

# **Feed buying behaviour of small-scale broiler farmers**

By

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**Mini-dissertation submitted in partial fulfillment of the requirements for the degree  
Masters in Business Administration in the Faculty of Economics and Management  
Sciences at the North-West University (Potchefstroom campus)**

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**NOVEMBER 2011**

## **ABSTRACT**

The South African poultry industry is a large part of the agricultural industry and a very important contributor to the Agriculture's Gross Domestic Product. Furthermore, this industry is expanding and very good growth is predicted for the next decade. This growth will take place in the formal as well as the informal segments of the industry. The informal segment holds a lot of potential for suppliers to supply in their growing needs. Due to the fact that broiler feed is seen as a large contributor to the total cost of broiler production, it is considered very important factor. If feed suppliers want to focus on the informal market, they need to understand the differences between commercial farmers and small-scale farmers and specifically the different needs of small-scale farmers. To develop a strategy to utilize the opportunities in the informal market, it is necessary to understand all the factors that influence the purchase behaviour of these farmers.

A model of stimulus response is used to define the factors that may influence purchase behaviour. The factors that seemed important from the literature study are market and other stimuli. The market stimuli consist of product, price, promotion and place. The product aspect could further be divided into quality aspects, brand equity, and additional services that accompany the product. Other stimuli that could influence purchase behaviour are economic conditions, special event, climatic condition and the influence of culture.

Data was collected by means of a questionnaire. Descriptive statistics and factor analysis were used on the data to determine which factors influence the small-scale farmers' purchase behaviour. While the Kaiser Meyer Olkin measure, Bartlett's test of sphericity and Cronbach Alpha were used to determine if the data is suitable to do a factor analysis on. Factor analysis was done to determine which factors are the most important.

The seven significant factors that influence the purchase behaviour of small-scale farmers are:

- Value for money and opportunity.
- Perceived brand value.
- Customer support and service.
- Consensus on available quality.
- Brand loyalty.
- Feed price at the reseller.
- Bag size.

More research on this topic in a larger geographical area is required.

Key terms: Broiler feed, buying behaviour, factor analysis, farmer, chicken.

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## CHAPTER 1

### NATURE AND SCOPE OF THE STUDY

#### 1.1 INTRODUCTION

According to Esterhuizen (2010) the South African poultry industry, with a gross value of more than R23 billion, is the country's largest individual agricultural industry and is contributing more than 17 percent to Agriculture's Gross Domestic Product. Broiler production dominates the poultry industry.

Esterhuizen (2010) states that the broiler industry in South Africa is dominated by two large producers, namely Rainbow and Astral (see Figure 1). Together, these two companies produce 50 percent of total broiler production in South Africa. Rainbow, on average, produces 4.4 million broilers per week and Astral, on average, 3.8 million. The third largest producer, Country Bird, produces 1.3 million broilers per week or 8 percent of the total broiler production in South Africa. Four medium-sized producers (producing more than 600,000 broilers per week) supply 20 percent of the market, followed by approximately 44 smaller producers (producing less than 200,000 broilers per week).

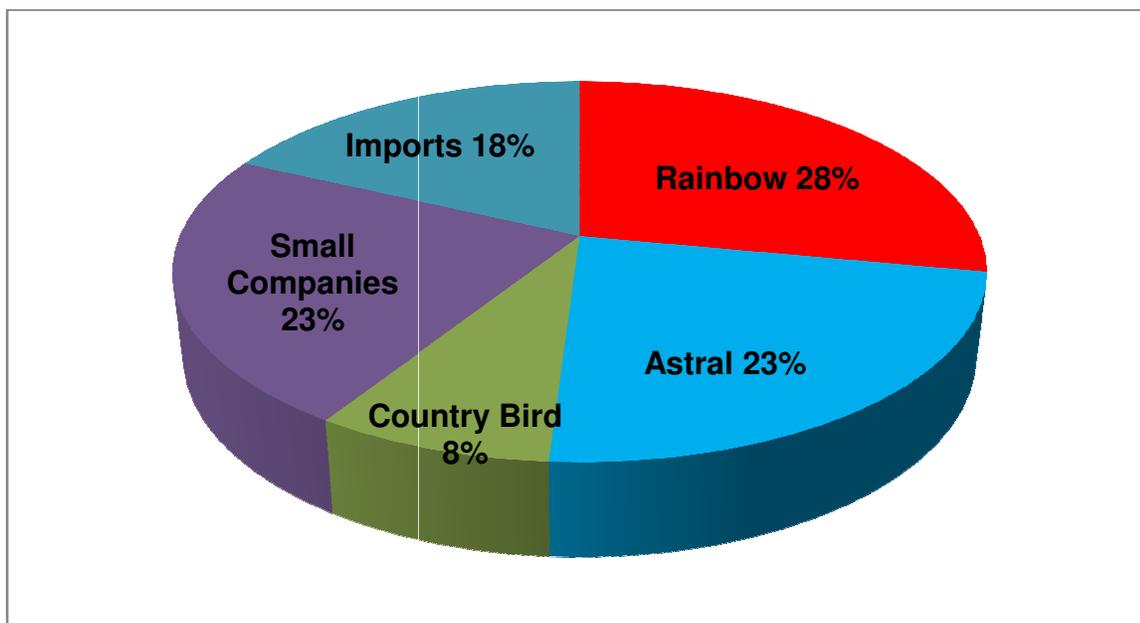


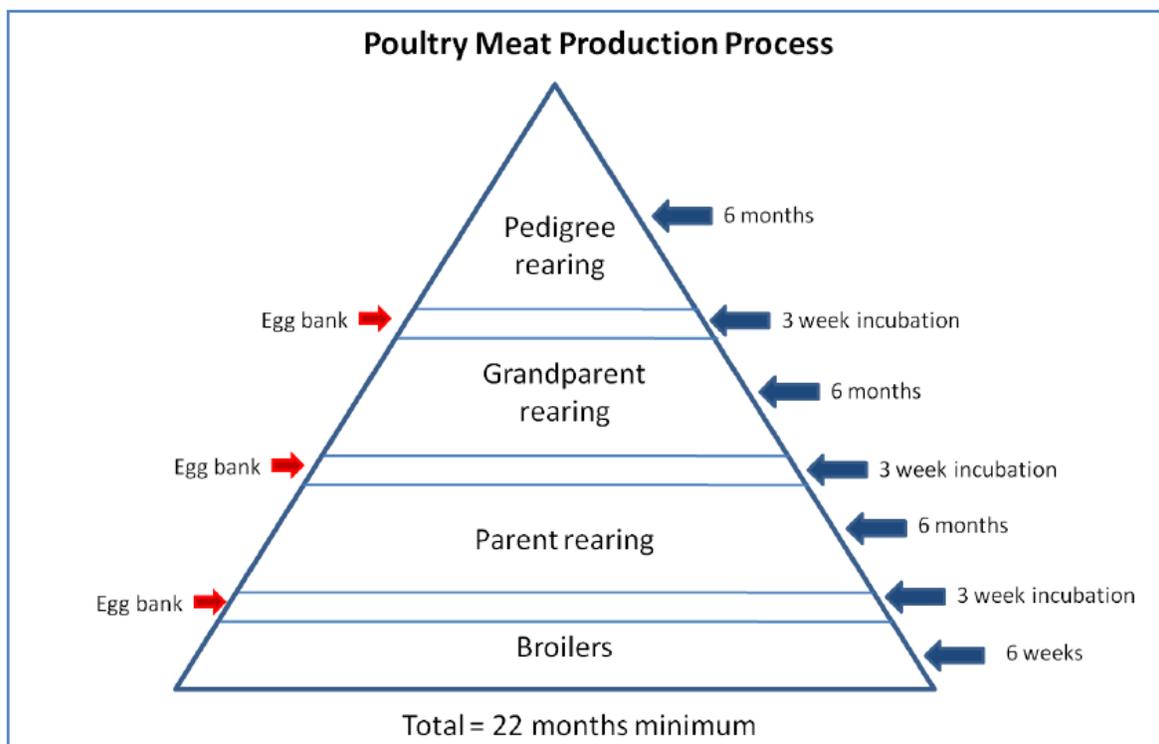
Figure 1.1: The major producers in the broiler industry of South Africa

According to a survey done by Statistics South Africa (2007), the broilers are distributed through the provinces as follows:

- Eastern Cape – 1 666 564
- Free State – 24 762 721
- Gauteng – 7 251 250
- KwaZulu-Natal – 18 176 538
- Limpopo – 42 046 848
- Mpumalanga – 61 713 514
- North West – 37 700 578
- Northern Cape – 149 400
- Western Cape – 22 029 155

For broilers to get to the end consumer they follow a poultry meat production process as explained by figure 2.

Figure 1.2: Poultry Meat Production Process (source SAPA 2010)



The poultry meat production process starts with pedigree stock- their eggs are collected, hatched and these chickens are then raised as grandparent stock. The same process follows and the grandparents' eggs are hatched and turned into parent stock. The eggs from the parent stock are moved to hatcheries and after they have been hatched, the day-old chickens are sold to be grown as broilers. It takes from 33 to 42 days to get the broilers to slaughter age, depending on the required weight that is required at slaughter.

The final markets for these broilers are fresh meat, frozen chicken, value added products or live birds. The big integrated broiler businesses have their own abattoirs as well as processing facilities where value added products are produced. The smaller broiler farmers sell their birds to abattoirs, or pay the abattoirs to slaughter their chickens. Some of the smaller producers slaughter the chickens themselves and sell it as fresh or frozen meat There is also a live chicken market, as mentioned above. This market is supplied by medium and mostly small-scale broiler farmers. The live birds are either sold directly to the end consumer by the farmers or to hawkers who then sell it to the end consumer.

There are significant differences between large commercial farms and small-scale broiler farmers. A summary of these differences is given in table 1. From these differences information it is clear that the requirements as well as the purchase behaviour of commercial and small-scale broiler farmers differ significantly.

An article by Sherry (2011) in the Financial Mail had a few statistics about the broiler industry in South Africa. The following information is significant:

- R 50 billion is injected into the food retail sector by the SA poultry industry every year.
- 60% of all protein eaten in SA is in the form of poultry.
- 40% growth has been experienced in the industry over the past decade, and 50% growth is forecasted for the next decade.
- 957 million broilers were produced in SA in 2010: an average increase of 4% per year over the past decade.
- An estimated 225 000 ton of broiler meat have been imported in 2010.
- 75% of the import market is from Brazil, with almost 151 ton of chicken cuts and nearly 10 ton of whole chickens imported.
- The average broiler meat consumed per person in SA, was 27.45 kg. In Brazil and the US the figure was more than 40 kg.

Table 1.1: The differences between commercial and small-scale broiler farmers

	<b>Average commercial farmer</b>	<b>Average Small-scale farmers</b>
<b>Arrival of day old chickens on the farm</b>	Have an all in all out system: Receive all the day old chicks, grow them for a cycle (33 - 35 days growth) and then the houses are empty for 14 days	Get day old chicks every week or every second week. Have a multi age system, thus chickens of various ages in close vicinity to one another
	The chicks are delivered to the farm	The chicks are collected from a central point
<b>Feed</b>	Delivered in bulk to the farm	Collected in bags / or delivered in bags
<b>Feed types used</b>	Pre Starter, Starter, Grower, Finisher, Post Finisher	Starter, Grower, Finisher, Maintenance
<b>Housing conditions</b>	Environmental controlled housing: the temperature and humidity are controlled and could be kept at the required levels	Open sided houses: very dependent on climatic conditions. Heating and cooling systems are used, but these are not as effective as environmental controlled housing. The temperature and humidity are not always at the required levels
<b>Management levels</b>	Very high level	Lower level
<b>Production measurements</b>	Day old chick weights, 7 day chick weights, feed usage in gram per bird, feed conversion ratio, efficiency factors.	Limited measurements like total feed usage (in 50 kg bags) and days to get broilers to selling size.
<b>Placing density of the chickens</b>	From 17 - 23 chickens per square meter	From 8 - 14 chickens per square meter
<b>Slaughter /selling days</b>	33 - 37 days	38 days and more,
<b>Feed usage per chicken</b>	3.0 - 3.5 kg depending on required weight	3.6 - 4.3 kg depending on selling age of the chickens
<b>Lighting Programme</b>	A very strict program is followed	Dependant on natural light, in some cases a program is followed
<b>Bio-security</b>	Very strict bio-security measures	Poor to non-existing bio-security measures
<b>Vaccination Program</b>	A strict vaccination program is followed in consultation with a veterinarian	Only basic vaccines are administered, most of the times after symptoms of a disease challenge
<b>End product</b>	All the chickens are taken to an abattoir on the same day.	The chickens are sold as live birds - this happens over a period of time. Birds that are not sold as live birds are taken to an abattoir or slaughtered by the farmer.

Although the size of the individual small-scale broiler farmer may be small, there is a large quantity of them. In their annual report of 2010 The South African Poultry Association (SAPA) estimated that the total contribution of the informal broiler market was a million broilers per week. If the per capita consumption for broiler meat in South Africa increases to that of the US or Brazil and the import of chicken is minimized, there will be tremendous growth in the broiler industry. It could be assumed that this growth will take place in the formal and informal broiler industries, and thus there would be growth potential for the small-scale farmers as well.

Broiler feed is a large component of the cost of broiler production and could make up as much as 70% - 80% of the total production cost. It is therefore a very important aspect in the profitability of the broiler business for commercial as well as small-scale broiler farmers.

## **1.2 PROBLEM STATEMENT**

The conditions and final markets for commercial and small-scale broiler farmers differ quite significantly (as explained above), despite that, the marketing strategy of feeding companies is based on commercial farmers and then applied to the small-scale farmers. There is therefore a need to get a better understanding of the purchase behaviour of the small-scale farmers.

## **1.3 RESEARCH OBJECTIVES**

### **1.3.1 Primary objective**

The primary objective is to determine which factors influence consumer preference of small-scale and emerging broiler farmers when buying bagged broiler feed.

### **1.3.2 Secondary objective**

The secondary objective, in order to achieve the primary objective, is:

- To gain valuable insight into the needs of smaller and emerging broiler farmers.
- To identify the factors which they think play a role in the profitability of their businesses.
- To identify factors which they perceive to be playing a role in the downfall of their businesses.
- To prioritise the factors that influence consumer preference, so that these factors can be used in building a market strategy that focuses on small-scale and emerging broiler farmers

## **1.4 RESEARCH METHODOLOGY**

### **1.4.1 Literature study**

A literature study was conducted to determine which factors, according to the literature, may play a role in the purchasing behaviour of small-scale farmers. Emphasis was on consumer behaviour as well as industrial consumer behaviour. Literature that deals specifically with the purchase behaviour of farmers is limited - the principles of other consumer behaviour studies had to be adapted to fit this study.

### **1.4.2 Empirical study**

#### 1.4.2.1 Method

A quantitative study was conducted by using a questionnaire that was distributed. It was distributed to farmers in the surrounding areas of Thohoyandou, Giyani, Letsitele and Tzaneen. The distribution of the questionnaire was done on farmer's days as well as during visits to the small-scale farmers. These visits were done randomly and not aimed at targeting a specific group of farmers. Local broiler feed resellers in the areas also handed the questionnaires to all their walk-in clients. Respondents have been given an incentive to respond: If they completed a questionnaire, they were entered into a lucky draw for prizes. The prizes ranged from branded T-shirts to 5 bags of broiler feed. The hit rate with this type of questionnaires were very good - out of 150 questionnaires 88, were completed properly. A total of 19 questionnaires had to be discarded because they were not properly completed, and 43 questionnaires were never returned to the researcher.

An electronic questionnaire was sent out to a national data base of small-scale farmers as well. The response to the electronic questionnaire was not very good as only 10 out of 130 respondents completed the online version.

#### 1.4.2.2 Research instrument

A questionnaire containing 28 questions which tested 11 possible factors that may influence purchase behaviour, was constructed by using the information obtained from the literature study. The questionnaire started off with a section that determined certain demographical data of the respondents, followed by the 28 questions in random order.

The questionnaires were comprised of Likert-type questions. Responses were evaluated as: *strongly disagree (1), disagree (2), neither agree or disagree (3), agree (4) and strongly agree (5)*.

The questions were kept as simple and short as possible and were put in easy understandable terms to ensure that the respondents understood all the questions. The languages used in the questionnaire were English and Sepedi, and assistance was available to the respondents if they had trouble to to understand a question.

#### 1.4.2.3 Data processing

The data from the questionnaires were captured using Excel-spreadsheets and then subjected to the following statistical analysis:

- Descriptive statistics (mean and standard deviation) have been utilized to establish baseline data.
- The Bartlett test of sphericity was used as an indicator of the strength of the relationship among the variables as well as the suitability of the data towards factor analysis.
- Kaiser-Meyer-Olkin measure of sampling adequacy was used to measure if the relationship between variables is strong enough to proceed with a factor analysis.
- Factor analysis was used to explain the variance in the data and to determine if the number of factors and the loadings of measured variables on them, conform to what is expected on the basis of the pre-established theory from the literature study.
- Cronbach Alpha was used to test the reliability of the data.

### 1.5 LIMITATIONS OF THE STUDY

- A limiting factor of this study may be the possible illiteracy of some of the emerging farmers completing the questionnaire.
- The local languages in the focus area of the study are Sepedi and Setswana. The researcher is limited to only Afrikaans and English and needed an interpreter to translate the questionnaire into these languages. It is not clear if the questions were perceived the same in these languages as was intended.

- The willingness of the farmers to complete and supply the correct information on the questionnaire.
- Farmers may not be technologically advanced enough to complete questionnaires electronically; therefore a vast area had to be covered with printed questionnaires.

## **1.6 LAYOUT OF THE STUDY**

Chapter 1 serves to orientate the reader to a paradigm perspective of the study. It includes an introduction, background of the study, problem statement and objectives of the study, scope, research methodology and limitations of the study. Chapter 2 comprises of a literature review on the factors that could possibly influence purchase behaviour. Chapter 3 describes the methodology utilized in this study and also conveys the results obtained from this study. Chapter 4 discusses the conclusions derived from the results obtained in Chapter 3. Recommendations are also made in this chapter

## **1.7 SUMMARY**

The first chapter serves as an introduction to the research. It introduces the environment of the study, formulates the problem statement and research objectives. The chapter further continues to discuss the research methodology that was used and also identifies possible limitations of the research.

The next chapter deals with the literature review.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

To understand why consumers would make certain purchasing decisions, it is important to understand the concept of consumer behaviour.

According to Schiffman and Kanuk (2004) the term consumer behaviour is defined as the behaviour that consumers display in searching for, purchasing, using, evaluating and disposing of products and services which they expect to satisfy their needs. Consumer behaviour focuses on how individuals make decisions to spend their available resources (time, money, effort) on consumption related items, in other words, what they buy, why they buy it, when they buy it, how they evaluate it after the purchase and the impact of such evaluations on future purchases.

Further concepts that could be used to explain consumer behaviour are the concepts of production and product. An evolution of these is the selling concept.

According to Schiffman and Kanuk (2004) the production concept assumes that consumers are mostly interested in product availability at low prices - its implicit marketing objectives are cheap, efficient production and intensive distribution. This orientation makes sense when consumers are more interested in obtaining the product than in specific features and will buy what is available rather than to wait for what they really want. This concept is mostly used in the case of developing markets or expanding markets

The product concept is defined by Schiffman and Kanuk (2004) as a situation where consumers will buy the product that offers them the highest quality, the best performance and the most features. A product orientation leads the company to strive constantly to improve the quality of its products and to add new features that are technically feasible without finding out first whether or not consumers really want these features.

Schiffman and Kanuk (2004) stated that the selling concept is one in which a marketer's primary focus is selling the products which it has unilaterally decided to produce.

When small-scale farmers purchase broiler feed, all of the above concepts can play a role. Since most of the farmers are new to farming, they do not have the management skills to measure certain aspects. Due to a lack of knowledge, they may also perceive broiler feed as a commodity and see all types of feed as equal. This can urge them to follow the production concept, meaning low price and availability will be very important to them, and will be the main factor that determine which feed they buy.

Some of the small-scale farmers do however measure different performance criteria and this enable them to compare different products and choose the one with the most benefits. Feeding recommendations, feed formulations, feed type (in meal form, pellet form, crumble form) are all part of the different features that broiler feed consists of. All of these features may play a role in the performance of the chickens on the specific feed and in the end, the profitability of broiler production.

Most of the feed companies build their product range for the large volume clients or for internal usage and then sell these products to the small-scale farmers as well. They are thus applying the selling concept where they sell products they unilaterally decided to produce.

Kool (1994) states that it is important to take consumer buying behaviour as well as industrial buying behaviour into account when considering the purchase behaviour of farmers. The farmers' buying behaviour can be perceived as a specific type of industrial buying behaviour, because farmers buy inputs to produce farm products.

According to Wind and Webster (1972) industrial buying behaviour is seen as a series of individual decisions carried out by organizational members whose decisions are influenced by four sets of variables:

- Individual characteristics of these members, including personality, motivation, cognitive structure, learning process, interaction with the environment, preference structure, and decision process.
- Interpersonal relationships among the members of the buying centre (users, influencers, decision-makers, buyers, and gatekeepers), including both task (relating to the specific buying problem) and non-task activities, interactions and sentiments of the group members, group task structure, and leadership patterns.

- Organisational characteristics, including the buying and organizational task, structure (the communication, authority, status, and reward system), technology and personnel.
- Environmental factors, including the physical, technological, economic, political, legal and cultural environment as it affects the values and norms, the availability of goods and services, general business conditions, and marketing information.

The farmer, his workers and family can thus act as an organization and the above mentioned variables could influence the purchase behaviour of the small-scale farmers.

According to Kool (1994) the organizational context of farmers' buying behaviour is completely different from the buying behaviour of industrial companies. Although the farmer often carries out the purchase, the buying decision can be made autonomously by the farmer or jointly with other family members. This buying situation is very similar to the buying decision-making within households. For this reason, farmers' buying behaviour can be characterized as industrial buying behaviour as far as the product is concerned and as households' buying behaviour from the organizational point of view.

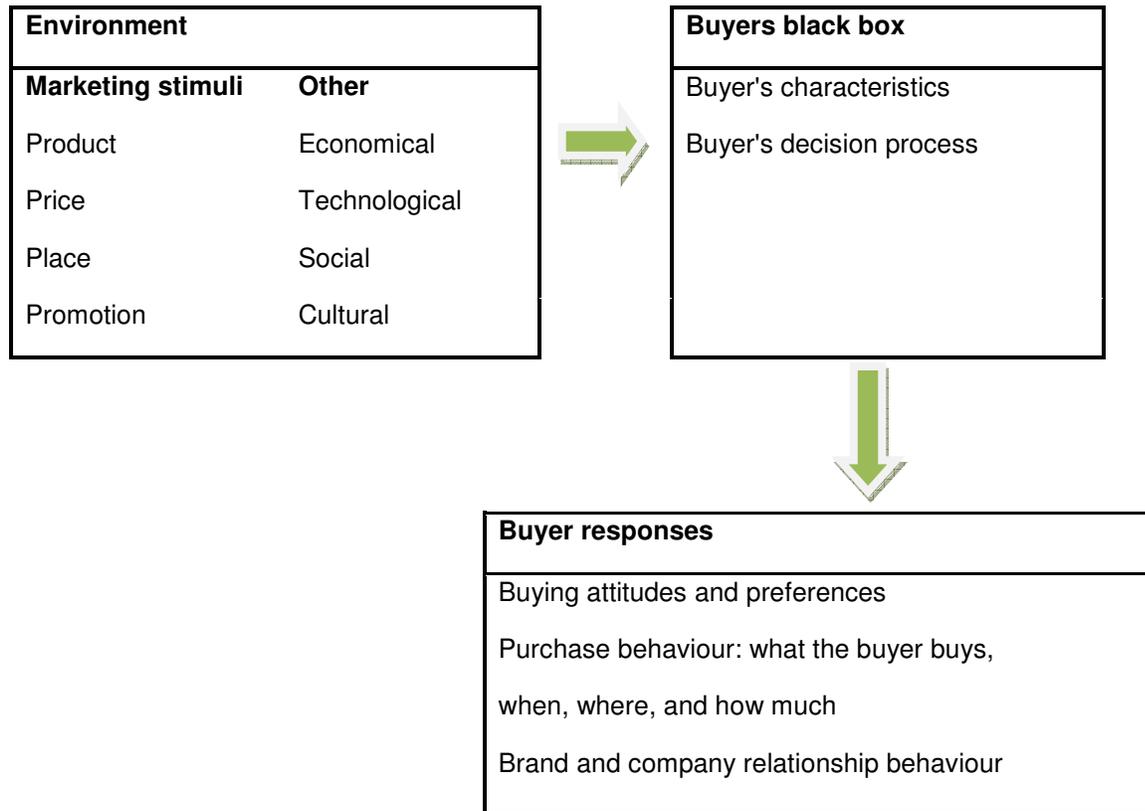
## **2.2 The consumer's decision-making process**

To establish why consumers (farmers) buy certain products, the process of consumer decision-making should be taken into consideration. A model to illustrate this process is shown in figure 2.1.

This stimulus response model shows that marketing and other stimuli enters the consumer's black box and produce certain responses. The response to these stimuli may not always be the same, as there is interaction between different stimuli, and the consumer's behaviour may also be irrational sometimes.

Schiffman and Kanuk (2004) state that many earlier theories concerning consumer behaviour, were based on the economic theory and the notion that individuals act rationally in the purchase of goods and services to maximize their benefits. Later research, however, discovered that consumers are just as likely to purchase impulsively and to be influenced not only by family and friends, by advertisers and role models, but also by mood, situation, and emotion.

Figure 2.1: Model of buyer behaviour



Since the farmers purchase feed to use in a process of producing another product (chickens), the factors in this model would be more complicated than in the case of only simple consumer behaviour. Some of the factors will be multi-factorial and there could be interactions between these various factors.

### 2.3 MARKETING STIMULI THAT COULD INFLUENCE PURCHASE BEHAVIOUR

During the literature study the effect of the different factors in the stimulus response mode on purchase behaviour have been studied. Very limited research is done on purchase behaviour of farmers and nearly no literature is available on the purchase behaviour of small-scale farmers. Core principles of marketing and sales and technical experience are therefore applied to the stimulus response model to establish the importance of these factors and their influence on the purchase behaviour of small-scale broiler farmers when purchasing feed.

### **2.3.1 Product**

Hawkins, Best and Coney (1998) define a product as anything a consumer acquires or may acquire to meet a perceived need. They also state that consumers are generally buying to satisfy needs, not physical product attributes. In the case of this study, the consumers are thus not buying broiler feed, but a means of growing their chickens to sell them profitably. To be successful, products must meet the needs of the target market better than the competitors.

The question that must be asked is whether the farmers are measuring the product traits and contributes (performance of the broilers on the feed) and if they act according to the influence these traits have on their purchase behaviour. To measure the product traits of feed and the relative performance of broilers on this feed, it is necessary to make sure that all the other variables which influence the broilers are kept constant.

If farmers want to compare two different types of broiler feed, they need to do it in such a manner that they limit the influence of other variables. They must test the feed at the same time, under the same conditions and also make sure that they use the same quality of day old chickens. Measurements like feed intake, feed conversion ratio, mortalities and profitability should be taken into consideration during these comparisons.

For this study, the product traits have been placed in categories of quality, packaging, brand equity and associated services.

#### **2.3.1.1 Quality**

Grunert, Bech-Larsen and Bredahl (2000) define quality dimensions as product-specific characterizations which consumers form, based on the product characteristics which they believe indicate the usefulness of the product in fulfilling purchase motives.

The quality aspect of broiler feed is characteristics of the product which is important for the performance of the broilers on this feed.

The pellet quality of the feed is one such aspect. Thomas and Van der Poel (1994) stated that animals receiving pelleted feed generally have higher performances in terms of average daily gain and lower feed conversion compared to mash feeds, as reported for pigs and poultry.

In another study by Hamilton and Proudfoot (1995) it was concluded that body weights, feed conversion and monetary returns, improved significantly when broiler chickens were given pelleted diets rather than mash diets. Ingredient particle size of the grains used in mash diets influenced the body weights, but to a lesser extent than pelleting of the diets.

The pellet quality is determined by measuring the percentage of fines. The higher the percentage of fines in the feed, the lower the quality of the pellets. This may result in lower feed conversion as well as lower average daily gain.

Another aspect concerning the quality of a product is the relative performance of broilers on the feed. Different aspects of the feed, like nutrient density, amino acid profile, presence of enzymes, mineral composition etc., have an effect on the broiler's overall performance. These aspects could influence the average daily gains, feed conversion ratio, mortalities and thus the profitability of the broiler's operation. Due to the technical nature of formulating and manufacturing broiler feed, it must be noted that all broiler feed are not the same therefore using different types of broiler feed would lead to different results. The management style of the farmer and the environmental conditions could also influence the performance of the broilers on specific feed, for example broilers fed at higher placing density (birds per square meter), would result in lower average daily gains or higher feed conversion ratios compared to the same diet on birds with a lower placing density.

#### 2.3.1.2 Packaging

Kotler and Armstrong (2010) state that packaging involves designing and producing the container or wrapper of a product. They further state that traditionally the primary function of the packaging was to hold and protect the product. Recently, however, numerous factors have made packaging an important marketing tool as well.

In bagged broiler feed, packaging is another product trait that could be a distinguishing factor between two products. There may be a perception that a product with better packaging is of better quality.

By changing the packaging of different types of broiler feed within a range, it may be seen as a positive product trait, for example, if the starter feed is in a green bag, the grower feed in a blue

bag and the finisher feed in red bag, it will be easy for the farmer to ensure that he and his staff use the correct feed at the right stage.

Most broiler feed is packaged in 50 kg bags and distributed by agents or coops. These agents and coops deliver the feed in certain cases, but only large quantities. Most of their sales are however for collection at the premises. Due to the logistical problems that many of the subsistence and small-scale farmers experience, consideration should be given to package size. It is easier to carry a 12 or 15 kg bag or take it on a taxi or public transport. The package size is therefore an important product trait.

The connection between disposable income and package size is also important. A 50 kg bag costs far more than a smaller bag although the price per kg may be the same. The total price could therefore be the limiting purchase factor. Although a fixed amount of feed is needed to grow a certain amount of chickens, the farmer's cash flow situation may play a role in the frequency of these purchases as well as the size of bags that is purchased.

Some of the farmers re-use the feed bags to store their crops in, or they use it to manufacture curtains for their chicken houses. The quality of the bags will therefore influence these practises. It is therefore important to determine how important factor packaging is to the small-scale farmers when purchasing broiler feed.

### 2.3.1.3 Brand Equity

Boo, Busser and Balogu state that it is generally accepted that a brand is a powerful means of differentiation, and that differentiation is a significant competitive marketing strategy. To describe the value of the brand to customers the term "brand equity" is used.

According to Hawkins, Best and Coney (1998) brand equity is the value consumers assign to a brand above and beyond the functional characteristics of the product. Schiffman and Kanuk defined brand equity as the value inherent in a well-known brand name. They state that this value stems from the consumer's perception of the brand's superiority and the social esteem that using it provides and the consumer's trust and identification with the brand.

Kotler and Armstrong (2010) states that brands are more than just names and symbols, they are a key element in the company's relationship with consumers. According to them, brand equity is

the differential effect that knowing the brand name has on customer response to the product and its marketing.

The effect of the brand equity of the broiler feed on the purchase decision of the farmer, should be investigated. Most of the bigger feed mills are part of integrated broiler businesses, therefore the effect that the brand equity of well-known chicken brands have on the brand equity of the specific feed mill and their products, should also be investigated.

Brand loyalty could be hard to maintain if there is a problem with availability of feed. Due to the fact that chickens cannot go without feed if a preferred brand is not available, the farmer will have to buy a different brand of feed then.

#### 2.3.1.4 Services

Hawkins, Best and Coney (1998) define services as peripheral activities that are performed to enhance the primary product. They state that it is essential that the firm furnish only those services that provide value to the target customer. If services that do not have value for the customers are provided, it can result in high cost and prices without a corresponding increase in customer value.

Due to all the complexities of rearing chickens, the correct technical advice could play a huge role in the overall success of the operation. All the big feed companies employ technical advisors to sell their products. These technical advisors need to be registered animal scientists and must provide the farmers with all the technical assistance they need. They do not only provide assistance with the nutritional aspects to the business, but also assist with general management issues. For small-scale farmers with limited experience the technical services of a feed company will be of utmost importance.

Other services that feed companies provide, is credit facilities. This enables the farmers to have better cash flow management, as they will only have to pay for the feed once the broilers are sold (in the case of a 30 day account).

Services could also include a delivery service to deliver the feed to the small-scale farmers.

### 2.3.2 PRICE

According to Han, Gupta and Lehmann (2001) price is one of the most powerful tools available to marketers. It has a significant influence on consumers' purchase behaviour and consequently on firm sales and profits. It is therefore not surprising that price promotion has become an increasingly large fraction of the marketing budget and an almost ubiquitous aspect of consumer choice.

Han, Gupta and Lehmann (2001) state that reference price, which is partially based on the past pricing activity of a product, is stored in a consumer's memory and serves as a point of comparison for future purchases. It is thus important to note what effect the discount structure could have on the consumer.

Also important to note, is the interactions and correlations between various factors. Vlaev, Chater, Lewis and Davies (2009) note that many models of consumer behaviour assume that people evaluate price and quality independently. Evidence, however, shows that consumers perceive price and quality as positively related, even while they are weakly correlated in the real markets.

Most people believe that price is the most important factor that influences consumer purchase behaviour, however in a study done in Zimbabwe by Chikweche and Fletcher (2010), it was concluded that the belief that price is the primary influencer to purchase in subsistence communities, is false. Their research proved that there are different dynamics that influence the role of price.

The following factors may influence the price and price perception when small-scale broiler farmers purchase feed:

- Price of feed per kilogram could differ between various packaging sizes, although the quality and benefits of the product remains the same.
- The price of two products could be equal, but to achieve the same results more of one product has to be used.
- Although a feed is much more expensive, the total cost to produce a kilogram of broiler meat may be lower with this feed than with the cheaper alternatives.
- The most expensive feed is not necessarily the best quality feed.
- If the focus of the broiler business is to maximize profit, the price of feed is irrelevant but the performance and profitability of the feed is the important measures.

### **2.3.3 PROMOTION**

Laroche, Pons, Zgolli and Chankon (2001) state that sales promotions encompass all promotional activities. Unlike advertising, personal selling, or public relations; it is an action-focused marketing event whose purpose is to have a direct impact on the behaviour of the firm's customers. They further states that sale promotions temporarily alters the perceived brand price or value and that it is considered as an acceleration tool designed to speed up the selling process and maximizes sales volume.

According to Kotler and Armstong (2010) marketers can choose from two basic promotion strategies. A push strategy is one that calls for using the sales force and trade promotions to push the product though the channels. The producer promotes the product to channel members who in turn promote it to final customers.

A pull strategy is a strategy that calls for spending a lot on advertising and consumer promotion to induce final consumers to buy the product, creating a demand vacuum that "pulls" the product through the channel.

Most feed companies make use of a push strategy and rely on agents to sell their products to end users. These types of agents also service the smaller and subsistence farmers. A push strategy generally works better due to the fact that technical advice and the correct feeding recommendations could lead to better results on the feed. Personal selling is thus a very important way of promoting such a product.

Due to the fact that farmer buyer behaviour could in some sense also be classified as industrial buyer behaviour, the buyer/seller relationship is also very important. The fact that feed sales are in most instances not a once-off event but an ongoing process further emphasize the importance of buyer/seller relationship.

Other promotional activities that are utilized by feed companies, are to have special prices during lower demand phases. Discount structures for larger purchase volume are used to increase sales. The effects of these marketing strategies are not evident in the literature and more research is required in this regard.

In a study by Sharp and Sharp (1997), they concluded that it is clearly possible to alter repeat-purchase patterns, at least to a small degree, and loyalty programs are probably the only marketing effort which deliberately focuses on bringing about such change.

Loyalty programs could thus be implemented by feed companies to enhance repeat purchase behaviour of small-scale dairy farmers.

#### **2.3.4 PLACE**

Kotler and Armstrong (2010) define the place stimulus as a company activity that make the product available to target consumers. Kanuk and Schiffman state that “the place” is the distribution of the product or service through specific store and non-store outlets.

For small-scale broiler farmers place could be a very important stimulus that affects their purchase behaviour. Some of these farmers have limited or no means of transport and rely on the public transport system. If feed is not available in their immediate area and they need to travel long distances to purchase feed, this may influence their feed purchasing behaviour.

There will also be an interaction between the price and place stimuli and the way that these factors effect purchase behaviour. If feed is only available far from the farm, the price of the feed at the reseller is not as important as the total cost to purchase the feed and transport it to the farm. Local feed that is more expensive per bag may thus have a lower total cost than feed that needs to be transported to the farm.

Another factor that may enhance the effect of place on the purchase behaviour is that most of the small-scale farmers work on a cash basis. This causes a security risk if they need to travel long distances with public transport to go and buy feed.

The unreliability of public transport and the sometimes long time it takes to use public transport in the rural areas may also increase the effect of the place stimuli on purchases.

### **2.4 OTHER STIMULI THAT COULD INFLUENCE PURCHASE BEHAVIOUR**

#### **2.4.1 ECONOMIC FACTORS**

According to Kool (1994), an important aspect of the buying behaviour of family farms is the interdependency between expenditures on household consumption and on means of production. If this principle is applied to small-scale broiler farmers it could be assumed that if they spend more money on their households there would be less available to spend on their

farming activities. Poor economic conditions and increases in household items may therefore limit the money that is available for the farming.

Poor economic conditions will lead to a decrease in the disposable income of the community. This may lead to a decrease in the demand for chicken which will lead to a lower chicken price for the farmer. When demand drops and the farmer is selling live birds, it means that he has to feed the birds for a longer period of time and this will influence the profitability of his operation. When profitability goes down, the farmers will decrease their placement of chicks and will thus need less feed.

When economical conditions are favourable, this may lead to a bigger demand for protein and thus a higher demand for chicken. Farmers will then increase the cycles of broilers as well as the number of broilers per cycle. This will lead to greater purchases of broiler feed.

Global and local economic conditions that have an influence on the import of chicken meat in South Africa, will also affect the small-scale farmers. If the imports increase significantly, the bigger integrated broiler business comes under pressure with the realisation of their prices due to the oversupply in the market. This price pressure may lead to lower retail prices for the end consumer, but puts all the broiler producers under pressure and may even push some of the small producers out of the market.

#### **2.4.2 SPECIAL EVENTS**

There is a definite seasonal trend in broiler feed sales - the peaks of these trends are before Easter and Christmas. This trend can be explained by a higher demand for poultry. Various factors can contribute to this phenomenon, including the return of migrant workers, yearly bonuses, religious beliefs etc. Since it takes about six weeks to produce market ready broilers, this higher demand leads to higher purchases of broiler feed a few weeks before the special events.

#### **2.3.3 CLIMATIC FACTORS**

Due to the fact that most of the small-scale and substance farmers do not have proper housing facilities for their broilers, environmental conditions and climate play a big role in the success or failure of their businesses. Table 2.1 shows the ideal temperatures and relative humidity for broilers of various ages.

Table 2.1: Ideal relative humidity and temperature for broilers at different ages

Age Days	Relative humidity	Temperature °C
0	30-50%	32-33
7	40-60%	29-30
14	50-60%	27-28
21	50-60%	24-26
28	50-65%	21-23
35	50-70%	19-21
42	50-70%	18

The information in this table shows that the ideal temperatures for broilers are very specific.

If environmental conditions differ from the ideal conditions for the chickens at a specific age, the farmer will have to try to improve these conditions in the broiler house.

If temperatures drop, extra heat should be provided to keep the birds warm. The cost of providing the extra heat could be a deterrent for farmers to place birds during these conditions.

If temperatures become too high it will have a negative effect on broiler performance which may also be a deterrent for farmers.

All these climatic conditions that could lead to farmers placing fewer chickens or periodically stopping their operations, have an adverse effect on the purchase of broiler feed.

#### **2.3.4 CULTURAL FACTORS**

In a study by Lee and Karcen (2008) to examine factors thought to influence consumers' planned and impulse purchase decisions, including subjective culture (individualist or collectivist consumers) and the presence of another person at the time of purchase, the following findings were made:

- There are important differences in consumers' planned and impulsive purchasing behaviour. They specifically showed that the effect of being with another person during an impulse purchase has a differential effect across cultures.

- Consumers from collectivistic countries were more satisfied with their impulse purchase when they were with an important other, versus when they were alone at the time of purchase, while consumers from individualistic countries showed no difference in satisfaction between these two purchase situations.
- For planned purchases, the presence of another person had no impact on post-purchase satisfaction for either collectivists or individualists.
- Culture clearly impacts consumers' buying behaviour.

Grilo, Shy and Thisse (2000) state that it has long been recognized that the pleasure of consuming a good may be affected by the consumption choice of other consumers. In some cases, social pressures may lead to conformity; in some others, individuals may feel the need of exclusiveness under the form of vanity. Such externalities have proven to be important in several markets. However, the market implication of these externalities is still unclear.

## **2.4 SUMMARY**

To understand why consumers make certain purchasing decisions, it is important to understand the concept of consumer behaviour. It is thus important to understand what they buy, why they buy it, when they buy it, how they evaluate it after the purchase and the impact of such evaluations on future purchases.

It is important to take consumer buying behaviour as well as industrial buying behaviour into account when considering the purchase behaviour of farmers. Farmers' buying behaviour can be characterized as industrial buying behaviour as far as the product is concerned and as households' buying behaviour from the organizational point of view.

Consumer decision making should be considered to understand why consumers buy certain products. The stimulus response model shows that marketing and other stimuli enters the consumer's black box and produce certain responses.

Market stimuli that could affect the purchase behaviour of consumers are product, price and promotion. To better describe the product stimuli the product traits are discussed in categories of quality, packaging, brand equity and associated services. All these traits have a perceived influence on the purchase behaviour of small-scale broiler farmers.

Other stimuli that could influence purchase behaviour are economic factors, special events, the climate and cultural factors.

The next chapter reports on the research methodology and results of the empirical research.

## **CHAPTER 3**

### **RESEARCH METHODOLOGY AND RESULTS**

#### **3.1 INTRODUCTION**

This chapter identifies the methodology used to determine which factors play a role in the purchase behaviour of small-scale broiler farmers.

The data collected have been analysed using the following statistical methods:

- Descriptive Statistics
- Kaiser Meyer Olkin measure of sampling adequacy
- Bartlett's test of sphericity
- Factor analyses
- Cronbach Alpha

The descriptive statistics and factor analysis was used to determine which factors influence the small-scale farmers' purchase behaviour. While the Kaiser Meyer Olkin measure, Bartlett's test of sphericity and Cronbach Alpha was used to determine if the data is suitable to do a factor analysis on. The factor analysis was done to determine which factors are the most important, and will have the biggest influence on the purchase behaviour of the small-scale farmers.

#### **3.2 RESEARCH METHODOLOGY**

Data was collected by using a questionnaire (Appendix A). The data collected represented the response of the farmers to questions utilised to determine which factors would influence their purchase behaviour. These questions were testing the perceived influence of 11 factors, namely quality, packaging, brand equity, services, price, promotion, and place.

The sample consisted of small-scale broiler farmers in the Thohoyandou, Giyani, Tzaneen and Letsitele areas who completed 98 questionnaires.

### **3.3 STATISTICS EMPLOYED**

#### **3.3.1 Kaiser Meyer Olkin measure of sampling adequacy**

According to Cerny and Kaiser (1977) one of the fundamental problems in the application of factor analysis, concerns its validity when applied to a sample correlation matrix. Any correlation matrix is considered suitable for exploratory factor analysis, if bad data can be detected.

Bisschoff and Kade (2010) use the definition of Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy as an index for comparing the magnitudes of the observed correlation coefficients to the magnitudes of the partial correlation coefficients. This measure of adequacy can thus be used to determine if the relationship between variables are strong enough to proceed with factor analysis. The KMO measure of sampling adequacy returns a value of between 0 and 1.

Bisschoff and Kade (2010) states that large values for the KMO measure indicate that factor analysis of the variables may be performed and that larger values will result in more reliable factor analysis for the sample. Cerny and Kaiser (1977) also states how the larger the measure of sample adequacy the better the data.

According to Cerny and Kaiser (1977), if the KMO measure of sample adequacy  $< 0.5$  the data is unacceptable for factor-analytical purposes.

#### **3.3.2 Bartlett's tests of sphericity**

Another statistical test that is associated with factor analysis, is the Bartlett test of sphericity. According to Bisschoff and Kade (2010), this test is an indicator of the strength of the relationship among variables and an indicator of the suitability of the data to be used in factor analysis.

Bisschoff and Kade (2010) state that the Bartlett test of sphericity is used to test the null hypothesis. This hypothesis states that the variables in the population correlation matrix are uncorrelated. Thus each variable correlates with itself but has no correlation to other variables.

According to Bisschoff and Kade (2010) the observed significance level is 0.0000 and thus small enough to reject the hypothesis and to conclude that the strength of the relationship among variables is strong. This value would justify the data to be subjected to factor analysis.

### **3.3.3 Factor analysis**

DeCoster (1998) describes factor analysis as a collection of methods that is used to examine how underlying constructs influence the responses on a number of measured variables. He defines the confirmatory factor analysis as a process that test whether a specified set of constructs is influencing responses in a predicted way.

According to Bisschoff and Kade (2010) the factor loadings, variance explained and also the possibility of dual factor loadings, need to be analyzed. A factor loading of 0.40 is considered to be satisfactory, while a cumulative variance of 60% or higher is regarded to be a good fit of the data.

### **3.3.4 Cronbach Alpha**

According to Peterson (1994) for a scale to be valid and possess practical utility, it must be reliable. He states that reliability is defined as the degree to which measures are free from error and therefore yield consistent results. Coefficient Alpha was developed by Cronbach as a generalized measure of the internal consistency of a multi-item scale. It could thus be used as an index of reliability.

Schmitt (1996) states that presentation of Cronbach Alpha as an index of the internal consistency or reliability of psychological measures, has become routine practice in virtually all psychological and social science research in which multiple-item measures of a construct are used.

Peterson (1994) states that the most referenced acceptable value for Cronbach Alpha is values higher than 0.7.

## **3.4 RESULTS**

### **3.4.1 Demographic Profile**

The demographic profile of the respondents includes gender, farming experience, the number of chickens they farm with and the final market for these chickens. Table 3.1 is a summary of the demographic profile of the respondents that completed the questionnaire.

Table 3.1: Summary of the demographic profile

Gender of farmers		Final market of chickens		Farming experience in years		Number of chickens	
Male	54.08%	Live Birds	92.86%	0 - 5	59.18%	Less than 500	41.84%
Female	45.92%	Abattoir	5.10%	6 - 10	27.55%	501 - 1000	41.84%
		Slaughter them myself	2.04%	11 - 15	10.20%	1001 - 2000	11.22%
				16 - 20	0.00%	2001 - 3000	1.02%
				21 and more	3.06%	More than 3000	4.08%

Slightly more males (54.08%) than females (45.95%) took part in the survey would differ largely with commercial farmers where there are a significantly higher percentage of males compared to females. In a national survey done by Statistics South Africa (2007), the number of owners who is part-time or full-time busy with farming activities were 32 375 of which only 5319 were women, thus 16.43%

It is interesting to note that nearly all the farmers sell their birds as live birds and only 5.1% take the birds to an abattoir and a mere 2.04% slaughter the birds themselves. The price of live birds would thus have a huge impact on the farmers' profitability and thus on their feed purchase behaviour.

It is also important to note that nearly 60% of the farmers have less than 5 years experience in farming, if one considers the complexity of running your own business and the challenges of farming with live organisms this is not a lot of experience.

### 3.4.2 Descriptive statistics

#### 3.4.2.1 Mean Values of all the factors

The mean values of all the factors are shown in table 3.2. According to Lotriet and Bisschoff (2008) the mean values could be interpreted as follows:

- Lower than 3 = unacceptable
- Between 3.0 and 3.5 = acceptable
- Higher than 3.5 = Very satisfactory

Table 3.2: Mean values of all the factors

Measurement category	Questionnaire question	N	Min	Max	Mean	Std. Deviation	Grand Mean
<b>Quality</b>	I only buy the best quality feed	98	3	5	4.46	.676	4.18
	I buy feed with good pellet quality and low amounts of fines in the pellets	98	1	5	3.90	.867	
	I measure the performance of my chickens and use this to decide which feed is best to use	98	1	5	4.17	.850	
<b>Packaging</b>	Packaging is very important to me when I buy feed	98	1	5	3.82	.889	3.33
	I prefer buying 50 kg bags	98	1	5	4.49	.707	
	I prefer buying smaller bags	98	1	5	1.67	1.013	
<b>Brand</b>	I always buy the same brand of feed	98	2	5	3.82	.945	2.96
	When my brand of feed is not available I will not buy other feed.	98	1	5	3.13	1.241	
	All brands of feed are the same	98	1	5	1.92	.858	
<b>Service</b>	If a company gives me good advice and support I will buy their feed	98	2	5	4.22	.914	3.65
	I will buy feed from a company if they can deliver the feed to me	98	1	5	3.57	1.193	
	I will buy feed from a company that gives me an account	98	1	5	3.16	1.258	
<b>Price</b>	I buy the cheapest feed	98	1	5	3.94	1.092	3.80
	Price per bag is not as important as the performance of the chickens	98	1	5	3.78	1.089	
	I work out the total feeding cost and do not worry about price per bag.	98	1	5	3.69	1.059	
<b>Promotion</b>	Advertisements will determine my choice in feed	98	1	5	3.15	1.143	3.23
	I look for specials on feed and then buy that brand	98	1	5	2.73	1.031	
	I only buy feed from well known companies	98	1	5	3.80	1.055	
<b>Place</b>	I only buy a brand of feed that is available close to my farm	98	1	5	2.84	1.173	3.16
	I only buy a brand of feed that is always available	98	1	5	2.89	1.014	
	I calculate the total cost to get the feed to my farm	98	1	5	3.77	.906	
<b>Economic</b>	I only place chickens when I have cash available	98	1	5	3.54	1.194	3.65
	I only place chickens when there is a very high demand for them	98	1	5	2.51	1.105	
<b>Special events</b>	I only place chickens for Easter or Christmas	98	1	5	1.99	.891	1.99
<b>Climate</b>	I do not place chickens in winter time	98	1	5	2.32	1.099	2.32
<b>Cultural</b>	My family would help me decide which feed to use	98	1	5	2.71	1.103	3.14
	It is important to use the same feed as the other farmers in my area	98	1	5	3.13	1.281	
	I will use the same feed as successful farmers in my area	98	1	5	3.58	1.192	

The following factors as presented in table 3.3 had mean scores of higher than 3.5 and are thus seen by the farmers as very important.

Table 3.3: Mean values higher than 3.5

<b>Measurement category</b>	<b>Questionnaire Question (factor)</b>	<b>Mean Value</b>
<b>Packaging</b>	I prefer buying 50 kg bags	4.49
<b>Quality</b>	I only buy the best quality feed	4.46
<b>Service</b>	If a company gives me good advice and support I will buy their feed	4.22
<b>Quality</b>	I measure the performance of my chickens and use this to decide which feed is best to use	4.17
<b>Price</b>	I buy the cheapest feed	3.94
<b>Quality</b>	I buy feed with good pellet quality and low amounts of fines in the pellets	3.90
<b>Brand</b>	I always buy the same brand of feed	3.82
<b>Packaging</b>	Packaging is very important to me when I buy feed	3.82
<b>Promotion</b>	I only buy feed from well known companies	3.80
<b>Price</b>	Price per bag is not as important as the performance of the chickens	3.78
<b>Place</b>	I calculate the total cost to get the feed to my farm	3.77
<b>Price</b>	I work out the total feeding cost and do not worry about price per bag.	3.69
<b>Cultural</b>	I will use the same feed as successful farmers in my area	3.58
<b>Service</b>	I will buy feed from a company if they can deliver the feed to me	3.57
<b>Economic</b>	I only place chickens when I have cash available	3.54

These factors must be seen as important and they could have a large influence on the purchase behaviour of the farmers.

An interpretation of these results would be

- Farmers prefer buying feed in 50 kg bags.
- They prefer to buy the best quality feed.
- It is important that the feed company support them in terms of technical advice.
- Performance of their chickens would play a role in their choice of feed.
- Feed price is very important to them.
- The perceived pellet quality is an important factor and this would influence their purchase behaviour.
- Brand loyalty is high in the purchasing of feed.
- The farmers see packaging as important and a distinguishing characteristic between different types of feed.

- The farmers like to support known companies, thus companies that advertise in their area.
- Profitability and not price is important.
- The total feed cost to grow chickens will influence their purchase decisions.
- The purchase behaviour of successful farmers will influence the purchase behaviour of small-scale farmers.
- Delivery of feed will let the farmers buy the specific feed.
- Economic constraints like cash flow may have a negative effect on feed purchases.

These interpretations on the mean values are a very simplified analysis of the data and further more advanced analyses must also be conducted.

#### 3.4.2.1 Mean Values of the categories

The mean values are presented in percentage format. The 5 point likert scale have been converted to percentages by dividing the mean score per category by the maximum score of 5.

Figure 3.1 shows the mean values of the categories.

According to Bisschoff and Haasbroek (2009) the following guidelines could be used to interpret the data:

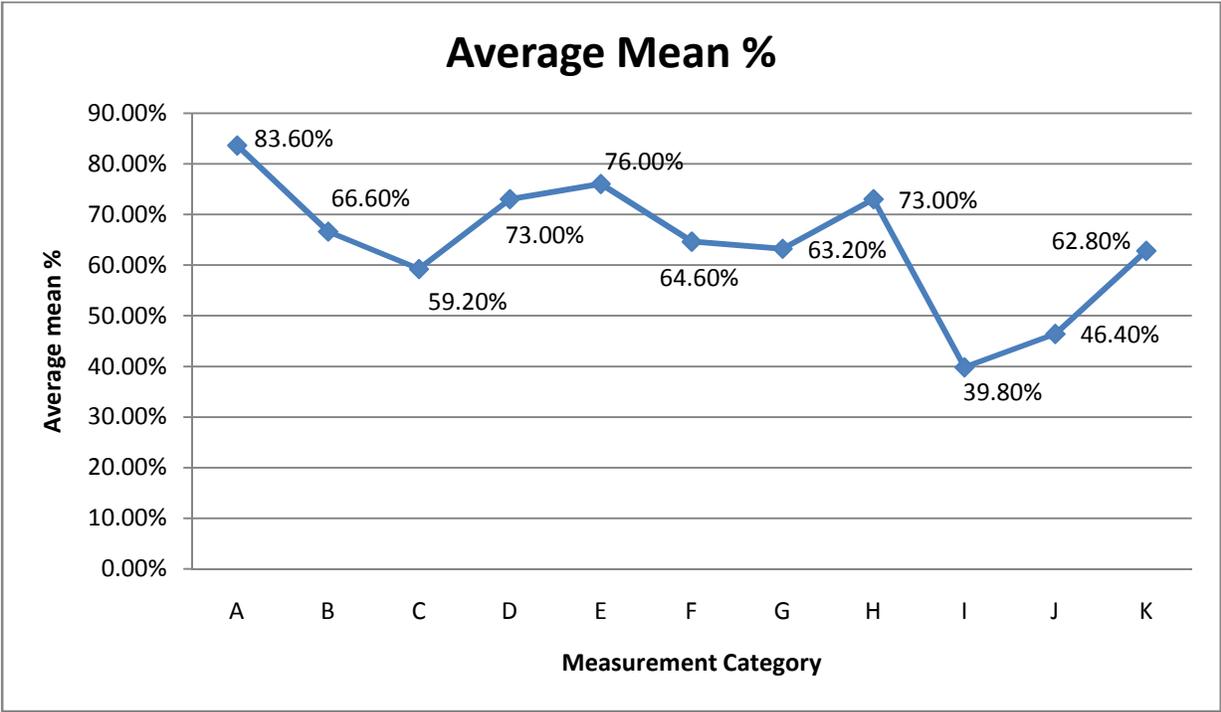
- Under 60% = Unacceptable/Unimportant
- Between 60% -75% = Acceptable / Important
- 75% and higher = Excellent / Very important

Measurement Category A (Quality) and Category E (Price) have values of 83.6% and 76% and these can be seen as very important. The small-scale farmers would thus consider price and quality and possibly the interaction between these as very important when they make feed purchasing decisions.

The measurement categories for packaging (66.6%), services (73%), promotion (64.60%), place (73%) and economic (62.80%) are in the acceptable/important range and will thus also influence the purchase behaviour of the farmers.

The brand category with a mean of 59.2% together with the climate (46.40%) and special events category (39.80), falls in the unimportant range and the influence of these categories on buying behaviour seems to be very small.

Figure 3.1: Summary of the mean values



Key:

- A : Quality
- B : Packaging
- C : Brand
- D : Service
- E : Price
- F : Promotion
- G : Place
- H : Economic
- I : Special events
- J : Climate
- K : Cultural

### 3.4.3 Sample adequacy and shericity

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of shericity were performed on the data and the results are presented in Table 3.4

Table 3.4: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.599
Bartlett's Test of shericity	Approx. Chi-Square	1082.564
	df	378
	Sig.	.000

The KMO value is 0.599 and thus bigger than the value of 0.5. The data would thus be acceptable for factor analysis purposes.

The significant value for the Bartlett test that was done on the data is 0.000 and thus small enough to reject the hypothesis and to conclude that the strength of the relationship among variables is strong. This value would justify the data to be subjected to factor analysis.

### 3.4.4 Factor analysis

The factor analysis revealed that eight factors could be identified from the data. The first factor in the factor analysis explains 16.76 % of the variance. Table 3.5 shows the total variance explained by all eight factors. The factor analysis explains a cumulative variance of 65.8% which represents a good fit of the data regarding the purchase behaviour or small-scale farmers.

Table 3.5: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.692	16.756	16.756	4.692	16.76	16.756
2	3.302	11.792	28.548	3.302	11.79	28.548
3	2.298	8.208	36.756	2.298	8.21	36.756
4	2.077	7.418	44.174	2.077	7.42	44.174
5	1.973	7.045	51.219	1.973	7.05	51.219
6	1.535	5.482	56.701	1.535	5.48	56.701
7	1.297	4.631	61.333	1.297	4.63	61.333
8	1.249	4.462	65.795	1.249	4.46	65.795

The identified factors have been labelled and interpreted. Table 3.6 is a component matrix and shows these factors as well as the percentage of variance explained by each of the factors.

Table 3.6: Component Matrix<sup>a</sup>

Measurement category	Purchase behaviour factors	Component							
		1	2	3	4	5	6	7	8
<b>Price</b>	I buy the cheapest feed	-0.727							
<b>Quality</b>	I only buy the best quality feed	-0.726							
<b>Promotion</b>	I look for specials on feed and then buy that brand	0.701							
<b>Climate</b>	I do not place chickens in winter time	0.651							
<b>Brand</b>	All brands of feed are the same	0.588							
<b>Special events</b>	I only place chickens for Easter or Christmas	0.576							
<b>Quality</b>	I measure the performance of my chickens and use this to decide which feed is best to use	-0.514							
<b>Economic</b>	I only place chickens when there is a very high demand for them	0.485							
<b>Place</b>	I only buy a brand of feed that is available close to my farm	0.459							
<b>Service</b>	If a company gives me good advice and support I will buy their feed		-0.677						
<b>Cultural</b>	It is important to use the same feed as the other farmers in my area		0.675						
<b>Price</b>	I work out the total feeding cost and do not worry about price per bag		0.542						
<b>Economic</b>	I only place chickens when I have cash available		0.531						
<b>Cultural</b>	I will use the same feed as successful farmers in my area		0.529						
<b>Brand</b>	I always buy the same brand of feed		0.484						
<b>Promotion</b>	I only buy feed from well known companies			0.670					
<b>Service</b>	I will buy feed from a company that gives me a account			0.597					
<b>Service</b>	I will buy feed from a company if they can deliver the feed to me			0.468					
<b>Cultural</b>	My family would help me decide which feed to use				0.601				
<b>Place</b>	I only buy a brand of feed that is always available				0.573				
<b>Quality</b>	I buy feed with good pellet quality and low amounts of fines in the pellets				0.563				
<b>Packaging</b>	Packaging is very important to me when I buy feed					0.555			
<b>Price</b>	Price per bag is not as important as the performance of the chickens					0.514			
<b>Brand</b>	When my brand of feed is not available I will not buy other feed.					0.553			
<b>Place</b>	I calculate the total cost to get the feed to my farm						-0.45		
<b>Packaging</b>	I prefer buying 50 kg bags							0.631	
<b>Packaging</b>	I prefer buying smaller bags								0.488
<b>Promotion</b>	Advertisements will determine my choice in feed								0.455

- Factor 1: Value for money and opportunity

Factor 1 is the most important factor and has been identified as *Value for money and opportunity* (explaining a variance of 16.76%). The items loading in factor 1 point to a value for money aspect or an opportunity aspect as the most important elements the farmers consider when purchasing broiler feed. *Elements* that point to the value aspect of this factor, is in the price, quality and brand categories. The negative factor loading for three of these items shows that customers do not prefer the cheapest feed, or the best quality feed and that they do not always measure the chicken's performance. The belief that all brands are the same, also proves the monetary value that is placed on the brand and that farmers do not necessarily want to pay more for a certain brand. These items thus show that in the choice of broiler feed, it is about value for money for these farmers. The other items in this factor points to opportunity. Farmers will only place chickens in certain situations for instance before Christmas and Easter and not in winter time. They will also only use feed that is available in their area and look out for specials. All these items show that farmers make use of certain opportunities when they purchase broiler feed.

- Factor 2: Perceived brand value

Factor 2 is labelled *perceived brand value* and explains 11.79% of the variance. These items point to the fact that the brand value (and the success of other farmers with this brand) is an important factor when farmers decide which feed to purchase. The negative value for the item concerning advice and support shows that the farmers will buy a strong brand of feed even without the support of that company. The item concerning the cash situation of the farmer could be interpreted in this factor as that the farmer would only buy his preferred brand of feed when he is in the financial position to do so.

- Factor 3: Customer support and service

Good customer support and service is important to the farmers when they purchase feed. Factor 3 is identified as *customer support and service* and this factor explains 8.21% of the variance. The item concerning whether a company is well known in an area, could be interpreted in this factor as the involvement of the company in an area and thus seen as a service of the company to the local community.

- Factor 4: Consensus on available quality.  
This factor is identified as *consensus on available quality*. Three items are loaded for this factor and the factor explains 7.42% of the variance. Pellet quality is seen as an overall measure of product quality by most farmers. This factor shows that farmers prefer good quality feed but it must be available locally. They would only make purchase decisions after consulting their family and thus getting a consensus on which local available feed with the best quality they should buy.
- Factor 5: Brand loyalty  
Factor 5 is labelled as *brand loyalty* and three items are loaded into this factor and explains 7.02% of the variance. The items concerning the importance of packaging and performance of the chickens could be interpreted as being seen as characteristics of the brand. The item stating that if a brand is not available, the farmer would not buy another brand, shows the loyalty towards the brand.
- Factor 6: Feed price at the reseller  
This factor could be identified as *feed price at the reseller*, and only one item is loaded significantly to the factor. The factor explains 5.48 % of the variance. The negative factor loading shows that farmers do not calculate the total cost to get the feed to their farms. This implicates that they compare feed prices at different resellers and use the best price and not the total cost to make their purchasing decisions.
- Factor 7: Bag size  
Bag size is the label that is put on factor 7 and it explains only 4.63% of the variance. Only one item is loaded for this factor and the item shows that farmers want the bag size to be 50 kg.
- Factor 8:  
This factor only explains 4.46% of the variance and this is therefore too small to consider the factor as significant. The total variance explained by the cumulative values of the other 7 factors is 61.3% and thus still a good fit for the data.

### 3.4.6 Reliability

The reliability of the data was statistically determined by employing the coefficient of Cronbach Alpha. The reliability measures appear in table 3.7

Table 3.7: Reliability Statistics

Cronbach Alpha	N of Items
.383	28

The Cronbach Alpha value is 0.383. As mentioned under the discussion about Cronbach Alpha, the cut-off point of 0.7 is used normally.

Cortina (1993) however states that such general guidelines should be used with caution, because the Alpha value depends on the number of items on the scale. He shows that, as the number of items of the scale increase Alpha will increase. It is thus possible to get a large Alpha-number due to the large number of items on the scale and not because the data is reliable.

In a study done by Schmitt (1994) he concluded that there are four caveats that are implied regarding the proper use of Cronbach Alpha.

- Alpha is not an appropriate index of unidimensionality to assess homogeneity.
- In correcting for attenuation due to unreliability, use of Alpha as an estimate of reliability is based on the notion that the measures involved are unidimensional. When this is not the case, the corrected coefficients will be overcorrected.
- There is no sacred level of acceptable or unacceptable level of Alpha. In some cases, measures with (by conventional standards) low levels of Alpha may still be quite useful.
- Presenting only Alpha when discussing the relationships of multiple measures is not sufficient. Intercorrelations and corrected intercorrelations must be presented as well.

These facts about the use of Cronbach Alpha show that although the value is low, it can still be useful.

### 3.5 SUMMARY

Descriptive statistics that was done on the data, showed that the price and quality categories must be seen as very important. Small-scale farmers would therefore consider price and quality and possibly the interaction between these, as very important when they make feed purchasing decisions.

The data was tested to determine if it was suitable for factor analysis. After favourable results from these tests, the data was subjected to factor analysis. The factor analysis revealed that eight factors could be identified from the data and that these factors explains a cumulative variance of 65.8%

These factors were labelled as follows:

- Factor 1: Value for money and opportunity. Explaining a variance of 16.76 %
- Factor 2: Perceived brand value. Explaining a variance of 11.79 %
- Factor 3: Customer support and service. Explaining a variance of 8.21 %
- Factor 4: Consensus on available quality. Explaining a variance of 7.42 %
- Factor 5: Brand loyalty. Explaining a variance of 7.02 %
- Factor 6: Feed price at the reseller. Explaining a variance of 5.48 %
- Factor 7: Bag size. Explaining a variance of 4.63 %
- Factor 8: Insignificant. Explaining a variance of 4.46 %

## **CHAPTER 4**

### **CONCLUSIONS AND RECOMMENDATIONS**

#### **4.1 INTRODUCTION**

The concluding remarks and recommendations, based on the results as presented in Chapter 3, will be discussed in this chapter.

#### **4.2 CONCLUSIONS**

The primary objective of the study was to determine which factors influence consumer preference of small-scale and emerging broiler farmers when buying bagged broiler feed.

The seven significant factors identified as very important to the purchase behaviour of small-scale broiler farmers have not been investigated in the literature as such factors. There are however correspondence to factors that was proven to have an influence on the purchase behaviour. These factors would also incorporate interactions between factors that were described in the literature study.

It was perceived from literature that the quality of broiler feed and the influence of that on chicken performance and profitability, would be one of the most important factors. The study showed that the most important factor to the small-scale broiler farmer when making his purchasing decision, is that there must be an opportunity for him to grow broilers, and local availability of feed that is very good value for money. This relates to quality but only to a certain degree - a quality product without regards to pricing, or a quality product without an opportunity to grow broilers, would not influence the farmer to buy a certain brand of feed. The small-scale farmer would only be influenced if the quality of the product is also linked with value for money and an opportunity. This opportunity relates to what was seen in the literature study concerning special events like Christmas and Easter as well as climatic conditions that will influence the purchase behaviour of the farmers.

The second most important factor, perceived brand value, corresponds more with the factors in the literature study about brand equity. An interesting factor that could almost be linked to the opportunity of the most important factor is that preferred brand will only be purchased by the

farmers if they are in the financial position to do so. It was stated in the literature study that if a specific brand of feed is not available, the farmer will be forced to buy something else, because the chickens cannot go without feed. This fact do not relate to the results of the study. From factor 5 which deals with brand loyalty, it seems as if the farmers would make another unknown plan until their brand of feed is available. A possible scenario could be that small-scale farmers buy their broiler feed before they place chickens and if their preferred brand is not available, they would not place chickens.

Customer service and support was also shown to play an important role in the purchase behaviour of small-scale farmers. This corresponds well with the perceived ideas in the literature study, although the importance of technical advice that seemed very important in the literature study is not important according to the results of the factor analysis. Delivery of feed and credit facilities from the feed company is seen by the farmers as important factors.

Availability of feed in their area would have an influence on the purchase behaviour of small-scale farmers, but there is a definite interaction between availability and the quality of the feed. The opinion of their family members about feed purchases also seems to be important.

From the results of factor 6 it can be concluded that the farmers use the feed price at resellers to compare prices. They do not calculate the total cost to get the feed to the farm. This could be due to the fact that the farmers see local available quality feed as a more important factor than the feed prices at the reseller. They do not calculate the total cost to get the feed to the farm because they only purchase quality feed that is locally available. There would thus not be a huge transport cost involved in getting the feed to the farm.

The fact that farmers prefer buying 50 kg bags, is different from the ideas in the literature study that farmers would prefer smaller bags that are easier to handle during transport. This fact may be considered a factor because if feed is available locally, there will not be huge logistical problems to get it to the farm.

### **4.3 RECOMMENDATIONS**

If a feed company wants to focus on the small-scale farmer segment of the broiler industry, it is important for them to understand which factors influence the purchase behaviour of these farmers.

The most important factors which influence the purchase behaviour of small-scale farmers that the companies must consider are:

- Products that provides value for money and specific opportunities to grow more broilers throughout the year.
- The companies' perceived brand and the brand value of their products
- Customer support and services with the most important services being delivery services and credit facilities.
- To sell a product it must be of good quality and be available in the local area close to the small-scale broiler farmers.
- Small-scale farmers are brand loyal.
- Feed prices are compared at the point of sale and thus emphasize the need of feed to be available in the farmers' living area again.
- Small-scale broiler farmers prefer feed bags to be 50 kg.

### **4.4 AREAS OF FUTURE RESEARCH**

There are very limited research available on the purchase behaviour of farmers and almost none on the purchase behaviour of small-scale farmers. More research is required in this field in order to identify all the factors that may play a role. This research focused only on a small part of the country. Future research must include a bigger geographical area.

### **4.5 SUMMARY**

Chapter 1 of this study served to orientate the reader to a paradigm perspective of the study. It included an introduction, background of the study, problem statement and objectives of the study, scope, research methodology and limitations of the study.

Chapter 2 comprised of a literature review on the factors that could possibly influence purchase behaviour. In Chapter 3 the research methodology used in this study was described and it also conveys the results obtained from this study. The final chapter, Chapter 4 discusses the conclusions derived from the results obtained in Chapter 3. Recommendations are also made in this chapter and areas for future research are identified.

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## APPENDIX A

### Consumer Preference Questionnaire

Please mark the description most appropriate to your situation with an X

Bea leswao la X mo go swanelago maemo a gago

#### I sell chickens / Ke rekisha dikgogo:

As live birds / Tsa go phela	
To a abattoir / Di romelwa leselageng	
Slaughter them myself / Ke a ihlabela	

#### Gender / Bong

Male / Monna	
Female/ Mosadi	

#### Amount of chickens that you farm with (per week)

##### Nomoro ya diruiwa (dikgogo) (ka beke)

Less than 500 / Ka fase ga 500	
501 - 1000	
1001 - 2000	
2001 - 3000	
More than 3000	

#### Farming experience in years

##### Mengwaga ya tsebo ya go rua

0 - 5	
6 - 10	
11 - 15	
16 - 20	
21 and more / 21 le go feta	

I will use the same feed as successful farmers in my area

*Ke tla somisa furu ya go swana le ye barui ba kgauswi bao tswaletsego ka go rua dikgogo*

Strongly Disagree Ke gana ka maatla	Disagree Ke a gana	Neutral Magareng	Agree Ke a dumela	Strongly Agree Ke dumela ka maatla
--	-----------------------	---------------------	----------------------	---------------------------------------

I only buy a brand of feed that is available close to my farm

*Ke reka fela mohuta wa furu yeo elego kgauswi se polase yaka.*

Strongly Disagree Ke gana ka maatla	Disagree Ke a gana	Neutral Magareng	Agree Ke a dumela	Strongly Agree Ke dumela ka maatla
--	-----------------------	---------------------	----------------------	---------------------------------------

I only place chickens for Easter or Christmas

*Ke rua dikgogo ka Paseka le matswalo a morena*

Strongly Disagree Ke gana ka maatla	Disagree Ke a gana	Neutral Magareng	Agree Ke a dumela	Strongly Agree Ke dumela ka maatla
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Price per bag is not as important as the performance of the chickens

*Boleng bja lesaka la furu ga le bohlokwa go swana go gola ga dikgogo*

Strongly Disagree Ke gana ka maatla	Disagree Ke a gana	Neutral Magareng	Agree Ke a dumela	Strongly Agree Ke dumela ka maatla
--	-----------------------	---------------------	----------------------	---------------------------------------

I prefer buying smaller bags

*Ke rata go ka reka masaka manyenyane*

Strongly Disagree Ke gana ka maatla	Disagree Ke a gana	Neutral Magareng	Agree Ke a dumela	Strongly Agree Ke dumela ka maatla
--	-----------------------	---------------------	----------------------	---------------------------------------

I work out the total feeding cost and do not worry about price per bag.

*Ke hlakantsha boleng bja furu kamoka e hlakane, ga ke tshwenyego ka boleng bja lesaka le tee fela.*

Strongly Disagree Ke gana ka maatla	Disagree Ke a gana	Neutral Magareng	Agree Ke a dumela	Strongly Agree Ke dumela ka maatla
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I calculate the total cost to get the feed to my farm  
*Ke hlakantsha boleng bja furu bo hlakane le go fihlisa furu mo polaseng*

Strongly Disagree Ke gana ka maatla	Disagree Ke a gana	Neutral Magareng	Agree Ke a dumela	Strongly Agree Ke dumela ka maatla
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It is important to use the same feed as the other farmers in my area  
*Go bohlokwa go somisa furu ya go swana le ya barui bangwe ba kgauswi lenna*

Strongly Disagree Ke gana ka maatla	Disagree Ke a gana	Neutral Magareng	Agree Ke a dumela	Strongly Agree Ke dumela ka maatla
--	-----------------------	---------------------	----------------------	---------------------------------------

I buy the cheapest feed  
*Ke reka furu ya tshipha kudu*

Strongly Disagree Ke gana ka maatla	Disagree Ke a gana	Neutral Magareng	Agree Ke a dumela	Strongly Agree Ke dumela ka maatla
--	-----------------------	---------------------	----------------------	---------------------------------------

I only place chickens when I have cash available  
*Ke rua dikgogo fela ge kena le tshelete*

Strongly Disagree Ke gana ka maatla	Disagree Ke a gana	Neutral Magareng	Agree Ke a dumela	Strongly Agree Ke dumela ka maatla
--	-----------------------	---------------------	----------------------	---------------------------------------

I do not place chickens in winter time  
*Ga ke rue dikgogo marena*

Strongly Disagree Ke gana ka maatla	Disagree Ke a gana	Neutral Magareng	Agree Ke a dumela	Strongly Agree Ke dumela ka maatla
--	-----------------------	---------------------	----------------------	---------------------------------------

I look for specials on feed and then buy that brand  
*Ke lebelela ditheko fase tsa furu, ke tla lebelela ka morago gore ke mohuta ofe wa furu*

Strongly Disagree Ke gana ka maatla	Disagree Ke a gana	Neutral Magareng	Agree Ke a dumela	Strongly Agree Ke dumela ka maatla
--	-----------------------	---------------------	----------------------	---------------------------------------

I buy feed with good pellet quality and low amounts of fines in the pellets  
*Ke reka furu ya dipelete tsa bokgabo bja godimo tsa go tia, tsa go se foforege*

Strongly Disagree Ke gana ka maatla	Disagree Ke a gana	Neutral Magareng	Agree Ke a dumela	Strongly Agree Ke dumela ka maatla
--	-----------------------	---------------------	----------------------	---------------------------------------

I always buy the same brand of feed  
*Ke reka leina la mohuta o motee wa furu*

Strongly Disagree Ke gana ka maatla	Disagree Ke a gana	Neutral Magareng	Agree Ke a dumela	Strongly Agree Ke dumela ka maatla
--	-----------------------	---------------------	----------------------	---------------------------------------

I will buy feed from a company if they can deliver the feed to me  
*Ke tla reka furu ya khampani ge ba ka ntlisetsa furu polaseng*

Strongly Disagree Ke gana ka maatla	Disagree Ke a gana	Neutral Magareng	Agree Ke a dumela	Strongly Agree Ke dumela ka maatla
--	-----------------------	---------------------	----------------------	---------------------------------------

All brands of feed are the same  
*Mehuta ya difuru komoka ga e fapane ka selo*

Strongly Disagree Ke gana ka maatla	Disagree Ke a gana	Neutral Magareng	Agree Ke a dumela	Strongly Agree Ke dumela ka maatla
--	-----------------------	---------------------	----------------------	---------------------------------------

I measure the performance of my chickens and use this to decide which feed is best to use  
*Ke balela kgolo ya dikgogo tsaka gore ke kgone go kgetha furu ye kaone*

Strongly Disagree Ke gana ka maatla	Disagree Ke a gana	Neutral Magareng	Agree Ke a dumela	Strongly Agree Ke dumela ka maatla
--	-----------------------	---------------------	----------------------	---------------------------------------

I will buy feed from a company that gives me a account  
*Ke tla reka furu ya khampani yeo ba dumelang ke reka ka sekoloto*

Strongly Disagree Ke gana ka maatla	Disagree Ke a gana	Neutral Magareng	Agree Ke a dumela	Strongly Agree Ke dumela ka maatla
--	-----------------------	---------------------	----------------------	---------------------------------------

I only buy the best quality feed  
*Ke tla reka fela furu ya bokgabo ya godimo*

Strongly Disagree Ke gana ka maatla	Disagree Ke a gana	Neutral Magareng	Agree Ke a dumela	Strongly Agree Ke dumela ka maatla
--	-----------------------	---------------------	----------------------	---------------------------------------

I prefer buying 50 kg bags  
*Ke rata go ka reka masaka a boima bja 50 kg*

Strongly Disagree Ke gana ka maatla	Disagree Ke a gana	Neutral Magareng	Agree Ke a dumela	Strongly Agree Ke dumela ka maatla
--	-----------------------	---------------------	----------------------	---------------------------------------

When my brand of feed is not available I will not buy other feed.  
*Ge leina la furu leo ke le tswaetseng le se segona, nka se reke mohuta o mongwe.*

Strongly Disagree Ke gana ka maatla	Disagree Ke a gana	Neutral Magareng	Agree Ke a dumela	Strongly Agree Ke dumela ka maatla
--	-----------------------	---------------------	----------------------	---------------------------------------

I only buy feed from well known companies  
*Ke reka furu go dikhampani tsa go tsebega kudu fela*

Strongly Disagree Ke gana ka maatla	Disagree Ke a gana	Neutral Magareng	Agree Ke a dumela	Strongly Agree Ke dumela ka maatla
--	-----------------------	---------------------	----------------------	---------------------------------------

I only buy a brand of feed that is always available  
*Ke reke fela mohuta wa furu yeo e phelago ele gona*

Strongly Disagree Ke gana ka maatla	Disagree Ke a gana	Neutral Magareng	Agree Ke a dumela	Strongly Agree Ke dumela ka maatla
--	-----------------------	---------------------	----------------------	---------------------------------------

My family would help me decide which feed to use  
*Ba lelapa laka ba nthusa gore kgetha gore ke furu*

Strongly Disagree Ke gana ka maatla	Disagree Ke a gana	Neutral Magareng	Agree Ke a dumela	Strongly Agree Ke dumela ka maatla
--	-----------------------	---------------------	----------------------	---------------------------------------

Packaging is very important to me when I buy feed  
*Mokgwa le mohuta woo furu pakilweng ka gona di bohlokwa go nna ge ke reka furu*

Strongly Disagree Ke gana ka maatla	Disagree Ke a gana	Neutral Magareng	Agree Ke a dumela	Strongly Agree Ke dumela ka maatla
--	-----------------------	---------------------	----------------------	---------------------------------------

Advertisements will determine my choice in feed  
*Dipapadiso di ngethele gore ke reka furu efeng.*

Strongly Disagree Ke gana ka maatla	Disagree Ke a gana	Neutral Magareng	Agree Ke a dumela	Strongly Agree Ke dumela ka maatla
--	-----------------------	---------------------	----------------------	---------------------------------------

I only place chickens when there is a very high demand for them  
*Ke rua digkogo ge fela go na le hlokego ya godimo*

Strongly Disagree Ke gana ka maatla	Disagree Ke a gana	Neutral Magareng	Agree Ke a dumela	Strongly Agree Ke dumela ka maatla
--	-----------------------	---------------------	----------------------	---------------------------------------

If a company gives me good advice and support I will buy their feed  
*Ge khampani e fana ka maele le thekgo e botse, nka rata go reka furu ya bona*

Strongly Disagree Ke gana ka maatla	Disagree Ke a gana	Neutral Magareng	Agree Ke a dumela	Strongly Agree Ke dumela ka maatla
--	-----------------------	---------------------	----------------------	---------------------------------------

