers, 35.5 percent indicated that they were farm directors while 12.8 did not specify their position in the farm.

About 77.0 percent of the respondent indicated that they had been in poultry production for 10 years or less while 23.0 percent had the experience of being in poultry production of between 11 and 18 years. The mean number of years in poultry production was 7.1 years.

Perception of respondents on how skilled and equipped they are in performing poultry production skills

The respondents rated how skilled and equipped they are in performing poultry production skills. Mean values for each skill were determined by overall group responses. The scores for being skilled and equipped ranged from 2.11 and 3.81. In fact, respondents indicated that they are very skilled and equipped in performing most of the poultry production skills (ability to switch between feeds, ability to prepare the poultry house). However, respondents are not very skilled and equipped in performing other poultry production skills (ability to set the correct room temperature, timely detection of stress, timely elimination of stress, timely detection of disease, ability to categorize mortality caused by nutrition).

From these results, it appears that farmers are skilled in performing some skills and they are not skilled in performing technical skills. This seems to be strengthening the view (Ndlovu, 2000) that for the poultry industry to become attractive and viable, there is need for the Ministry of and Agriculture Cooperatives and poultry farmers association to provide funding and technical advisory assistance to the farmers and possibly develop on farm processes and approaches that will improve production practices and technologies.

Relationship between selected characteristics of the respondents and their perception on how skilled and equipped they are in performing poultry production skills in Swaziland

In this study, the relationship between selected characteristics (Age, Qualification and Experience) of the respondents and their perception on how skilled and equipped they are in performing poultry production skills were described. A Pearson product moment correlation (r) was used to describe the relationship between age and their ratings of how skilled and equipped they are in performing poultry production skills. Results indicated negligible to low association for all the skills items. Thus the conclusion was drawn that age did not influence respondents in rating how skilled and equipped they are in performing poultry production skills.

Spearman coefficient correlation (r_s) were used to describe the association between qualification and respondent ratings of how skilled and equipped they are in performing poultry production skills. Correlation coefficient indicated a negligible to moderate degree of association. Therefore, the perception of the respondents regarding how skilled and equipped they are in performing poultry production skills tended to be slightly associated with the level of education

Pearson coefficient (r) were used to describe the relationship between experience and the respondents' ratings of how skilled and equipped they are in performing poultry production skills. Negligible to low associations were found. The conclusion was that years of work experience of respondents were not closely related to rating how skilled and equipped they are in performing poultry production skills. The conclusion that the respondents' demographic characteristics did not influence their rating of how skilled and equipped they are in performing poultry production skills was drawn.

5.2 CONCLUSION

The main objectives of this investigation were: to determine and describe how skilled and equipped are poultry farmers in performing poultry production skills in the Hhohho region in Swaziland. The following conclusions were drawn based on the results of the study:

1. Poultry farmers are not skilled and equipped in performing some (technical) poultry production skills but are skilled in performing (general) poultry production skills.
2. Poultry farmers are not satisfied with the level of availability of finance and market.
3. A majority of the poultry farmers are full members of a poultry association / cooperative.
4. Most poultry farmers are Swazis.

5. Most poultry farmers used loans for their enterprises.
6. Most poultry farmers were getting assistance from SPP poultry farmers.
7. Even though poultry farmers got finance, it was however not readily available. Long bureaucratic procedures delayed the timely release of funds.
8. Inhlanyelo Fund was offering farm credit to most poultry farmers.
9. Most poultry farmers are located on Swazi Nation Land.
10. Land, feed water, transport was readily available to poultry farmers.
11. Most poultry farmers mostly used refrigerated trucks as a mode of transport.
12. SPP was the main absorber of poultry farmer's products.
13. Most poultry farmers were finding market for their product.
14. The abattoir sets the price for poultry farmers.
15. Gender, level of education and number of years in poultry farming by respondents, age, position in the farm held by respondents, citizenship and location of poultry farm did not have a major influence on the respondents perception regarding how skilled and equipped they are in performing poultry production skills. Thus demographic characteristics of respondents were eliminated as potential confounding variables in the study.

5.3 IMPLICATIONS OF THE FINDINGS

The results of this study with regard to how skilled and equipped are the poultry farmers in performing poultry production skills seemed to parallel those reported by Dlodlu, (1993). The results were also found to be consistent with those reported in numerous other studies (Panda, 1988; McLaren and Pellet, 1970) where most researchers agree that in view of the present rate of development, production might well exceed some of the projections for the up coming years. There is no doubt that this increase in the availability of eggs and poultry meat will contribute significantly to the improvement of the nutritional status of the people in developing countries such as Swaziland.

A way forward to this predicament of the country being involved in poultry production but have not yet reached self sufficiency, would be for Swaziland to take a rational approach founded on the local strength when it comes to developing the poultry production sector. The country needs to seriously consider engaging itself in a program of exchanging highly qualified experts with the neighbouring and advanced countries in order to serve a wider community at the same time equipping the poultry extension officers and poultry farmers with those skills essential to run a modern poultry system. This will have the added benefit of developing improved management skills and production skills of the farm managers, farm directors and poultry farmers.

The results of this study also revealed that although there is need for strengthening the poultry egg production industry and reinforcing the poultry meat production industry, there are several constraints that need to be overcome. For instance, in this study it was revealed that availability of farm credit to those poultry farmers with low income per capita is not done properly. Therefore, government together with the poultry cooperatives / associations need to ensure that fair and transparent procedures are followed when awarding such facilities to the poultry farmers. Provision of loans and subsidies by these crucial bodies i.e. the government and poultry cooperatives / associations can ensure that the mass discontinuation of the egg / layer industry by small-scale farmers is prevented hence transforming this industry into a viable commercial industry. It has also been revealed in this study that there is lack of skilled poultry personnel for middle management positions provided by the government and / or poultry cooperatives / associations. This is a real hindrance in that there is no timely appraisal of the methodological application of those poultry skills, which are bound to transform the industry into a meaningful and viable entity of the agricultural sector in the country. Training programmes in poultry management can go a long way in equipping poultry technicians and farmers alike in those badly needed skills for the various integration of all poultry operations.

In general, the findings of this study seemed to be consistent with the results reported in earlier investigations. In addition, a new knowledge was developed related to how skilled and equipped are poultry farmers in performing poultry production skills in the Hhohho region in Swaziland as a result of this investigation.

5.4 RECOMMENDATIONS

The study was designed to gain knowledge on how skilled and equipped are poultry farmers in performing poultry production skills in the Hhohho region of Swaziland. Analysis of the responses of the respondents and ideas from the course leader and course in poultry science revealed many suggestions for poultry production farmers adoption and use of which the most significant were presented in the form of recommendations:

1. There is need to coordinate the activities in the poultry industry so that recurrent costs are reduced and efficiency is increased particularly in the layer / egg industry which has been shown by this study to be declining.
2. The Ministry of Agriculture and Cooperatives, poultry associations and stakeholders need to formulate a poultry production policy that will seek to match available local resources and technology with production systems which will lead to a sustainable poultry production system that is fully compatible with the country's socio-economic conditions. This may include designing affordable specialized poultry buildings and

equipment that can be used by small-scale farmers and development of indigenous local friendly systems and technologies in poultry production.

3. Since the egg production enterprise is declining due to high production costs involved, more farmers are opting for broiler production. Therefore, there is need for government and poultry cooperatives/ associations to provide incentives and / or subsidies to farmers in the egg / layer industry. This could be in terms of providing appropriate veterinary requisites to small-scale farmers at affordable prices, subsidized feed and veterinary supplies, poultry extension-officers, providing subsidized (maybe free) foundation stock to kick-start the project.
4. Related to the above is the point that there is need for government and poultry cooperatives/ associations to protect the so called small poultry farmers from the so called big poultry farmers from the strategic “pushing/ kicking out” of the former by the latter by means of using floor prices that make the whole enterprise too costly and non profitable. Monitoring the floor prices could do this. This calls for the poultry and allied industries, associations to come closer and interact in a consultative way in order to keep the industry profitable and viable to all.
5. There is need to develop the various supporting industries necessary for commercial poultry production of poultry equipment, pharmaceuticals, packaging material, housing material etc which is practically non existent (Dludlu, 1993) and needs to be developed alongside the development of commercial poultry production.
6. There is need to train skilled poultry personnel to provide immediate appraisal to the industry.
7. There is need for the poultry associations to regulate the pricing of the poultry products than to leave this to a chosen few who do it to fulfill their selfish needs.
8. Since the poultry industry is contributing to the income income per capita of households and the economy of the country in general, government should consider taking a capital investment into the poultry industry particularly in the areas of feed resources, sourcing and sustaining imported poultry genetic pools, disease diagnostics and developing systems in disease control, monitoring and early warning and surveillance. Since modern poultry enterprises are intensive in nature, there is need in those areas for the establishment of poultry disease diagnostic laboratories as well as training veterinarians in poultry pathology and poultry disease diagnosis.

9. Stakeholders in the poultry industry need to improve service delivery and create a positive environment and together with partners, clients and other levels of government to level the playing field for poultry farmers. This may be in the form of organizing on the farm training adaptive research and specialized services and regional networking in an effort to uplift the performance of the poultry industry in Swaziland.
10. There is a great potential of the livestock (poultry) sub sector to effectively contribute to the alleviation of hunger and poverty (Khumalo, 2001), therefore, poultry farmers in an effort to render services and raise the level of poultry productivity and to provide a form of disease control and monitoring by organizing workshops to all aspiring and would be poultry farmers including farm managers and poultry attendants.
11. For the success of the poultry enterprise in Swaziland, there is need to link the national livestock commercialization programme and the traditional livestock sector.

REFERENCES

- Ary, D. Jacobs, L.C. and Razavieh, A., 1985. *Introduction to Research in Education* (third Edition). New York, NY: Holt Rinehart and Winston.
- Cooper, D. R. and Schindler, P. S., 2001. *Business Research Methods*. 7th Edition. McGraw Hill Inc.
- Dlamini, B.M., 1986. *Perceptions of Professionals in Agriculture Education Regarding the Agriculture Teacher Education in Swaziland*. Unpublished PhD. Dissertation. Ohio State University.
- Dlamini, F.P., 2001. *Poultry Production in Swaziland*. *Business and Farming* 4th Quarter A Quarterly publication of the Government of Swaziland. pp 12 – 65.
- Dlamini, S., 1999. *Swaziland Poultry Processors Association Annual Report*. 16-34.
- Dludlu, P.F., 1993. *Poultry: A major growth industry with good market prospects in Swaziland*. *Business and Farming*. 2nd Quarter. A Quarterly publication of the Government of Swaziland
- Government of Swaziland, 2000. *Farming in Swaziland: An Annual Report of The National Marketing Board*. Mbabane, Ministry of Agriculture and Cooperatives.
- Halcrow H., 1999. *Economics of Agriculture*. McGraw Hill Book Company.
- Hayes J. P. and Saunders A., 2001. *Broiler Production Handbook- a translated version*. pp 1.
- Khumalo, L., 2001. *Performance of Small Scale Poultry Farmers in Swaziland*. *Kharafa Trading Annual Report*: 12 – 45.
- Kiniston, R. D., 1983. *Agriculture and Food Policy*. Prentice Hall Inc.,
- Krejcie, R.V. and Morgan, D.W., 1970. *Determining sample size for research activities*. *Educational and Psychological Measurement*. (3), 607 – 610.
- Lamming G. N., 1983. *Women in Agricultural Cooperatives: Constraints and Limitations to full Participation*. Rome, FAO.
- McLaren, D.S. and Pellet P.L., 1970. *Nutrition in the Middle East*. *World Review of Nutrition and Dietetics* 12, 43 – 127.
- Mhlongo, Z., 2000. *Regional Abattoirs*. A Poultry Extension Officer Report, Manzini. 2-7.
- Mnguni, J., 2001. *Ministry of Agriculture and Cooperatives*. *Poultry Annual Report*.
- Mondlane, S., 2001. *Egg production in Swaziland*. A Swaziland Poultry Processors Publication.
- Ndlovu, J.M., 2000. *Ministry of Agriculture and Cooperatives Poultry Annual Report*. 14-21.
- Safaloah A., 1992. *Tizame*, A Malawi Commission for UNESCO publication, Lilongwe, Malawi.3-15

- Simelane M.J., 1988. **Planned Use of Subject Matter Content by Final Year Swaziland Agriculture Students. Unpublished PHd. Dissertation. Ohio State University.**
- Tsabedze B., 2000. **A Swaziland Investment and Promotions Authority Publication. A departmental report pp 2 – 28.**
- Panda, B. (1988): **The structure and Problems of the Poultry Industry in South Asia. Proceedings of the 18th World Poultry Congress pp 39 – 44.**

APPENDIX A

**PANEL OF EXPERTS WHO REVIEWED THE INSTRUMENT FOR
CONTENT VALIDITY**

Panel of experts:

- | | | |
|------------------|---|--|
| J. Mnguni (Mrs.) | - | Senior Poultry Officer in MOAC
Box 2652, Mbabane Tel. (+268)4042731. |
| S. Dlamini (Ms)- | | Poultry Officer Hhohho region
Box 762, Motshane. Tel. (+268)4424503 |
| L. Khumalo (Mr.) | - | Poultry Officer Manzini region
Box 965, Manzini. Tel. (+268) 5055823. |
| S. Dlamini (Mr.) | - | Poultry Officer – SPP
Box 123 Matsapha. Tel. (+268) 5187153 |
| V. Mthethwa (Ms) | - | Poultry Officer Lubombo region
Box69, Siteki. Tel. (+268) 3435163 |

APPENDIX B

**COVER LETTER TO PANEL OF EXPERTS WHO REVIEWED THE
INSTRUMENT**

22.10.2001

Dear Sir / Madam

RE: FACTORS AFFECTING PERFORMANCE OF THE POULTRY FARMERS IN THE AGRICULTURAL SECTOR IN SWAZILAND: A CASE OF THE POULTRY FARMERS IN THE HHOHHO REGION.

I am aware of your tight schedule and your commitment to your work; however, I would greatly appreciate if you would spare me a few minutes of your valuable time.

I am conducting an investigatory study aimed at gaining knowledge on how skilled and equipped are poultry farmers in performing poultry production skills, the availability of resources and infrastructure that will enable this industry to contribute positively into the agricultural sector. Enclosed herein is a copy of the instrument intended to be used. On the basis of you being directly involved with the poultry farmers, you are kindly requested to critique it for content validity.

Any effort, information and / or comments given towards this investigation by you are welcome as it would be very useful. I would be very grateful if the completed questionnaire would be available for collection by 30th October 2001.

Thanking you in advance for the anticipated cooperation.

Yours Sincerely

Malindzisa Luke M.
(MPhil. Student)

APPENDIX C

COVER LETTER TO RESPONDENTS

Dear Sir/ Madam

RE: Factors Affecting Performance of the poultry farmers in the agricultural sector in Swaziland: A case of the poultry farmers in the Hhohho region.

I am grateful to inform you that you are amongst those selected to participate in the above study. I also know the fact that you are dedicated to your work so much, but I kindly request you to spare me a few minutes of your valuable time and provide information on the above study.

The study seeks information on how well equipped and skilled the poultry farmers are in performing poultry production skills and the availability of resources and infrastructure that enable them to raise poultry.

The premise for this study is based on the fact that the poultry production industry in Swaziland is developing very fast as evidenced by the establishments of abattoirs, which started particularly in the Hhohho region, but the performance of these poultry farmers in this region is not known.

I have enclosed a questionnaire to you. You are kindly requested to complete those sections/ parts that are applicable to you. Interest is on your performance of the said skills when rearing poultry. I would be collecting in person all completed questionnaires on the 15. 12. 2001

Thank you in advance for the anticipated cooperation.

Yours Sincerely

Malindzisa Luke M.
(MPhil. Student)

APPENDIX D

RESEARCH INSTRUMENT

This questionnaire is designed to determine the performance of the poultry farmers in the agricultural sector in Swaziland, particularly those in the Hhohho Region.

PART 1 – GENERAL INFORMATION

1. In which type of poultry production are you involved in? (Tick the appropriate)

- Layers/Eggs production
- Broilers/Meat production
- Both

2. Are you a contract grower?

- Yes
- No

If yes, what are the:

i)advantages?.....
.....
.....

ii)disadvantages?.....
.....
.....

3. Are you a full member of a poultry association or cooperative?

- Yes
- No

If yes, Name of Association / Cooperative?.....

By being a member, what are the benefits do you receive and enjoy?

.....
.....

If no, why?

.....
.....
.....
.....

4. a) When running your project, do you get any form of assistance from somewhere?

- Yes
- No

b) If yes, from where.....

c) Form of assistance that you get.....

5. Who is the nearest poultry farmer to your farm?.....

6. Apart from poultry production what are your other sources of income (please tick from below)

- Off farm wages
- Dry land crops
- Vegetable production
- Handcraft
- Animal production (cattle, goats & sheep)
- Pig production
- Beer brewing

Other (Specify).....

PART II – RESOURCES AND INFRASTRUCTURE

A. FINANCE

7. Which source(s) of farm credit are available in your area?
- | | |
|--|--|
| <input type="checkbox"/> Inhlanyelo fund | <input type="checkbox"/> 44 million fund |
| <input type="checkbox"/> Swazi Bank | <input type="checkbox"/> Micro project |
| <input type="checkbox"/> Cooperatives | Other specify..... |
8. How did you know about these of farm credit? Tick the appropriate}
- | | |
|---|---|
| <input type="checkbox"/> Poultry extension office | <input type="checkbox"/> Credit advisor |
| <input type="checkbox"/> Neighbor | <input type="checkbox"/> cooperative |
| <input type="checkbox"/> Radio | <input type="checkbox"/> newspaper |
| <input type="checkbox"/> Television | Other specify..... |
9. Are these funds readily available?
- Yes No
10. If not, what are the constraints?
-
-
11. If these funds are readily available, how soon are they released?
- | |
|--|
| <input type="checkbox"/> After one week |
| <input type="checkbox"/> After one month |
| Other specify..... |
12. Source of finance used (tick the appropriate)
- | | | |
|--|-------------------------------|--------------------|
| <input type="checkbox"/> Owner's funds | <input type="checkbox"/> Loan | Other specify..... |
|--|-------------------------------|--------------------|
13. If a loan was used, state the source and type of loan and approximate amount.
- Source.....
- Type (short term, medium, etc).....
- Approximate amount.....
14. Have you repaid the loan?
- Yes No
15. If yes, did that money for servicing the loan come from your poultry production proceeds? Yes No
- If no, state where it came from.....
16. If you have not repaid the loan, what were the constraints?.....
-
-

B. LAND

17. Is land for your project readily available?

- Yes No

18. If no, what are the constraints?

.....
.....

19. How much land in hectares, do you have for your project in terms of:

 Broilers Layers Both

20. Where is your project located?

- Swazi National Land¹ Title Deed Land²

C. FEED

21. Is feed supplies readily available?

- Yes No

22. If no, what are the constraints?

.....
.....

23. Do you use ready made feed or you mix your own

- Ready made Mix own

24. How do you buy the feed?

- Pay Cash Credit Contract Other Specify.....

25. If it is bought on credit, when are you expected to settle your account?

- After one (1) calendar month
 After each production cycle

Other specify.....

26. If it is bought on contract, when are you expected to settle your account?

- After one (1) calendar month
 After each production cycle

Other specify.....

27. Do you handle the feed in bulk or in bags?

- In Bulk In Bags

¹ Land for the people held in trust by the King for the people and by the people

² Privately owned land

28. If it is handled in bags, how often are purchases made?

Weekly

Monthly

Other specify.....

D. WATER

29. Is water for your project readily available? Yes No

30. If yes, what is the source of your water (tick the appropriate)?

Community tap water

Stream, river

Borehole

Spring

Other specify.....

31. If no, what measures have you taken to supply your project with water?.....
.....
.....

32. When last was the water tested?

33. Who tested it:.....

E. TRANSPORT:

34. What form / mode of transport is available in your area (tick the appropriate)?

Open Trucks Refrigerated trucks

Panel Vans for Hire Panel Vans

Other specify.....

35. Who owns this form of available transport (tick the appropriate)?

Individual farmer / self Government

Privately owned Other specify.....

F. MARKET

36. Where do you sell your product?

Individual customers Shops

SPP cooperative

Namboard Other specify.....

37. Who finds the market for your products?

Yourself

Government

Cooperative

Other specify.....

38. Who sets the prices for your products?

Yourself

Government

Market behavior

Time of the year

Other specify.....

39. How is the mode of payment?

Pay in advance

Cash on delivery

Other specify.....

40. If it is on credit, when is the payment made?

A month after delivery

Within 2 months

Other specify.....

PART III- POULTRY PRODUCTON

AI. LAYERS PRODUCTION SKILLS

Instructions:

Given below are poultry (Layers) production skills, which are used by poultry farmers in the day to day running of poultry. Please circle the number of response, which corresponds most nearly with your opinion in regards to how skilled and equipped are you in performing these tasks. Use the following rating scale:

- 4 = Very skilled and equipped (VSE)**
- 3 = Skilled and equipped (SE)**
- 2 = Fairly skilled and equipped (FSE)**
- 1 = Least skilled and equipped (LSE)**
- 0 = Not skilled and equipped (NSE)**

A. PRODUCTION SKILL ITEM TO BE RATED	RATING SCALE				
	[VSE]	[SE]	[FSE]	[LSE]	[NSE]
	4	3	2	1	0
40. Preparation of the poultry house					
41. Cleaning and disinfecting poultry house					
42. Sterilizing and disinfecting poultry house					
43. Sterilizing and disinfecting poultry equipment					
44. Providing good litter material					
45. Managing litter material					
46. Setting the correct ventilation					
47. Setting and maintaining the correct room temperature					
48. Providing light					
49. Placing the birds correctly in cages					
50. Filling the feeders with feed					
51. Ability to handle feed					
52. Filling drinkers with water					
53. Correct placing of birds into cages					
54. Timely detection of stress factors					
55. Ability to eliminate / reduce stress factors					
56. Timely detection of disease					
57. Timely detection of disease causal organisms					
58. Timely detection of causes of mortality					
59. Ability to categorize mortality					

60. Ability to categorize mortality caused by feed / nutrition					
61. Ability to categorize mortality due to housing systems					
62. Ability of handling and using medication correctly					
63. Ability to handle medication					
64. Collection of eggs					
65. Correct cleaning of eggs					
66. Correct grading of eggs					
67. Correct storage of eggs					
68. Correct marketing of product strategies					
69. Record keeping					
70. Ability to identify good layers					
71. Ability to identify poor layers					
72. Ability to cull poor layers timely					
73. Ability to place orders for in time.					

A2. Please, complete the following information about your layers:

74. How many sheds do you use?.....

75. What is the size of each poultry shed?.....

76. How many birds do you keep?.....

77. At what stage do you buy your foundation stock (tick the appropriate)?

Day Old Chicks

Point of Lay

Other specify.....

78. Where do you buy your foundation stock?.....

79. For how long do you keep these birds in production?.....

80. Where do you sell your eggs?

Individual customers

Shops

SPP

cooperative

Namboard

other specify.....

81. How do you sell your eggs (tick the appropriate)?

Loose units of eggs

Half a dozen

Dozens

Trays

Cases

other specify.....

82. How much do you charge your product in terms of (fill where applicable)?

Loose units of eggs..... Half a dozen.....

Dozens..... Trays.....

Cases..... other specify.....

83. Who finds the market for your eggs?

Yourself

Government

Cooperative

other specify.....

84. Who sets the prices for your eggs?

Yourself

Government

Market behavior

Time of the year

Other specify.....

85. How is the mode of payment?

Pay in advance

Cash on delivery

Other specify.....

86. If it is on credit, when is the payment made?

A month after delivery

Within 2 months

Other specify.....

B1. BROILERS PRODUCTION SKILLS

Instructions:

Given below are poultry (Broilers) production skills, which are used by poultry farmers in the day to day running of poultry. Please circle the number of response, which corresponds most nearly with your opinion in regards to how skilled and equipped are you in performing these tasks. Use the following rating scale:

- 4 = Very skilled and equipped (VSE)
- 3 = Skilled and equipped (SE)
- 2 = Fairly skilled and equipped (FSE)
- 1 = Least skilled and equipped (LSE)
- 0 = Not skilled and equipped (NSE)

A. PRODUCTION SKILL ITEM TO BE RATED		RATING SCALE				
		[VSE] 4	[SE] 3	[FSE] 2	[LSE] 1	[NSE] 0
87.	Ability to prepare house for the arrival of broiler chicks					
88.	Ability to clean and disinfect poultry house					
89.	Ability to clean and sterilize poultry equipment					
90.	Ability to prepare feeders and waters before arrival of broiler chicks					
91.	Ability to place correctly good litter material					
92.	Ability to follow correct brooding procedure					
93.	Ability to set the correct ventilation					
94.	Ability to set the correct room temperature					
95.	Filling drinkers with water					
96.	Filling the feeders with feed					
97.	Correct placing of DOC into the pens					
98.	Timely detection of stress factors					
99.	Timely elimination of stress factors					
100.	Timely detection of disease					
101.	Timely detection of sickly chicks					
102.	Timely isolating sickly chicks					
103.	Timely provision of medication					
104.	Handling medication correctly					
105.	Following correctly flock vaccination program					

106.	Litter management					
107.	Ability to categorize mortality caused by feed and nutrition					
108.	Ability to categorize mortality caused by housing system					
109.	Ability to handle feed correctly					
110.	Ability to identify poor growers / runts					
111.	Ability to maintain flock uniformity					
112.	Ability to sample correctly within pens when weighing birds					
113.	Ability to switch between feeds during changes in feeding phases without affecting birds					
114.	Ability to keep up to date records					
115.	Correct catching procedure					
116.	Correct placing procedure of chicks into crates					
117.	Ability to reduce stress when transporting birds to abattoirs					
118.	Disease detection					
119.	Ability to identify cause of mortality					
120.	Ability to categorize mortality caused by housing and housing system					
121.	Ability to place orders for foundation stock timely.					

B2. PLEASE, COMPLETE THE FOLLOWING INFORMATION ABOUT YOUR BROILERS:

122. How many sheds do you use.....
122. What is the size of each poultry shed?.....
123. How many birds do you keep?.....
124. At what stage do you buy your foundation stock (tick the appropriate)?
- Day Old Chicks
- Two weeks
- Other specify.....
126. Where do you buy your foundation stock?.....
127. For how long do you keep these birds?.....
128. What do you use as a litter material?
- Sawdust Wood shaving
- Straw Cut paper
- Other specify.....

138. Do you send them via the abattoir?

Yes No

If yes, what are the benefits of doing so?

.....
.....

139. If you don't, what are the limitations?

.....
.....

140. Are there any linkage between the farmers, the cooperative and abattoir

Yes No

141. If yes, what are they?

.....
.....

PART IV – DEMOGRAPHIC CHARACTERISTICS

- Your gender (check one)
 - Male
 - Female
- Citizenship (check one)
 - Swazi
 - Non- Swazi (Specify)
- Age at your last birthday:..... Years
- Marital Status (please check one)
 - Single
 - Married
 - Divorced
- Highest level of education (please check one)
 - GCE O’Level Certificate
 - Diploma
 - First Degree (Specify)
 - Graduate Degree (Specify)
- Position in the farm
 - Farm Director
 - Farm Manager
 - Other Specify.....
- Number of Years in the Poultry Industry:..... Years
- Location of Farm (check one)
 - Swazi Nation Land
 - Title Deed Land
- Name of poultry Farm:
.....

Thank you for your time and effort you have spent in filling in this questionnaire and be assured, the invaluable information you have provided will be treated with strictest confidentiality and the of the study can be made available to you if you need them.