From folklore to feasibility: Commercialisation of South Africa's indigenous goats

By

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Abstract

In South Africa, the development of non-commercialised goat farmers and entrepreneurs and the transformation of the currently fragmented goat industry into a formal mainstream industry have been constrained by historical, institutional, market, information, and research factors. This thesis demonstrates that the task of integrating non-commercialised goat producers into a national and international agro-industrial goat industry requires several innovations including knowledge of the indigenous resource, product development, market analysis, provision of collection, transportation and processing infrastructure, and institutional innovations.

This thesis has shown that the goat resource in the country (mainly owned by non-commercialised farmers) is large enough to ensure a consistent supply of product to the market. Furthermore, several historical perceptions, marketing systems and the institutions that governed them are of little consequence today due to changes in consumer perceptions, new trends and political changes. Interesting and innovative product development targeted at specific target markets and based on sound market analysis is key to a viable commercialisation process. International trade opportunities and globalisation have created a niche for exotic (read indigenous) niche goat products. However, to successfully enter and occupy this niche, certain enabling institutional arrangements, that are culturally acceptable to non-commercialised farmers, needed to be created, while at the same time, addressing the global challenges of quality, consistency and high standards that can be affected through traceability mechanisms. Both of these requirements have been affected by "Co-operative Contract Growing" arrangements. In this arrangement attention is paid to

formal (contracts, organisations, markets) and informal (traditions, customs) institutions, both at macro (legal) and micro (organisational form) level. Vertical co-ordination, governed through contracts, can be used to create a production and marketing supply chain. Throughout this development process strong technology transfer and information provision exercises ensure that non-commercialised farmers are kept abreast of developments and are not excluded from participating fully in the new industry.

Table of Contents

Page

List of Tables

Page

List of Figures

Page

List of Appendices

Page

Declaration

I declare that this thesis that I am submitting to the University of Pretoria for the degree of Ph.D. in Agricultural Economics represents my own work and has never been submitted by me to any other tertiary institution for any degree.

Merida Roets

B

AUSAID	Australian Agency for International Development
BGBA	Boer Goat Breeder's Association
CPPP	Community Public Private Partnership (a programme of the DTI)
CSIR	Council for Scientific and Industrial Research
DM or RC	District Municipality or Regional Council
DoA	National Department of Agriculture and Land Affairs
DST	Department of Science and Technology
DTI	Department of Trade and Industry
DWAF	Department of Water Affairs and Forestry
ECAPAPA	Eastern and Central Africa Programme of Agricultural Policy Analysis
EIA	Environmental Impact Assessment
EMO's	Entrepreneur Membership Organisations
EU	European Union
FSRD	Farming Systems Research and Development
GIG	Goat Interest Group
GMO	Genetically Modified Organism
HACCP	Hazard Analysis Critical Control Point
IDP	Integrated Development Plan

IDT	Independent Development Trust
IFPRI	International Food Policy Research Institute
ISNAR	International Service for National Agricultural Research
ISRDP	Integrated Sustainable Rural Development Programme
ISTT	International School of Tanning Technology
IUCN	World Conservation Network (International Union for the Conservation of Nature)
LEDF	Local Economic Development Fund
LIRI	Leather Industries Research Institute
LRAD	Land Redistribution and Development
LSM	Living Standards Measurement
MEC	Member of the Executive Committee
MEDUNSA	Medical University of South Africa
MQA	Mineworker's Qualifications Authority
NAFU	National African Farmer's Union
NDA	National Development Agency
NEPAD	New Partnership for Africa's Development
NGO	Non-Government Organisation
NIE	New Institutional Economics
NSF	National Skills Fund
Ntsika	A micro-finance and SMME support agency of DTI

PAETA	Primary Agriculture Education and Training Authority
PDI	Previously Disadvantaged Individual
SADC	Southern African Development Community
SAMIC	South African Meat Industry Company
SBDU	Small Business Development Unit
SBSC	Small Business Service Centre
SETA	Sector Education and Training Authority
SMME	Small, medium and micro enterprise
UAE	United Arab Emirates
UNOPS	United Nations Office of Project Services
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
USDA-ARS	United States Department of Agriculture – Agricultural Research Services

PART 1

BACKGROUND, OVERVIEW AND SETTING

CHAPTER 1: INTRODUCTION

"Begin at the beginning," the King said gravely, "and go on till you come to the end: then stop."

Lewis Carroll, Alice's Adventures in Wonderland

1.1 Background

Indigenous knowledge and indigenous resources have been underestimated for their ability to enable economic empowerment of emerging South African entrepreneurs. South Africa is listed as one of the 9 Mega-biodiverse nations (which together possess more than 70% of the world's biodiversity; Roets, 2004) and thus, has immense indigenous resources and knowledge, which is unique to the rest of the world. This indigenous knowledge, if correctly harnessed, can lead to untold opportunities in local, national, and international market places. However, they will remain untapped if South African entrepreneurs (and service providers such as Government Departments) continue to look for opportunities already exploited by developed countries, and continue to apply methodologies and business concepts that work well in the developed world. These countries already have the infrastructural, legal and organisational structures in place with which they work so effectively. A paradigm shift to create real economic growth in rural areas in developing countries is necessary. This is especially the case in a dualistic economy such as is found in South Africa, where a huge under-developed sector resides "uncomfortably" next to a highly sophisticated industrialised, commercial and financial sector. Without new paradigms the developing world's huge traditional resources will remain in the traditional spheres of knowledge for which there is no economic exchange value.

The above statement can be directly applied to the under-developed goat industry of South Africa. Over 6 million goats can be found in South Africa (Directorate: Agricultural Statistics, 2003), mainly owned by small-scale (non-commercialised) farmers in deep rural areas (85%; Directorate: Agricultural Statistics, 1996). However, up to the start of 2003 not a single goat had yet found its way into the retail sector

(unless it was labelled as mutton; Butcher, KwaZulu-Natal, personal communication, 2002). This despite the knowledge that goat products are of high value (based on literature, products and markets in developed countries) and despite a highly sophisticated red and white meat industry in South Africa (which includes world class infrastructure [abattoirs, processing plants, roads and rail networks], institutions [Veterinary Public Health Inspection Systems, SAMIC, Red Meat Producers Organisation], legal frameworks [Public hygiene and trade policies] and markets [retail and export]). This also, despite existing international markets and potential local markets that remain to be exploited. But, if all these resources could be harnessed to commercialise the goat industry in South Africa, how could the non-commercialised farmer be made part of the new industry from its outset? Too often an entrepreneur cashes in on an indigenous resource (e.g. African craft exported to Europe, Hoodia plant being used in pharmaceutical research; www.aaas.tek*pad.org), leaving the actual indigenous resource owner without any benefits (or remarkably few).

New products for new markets should be seen as a potential aid in rural entrepreneurial and agricultural development. Technological, institutional and information inputs could lead to an increase in production, to new or changed products, or to improved product quality. These inputs could relate to job creation, poverty alleviation, increase in profit, and increase in food security and/or autonomy.

However, the exploitation of new products for new markets can be a potential threat to non-commercialised farmers or entrepreneurs when they have less access to the means of commercialisation than others working in a comparable industry, and are thus left out of the commercial exploitation of these indigenous resources. Thus, the threat does not lie in the product or market itself (these are opportunities), but in the differential access to the means of commercialisation between various beneficiaries (which is especially the case in South Africa's dual economy), and the threat is not one of taking away the farmer's livelihood, but reducing his/her ability to increase his benefit from a resource that he/she already owns. To counteract this threat there is a need to increase the awareness and understanding of the totality of constraints and opportunities available to the non-commercialised farmer and develop methods to overcome them. This includes studying the institutional arrangements surrounding commercialisation and the reduction of transaction costs of non-commercialised

farmers related to their acquiring information, contracting and, in other ways, participating fully in the market economy.

There is a need to move away from an approach where non-commercialised farmers are only trained in how to farm a particular crop or animal (as a means to improve their livelihoods), to also assisting in creating an enabling environment for selling their produce. It is certain that non-commercialised farmers in South Africa are not, as Omamo (2003) jests, "first and foremost natural resource managers and not, like farmers and herders everywhere else in the world, in it for the money". Or, that "African traders are benevolent creatures, and not, like traders everywhere else in the world, in it for the money".

1.2 Theoretical construct

The foundation of all science is, obviously, observation. Any reaction to that observation should be recordable, in a language or descriptive terms that have some meaning to others. This is the process followed for descriptive science (Hinkelmann and Kempthorne, 1994). If such observations are then organised so that a general pattern or "generalisation" occurs, "laws" can be created from such empirical generalisations. In nature however, it is often more correct to call these empirical generalisations "theories" because they are only true in a given context of application. Thus, the second type of science is the development of theory (Hinkelmann and Kempthorne, 1994). A theory is defined as "an explanation of the commonalities and the relationship among observed phenomena in terms of the causal structures and processes that are presumed to underlie them" (Gall, Borg and Gall, 1996).

Economics lends itself superbly to qualitative theory, being a social science. But, the myriad of alternatives within qualitative theory are mind-boggling. According to Leedy (1997), "qualitative studies tend to use an inductive form of analysis whereby observations of particular cases may be generalised to a class of cases", where after-the-fact explanation is emphasised, and theory emerges from a careful consideration of the evidence. Qualitative researchers endeavour to increase their understanding of the *broader* phenomenon. Words such as multi-disciplinary, holistic, a systems approach, and interdisciplinary spring to mind.

However, these types of terms are being bandied about quite loosely in the field. There are those who believe that interdisciplinary and multidisciplinary research entails bringing together, for example, in a vegetable project, a soil scientist, a climatologist, an agronomist, and irrigation engineers. Developmental efforts have been wasted through this approach. The beneficiaries (also a loose term – denoting the receiver of things instead of a participant) are ultimately left with the knowledge of how to grow a crop successfully. They may even receive the correct production inputs and infrastructure to do so, but other aspects that are also important for their development (or preferably, economic empowerment) are left out of the intervention (again a misleading word since participation is not implied). Factors such as markets, product quality, legal issues, institution building, profit, loss, risk, financing and so on, are neglected. Thus, the "schools of thought" surrounding the paradigms "multidisciplinary" and "interdisciplinary" are sometimes misunderstood and essentially flawed.

Leedy (1997) and Patton (2001) list several qualitative research methodologies. In economic theory, Doyer and Van Rooyen (2001) debate the move from the Positivist approach in Supply-Chain Management Research to the use of Constructivist reasoning. This introduction will not delve into the deeper meanings or philosophies surrounding all of these qualitative orientations here. However, suffice to say, Grounded Theory and Systems Theory are applicable to this thesis for the following reasons: Grounded Theory attempts to link descriptions of situations to general social science theories (in the case of this thesis, to economic theories), thus contributing to the development of theory (Leedy, 1997). This assumes that all the concepts pertaining to the phenomenon under investigation have not yet been identified, and that the relationships between the concepts are poorly understood or conceptually underdeveloped (Leedy, 1997); and, Systems Theory, according to Patton (2001), has three main points. Firstly, Systems Theory is useful in dealing with real-world complexities and viewing whole entities embedded in context. Secondly, Systems Theory depends heavily on qualitative enquiry. And thirdly, Systems Theory can be useful in framing questions, and later, making sense out of qualitative data.

This third point leads naturally to the use of Grounded Theory as a research approach. Here, studies are aimed at deriving theory (Leedy, 1997) or generating theory (Patton,

2001) rather than the proving or disproving of a particular theoretical content. And, rightly so. What would be the use of immersing oneself in the many and varied nuances of the development context, if one were merely "testing" whether the theories of those that had gone before were correct or not? In fact, the situation becomes even more difficult if you are, at the outset, concerned that the theories or methodologies of those that had gone before were fundamentally flawed to begin with. Thus, the use of the systematic approach of treating one group of "beneficiaries" in ways similar to that which had occurred in the past, and another group in a new, possibly improved, manner, and then comparing the result, would surely be tantamount to unethical behaviour! Similar to providing one group of malnourished children with food, and leaving another group undernourished, to "test" the difference.

A systems approach also appeals for several reasons as stated by Patton (2001). The concept of Farming Systems Research and Development emerged from the failures of the purely mechanistic technology transfer (from more developed to less developed countries) approach of developmental work of the fifties, sixties and seventies (Patton, 2001). Here, the mechanics of agriculture was emphasized, and "technology transfer" was considered the panacea for all developmental ills, leaving the social, economic, traditional and historical context within which the farmers found themselves out of the picture. Farming Systems Research and Development (FSRD) is essentially a qualitative approach to development where interdisciplinary teams function in the field, working collaboratively with the farmers, including aspects regarding society, environment, labour, and income. It begins with open-ended enquiry and qualitative description (important in Grounded Theory), remaining sensitive to the context of cultural, political, economic, and policy environments. It is interactive, dynamic and process oriented, and situationally responsive and adaptive (Patton, 2001).

It is also pleasing to note that Lincoln and Guba (1985) as quoted by Patton (2001) remarked that "…. *the design of a naturalistic enquiry cannot be given in advance; it must emerge, develop, unfold…"* And thus it has been so with this investigation.

J.C. Bonsma (1965), one of the most well known animal scientists to have emerged from South Africa, had an aversion for agricultural economists. His reasoning was thus: *"The farm and the factory differ essentially at the point of freedom. If the*

economist makes a factory out of land for crop and animal production, introducing military control with large-scale units, piece work, specification, he destroys the peculiar character of the yeoman, the man who owns himself, directs himself, and has judgement based on independence. Therefore, I would say, let the economist of agriculture begin his plans with a thorough consideration of the human factor, its limitations and ideals, and fit his economic schemes to the character of the farmer."

Furthermore, economics has been described as the "dismal science" (Hinkelmann and Kempthorne, 1994), thus gloomy, miserable, dreary and feeble (Pocket Oxford Dictionary, 1984). Much of economics is based on the standard neo-classical framework which assumes perfect markets, perfect information, well-defined property rights and zero transaction costs. Applying this framework to solve problems and provide policy advice often created problems and ill-conceived solutions in the developing context. The reason then, for the "dismal" character of the science.

New Institutional Economics (NIE) – often perceived the school of thought to bring economists closer to reality – assists economists to do analytical work and design systems and solve problems in imperfect markets. African agricultural markets often do not function properly due to high transaction costs, lack of information, poorly defined property rights, and poor institutional frameworks. New Institutional Economics thus provides an ideal framework to enable us to design interactions and systems to improve the functioning of markets and providing access for poor farmers to markets. New Institutional Economics has created a platform for the description and presentation of information related to (in the case of this thesis) non-commercialised farmers that other sciences (biological, social or education) find difficult to address. It (NIE) is a multidisciplinary field that includes aspects of economics, history, sociology, business organisation, political science and law (Kherallah and Kirsten, 2001).

Meindertsma (1994) stated that FSRD links specialised thematic and commodity research to real-world agriculture with its concomitant socio economic and institutional environment. New Institutional Economics thus clearly resonates with the theories of FSRD and Systems Theory. Even Bonsma would be pleased.

A feature of NIE is its emphasis on transaction costs; these are determined by institutions and institutional arrangements. In this thesis it is postulated that international trade opportunities and globalisation have created a niche for the commercialisation of indigenous South African goats. However, to successfully enter and occupy this niche, certain institutional arrangements, enabling and culturally acceptable to non-commercialised farmers, need to be created, while at the same time, addressing the global challenges of quality, consistency and high standards.

To create an enabling environment in which non-commercialised farmers will operate requires attention to formal (contracts, organisations, markets) and informal (traditions, customs) institutions, both at macro (legal) and micro (organisational form) level. One often wonders why goats have remained in the informal sector. Here it is important to consider the effects of transaction costs in the formation of the current informal industry. Furthermore, history (and historical South African politics and thus policies) will help explain those institutional arrangements that have persisted for some time, that have hindered growth in this sector, and the groups that captured this market to serve their particular interests, and the political and policy changes which make these institutional arrangements of less consequence today.

This thesis will further postulate that product innovation (Part Two of this thesis), the opening of global markets, the shift in South African population demographics, and the increase in accessibility of non-commercialised farmers to information, have created opportunities to adopt new institutional arrangements (Part Three of this thesis). These new institutional arrangements must however, be designed keeping local customs and conventions, and use of common property resources in mind. Thus, the structure of the collective action and the role of governance structures become important.

Most importantly, the NIE theoretical framework allows the investigation of those factors that have, in the past, and could, in the future, affect the transaction costs of the non-commercialised goat farmer or entrepreneur. The governance structures of an envisaged vertically co-ordinated goat industry which could assist to reduce the transactional costs of information, negotiation, monitoring and coordination can be studied. This allows the investigation to determine the most appropriate methods to

link farmers with processors and markets through vertical co-ordination and ultimately to export markets with their high demands for safety, quality and consistency.

This thesis examines the biological, socio economic and institutional environment in which the goat industry currently operates, how these biological characteristics can be exploited, how these socio economic features can be capitalised on, and how new institutional arrangements can be adopted, and propose methods to link this industry successfully with global markets, whilst creating a milieu of benefit to non-commercialised goat farmers and entrepreneurs. Grounded theory (which, as stated before, attempts to link descriptions of situations to existing theories) will be used to explore the activities and findings of practical work in the field of goat commercialisation which were undertaken. The results and methodology of the work will be described in detail to identify the unique qualities that may be useful in the commercialisation of other traditional or indigenous South African resources. As allowed for by NIE (Paarlberg, 1993), the findings will not be analysed deterministically or modelled econometrically. However, value judgements and assumptions will be reported and certain expectations and attitudinal and institutional recommendations will be described.

Having defined the theoretical approach, it becomes, as is necessary with any thesis, important to determine a very clear purpose, output and ultimately, end, for the work. This will be clarified below.

1.3 The vision of the African Renaissance

The subject of this thesis serves to develop a system for the commercialisation of the goat industry in South Africa in such a way that the small players, the non-commercialised farmers and entrepreneurs who hold the most goat resources in this country, are not left out of this development. This is especially the concern in the highly dualistic economy in South Africa. The "First Economy", so called by President Thabo Mbeki, is quite capable of looking after itself, but it is the "Second Economy" that requires assistance to become part of the economic mainstream. This imbalance must be addressed if the differences between the rich and the poor in South Africa are to be reduced. It is thus necessary to determine who these "non-commercialised" or

"emerging farmers" are, and what systems should potentially be investigated to assist in their commercial development.

South Africa has severely high levels of unemployment and poverty. Seventy-five percent of the workforce was able to find formal-sector employment in 1974, but that share had dropped to 42 percent by 1989 (Ligthelm and Kritzinger-Van Niekerk, 1990). Statistics from the 2001 census reveals an unemployment rate of 31.6% amongst the economically active population (Stats South Africa, 2001). Most of the people without formal sector employment live in the rural areas of South Africa (Machethe, Reardon and Mead, 1997). In his inaugural address (1999), President Thabo Mbeki stressed the importance of job creation and rural development if South Africa is to achieve true economic reform. In his 2002 State of the Nation address, his main focus was again on poverty alleviation and methods to overcome severe constraints at grass-roots level. During this period, the Integrated Sustainable Rural Development Strategy (ISRDP) (www.idt.org.za) was developed to create socially cohesive and stable rural communities with viable institutions, sustainable economies and universal access to social amenities in an effort to alleviate rural poverty. Following the 2004 State of the Nation Address the Expanded Public Works Programme was initiated to assist in poverty alleviation and job creation. It is important for citizens to look to this leadership to address the most pressing problems of our time and our country.

The ISRDP and Expanded Public Works Programme mentioned above are examples of attempts at national level to overcome some of the constraints experienced by the rural poor. Several programmes initiated in different government departments in South Africa also address this objective. The Department of Trade and Industry (DTI) has placed emphasis on the development of small businesses. Divisions such as the Small Business Development Units (SBDU's) or Small Business Service Centres (SBSC's - nationally and provincially), Ntsika (a micro-finance and SMME support agency), the Community Public Private Partnership (CPPP) and the Sector Partnership Fund are examples of DTI programmes aimed at improving employment opportunities and entrepreneurship throughout South Africa. The ISRDP managed for the President's Office by the Independent Development Trust (IDT), works through the Local Economic Development Fund (LEDF) and co-ordinators are drawn from several government, provincial, district council, and local council groups. The National

Department of Agriculture and Land Affairs (DoA) have implemented SMME programmes such as "Land Lives" and "Land Care", have held workshops and seminars regarding agricultural export, private-public sector partnerships, investment opportunities and micro financing. The Department of Science and Technology (DST) have implemented research funds such as the Innovation Fund to influence and encourage new business development with technology and indigenous resources as the business foci. The Department of Water Affairs and Forestry (DWAF) have implemented the "Working for Water" campaign. The National Development Agency (NDA) was created through the passing of the NDA Act in 1998 with the mandate to disburse funds for meeting the developmental needs of poor communities. The TEBA Development Agency was similarly founded (utilising contributions from the mining industry). The National Qualifications Authority was brought into being by the Department of Labour, along with the 26 Sector Education and Training Authorities (SETA's), and provides funding through the National Skills fund (NSF) to assist in the education of the under-skilled adult population of South Africa.

These activities are part of a national endeavour of entrepreneurial and agricultural development intended to lead to the general upliftment of the quality of life of people in rural areas through land reform, development of entrepreneurship and job creation. NEPAD has also been created with economic improvement in mind for the entire continent. However, these programmes mostly fail to address the dearth of institutional, infrastructural, financial, legal and technical resources that plague entrepreneurs in any economy.

Limitations to the successful implementation of rural development projects are rife. Some reasons may be the high turnover of initiatives and programmes and that these are often linked to the project cycle of governments, international donors, or NGO's. Non-financial services are often limited to rather theoretical training approaches while highly needed counselling with regard to the specific technical, management or marketing problems of entrepreneurs or groups is not available. Financial services tend to apply conditions and procedures that are relevant for larger enterprises but make access to credit for smaller enterprises difficult. Furthermore, the role of NGO's has been emphasised in providing support to the development to the private sector because they have better access to potential entrepreneurs. As a result, many NGO's

have developed technical support and training programmes and credit schemes. However, NGO's often emphasise "social" objectives that may not be in line with commercial objectives and may also lack professionalism (Würdemann and Van de Meerendonk, 1998). It can also be debated whether they necessarily possess the technical knowledge to assist with the technology aspects of a technological enterprise.

It was stated (USAID, 1991) that economic reform in the agricultural sector can be achieved through a liberalised agricultural economy in which there is equal access to the means of production and that there are no barriers to market entry nor other practices that are biased against any category of farmer. The problem is however that the liberalisation agenda as promoted by the Washington Consensus (USAID, World Bank, IFPRI) is not appropriate for the African development task, as argued by Kydd and Dorward (2001). Hubbard (1997) argues that in situations of imperfect information, with risk averse producers and incomplete markets for risk sharing, free trade is not necessarily the best policy. It is now emphasized that there is a substantial role for government to provide the most needed infrastructure, services, institutional arrangements and policy framework for an enabling environment. In fact, the Strategic Plan for South African Agriculture (2001) proposes three core strategies in which the government can assist, that of:

- Enhancing equitable access and participation in the agricultural sector
- Improving global competitiveness and profitability, and
- Ensuring sustainable resource management.

Methods to implement these strategies to support the small-scale entrepreneur are now sought. It has been shown that smallholders are rapidly entering the market economy and are highly responsive to the changes. Furthermore, smallholders respond to food shortages and to foreign exchange-earning opportunities as long as the financial returns for these endeavours are attractive (and known to them) (Rwelamira and Kleynhans, 1998). But, as Omamo (2003) suggests, "How?....What more is there to the *how* question than more detail?"

1.4 Defining non-commercialised farmers

It is estimated that some 450 000 to 750 000 small production units, which are Black-owned and/or managed can be classed as the 'small-scale' or 'resource limited' agricultural sector. These production units are sub-commercial and cannot even produce or afford to buy 100% of their household food needs (ANC, 1994). Machete and Mollel (1999), quoting the Ministry of Agriculture and Land Affairs (1998), report that the estimated number of smallholder farmers in South Africa is 1.2 million. The Strategic Plan for South African Agriculture (2001) mentions the values of 240 000 small farm units producing for the informal trade, and a further 3 million subsistence farmers.

It is clear that several terms for "small holder" farmers exist, these include "small-scale farmers", "resource-poor farmers", "food-deficit farmers", "household food security farmers", "land reform beneficiaries", "non-commercialised farmers" and "emerging farmers". In this thesis, these terms will be used interchangeably with emphasis on the term "non-commercialised farmers" and will utilise a definition constructed from the information in the paper by Machete and Mollel (1999): An emerging farmer is a Black or previously disadvantaged farmer, whose main source of livelihood is derived from farming but who cannot function (participate fully) in the market economy because of restrictions in the (economic and other) environment, but who has access to land that normally supports a small or medium agricultural enterprise. A further definition by Kirsten and Van Zyl (1998) exposes a different constraint: "A small farmer is one whose scale of operation is too small to attract the provision of the services he/she needs to be able to significantly increase his/her productivity". These authors postulate that it is these farmers who should be targeted with government assistance and who could become viable entities in a diversified agricultural industry.

The farmer, who is essentially the beneficiary of the work of this thesis, is that person who currently owns goats, but, because of the small size of his operation (measured in turnover, off-take, and number of animals) is overlooked as having the potential to grow. In fact, this thesis will show that with the correct and defined assistance a "small-scale" goat owner, can indeed become a viable, albeit "small", commercial goat farmer. These farmer's main advantage may be that they already own goats and

traditionally (probably due to limited historical access to various inputs whether medicinal, advisory or other) do not provide additional feed or medicine and generally graze the animals on communal land (not owned by themselves), and thus, as a "fortunate" consequence, do not have the problems of access to purchased input supplies that may limit alternative farming activities such as those related to cash crops. These, as mentioned by Kydd and Dorward (2001), are major constraints facing smallholder crop producers that governments must wrangle with.

The development of sustainable rural livelihoods is the key to economic empowerment of the rural poor. Sustainable rural livelihoods are defined as (quoted from Chambers (1988) by Mohamed and Dodson, 1998) "the secure access to adequate stocks and flows of food and cash to meet basic needs... where security is defined in terms of ownership of (or access to) resources and income-earning activities, embracing the need for reserves and assets to offset risk". Sustainability encompasses the incorporation of environmental, political, and economic sustainability of an endeavour (Mohamed and Dodson, 1998). It is thus important to remember that when systems are developed to ensure independent food security, that sustainable use of resources must be built into every decision. This includes correct land use, biological diversity, and a long-term approach to soil fertility and careful use of external inputs.

1.5 Defining potential rural enterprises

Rural enterprises can be defined as economic activities undertaken by rural people that serve to constitute or supplement the livelihood, where a livelihood is seen as the generation of sufficient income to prevent at least absolute poverty (Rural Foundation, 1994 as quoted by Mohamed and Dodson, 1998). Small enterprises, according to the Keddie, Nanjundan and Tezler (1988), are those enterprises employing from 5 to 25 employees and micro enterprises are those that employ from 1 to 4 employees.

Small agricultural and agro industrial businesses in the farm or non-farm sectors can do much to create economic activity and sustainable livelihoods in the rural areas. However, these small businesses face many constraints in starting and growing. These potential entrepreneurs have limited access to capital, technology, infrastructure, knowledge, markets, transport, management skills, and information

(Würdemann and Van de Meerendonk, 1998). Currently, small businesses in the rural areas are limited to small, uneconomic niches left by the formal sector, they are geographically limited and have no access to urban consumers, and they are often survivalist and cannot invest in capital assets (Machethe, Reardon and Mead, 1997).

Enterprises within the SMME sector differ in their investment level, their capacity to absorb capital (i.e. machines etc.), the enterprising approach of the owner, the amount of time spent within the enterprise, and whether the enterprise is growth oriented or security oriented (Everts, 1995). These businesses, however small, are intended to provide essential financial gains to their owners (even if the gains are marginal or additional to other sources of income).

To deal effectively with the crises of unemployment and poverty, it is imperative that the development of viable small farm and rural non-farm businesses or enterprises be stimulated (Machethe, Reardon and Mead, 1997). This involves making relevant technologies and information available to non-commercialised farmers and potential entrepreneurs. Researchers can also assist by investigating (and implementing) various institutional innovations which, as listed by Kydd and Dorward (2001), may include arrangements involving interlocking transactions, producer groups, co-operative competition, the use of traders as agents, trader information groups, but could also include, public private partnerships, contract growing, and co-operative development. This type of research has been undertaken in this thesis.

1.6 Identifying niche agricultural development potential

Historically, efforts at agricultural and rural development have concentrated on the increase in food production by small-scale practitioners (Würdemann and Van de Meerendonk, 1998). Despite large investment and development efforts by development agencies, production has not been able to keep up with food demands by the growing population (Rwelamira and Kleynhans, 1998). Reasons cited for this, despite the significant scope for agricultural development in the SADC region, are (Rwelamira and Kleynhans, 1998):

- A good part of the unused land with rainfall crop production potential is under forest or in protected areas and may not be readily available for agricultural expansion.
- A significant part of the land reserve suffers from soil and terrain constraints: over 50 per cent of the land resource is classified as "humid" or "marginally suitable for crop production".
- Human settlements and infrastructure occupy roughly 3 per cent of the land with agricultural potential.
- To use an additional area of high-potential agricultural land, which is still under-utilised and not in fallow or reserves, enormous investments would have to be made in new roads and social infrastructure (for health, education, etc).
- There would have to be large movements within the rural population to areas more suitable for production if smallholder farming is to be encouraged.
- Changes in production practises and types of crops produced are needed to increase agricultural productivity.

When factors such as these are taken into consideration, it is assumed that the limits to horizontal expansion (the use of greater geographical area regardless of resources) have probably been reached. However, Rwelamira and Kleynhans (1998) suggest that a vertical expansion (using the same area with more resources) should be followed. This, they say, can be achieved through increased crop yields, through improved crop varieties, fertiliser use, better agronomic practices, introduction of high-value crops into the existing farming systems and utilisation of each unit of arable land for what it is best suited to produce. This strategy is corroborated by other authors (Orr, 1998) that have stated that the reasons for rural poverty are the low productivity of smallholder agriculture for reasons such as mono-cropping, the absence of fallow periods, reduced soil fertility, and low and declining yields of local maize varieties. Development through interventions in these fields was achieved in Zimbabwe from 1980 to 1985 by:

- Improved cotton varieties and maize hybrids among smallholders,

- A large increase in agricultural credit disbursement to smallholders,
- The reorientation of extension and veterinary services towards smallholder agriculture,
- The extension of marketing infrastructure to smallholder areas, and,
- Favourable producer prices for major crops

(Rwelamira and Kleynhans, 1998).

Constraints to adoption of new technologies, as shown in the Malawi example of Orr (1998), are cited as lack of land, labour, and capital. Furthermore, productivity gains in one part of the technology package are dependant on the use of other technology inputs (such as fertiliser), where limitations could include the high cost of the inputs or lack of transportation infrastructure.

Frankly, these suggestions are not innovative and not responsive to the changes in the global marketplace, the minds of the consumers or the trends that are so obvious in the developed world. It is as if the developing world is trying to play "catch up" by following the rules laid down by the developed world a decade ago without paying attention to the innovations and the rules that are being written today.

For example, an electronic newsletter article of ECAPAPA (Eastern and Central Africa Programme for Agricultural Policy Analysis, 2003) suggests that although productivity gains should be sought, these alone will not solve the problems and must form part of other measures to improve competitiveness of African agriculture. It can be stated clearly, that although the above reasons for lack of success are valid, it is obvious that a more market-oriented approach to rural development is needed (ECAPAPA, 2003). Greater diversification in the rural economy (and not necessarily vertical expansion of the same commodities) is a further, key, element for success (Mohamed and Dodson, 1998; ECAPAPA, 2003). Thus, instead of merely concentrating on sophisticated animal and plant production practices, or insisting on the production of higher yielding livestock and plant resources [As suggested in a study by the African Development Bank in 1993, that stated that increased agricultural output in the SADC region depends on moving to a more intensive system in the smallholder area and on greater

use of potentially cultivable land in the north of the region for large-scale farming (Rwelamira and Kleynhans, 1998)], development programmes could concentrate some of their efforts on the development of new opportunities and enterprises in agricultural production and service provision and develop the infrastructural and organisational (institutional) requirements to allow entrance of new entrepreneurs.

Here, the emphasis could be on product differentiation linked to products from region of origin, or organic products or other niche markets (Kirsten and Sartorius, 2002), further processing of existing commodities (ECAPAPA, 2003), or commercialisation of indigenous resources. This was successfully achieved by the Non-Traditional Agricultural Products Trade Promotion Programme of the Department of Agriculture, Livestock and Rural Development of Mexico (Farias, 2001). This market niche programme draws on the large biodiversity of traditional Mexican crops and practices, and benefits from the establishment of a quality brand "From Mexico to the World". Its main aim is to support the production and marketing of niche products produced by smallholder farmers.

Processing and marketing deserve special attention because these can play a pioneering role in the development of new products and services, and new markets based on the local agro-ecological conditions and cultural food patterns (Würdemann and Van de Meerendonk, 1998; ECAPAPA, 2003). Situations already exist where value adding (based on cultural food patterns and agro-ecological conditions) is contributing to household income generation. In the Kavango region of Namibia, sources of income used for food security include the sale of carvings, home-brewed beer, wild fruit, and the sale of milk (Matanyaire, 1997). In the Northern and Northwest Provinces of South Africa a small number of rural businesses process crops and provide tractor services (Kirsten, 1995). Also in South Africa, the deregulation of the agricultural markets has resulted in the shift from animal slaughter in abattoirs to farm slaughtering and sales (Machethe, Reardon and Mead, 1997). Liedholm and Mead (1993) showed that manufacturing in food, beverage, textile, clothing, wood, grass products, non-metallic minerals, and metal products is occurring in Botswana, Lesotho, Malawi, Swaziland, and Zimbabwe. In the Mexican example cited above (Farias, 2001), traditional products benefited especially from strengthened production-marketing chains.

This leads one to the deduction that a general misperception exists regarding the future of small-scale agriculture. The current belief is that this sector will only be feasible if they move from being "small-scale producers" to large commercial enterprises. Realistically it must be realised that commercial farmers are successful in South Africa because they have large "economies of scale", almost unlimited access to information (telecommunications, computers etc.), and understand the "rules of the game". These businesses possess the greater part of the input provision, and output processing and marketing in South Africa, and small businesses may not be able to compete with these large businesses (Machethe, Reardon and Mead, 1997). Mahlase (2001) suggests that "the solution lies not in pursuing competition with these "farming giants" but in establishing and supporting a farming system which non-commercialised farmers have been accustomed to for generations; one which they are competent in", thus placing emphasis on "indigenous resource" utilisation.

Commercial farmers make their money by maintaining a very fine line between inputs and mass production. This was encouraged, in the 1960's, 70's and 80's, by the focus of South African development strategies on urban manufacturing, large-scale mining and large-scale capital-intensive farms and agro industry (Lipton and Lipton, 1993). During this time, the debate on 'inward commercialisation' largely neglected rural commercialisation (Zarenda, 1989). It is well known that during the 1980's, agricultural economists debated the "economically viable unit" in the South African scenario. It was only in 1995, that several papers (Piesse, Sartorius von Bach, Thirtle and Van Zyl, 1995; Deininger and Binswanger, 1995; Van Zyl, Binswanger and Thirtle, 1995; Lipton, Ellis and Lipton, 1996; Kirsten and Van Zyl, 1998) started proposing that small farms may have higher productivity and overall output per hectare, because of the greater land productivity of small farms in South Africa, and the use of family labour which reduces production costs. Binswanger and Elgin (1992) and Kirsten and Van Zyl (1998) both propose that small farms are more productive because family workers are mostly used and they are usually cheaper and more efficient than the hired labour found on larger farms. Family workers receive benefit from their labour and thus have more incentive to work harder, search and hiring costs are less, and family members share in the risk (so are thus less likely to shirk or take unnecessary risks that would jeopardise their benefits).

During the 1960's to 1980's the South African agricultural sector was characterised by the mass exportation of raw materials and minerals (to maintain international links, for political manoeuvring and to deal with international debts) and the importation of manufactured and value-added products at great expense; For example, as seen in the wool industry. This created an unfavourable trade performance that further aggravated the external debt burden. It should be remembered that the competitive advantage of raw materials is less sustainable than that of products with a high specialised labour content (Rwelamira and Kleynhans, 1998) (something that South Africa with its high unskilled labour force has learned). The ideology of "value-adding" to our own resources, on our own shores is, historically, an unpopular, highly disregarded approach which has only recently received policy attention.

However, internationally, a new trend is emerging and has been largely ignored in the development policies of South Africa. This agricultural shift was observed in small-scale agricultural practices (and service provision) in visits to Holland (Van Broekhuizen, Klep, Oostindie and Van der Ploeg, 1997), Australia (Natural Resources and Environment, 1998) and the USA. Farmers are selling off parts of their large commercial operations, their extended families are moving in, and together, family value-adding enterprises have been started. This is in-line with the international trends of "greening the environment", "hand-made", "organic", "made with pride and love" which the modern consumer is willing to pay a premium for. The consumers in industrialised countries are also demanding exotic and ethnic foods, and food and non-food natural products and additives (Sautier, 2000). This as opposed to GMO's (genetically modified organisms), "factory farms (inhumane and unethical)", "commercialisation (the world is in the post-industrial phase), "ruining of the ozone layer (methane production of livestock)" and "mass production" (no personal emotions added to the task or product). In Australia whole Agricultural Departments have been created to support and inform potential entrepreneurs regarding this new "farm diversification" (Farm Diversification Division). Similarly, the Non-Traditional Agricultural Products Trade Promotion Programme of the Department of Agriculture, Livestock and Rural Development of Mexico was established to provide more information, technical and marketing resources to traditional Mexican products and practices (Farias, 2001). Unfortunately, similar concrete agricultural policies, strategies

and support regarding SMME development as an agricultural growth and development opportunity is lacking in South Africa (Rwelamira and Kleynhans, 1998).

The small business sector can meet the competition in this niche market field (Machethe, Reardon and Mead, 1997). Given the current limited resource base of the small-scale entrepreneur, value adding to indigenous agricultural products, creating up-market niche products for the local, tourism and export markets, or small agro industrial businesses which supply inputs and services to these small operations, or the value adding activities of processing and distributing such products (as suggested for more conventional crops by Machethe, Reardon and Mead, 1997), is the ideal platform for small entrepreneurs to enter the market place. In a study by Matanyaire (1997), it was shown that the sale of crafts was an important source of income for young male-headed households who were not in formal employment in Kavango in Namibia. This non-formal sector appeared to have grown since Namibian independence.

SMME's also employ relatively more people and often have clear comparative advantages over larger scale industries in terms of access to raw materials and proximity to local markets (Würdemann and Van de Meerendonk, 1998). This benefit has also been debated by Matanyaire (1997) who suggested that the Namibian government should develop labour-intensive programmes to develop infrastructure and create value-adding product processing enterprises within the rural sector. The value-added to indigenous livestock and plant products can be used as a means of motivating small-scale livestock and plant producers to improve, develop or diversify their own production systems in the long term (Machethe, Reardon and Mead, 1997) and will also conserve these important resources into the future.

The Southern African environment is rich in renewable, unique, indigenous resources (land, water, livestock, forestry, plants, wildlife and fish) that have not been exploited commercially (Rwelamira and Kleynhans, 1998). Our abundant biodiversity is often overlooked. Reasons given for this are stated by Mahlase (2001) as; indigenous crops were never cultivated on a large scale, when they were sold it was limited to communities who were familiar with the crop, sales in local markets were hampered by crops growing freely in the veld and therefore accessible to everyone, lack of markets

and knowledge regarding indigenous crops by consumers, and lack of pride in indigenous food resources. In contrast, Australia has transformed their infamous rabbit problem into the lucrative "Akubra" brand of hats, and kangaroo meat is exported to feed hungry nations of Africa. Kangaroo meat can also be found in the up-market restaurants of cities such as Melbourne, Canberra, and Sydney merely by applying the correct marketing strategies. In the case of Australia, "Bush tucker" is the brand name under which indigenous foods of Australia are sold at a premium and sought after by Australian and international consumers alike (Australian Bushfoods Magazine, 1998).

Some benefits to the exploitation of indigenous resources stated by Mahlase (2001) lies in increasing the productivity, food security, and economic returns of small-scale farmers, making farming systems more stable, robust and sustainable, diversifying products and income opportunities, and reducing dependency on external inputs (dosing, dipping). In Mexico (Farias, 2001) real benefits for small-scale farmers have been achieved with: 82% of farmers involved in the programme establishing commercial links and increasing their income by an average of 53%; The incomes of those farmers that had added value to their products rose by 350%; Strategic alliances and vertical integration was increased; An entrepreneurial culture was developed; There was an improved access to information (due to the creation of mechanisms for agricultural and micro-industrial technology transfer); Development of small exporting companies; Sustainable use of the country's biodiversity; and an increase in export trade (from $ 149 million in 1995 to $ 285 million at the end of 1999). There is a need to learn from these successes and identify methods to emulate them in South Africa.

1.7 Constraints to niche agricultural opportunity development

Most rural areas have poorly developed transport, processing, marketing and communication infrastructure. Consequently, the transport costs for both raw and final processed products to urban epicentres are high (Würdemann and Van de Meerendonk, 1998). However, relatively low transport costs to local emerging (provision of consumer goods and services that meet the growing and varied demands of the poor in rural and urban areas (Machethe, Reardon and Mead, 1997)) and local tourism markets can be used to offset "economies of scale" in the processing itself. In

other words, indigenous resources could be used in processed products and sold to the "drive-by" tourism industry or the emerging rural markets. Alternatively, transport mechanisms which support a linkage between rural producers and urban consumers need to be established.

A further constraint for the resource poor entrepreneur is access to mainstream market and product information. South Africa has only recently joined the international market arena. As such there is much to learn concerning existing markets and diverse products. It is necessary to explore the under exploited niche markets that exist for small businesses.

Although some market opportunities may exist for rural entrepreneurs within their own environments, these markets are generally underdeveloped and there is a general lack of purchasing power among the majority of the rural population. Low household monthly incomes are mostly spent on staple food and basic necessities, thus the selling of higher value-added products to this sector is limited (Würdemann and Van de Meerendonk, 1998). On the contrary, Machethe, Reardon and Mead (1997) cited examples that showed that increases in income of the rural poor tend to be spent on processed food, fresh 'variety foods' (e.g. vegetables, fruit, dairy products, meat) and on semi-durables (e.g. clothing). This shift in diet is also promoted when women enter the labour market and have less time available for the home processing and preparing of meals and they become more attracted to 'convenience foods' that are quick and easy to cook. However, these types of developments occur when broader income generation in the rural environment has been stimulated. Thus, the sector on which small-scale entrepreneurs could concentrate on initially is the fast-growing tourism and higher value-added speciality and delicatessen sectors, which have specifically been boosted by the tourism incentive programmes launched by the Department of Tourism, or promoted by ventures such as "Proudly South African".

Unfortunately, distribution and marketing of finished products to this sector is difficult for the small-scale processor. It is necessary that information on markets for both raw materials and finished products in terms of volumes, prices and locations of markets needs to be provided to the small entrepreneur, who cannot merely rely on word-of-mouth information (Rwelamira and Kleynhans, 1998; Würdemann and Van de

Meerendonk, 1998) for this more sophisticated and new market information that lies outside of his normal community structure. The importance of obtaining market information, or of developing new markets for new or existing products, or for the exploitation of existing marketing infrastructure and channels is clear (Current, Lutz and Scherr, 1995; Mohamed and Dodson, 1998). In the study by Current, Lutz and Scherr (1995), it was reported that local organisations (EMO's) were created to explore and develop new local, national and international markets for tree products when local demand was saturated, and where farmers themselves were unfamiliar with potential product markets. The deregulation of the agricultural markets in South Africa created opportunities for small-scale entrepreneurs when subsidy removal reduced the profitability of mechanised agriculture. In Zimbabwe, maize-milling deregulation was coupled with the encouragement of small-scale roller mills to provide poor consumers with cheaper coarse maize and to create employment (Rubey, 1995). In Mexico (Farias, 2001) the main strategy to improve market linkages and increase information flow to small-scale farmers was to hold trade fairs in different States of Mexico. This strategy increased the culture of trade promotion throughout the country, made local markets more dynamic and improved inter- and intra-State trade flows, helped to identify new trade opportunities, raised awareness of work done by local research institutions and universities regarding new crops, and assisted in identifying exhibitors who were interested in exporting.

Product development and market development services for resource poor entrepreneurs in South Africa are non-existent. It is difficult for rural inhabitants to know what the international consumer is seeking, if he does not have access to this information. Current and developing markets need to be investigated, diverse and unique value-added products should be tested and this information needs to be relayed to the entrepreneur.

Innovative institutional arrangements, which can assist in overcoming some of the above-mentioned constraints are limited. Any industry should aim to motivate its farmers to improve their performance using markets as a lure. A process where non-commercialised farmers become more connected to the value-delivery network (or supply chain) or part of vertically co-ordinated or vertically integrated companies, is most likely to bare fruit ((Machethe, Reardon and Mead, 1997; Martinez, Smith and

Zering, 1997; Rehber, 1998; Delgado, 1999; Gow et al. 2000; Holloway, Nicholson, Delgado, Staal and Ehui, 2000; Singh, 2002; ECAPAPA, 2003). An increased level of vertical co-ordination often lowers costs and the farmer gains a larger share of the value-added income stream. They can therefore be involved in manipulating prices and costs in different parts of the value chain to earn more profits. Through vertical co-ordination they can achieve economies through size, bargaining power and elimination of duplication (Kotler, 2000) thus improving their collective consistency of supply to the market place. The benefit here for non-commercialised farmers is that no member of the chain has complete or substantial control over other members and, although they are all different companies (or legal entities) they work together for the common good. Factors such as quality of the product, consistency of supply and potentials for increasing the demand for the product (marketing) can be addressed. Strengthening existing producer organisations is also mentioned as a means of reducing costs and tapping into new markets (ECAPAPA, 2003).

A further constraint to agricultural development is the current land tenure system which is prevalent in many of the former homeland areas. Land reform is required to increase access to land by giving (poor) people ownership rights and ensuring sustainable land use. Land reform programmes have shown to increase the adoption of modern technology, increased agricultural productivity, and provided social equity. It allows farmers to purchase more land so that economies of scale can be achieved. Farmers who own their land show greater concern for its sustainable use and infrastructure improvements. The current system whereby chieftancies apportion land to residents within a community allow the indiscriminate over-utilisation of the natural resource, with no-one in the community taking responsibility for its sustainable use. Problems specific to livestock also occur (personal observations): where the unimproved male animals of one owner may have access to female animals of another owner bent on trying to implement a seasonal breeding programme, or where animals from one farmer infects another's animal with diseases. These types of problems make it difficult for farmers to adequately manage their flocks for improved production. Institutional arrangements which can better serve rural farmers are needed to redress this constraint.

Clem Sunter in a recent book "Never mind the Millennium. What about the next 24 hours?" (1999) stated, "... technologies today are imperilling many traditional occupations, but they have the potential of enabling individuals to pursue an incredible number of completely new activities....". A paradigm shift away from traditional commodities to niche product agricultural entrepreneurships, away from rural isolation to linkages with discerning national and international consumers, from job-seeking to job-creation opportunities, would be a relevant and timely improvement in the approach to rural entrepreneurial development in South Africa.

1.8 Problem statement

Admittedly, development programmes based on increased production and efficiencies in "commercialised" agricultural commodities such as maize, wheat, poultry, beef and others will always be a major source of employment, income and export earning in South Africa. However, reliance on only these commodities to uplift non-commercialised farmers in the deep rural areas of South Africa, and to bring non-commercialised farmers into the mainstream economy cannot remain the only basis for development. Simultaneous attention should be paid to the development of farming alternatives especially utilising indigenous species and crops for niche markets.

In South Africa, the development of non-commercialised goat farmers and entrepreneurs are constrained by historical, institutional, market, information, and research factors. Because of these, and other constraints, it is clear that simply teaching farmers the best means of producing goats will do little to create a viable, sustainable (read – profitable) commercial industry. Information, systems, infrastructure and institutions need to be developed to overcome several social, economic, infrastructural, and institutional constraints which are presently halting the development of this potentially lucrative industry.

1.9 Statement of the sub-problems

- Sub problem 1 asks; what is the status of the current goat industry? Will it be able to mobilise enough resources to ensure the consistency of supply demanded by the national and global market place?

- Sub problem 2 concerns the historical causes for the non-commercialisation of indigenous goats in South Africa. Are they relevant today?
- Sub problem 3 questions whether products of indigenous goats can be utilised commercially. Are there products of value from indigenous South African goats?
- Sub problem 4 queries whether the South African and global market is now ready for goat products from South Africa. Do markets for these products exist?
- Sub problem 5 concerns structures, programmes or systems that can be utilised or created to increase the benefits of commercialisation for the non-commercialised goat producer or processing entrepreneur. How could the industry be organised to be enabling and inclusive?

1.10 Objective

The purpose of this study is to investigate the organisational, marketing, technology development, infrastructure, institutional and technology transfer needs and constraints of, specifically, non-commercialised goat producers and potential entrepreneurs and will argue that a system creating access to market information and institutional and organizational support are necessary to develop an inclusive goat industry involving the non-commercialised agricultural sector of South Africa. A system will be suggested that could create visible, viable, inclusive impacts at grass-roots level.

The system developed (to accomplish commercialisation), may be a method that could be utilised to commercialise other traditional or indigenous resources. The importance of the combination of basic and action oriented research, while combining aspects of biological and socio-economic sciences, for real rural development, will be demonstrated.

1.11 The hypotheses

- Hypothesis 1 assumes that the South African goat industry currently has the capacity to mobilise to meet global market demands or trends.
- Hypothesis 2 postulates that there are several historical reasons for the non-commercialisation of indigenous goats in South Africa that are of lesser consequence today.
- Hypothesis 3 claims that goats produce commodities that have economic value, but are little known or investigated.
- Hypothesis 4 asserts that new South African and global markets exist for new goat products.
- Hypothesis 5 declares that structures can be created or utilised to assist the increased involvement of, and benefit to, the non-commercialised goat producer and processing entrepreneur.

1.12 The delimitations and limitations

- The study will not attempt to investigate all existing systems that have or are being developed to assist commercialisation of non-commercialised farmers (although some reference to them may be made).
- The study will not evaluate the long-term viability or success of the process explained in the study.
- This study will not report on all potential markets that exist for goat products internationally (although reference to some will be made).
- The structures, programmes and systems mentioned/proposed in this study fall within the current (2001/2002/2003) South African milieu, and may not be relevant in the future.
- The study will examine findings from a large body of work by the author from 1997 to the present (2004).

1.13 The importance of the study

South Africa has a wealth of indigenous goats that are currently economically under-utilised. These animals are owned by rural households who utilise them, mainly, for traditional reasons. Emphasis in the country is being placed on job-creation, poverty alleviation, and empowerment, and yet, this indigenous resource owned by non-commercialised farmers has been overlooked in its ability to alleviate some of these problems. Rural development initiatives have concentrated on poultry production, cattle improvement schemes, and vegetable gardens. Unfortunately, many of these projects have failed to produce sustainable or noteworthy impacts. In some cases farmer participation has been lacking, products and markets were not investigated adequately, and in others, local and traditional governance structures were not correctly informed or utilised in the business ventures. Essentially innovative products and markets for them, and the institutional framework to sustain these business ventures are lacking. Research is required to study existing indigenous goat resources, to create new markets and products from indigenous goat resources and a system needs to be created to effectively connect non-commercialised farmers to viable markets.

The ultimate aim is to provide support to existing or potential entrepreneurs from the non-commercialised goat sector, to achieve economic empowerment, to broaden their economic opportunities, to improve productivity, to provide lucrative outlets for production and, most importantly, to increase their income, which are the main objectives of any development programme, as rightly suggested by Everts (1995), Machethe, Reardon and Mead (1997) and Matanyaire (1997).

1.14 Planning and executing the study

A logical framework (LOGFRAME) is a useful tool in planning and delimiting a study of this nature. The LOGFRAME shown in Table 1.1 provides an overview of the scope of the project which has been undertaken over the larger part of the author's professional career. Although the study has "evolved" over several years, the primary objective has remained the same – the empowerment of non-commercialised goat farmers through commercial exploitation of a resource already owned by them. The marked contrast of

international exposure versus local experience and the subsequent dissatisfaction of seeing abject poverty in "a land of possibilities" have added to the fervour of a more action-oriented research approach demonstrated by the latter aspects of this work as opposed to the basic nature of the study at its commencement. Thus, the study originally concerned itself with the "Activities" and "Outputs" sections of the LOGFRAME, but has gradually infringed on the "Purpose" and "Goal" sections which are essentially higher objectives to which a National Goat Economic Development Programme should aspire and with which the author concerns herself practically on a day-to-day basis at present.

LOGFRAMES should essentially be read from the bottom of the table working upwards i.e. activities, outputs, purpose, and then goal. In doing so the reader will notice the emphasis on basic biological research and product innovation at the start of the study, which puzzling positive results prompted an understanding of the existing industry institutional arrangements and traditional uses (which were felt may be the hidden reasons for the lack of goat commercialisation and which, in the current political and global paradigm, were found to be irrelevant), that led to theoretical investigations into institutional arrangements of relevance. The author then proceeded to implement these research findings in the real world, which in this thesis are described in the case studies cited in the Chapter 10.

Table 1.1 LOGFRAME of Goat Commercialisation Project

LOGFRAME	SUMMARY DESCRIPTION	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
GOAL	To sustainably increase household income through goat production	Commercialised goat farmers in all regions of South Africa	Documentation of operational facility	That health and quality requirements of consumers are met within a stable socio-economic environment.
PURPOSE	To create a consistent, reliable market for the goats produced by rural, non-commercialised goat farmers	Projects where non-commercialised goat farmers are able to plan and conduct sales on a regular basis. Operational goat production facility. Goat products in market	Registration of business, report back from extension officers, farmers and entrepreneurs	That all factors within the project concept are implemented with commitment

LOGFRAME	SUMMARY DESCRIPTION	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
OUTPUTS	Knowledge regarding historical developments acquired (Qualitative)	Completed report	Chapter in PhD thesis	That historical concepts have been captured by literature
OUTPUTS	Knowledge regarding current goat industry acquired (Quantitative)	Completed survey report	Survey report. Chapter in Ph.D. thesis	That industry role-players will share their knowledge
OUTPUTS	Basic Research on goat products reviewed and/or conducted (Quantitative)	Basic research audited and expanded	Scientific publications. Review in Ph.D. thesis	That literature on current products is available
OUTPUTS	Goat products developed (Qualitative and Quantitative)	Applicable goat meat, cashmere, goat milk and leather products designed that can be manufactured using low-tech technology	Goat meat recipe book, Goat milk product recipes, Carpet manufacturing specifications, leather tanning and crafting specifications, product samples, Review in Ph.D. thesis	That products from goats can be designed
OUTPUTS	Markets for products identified and/or developed (Qualitative and Quantitative)	Market survey reports	Market survey reports, Marketing publications, Chapter in Ph.D.	That viable and reliable markets for goat products can be identified.
OUTPUTS	Goat industry institutions designed (Qualitative)	Business structure design report completed	Business structure report and implementation plan, Chapter in Ph.D.	
OUTPUTS	A goat industry infrastructure designed and in implementation (Qualitative) Goat Management training designed	Engineering design report, Environmental impact Assessment scoping report, Business plans completed. Facility in construction, 1 000 farmers trained in co-operatives and goat management and implementing their training	Engineering report, Architectural drawings, EIA scoping report	That non-commercialised farmers are willing to commit to contract growing for personal gain.
OUTPUTS	A system/process for development designed (Qualitative)	Commercialisation process designed	Ph.D.	
ACTIVITIES	Survey of historical and traditional context Literature survey Rural interviews Discussion with industry	Inputs Scientist – 3 months, libraries,1 Technician speaking rural languages –		

LOGFRAME	SUMMARY DESCRIPTION	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
	leaders National consumer survey	Intermittent rural visits and dialogue, telephone		
ACTIVITIES	Survey of current industry International goat use and production survey National goat industry survey	Cost = R 40 000 - USAID 1 International market researcher – 1 month, National market researcher – 1 month		
ACTIVITIES	Workshop in basic research conducted Identify relevant speakers/industry role-players Prepare invitations Organise facilities Conduct workshop Prepare and publish proceedings	Workshop cost = R 60 000 - NDA 4 junior researchers + 1 scientist – 2 months,		
ACTIVITIES	Research on goat meat, goat milk, cashmere, leather Indigenous goat meat quality research Indigenous goat cashmere research Literature review of previous work Basic research on leather quality (Development of low-tech tanning techniques)	Meat: R 100 000 – Funded by USDA – 2 Meat science students – 1 year. Cashmere: R 100 000 – NDA/ARC – 1 Junior researcher – 2 years Milk: Previous data from Medunsa, goat cheese producers in South Africa Leather: R 100 000 –Funded by USDA, Collaborators: International School of Tanning Technology, 2 staff 3 years		
ACTIVITIES	Product prototype development Goat meat product development Literature survey of previous work Goat recipe design Goat meat product design Write report Write recipe book	Meat product development: Cost R 200 000 – USDA – R 15 000 – AUSAID: Collaborators: Technikon Pretoria: Hospitality Department – 25 Students assignment – 3 months		
ACTIVITIES	Goat fibre product development Literature study of previous work Cashmere product design	Cashmere product development: Cost R 200 000 – ARC/NDA – R 15 000 AUSAID:		

LOGFRAME	SUMMARY DESCRIPTION	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
	Development of low-tech processing options Prototype development Market survey Identification of processing entrepreneurs Training of processing entrepreneurs Market penetration exercise	Collaborators: Carpet manufacturer, Entrepreneurial women's group, 1 Technician, Cashmere goat farmers, 2 years		
ACTIVITIES	Goat milk product development Literature study of previous work Development of goat milk product recipes Development of low-tech processing techniques and information material Consumer tests	Milk product development: Cost R 50 000 – ARC – R 15 000- AUSAID, Dairy Industry Centre, 1 Scientist – 10 months		
ACTIVITIES	Goat leather product development Leather product development Market survey Identification of processing entrepreneurs Training of processing entrepreneurs	Leather craft development: Cost 100 000 – USDA – R 15 000 AUSAID : Collaborators: Craft Africa Projects Training – 1 staff member, 3 years		
ACTIVITIES	Market surveys National consumer perception study (most data re: meat and milk)	National consumer perception study – USAID – R 60 000, Collaborators: Lighthouse Research (market research company) – 4 months.		
ACTIVITIES	International and national market surveys (most data re: meat and milk)	International and national market surveys – R 70 000 – ARC – Collaborator: Agriconcept		
ACTIVITIES	Leather: Local area market surveys	Leather: Provincial LED and Agriculture departments – R 90 000: Collaborator: Agriconcept – 1 Technician – 1 month		
ACTIVITIES	Cashmere: National market survey	Cashmere – ARC – R 45 000: Collaborator: Agriconcept, 1 Technician – 1 month		

LOGFRAME	SUMMARY DESCRIPTION	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
ACTIVITIES	Study of relevant institutions and legal entities Survey of existing legal/institutional options in South Africa Design relevant institutional framework (NIE) Workshop choices with stakeholders	Study of legal/relevant institutions – R 100 000 – NDA, Collaborators: Deloitte and Touche 6 months, Stakeholder workshop to discuss structures – 1 month		
ACTIVITIES	Development of Implementation process – Case study (NIE) Identify interested community Demonstrate possibilities Survey capacity for viability – Feasibility study Acquire funding Create Steering Committee with relevant stakeholders Dialogue regarding implementation procedure Ascertain professional relationship (contracts etc.) Determine infrastructure requirements Survey goat and human resource Develop business plan Train extension personnel Monitor extension personnel regarding Goat census Goat interest group formation Co-operative development training Goat management training Design infrastructure Conduct EIA's Plan construction of facility Conduct processing training Fix marketing channels Start producing	Work with Regional Municipalities designing project, R 4 million – Provincial (LED), National (ISRDP) funding – Collaborators: MBB Consulting Engineers, ACER Africa – Environmental specialists, 1 Scientist, 2 Junior researchers, 2 Research Technicians, District Municipality, Provincial Department of Agriculture (23 Extension Officers), Provincial Departments of Veterinary Public Health, Economic Affairs and Tourism – 3 years Process taken over by Scientific Roets (PTY) LTD Kalahari Kid Corporation		
ACTIVITIES	Design development system or process	1 scientist – 6 years – ARC. 1 scientist – 2 years - private practice		

In Chapter 11, Figure 11.1, the results of working through this LOGFRAME have been conceptualised in a flow diagram showing the step-by-step process to commercialise

an indigenous resource. Figure 11.1 illustrates the various actions and role-players required throughout the process, which funding is available for each step in South Africa (in the author's experience) and where gaps in research, support and funding were identified.

As can be seen from the LOGFRAME each step had its own objectives, resources and donors. Perhaps a more inclusive funding mechanism for such activities could be implemented by government and policy.

1.15 Conclusion

This introductory chapter has served to illustrate the need for innovative strategies to assist in poverty alleviation in rural areas with emphasis on the utilisation of indigenous resources. To effectively stimulate niche agricultural entrepreneurial development, shifts from the current practices and schools of thought need to be entertained. Such paradigm shifts include:

- A move from the promulgation of vertical expansion to an emphasis on diversification into new opportunities and enterprises
- De-emphasis of the need for land, labour, and capital (which are real constraints that can be solved) versus an emphasis on a more market-oriented approach
- Realisation that training (in production practices) is not a panacea and that service providers should concentrate more on product development, market knowledge and business service provision and the development of necessary infrastructure requirements
- Reduction in mantra regarding becoming large commercial operation to stimulation of small, niche product, market oriented operation
- De-emphasis of importance of economies of scale versus opportunities in niche market orientation

- Move away from mass production to stimulation of quality hand-made production
- Decrease in the prominence given to high-tech technology and increase in emphasis on traditional knowledge and competence
- Less weight given to the export of raw products and more weight given to the export of value-added products
- Shift from accent on becoming an employee to accentuation of becoming an entrepreneur
- Reduction in importance of becoming an employee to more emphasis on starting a family-owned and operated business
- Reduction in prominence of importance of exotic resources and increased emphasis on use of indigenous resources
- Increase in knowledge of indigenous resources by consumers
- Restructuring of infrastructure that is currently limited to commercial operations to include production and marketing infrastructure accessible to non-commercialised farmers
- Concentrate not only on bulk, retail domestic markets but also local tourist and export, niche markets
- Creation of means of developing transport and communication access
- Reduce the lack of knowledge of needs and requirements of international markets through improved information access
- Change producer detachment from processing chain to vertical co-ordination, vertical integration or value-chain integration
- Creation of institutional arrangements that will create an enabling and inclusive agricultural sector

This thesis describes action-oriented research through which all of these shifts have been achieved in the goat industry in South Africa. Chapter 2 of this thesis will describe the current goat industry, the size of the goat resource, where the goats are found, will provide an overview of the organisations that could assist in the further development of this industry, and speculates on the potential economic value of this under-developed sector. Chapter 3 investigates several historical, cultural and institutional reasons for the current under-commercialisation of the industry, and speculates on whether these limitations to commercialisation should still impede its development into the future. Part 2 suggests a process of product innovation by first assessing (Chapter 4) both international and national (local) market trends, perceptions and requirements. Then Chapters 5, 6, 7 and 8 describe basic raw product research and innovative, value-added product development to the market's requirements, for the meat, cashmere, leather and milk of goats, respectively. Part 3 of this thesis proposes and implements institutional innovations to commercialise the industry. Chapter 9 delves into New Institutional Economic theory and how it can be of use for development of an under-utilised indigenous resource. Chapter 10 reports on several case studies which have been implemented in the field and how NIE has assisted in the design of institutional arrangements and a vertically co-ordinated goat industry. Chapter 11 concludes.

CHAPTER 2 : THE EXISTING GOAT INDUSTRY IN SOUTH AFRICA

2.1 Introduction

If one were to decide to improve the commercial potential of indigenous goats, it would be logical to assume that the existing situation was currently underdeveloped. Aside from the obvious lack of goat products on South African retail shelves, it would, of course, be necessary to ascertain the current state of affairs in this industry before any recommendations regarding its improvement could be made. Thus, the first sub-problem addressed by this thesis becomes apparent. That is, if commercialisation were to occur, can the current South African goat industry be mobilised to ensure the consistency of supply demanded by the national and global market place? What does the current industry look like?

To answer the question raised by the sub-problem entails an in-depth survey of the current size and scope of the current goat industry, the infrastructure available in this industry, the institutional arrangements that govern it, and goat statistics. Unfortunately, relatively small quantities of goat products are produced in South Africa and, accordingly, there are limited statistics and information available on the industry, its institutions, market size and composition. Since the industry largely operates in the informal sector, it was found necessary to go directly to industry role-players to obtain the information.

This chapter provides an overview of the industry, its institutions, the current goat types, uses and products, and the national and international marketing channels available. Information regarding the current goat industry was obtained from various companies, universities, research organisations, retailers, traders, breed societies and goat producers. Information regarding indigenous goat breeds was obtained from various literature resources, breed societies and producers. In this context, it must be made clear that the Boer goat, Kalahari Red and Savanna are all "improved" indigenous goat breeds. Where relevant they are referred to directly by name, and in all other cases it can be assumed that "indigenous goats" also include these breeds.

2.2 Origin and breeds of goats in South Africa

Archaeological origins

Goats were one of the earliest animals to be domesticated. The first record of their domestication dates back 9000 years to where their wild ancestor occurred in south-western Asia from the eastern Mediterranean to Turkey and the adjacent eastern regions. The ancestor of the modern goat was the Bezoar goat, *Capra aegagrus* (Davis, 1987; Reitz & Wing, 1999). In their wild state, goat herds are segregated into male and female groups that only come together during the mating season. Domestication interfered with this process as people took control of the breeding strategies. This illustrates how a species is forced to adapt to changing social conditions. The fact that it was able to tolerate and flourish despite these changes is one of the characteristics of successful domestication.

Goats were ideally suited to the requirements of early farmers and the animal dispersed rapidly to Europe, Asia and North Africa. This dispersal was facilitated by their toleration of extreme environmental conditions ranging from the tropical regions with high humidity, to semi-desert aridity. To this day they survive in degraded environments as they are browsers that can eat all types of vegetation and can also excavate roots and bulbs. Because of this ability to survive in poor environments they are often incorrectly accused of being the main cause of its degradation. Natural selection has made the goats very hardy and they frequently have a tolerance of the diseases and parasites present in their habitats.

It can be assumed that goats were originally kept for their meat (Zeder & Hesse, 2000). Age profiles of archaeological sites provide evidence of herd management strategies that were evident from the beginning of the domestication period. These profiles also allow the archaeologist to distinguish between domestic goats and wild goats (Zeder & Hesse, 2000). A secondary product of domestication and herd manipulation was increased milk production, as this commodity became a valuable addition to the human diet. It can also be assumed that derived milk products such as sour milk, cheeses and others soon followed. Skins and bones would also have had their uses as water containers, blankets, items of clothing, and as tools, weapons, musical instruments and ornaments. The goat had an important influence on the

development of human culture, particularly in semi desert and marginal areas, as it provided people with resources that would otherwise have been unavailable (Maree and Plug, 1993).

The earliest records of domestic goats in Africa can be found in Egypt and North Africa. Pictures of goats, goat herders and husbandry practices that are found in tombs date back to the 5th Dynasty - around 2400 years ago. Little is known about the actual breeds, but the differences in their horn shapes indicate that two or more breeds could have been present (Boessneck, 1988). The Egyptians had free-roaming goats but there is also pictorial evidence that goats were fed on grain in feeding troughs. Goat's hair as a textile fibre has biblical origins. When the Lord told Moses to build a tabernacle, his instructions included that he "should make curtains of goats' hair for a tent over the tabernacle" (Uys, 1988). It is not clear whether the hair referred to was mohair or cashmere, but from the reference it seems clear that it was highly regarded or valuable. The animals spread to the Horn of Africa from Egypt and then southwards towards the Great Lake region where the Bantu-speaking people of South Africa originated. The southward migration of these people to South Africa shortly after the beginning of the Christian era marked the beginning of the Iron Age of southern Africa. They brought with them a suite of domesticated animals that included goats, cattle, sheep, dogs and chickens (Plug & Voigt, 1985). Before this time the only domesticated animals present in the region were sheep. Present knowledge indicates that these were introduced around 100BC and were associated with Khoi pastoralists. In Southern Africa, goat remains have been found which are dated back to 500 AD (Maree and Plug, 1993).

Based on the bones found in archaeological deposits, it seems that these early goats were similar in stature to the indigenous goats of today, their limbs being relatively long in comparison to European breeds. Modern goats have a variety of horn and ear shapes, coat colours and hair lengths. These physical traits do not necessarily characterise breeds - breed characterisation is of recent origin and can only be substantiated by genetic DNA analysis (Dr E. Köster – current research at Department of Animal and Wildlife Sciences at the University of Pretoria – personal communication).

Indigenous goat types

There are many different types of goats, and genetic and environmental factors are responsible for this variation. These goat types are still well represented in the various regions and in several countries of Central and Southern Africa (Maree and Plug, 1993). African goats can be roughly classified into dwarf goats of the equatorial forest belt and the savannah goats of sub-Saharan Africa. Additionally, two dairy types, the Nubian and Maltese goats, are specialised dairy breeds found in North Africa and the Mediterranean regions. Although more than fifty types of African goats are recorded, distinctive features which separate them are not consistent and numerous intermediate types exist (Maree and Plug, 1993). These features include; ear length, horn type, colour or size.

The local breeds of goats are well adapted to their varied natural environments. This has influenced their characteristics and also the methods of husbandry practiced by their owners. Although there are highly specialised breeds, most of them are dual-or multi-purpose and in many cases, village flocks are of mixed breeding. Meat and/or milk, hair and skins are products of first economic value to owners (ARC, 1999).

The Gwanda-Tuli goats are found in Zimbabwe. They have long, pendulous ears with turned-up tips, short and erect horns, and may be white, black or brown. Spots are permissible. Their hair is usually short, but may be long on the hindquarter. The Tswana goats of Botswana are similar in appearance (ARC, 1999).

The Pafuri goats of Mozambique are found only on the Limpopo. This breed is also known as the Boer goat, which gives one an indication of its origin. However, its profile is convex. They have well-developed horns and drooping ears (ARC, 1999).

Nguni goats come from Swaziland and Zululand. Their horns are twisted and their ears are flabby, and of medium length. These goats are a cross between the Small East African and the lop-eared types. They may be any colour. The Damara, or Herero goats of Namibia tend to have medium length horns, with a straight or convex profile, and long wide drooping ears. The coat is short and usually white, red and white or brown and white. They can also be red or grey (ARC, 1999).

"Indigenous goat" is the collective term used for all varieties of South African goat breeds. Specific breed names are usually given according to the geographical area in which they occur, or names of breeds and types are taken over from the nations or tribes that own them (Maree and Plug, 1993). According to Campbell (1995), the indigenous goats of South Africa can be classed into; speckled goats, Loskop South indigenous goats, KwaZulu-Natal, Nguni goats and the Delftzijl goats. However, this classification system does not accommodate the thousands of indigenous goats found outside these specific locations throughout South Africa.

The indigenous goats of South Africa vary in horn and coat type, colour, ear length and size. They are mostly of medium size. Environmental extremes are mainly responsible for the variation in size between goat types. It is possible to find different variations in the same region and even in the same flock (Maree and Plug, 1993). These goats have never been subjected to any selection other than survival in nature. They have never received special care, and the management practices involve being milked (by some cultures) and kraaled at night. The goats are kept in the kraals usually until very late the next morning. They are known to be extremely hardy, have survived centuries of periodic droughts and harsh temperature extremes. They also have the reputation of being resistant to the majority of tropical diseases and parasites (Maree and Plug, 1993).

The origins of the "Boer goat" are somewhat vague, and are most probably rooted in the animals as kept by the Namaqua Hottentots and migrating tribes of the "Southern Bantu" people (Campbell, 1984). As stock farmers became more settled and began selecting animals adapted to the distinct characteristics of the Eastern Cape (1800 to 1820), the common Boer or farm goat evolved, which was described as compact, well proportioned and short-haired (Van Rensburg, 1938). In Swellendam, the existing, common, short-haired goats were reported to total approximately 68 000 in 1840 and 94 000 in 1843 (Uys, 1988). These animals were mainly used for meat and skins. Three types were recognized in the original unimproved Boer goat population, namely a) a common goat with short hair, usually white with brown spots, b) a larger long-haired type and c) a multi-coloured polled type with evidence of exotic dairy blood. From these, the farmers in the Eastern Cape Province selected for improved meat conformation, which led to the development of the Improved Boer Goat (Veredelde

Boerbok). These animals are renowned for their hardiness and good meat producing capabilities (ARC, 1999).

Adopting a rigid breeding policy, which included strict selection criteria, developed the Improved Boer goat. This produced a goat with excellent characteristics such as rapid growth, early maturity, sound legs and feet, heavy muscling, high fertility, good mothering ability, good milk production and the ability to produce, while living off the veld (ARC, 1999). The Improved Boer goat is selected to be uniform in colour. The goat has to be white with red marks on the head and shoulders. Marks on the back and tail are allowed to a certain extent. A pigmented skin is preferred, particularly in body areas having no hair cover. This pigmentation makes the skin less susceptible to skin diseases and skin cancer. The skin should be loose and pliable and the hair should be fairly short and smooth with a good gloss. In winter a little down is acceptable. The horns are prominent and the ears broad and drooping. A roman nose is also desired. Castrates have been known to reach 100kg live weight without supplementary feeding.

The Savanna goat is an indigenous, white, registered breed similar to the Boer goat. Savanna goats were bred from a mixture of coloured indigenous does and a white buck. Since its inception, the nucleus flock of this stud, consisting of about one hundred stud does, has been bred as a closed stud. Selection was aimed at breeding a white, heat- and parasite-resistant, functionally efficient, meat goat. These animals have been selected for totally black, well-pigmented skins, high fertility, and heat and drought tolerance (Campbell, 1995). They were kept in a savannah-type camp, close to the Vaal River in the Northern Cape Province, and had to survive under extremely unfavourable conditions. As a result of this, natural selection played a big role in the development of these fertile, easy-care animals. They have thick, pliable skins with short, white hair. These animals also have excellent muscular development, good bones, strong legs, hooves and pasterns.

The Kalahari Red breed was selected from red and red-and-white indigenous African goats and have been selected and bred as a separate breed for the past 25 years. They are known for their hardiness, colour, size and mothering abilities. The Kalahari Reds were bred with an emphasis on carcass mass and growth rate. The bucks have

an average weight of 115 kg and females may reach 75kg live weight (Albian Red information leaflet).

Exotic goats in South Africa

Although the objective of this thesis is to concentrate on the indigenous goat industry, it is important to mention the exotic breeds found in South Africa, their origins and their uses, as they may be useful in improving the production potential of indigenous goats. Several milk goat breeds are found in South Africa. These include the Saanen, that originates in Switzerland and that was imported into South Africa in the early 1900's. This goat is white in colour. According to the S.A. Studbook (http://studbook.co.za/milch) there are currently 432 registered Saanen does and 120 registered Saanen buck in South Africa. The Toggenburg, also originating in Switzerland, may vary in colour from fawn to dark chocolate with white markings. There are currently 21 Toggenburg does and 8 Toggenburg buck registered with the S.A. Studbook (http://studbook.co.za/milch). Finally, the British Alpine, from the British Isles, has a black body with white markings. No data is available regarding the number of registered animals in South Africa although excellent examples of this breed can be seen in Middelpos in the Northern Cape and in Bonnievale in the Western Cape.

Angora goats, known for their production of long, white, and slightly curly, luxurious mohair fibre, were first imported into South Africa via India by Colonel John Henderson, a former British officer, in 1838 (Uys, 1988). The Sultan of Turkey had placed an embargo on the export of Angoras from Turkey at that time, and so it was that the next Angora imports occurred only 15 years later. During that time the original Angora buck and its mother were crossed with the existing, common, short-haired goats of South Africa, and the progeny of these crosses formed the basis of the Angora Goat industry in South Africa (It is interesting to note that such crosses are avoided at all costs today, because such crosses create an animal that carries a fibre known as cashgora, that cannot be used either as a mohair or as a cashmere and has little commercial value). By 1880 it was reported that there were between 2 million and 2 and a quarter million Angora goats in the Cape Colony (Uys, 1988).

Several cashmere goat breeds have recently made their appearance in South Africa. These include the Gorno Altai from Russia and the Saffer from Australia. In 1992 a Gorno Altai goat herd was established at the Rondebult research farm of Sentrachem just outside Pretoria. The idea was initiated by a similar project in Scotland where the Scottish School of Agriculture in Edinburgh decided to establish a cashmere industry in the United Kingdom. Embryos were obtained from the College flock by Edinburgh Genetics and implanted into 300 Boer goat receptor does in South Africa. The first Gorno Altai kids were born in September 1992. The herd remained in quarantine until 1996 after which the animals were sold at auction to, mainly, commercial farmers. The total number of these animals in the country currently is not known, but it can be assumed that few remain, due to the inability to start a formal cashmere industry over the last 6 years. Gorno Altai goats are born black and become lighter with age. They produce around 600g of brownish cashmere that is known in the trade as Afghanistan brown. This Siberian goat yields fibres with an average thickness of 17.2 microns and a length of 79 mm. The Gorno Altai is considered to be a very hardy breed. The breed is registered with Studbook. The Saffer goat from Australia is also registered with studbook and can be found in limited quantities in South Africa.

2.3 Existing institutions for utilisation by goat industry

There are several institutions which are capable of supplying services to the current Goat Industry, although their current emphasis on this sector is limited. They are listed in Appendix 1, giving their role and contact details. They include:

- Production-Oriented Institutions
- Marketing-Oriented Institutions
- Processing-oriented Institutions
- Research-oriented Institutions
- Extension-oriented Institutions

A number of marketing channels are available for the marketing of livestock in general and goats in specific. Currently, the most well-known market for goats in South Africa

is the live goat market in KwaZulu-Natal. Live goats may be traded by one or a combination of the transactions listed below. Eventually, the goats are kept at a central point in KwaZulu-Natal from where they are purchased directly by consumers.

- Live Auctions: Live auctions are arranged at regular times at strategic points. Producers bring livestock to auction pens where transactions take place between buyers and sellers. Auctions are arranged by marketing agents on a commission basis.
- Carcass auctions: Carcass auctions are held at a few abattoirs. Buyers and sellers meet through the intervention of marketing agents.
- Out-of-hand sales: Buyers buy directly from producers. No commissions are charged for these kinds of transactions.
- Transactions by means of liaison services: Agents bring buyers in touch with sellers on a commission basis, but do not handle money in the process – only facilitating the transaction.
- Speculators: Livestock are purchased by speculators who take ownership and sell animals at a profit. This industry possibly accounts for 80% or more of the goat trade in South Africa.

2.4 Current goat population available for utilization

Boer and Angora goats in the commercial farming sector

Statistics with respect to goats are very limited. The study analysed the different statistical sources, and noted that differences in figures occur. The National Department of Agriculture, Central Statistics Service, and the Mohair Board (1996) have information with respect to goat numbers. The National Department of Agriculture's figures are, according to specialists involved in the goat industry, the most reliable source (1996).

Angora goat numbers are currently included in the national goat census. This breed has, however, been separated from the rest of the goat population for the period 1972 to 1987. The total goat population in the commercial farming sector is shown in Table 2.1 below. Statistics separating the commercial farming sector from the non-commercialised sector following 1996 are not available (Before 1994 they were reported separately).

Table 2.1 Total goat numbers, including Angora goats, commercial farming sector

PROVINCE	1960	1990	1995	1996
Western Cape	295 000	322 785	261 856	258 059
Northern Cape	438 000	532 729	432 481	446 925
Free State	74 000	70 461	62 097	65 308
Eastern Cape	1 226 000	1 629 790	1 319 010	1 320 117
KwaZulu-Natal	196 000	110 689	113 198	114 495
Mpumalanga	139 000	43 287	33 443	33 785
Limpopo	66 000	50 471	50 636	54 742
Gauteng	16 000	10 131	12 393	11 898
North West	62 000	71 367	83 681	99 016

(Source: Directorate: Agricultural Statistics, 1996)

Attempts were made to exclude Angora numbers from the total goat census, but due to unreliable statistics it was not possible. Most of the Angora population is found in the Eastern Cape Province. An indication of the distribution of Angora goats, based on the mohair production, which is available on a district level, is shown in Table 2.2.

Table 2.2 Distribution of Angora goats based on mohair production

PROVINCE	PERCENTAGE (%)
Eastern Cape	72
Western Cape	27
Northern Cape	1

(Source: Mohair Board, 1996)

It would appear that mohair prices have a definite influence on the goat numbers in South Africa. Angora and other goat numbers are reported separately for the period 1972 to 1987 in the national statistics of the National Department of Agriculture. These figures were analysed to determine the influence of mohair prices on goat numbers. The results are shown graphically in Figure 2.1.

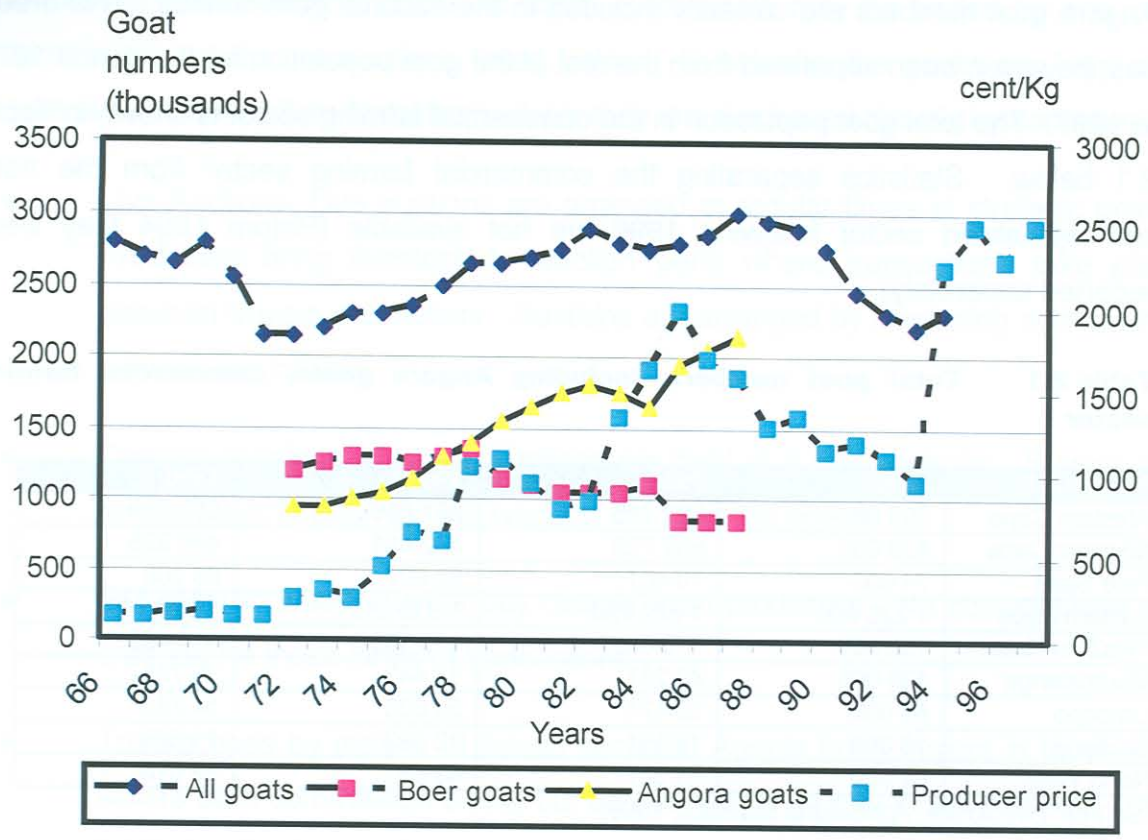

Figure 2.1 Goat numbers according to breed and mohair price (Source: Directorate Agricultural Statistics, 1996)

The information illustrated in Figure 2.1 covers the period 1966 to 1997. The total goat population in South Africa fluctuated, thus there is not a distinct increasing or decreasing trend in total goat numbers. However, the total goat population tends to follow the price for mohair. Angora numbers are shown separately for the period 1972 to 1987 and they show an increase during increasing mohair prices. The Boer goat population tends to decrease with an increase in Angora numbers. This may indicate that producers that already possess goat infrastructure (fences etc.) may switch between Boer goats and Angora goats as commodity prices dictate. Furthermore, they would be able to make such switches much more easily than producers who have other animal species (such as cattle or sheep). This phenomenon (of decreasing Boer goat numbers with increasing mohair prices) will thus only apply to mohair producing areas (There is no reason to believe that goat numbers in other production regions are influenced by mohair prices).

Table 2.1 indicates that goat numbers in all the provinces with the exception of the Eastern Cape, Northern Cape and North West Province, show a slight average decrease in goat numbers. Total goat numbers in the commercial sector decreased at an average rate of 0.1 per cent per annum. The percentage breakdown of goats according to province is shown in Table 2.3 below.

Table 2.3 Distribution of goats per province, commercial farming sector

PROVINCE	1996 Percentage (%)
Eastern Cape	55
Northern Cape	19
Western Cape	11
KwaZulu-Natal	5
North West Province	4
Free State	3
Limpopo	2
Mpumalanga	1
Gauteng	1

(Source: Directorate: Agricultural Statistics, 1996)

The Eastern Cape is the major goat area in the commercial farming sector as 55 per cent of all goats are found here. Limpopo and Western Provinces represent respectively 19 and 11 per cent of the total population. The remaining provinces represent less than 10 per cent each.

Goat population in the non-commercialised agricultural sector

The majority of the South African goat population is found in the non-commercialised agricultural sector. Unfortunately, limited statistics are available for these areas (figures are only available at provincial level). The majority of these goats are of the indigenous type, although schemes exist for the upgrading of indigenous goats (Mara Agricultural Development Institute, Potchefstroom Agricultural Development Institute and others). No formal farming practices occur and goats are mainly kept on communal grazing. The goat numbers in the non-commercialised agricultural sector up to 1996 are shown in Table 2.4. Statistics separating the commercial farming sector from the non-commercialised sector following 1996 are not available.

Table 2.4 Goat numbers in the non-commercialised agricultural sector (mainly the former homelands), 1994 to 1996

PROVINCE	1994	1995	1996	AVERAGE ANNUAL GROWTH
	Numbers ('000)			
Eastern Cape	1 862	1 899	1 901	2.6
Northern Cape	-	-	-	
Western Cape	-	-	-	
KwaZulu-Natal	710	710	719	0.6
North West Province	505	531	629	11.5
Free State	10	9	10	(0.8)
Limpopo	909	890	962	2.9
Mpumalanga	55	47	48	(6.5)
Gauteng				
Total	4 051	4 087	4 268	2.6

(Source: Directorate: Agricultural Statistics, 1996)

The total goat numbers amount to 4.3 million in the non-commercialised agricultural sector up to 1996. Goat numbers increased at a rate of 2.6 percent per annum over the period 1994 to 1996. The largest gain in goat numbers was experienced in the North West Province, with an annual increase of 11.5 percent. The percentage breakdown of goat numbers according to province for the non-commercialised agricultural sector is shown in Table 2.5.

Table 2.5 Distribution of goats per province, non-commercialised agricultural sector (mainly former homelands), 1994 to 1996

PROVINCE	1994	1995	1996
	PERCENTAGE (%)		
Eastern Cape	46	46	45
Northern Cape	-	-	-
Western Cape	-	-	-
KwaZulu-Natal	18	17	17
North West Province	12	13	15
Free State	-	-	-
Limpopo	22	22	23
Mpumalanga	1	1	1
Gauteng	-	-	-

(Source: Directorate: Agricultural Statistics, 1996)

Total South African goat population

The total goat population in South Africa, including Angora goats, and representing both the commercial agricultural sector and the non-commercialised agricultural sector is shown in Table 2.6.

The total goat population in South Africa, including Angora goats, was 6.7 million in 1996. The goat population increased at an average rate of 2.1 percent for the period

1994 to 1996. From 2001 to 2003 statistics for the total goat population are available, however these are not separated into commercial and non-commercialised farmers (as mentioned previously). Over the decade from 1994 until 2003 there has been an average increase in goat numbers at a rate of 0.88 percent. Approximately 50 percent of the total goat population in South Africa is found in the Eastern Cape, followed by 15 percent in Limpopo, 12 percent in KwaZulu-Natal and 11 percent in the North West Province.

An estimate of the total goat population, excluding Angora goats in 1996 (projected to be 1.4 million), is shown in Table 2.7.

Table 2.6 Total goat population, including Angoras, South Africa

PROVINCE	1994	1995	1996	2001	2002	2003	AVERAGE ANNUAL GROWTH (%)
	NUMBERS ('000)						
Western Cape	251	262	258	260	255	243	-0.60
Northern Cape	448	432	447	500	513	495	2.17
Free State	76	71	75	76	78	71	-1.19
Eastern Cape	3 156	3 218	3 221	3 200	3 082	3 022	-0.85
KwaZulu-Natal	823	824	833	963	952	928	2.63
Mpumalanga	93	81	82	100	106	103	2.69
Limpopo	960	940	1 017	1 057	1 087	1 049	1.88
Gauteng	11	13	14	10	8	8	-4.54
North West	585	615	728	760	771	762	5.64
Total	6 404	6 457	6 674	6 926	6 852	6 681	0.88

(Source: Directorate: Agricultural Statistics, 1996; 2003)

The goat population, excluding Angora goats, in the commercial farming sector and the non-commercialised agricultural sector in the Republic of South Africa, was 5.3 million in 1996. Of this number approximately 4.3 million were found in the non-commercialised agricultural sector. Thus, indigenous goats, which are mainly present in the non-commercialised agricultural sector, represent an important contributor towards the total goat population as it represents approximately 81 percent of the total goat population in South Africa. The Limpopo Province bushveld and the Northern Cape cattle production areas offer enormous potential with respect to goat farming. These areas, which consist of bushveld, offer excellent grazing potential for goats, and if these areas could be used for goat production, the goat numbers could increase

substantially. Likewise, if these areas are utilised optimally for goat production, red meat production could increase considerably.

Table 2.7 Total estimate and summary of goat numbers in South Africa, excluding Angora Goats, 1996

PROVINCE	COMMERCIAL SECTOR	NON-COMMERCIALISED AGRICULTURAL SECTOR	TOTAL	NON-COMMERCIALISED SECTOR AS A PERCENTAGE OF TOTAL (%)
	Numbers ('000)			
Eastern Cape	1 320	1 901	3 221	59
Northern Cape	447	-	447	0
Western Cape	258	-	258	0
KwaZulu-Natal	114	719	833	86
North West	99	629	728	86
Free State	65	10	75	13
Limpopo	55	962	1 017	95
Mpumalanga	34	48	82	59
Gauteng	14	-	14	0
Total	2 406	4 268	6 674	64
Less Angora goats	1 400	-	1 400	-
Goats	1 006	4 268	5 274	81

(Source: Directorate: Agricultural Statistics, 1996)

Milk goats

Milk goat population figures for 1995 to 1997 are shown in Table 2.8.

Table 2.8 Registered milk goat numbers, South Africa, 1997

DISTRICT	DOES	BUCK
	NUMBERS	
De Doorns	59	5
Paarl	314	31
Upington	97	35
Bloemfontein	35	27
De Aar	157	81
Stutterheim	13	12
Pretoria	16	9
Modderrivier	87	29
Standerton	3	0
Springbok	28	3
Zeerest	10	3
Lichtenburg	18	2
Total	837	237

(Source: Milk Goat Breeders' Society, 1997)

In 2002 the total number of registered Milch goat does was 453 and the number of registered buck was 128 (http://studbook.co.za/milch).

Cashmere goats

Cashmere production by commercial and small scale farmers using indigenous and imported cashmere producing goats, is becoming a reality in South Africa. Started in the early 1990's by a commercial feed manufacturer, Rumevite, the cashmere industry is continuing to develop. Rumevite established a Gorno Altai goat herd at the Rondebult Research Farm of Sentrachem. Embryos were obtained from the top Gorno Altai herd of the Scottish Agricultural College and implanted into 300 Boer goat receptor does in South Africa. The main objectives of this venture were to:

- Establish and promote a cashmere industry in South Africa
- Provide Gorno Altai breeding stock to farmers
- Establish a viable industry, focussing on the small farmer sector
- Establish a cashmere-oriented cottage industry in the rural sector
- Increase the cashmere production of the indigenous goats through selection and cross-breeding

The Gorno Altai kids were raised and offered for sale at a public auction during March 1997. The average price of the does was R 2 500 and the buck sold for an average price of R 2 000. The herd was acquired by 26 commercial farmers who will, in all likelihood, be the main proponents in establishing a formal market and infrastructure for cashmere in South Africa. In itself, this should help the process of assisting small holder farmers to join the cashmere industry, if not with Gorno Altai goats, with other indigenous goat breeds. The ARC-Animal Nutrition and Products Institute also received a donation of 22 animals.

The Gorno Altai goats, are however, only a small aspect of the entire South African cashmere industry development. Because goat keeping is practised widely by the smallholder farmers, the possibilities for producing cashmere from indigenous goat species were also being investigated. At present though, the South African goat population cannot yet be classified as cashmere goats, due to low yields and short fibre length. Unfortunately, the current numbers of cashmere goats is unknown.

2.5 Present utilisation of goat products

Live goats

Virtually all the goats, excluding Angoras, produced in South Africa are marketed live. Only a very small percentage of goats are slaughtered at official abattoirs. The main buyers of goats are Blacks and Indians. It is estimated that 80 percent of goats traded in KwaZulu-Natal are consumed by Blacks and the rest by Indians and other consumers. However, because Indians are involved in the goat trade, Indians are often perceived as the main consumers of goats. The live goat market is characterised by peak demand periods during Easter, December, and the winter months. The seasonal increases in demand are related to the consumption of goats during festivals and ceremonies by Blacks and Indians. Based on past sales figures reported by traders of live goats, goats sold according to months, as a percentage of annual sales, are as follows:

- December 17%
- April 14%
- Rest of year 69%

Sales for the rest of the year represent 7 percent per month. Sales increase to 17 percent in December and 14 percent for April. Seasonal demand has weakened during the past number of years according to goat merchants, with the reductions attributed to deteriorating economic circumstances of their clientele.

Accurate figures to indicate the size of the market in KwaZulu-Natal could not be obtained, but it is estimated that approximately 10 000 to 12 000 live goats are sold, on average, per month in this province. Goat speculators are the main traders in live goats. Auctions in the producing areas have become less important. According to traders in live goats, the demand has diminished for live goats during the past number of years. A major goat speculator reported that he is selling 25 percent less than the previous year. There is general consensus that goats shipped into KwaZulu-Natal have to be sold within two weeks to avoid mortality losses due to disease. Moreover,

goats shipped from Namibia suffer much stress and should reportedly be sold within a week of arrival to avoid losses.

Goat meat

Relatively small quantities of meat-type goats are slaughtered by abattoirs in South Africa. Unfortunately, official statistics on goat slaughter at abattoirs include Angora goats and it is projected that most of the goats slaughtered are Angora goats. The number of goats slaughtered is shown in Table 2.9.

Table 2.9 Goats numbers slaughtered according to abattoir, 1980 to 1997

Abattoir	City Deep	Chamdor	Benoni	Springs	Maitland	Cato Ridge	Port Elizabeth	East London	Bloem-fontein	Kim-berley	Total
Year	Number of carcasses										
1980	7 105	1 598	468	312	22 390	51 803	30 239	191	287	462	114 855
1981	4 083	758	360	112	14 436	43 700	41 224	242	148	470	105 533
1982	3 824	482	321	110	8 948	28 715	41 822	141	195	146	84 704
1983	3 311	368	145	67	6 466	13 456	26 251	239	90	85	50 478
1984	138	495	0	28	7 598	8 003	5 055	27	80	411	21 835
1985	0	49	0	0	12 736	11 159	3 015	48	0	336	27 343
1986	3 286	1 302	149	0	21 595	36 894	20 317	232	63	1 679	85 517
1987	4 801	1 863	0	61	37 617	85 301	53 620	1 446	204	844	185 757
1988	8 577	2 722	0	646	64 636	136 333	101 331	6 030	748	1 634	322 657
1989	4 306	1 637	0	299	53 714	108 229	97 817	3 583	522	896	271 003
1990	2 757	774	0	15	45 544	81 706	96 563	1 525	733	824	230 576
1991	889	318	0	180	25 824	40 701	64 939	1 795	406	452	135 504
1992	677	240	0	172	11 481	18 543	49 150	592	385	132	81 372
1993	638	188	0	45	16 554	22 770	66 874	1 015	152	225	108 461
1994	595	106	0	7	6 891	6 736	20 095	137	50	41	35 258
1995	161	9	0	9	2 467	3 041	12 290	171	108	3	18 259
1996	284	9	0	7	2 992	2 873	27 000	261	479	16	34 421
1997	103	11	0	0	4 852	3 119	21 141	96	1 257	0	30 579

(Source: SAMIC, 1998)

No trend with respect to goats slaughtered is evident from the information in the table. Yet, separate analysis indicates that goat slaughtering is negatively correlated to the mohair price. It is assumed that Angora goats are included in the figures for Port Elizabeth and Maitland abattoirs.

Maitland abattoir is a subsidiary of Vleissentraal. Recent information shows that from March 2001 until April 2002 only 1562 goats were slaughtered at this abattoir. The numbers of goats slaughtered on a monthly basis over this period as well as the price paid for the carcasses are shown in Table 2.10 below.

Table 2.10 Number of goats slaughtered and average price paid at Maitland abattoir

MONTH	NUMBER	AVERAGE PRICE (CENT/KG)
March 2001	47	919
April 2001	21	1031
May 2001	37	1003
June 2001	24	1171
July 2001	89	1084
August 2001	250	1018
September 2001	4	1115
October 2001	51	1127
November 2001	58	1161
December 2001	15	1196
January 2002	31	1163
February 2002	528	992
March 2002	298	941
April 2002	109	1153

(Source: S. du Plessis - Personal communication – 2003)

SAMIC provided data of goat sales at abattoirs on their records for this study. According to these records, 2829 goats were offered for slaughter in 2000, 1783 goats were offered in 2001, and 966 were offered (up until April), in 2002.

Goat milk and goat milk products

Official statistics are not available for total goat milk production in South Africa. However, approximately 245 registered does and 39 unregistered does were in milk for longer than 240 days and are thus eligible to take part in the South African National Dairy Animal Improvement Scheme (Annual report, 2001). The registered does produced an average of 1 032 kg of milk per lactation and the unregistered does produced an average of 973 kg of milk in a 240 – 300 day lactation (Annual Report, 2001). Thus, official statistics estimate a production of approximately 290 787 kg of goat milk per lactation. However, the milk quality and production of more animals are recorded, but because they have lactation periods shorter than 240 days their data are not used in the Dairy Animal Improvement Scheme. Approximately 535 animals are involved in the scheme nationally (Graham Hallowell – personal communication, 2002).

The total goat milk production for the estimated 1 500 does in South Africa is projected at 1 350 000 litres per annum. Of this total amount Fairview produces approximately 550 000 litres, Stillerust approximately 210 000 litres, Andanté Farm approximately 99

000 litres (this farm ceased operation in 2003), Middelpos Bokmelkery 120 000 litres, TT dairies a further 40 000 litres, with the smaller operators making up the rest.

Frozen and fresh goat milk is sold through health food stores, some supermarkets and home industry stores. Goat cheese production includes Fairview as the main goat cheese producer in South Africa, with total production estimated at 40 000 kg per annum. They produce Gotino, Rabiola, Chevin, Camembert, Caprino Romano, and St Martin. Lamontanara in Bonnievale produces mainly Caprino Romano goat cheese, Gouda, Feta, and Danish Feta, the quantities of which are not known. Tantinki Farm produces several milk products including Feta, St Maure, Soap, Haloumi, Chevin, Marinated Chevin balls, Gouda and Genito. Middelpos produces mainly flavoured Gouda.

Goat milk powder is produced in South Africa by Chevita SA (Pty) Ltd., Klapmuts. The powder is marketed in South Africa under the brand name ALPI. The quantities of ALPI produced could not be obtained (It has been recorded that the production of this product was ceased in 2003 due to health concerns).

Cashmere

The cashmere industry in South Africa is new and a local market is non-existent.

Skins and leather

Most of the goats marketed in the informal trade (for traditional use) are slaughtered in remote areas by the end user. Accordingly, the skins are normally thrown away and not marketed. In some cases though, skins are collected in the rural areas and sold to skin and hide agents, who export the skins as wet blues in pickling solution or in their dried form (See Leather Processors above).

2.6 Present imports and exports

Live goat imports

Live goats are imported from Namibia on a regular basis. The number of goats imported is shown in Table 2.11. Live goat imports increased at a rate of 8.6 percent per year.

Table 2.11 Number of live goats imported from Namibia to South Africa, 1993 to 1997.

Year	Number of live goats
1993	131 068
1994	199 025
1995	180 895
1996	162 647
1997	182 118
Average growth per annum (%)	8.6

(Source: Smuts, 1998b)

According to the data set of Customs and Excise (2002) 153 720 live goats (all breeds) were imported in total in 1999 (thus from various source countries). Statistics for 1994 to 1998 and 2000 to 2004 are however, incomplete.

Very few, if any, milk goats are imported although milk goat genetic material has been acquired by some milk goat producers over the last few years. Data related to these imports do not exist. Live cashmere goats (the Saffer from Australia) and, of course, the Gorno Altai embryos in the early nineties, have been imported. Statistics regarding these numbers are however, also not available.

Milk imports

Goat milk powder and canned milk are imported into South Africa mainly as a substitute dairy product for consumers with allergic conditions and for use by children. The importers are RMT Agencies. RMT import the product known as Meyenburg. The following quantities are imported annually:

Powder 23 040 kg

Canned 13 824 litres

The powder milk must be diluted with water in a 1:8 ratio, with the result that the quantity of powder imported is the equivalent of 184 320 litres of milk. A limited amount of goat milk products are also imported by New Zealand Milk Products of Johannesburg. New Zealand Milk distributes it under the Bates brand name.

Live goat exports

Boer goats are very adaptable and are the most sought after goat breed in the world (Personal communication with goat farmers, animal scientists, officials and enthusiasts

from Australia, the USA, China, and the UK: 1993 – 2004). Since the early 1990's, the South African Enobled Boer Goat has been introduced across the world. The demand for this animal is growing annually, limited only by the numbers of animals available for export, available quarantine infrastructure and the occurrence of diseases such as Foot-and-Mouth disease which closed South Africa to the export market for some years. It is believed that the Boer goat will have a significant effect on the quantity and quality of goat meat produced in the world because of its outstanding conformation and muscling.

Boer goat exports were stopped due to the Foot-and-Mouth disease outbreak of 2000. However, prior to that less that 1 000 Boer goats were exported live. Goats were mainly exported to Malaysia, Thailand, and China for breeding purposes. The quarantine facilities mentioned in Appendix 1 were involved in these exports. In 2002 and 2003 some Boer Goat exports were undertaken to Uganda and the Middle East.

Statistics regarding goat exports (all breeds) are shown in Table 2.12 below.

Table 2.12 Number of live goats exported from South Africa, 1994 to 2000.

Year	Number of live goats
1994	2 027
1995	670
1996	2 445
1997	195
1998	1 127
1999	10 983
2000	645

(Source: Customs and Excise Database, 2002)

Genetic material exports

Goat embryo export has been more widely practised in South Africa, with indications that this trade will increase considerably in the future. The quantities of embryos exported since 1995 are shown in Table 2.13. Data up to the present are not available.

Table 2.13 Number of Boer goat embryos exported, 1995 to 1997

	1995	1996	1997	Average growth (%)
Boer goat embryos exported	269	969	3699	271

(Source: Customs and Excise Database, 2002)

Goat embryos were mainly exported to Australia, Canada and China. A recent visit (2002) to China has shown a potential market for approximately 100 000 Boer goat embryos, at US $ 100 per embryo. In 1997 the total export value of goat embryos was approximately R 9.2 million. Today, the potential Boer goat embryo market in China alone is worth a potential R 100 million, with interest from Australia, New Zealand, Canada and the United States being similarly strong. The export of these indigenous resources is a contentious issue which is being debated in several industry circles (China, for example, has an embargo on the export of any of their cashmere goat genetics and it is open to question whether South Africa should follow their example; Roets, 2004).

Other products exported

No goat meat or goat meat products, goat milk or goat milk products, cashmere or cashmere products, or leather products (except goat meat in 2003 as a result of this study) are currently exported from South Africa.

2.7 Estimates of potential goat production

The actual gross value of the goat industry in South Africa is not known due to limited statistics. Using an estimate of potential goat production in South Africa based on goat population and reproduction norms, the estimated gross value of goat production in South Africa was determined by attaching alternative values to the production figures. The values chosen (R 100, R 150, and R 200) are conservative figures (Currently, July 2004, goats sold live are obtaining R 15 per kilogram, thus approximately R450 for a 30kg animal). However, to illustrate the potential value of goat production in South Africa the results using conservative figures are shown in Tables 2.14 through 2.16.

Table 2.14 Estimation of gross value of animals produced at a value of R 200 per goat.

Reproduction norms: Commercial farming sector	160%	140%	120%	100%	80%
Reproduction norms: Non-commercialised farming sector	R million				
100%	1 174	1 133	1 094	1 054	1 014
80%	1 003	963	923	883	843
60%	832	792	752	712	672
40%	661	621	581	541	501
20%	491	451	411	371	331
10%	405	365	325	285	245

Table 2.15 Estimation of gross value of animals produced at a value of R 150 per goat.

Reproduction norms: Commercial farming sector	160%	140%	120%	100%	80%
Reproduction norms: Non-commercialised farming sector	R million				
100%	880	850	820	790	760
80%	752	722	692	662	632
60%	624	594	564	534	504
40%	496	466	436	406	376
20%	368	338	308	278	248
10%	304	274	244	214	184

Table 2.16 Estimation of gross value of animals produced at a value of R 100 per goat.

Reproduction norms: Commercial farming sector	160%	140%	120%	100%	80%
Reproduction norms: Non-commercialised farming sector	R million				
100%	587	567	547	527	507
80%	501	481	461	441	421
60%	416	396	376	356	336
40%	331	311	291	271	251
20%	245	225	205	185	165
10%	202	183	163	142	123

The gross income of goat production from live sales could range from R 1 174 million for an optimistic scenario to R 123 million for the most pessimistic scenario. In comparison, the gross value for other commodities during 1996/1997 was (National Department of Agriculture, 1996):

Wool R 586 million

Mohair R 111 million

Ostrich products	R 305 million

It can be stated that although a substantial number of goats can be found in South Africa, this resource is grossly under-utilised, especially those animals that can be found in the non-commercialised sector. A conservative calculation of the total potential income from the goat industry including live goat sales, raw cashmere, raw skin sales and embryo sales, could be as follows (if an off-take of approximately 30% is used):

Goat production, 1.8 million @ R 150/live goat	R 278 million
Skins, 1.8 million @ R 5/skin	R 9 million
Cashmere, 84 tons @ R 65/kg	R 5.5 million
Embryos 100 000 @ R 900/embryo	R 90 million
Milk, 1.35 million litres @ R 2.50/litre	R 3.4 million
TOTAL	R 385.9 million

This value does not even take the income earning potential of value-adding into consideration (the increase in value due to value-adding will be shown in Chapters 5, 6, 7 and 8).

2.8 Discussion and Conclusions

This chapter has provided an overview of the industry, its institutions, the current goat types, uses and products, and the current national and international marketing statistics and marketing channels. Production, marketing, research and extension institutions and infrastructure, although available, are not used to promote the commercialisation of South Africa's goats, and processing infrastructure is sorely lacking. Even the embryo and live goat export industry have limited quarantine and embryo facilities even though the market is potentially enormous (albeit debatable whether export should be allowed).

Some entrepreneurs have done well in value-adding businesses (specifically milk) despite a lack of marketing support, research and extension institutions that are not

geared to service their real-world needs, and lack of processing and marketing infrastructure. But, the fact that so few (and then only White farmers) have emerged only emphasises the difficulties that non-commercialised farmers face in entering this industry. However, these businesses are viable despite their relatively small size and the high costs of marketing and distribution. Furthermore, these industries have realised that their products are niche oriented and have taken advantage of that fact by marketing almost exclusively to the high end of the market spectrum.

Vertical co-ordination (defined in Chapter 9) in the goat industry is non-existent. A modern move in animal agriculture has been the shift away from disjointed meat marketing systems to more vertically co-ordinated and vertically integrated production and processing chains (More about this in Chapter 9). Other agricultural industries are also making this institutional shift (Engelbart, Frank and Rijswijk, 2001). Where livestock industries have made this shift, the benefits have been obvious (SAMIC, 2002); where not, industries are stagnating. The beef industry, for example, blames the extensive nature of beef production for the stagnation of consumption in developed countries. However, it is more likely the lack of vertical co-ordination which has caused greater competition from other meat types. Of course, the BSE and Foot-and-mouth disease outbreaks have not helped growth in the beef sector at all either. Despite these challenges, the process of technical and institutional innovation has been particularly slow in the red meat industry. International red meat trade has only risen 2 percent annually, and in South Africa red meat trade has, in fact, declined from 45 percent of the full meat stable in the 1990's to 30 percent of the full meat stable in 2001. This has been mainly due to the vertical integration of the pork and poultry industries that has reduced the relative price of these products. It is also because developed countries are becoming more stringent regarding traceability and labelling requirements, and without vertical co-ordination or vertical integration this process is difficult to manage. What should be remembered is that it is not merely the issue of safe food which traceability wishes to address (although this would seem to be the most obvious reason). The issue here is consumer satisfaction. Even the potted plant and flower industry has realised the importance of vertical integration to satisfy the demands of the modern homemaker (Engelbart et al., 2001).

It can also be debated whether the speculator industry, where most of the movement of live goats reside, is exploitive of the lack of infrastructure, communications and market access of the non-commercialised sector. Systems or institutions need to be created to bring the non-commercialised farmer out of this vacuum and into the formal market process. Furthermore, consumer awareness and education campaigns were also a need expressed by many producers who lack the resources to accomplish this task on a national level.

The first sub-problem addressed by this thesis asks, "If commercialisation were to occur, can the current South African goat industry be mobilised to ensure the consistency of supply demanded by the national and global market place? What does the current industry look like?" Hypothesis 1 thus assumes that the South African goat industry currently has the capacity to mobilise to meet global market demands or trends. This hypothesis is correct if one studies the various production scenarios demonstrated in section 2.7 of this chapter. The potential industry could be worth an estimated R 386 million (using conservative figures). It is clear that the goat resource-base, as well as the existence of several institutions that are interested in goat production (Appendix 1), creates an ideal environment for the commercialisation of the goat industry. However, institutional innovation is required. One can debate whether new institutional arrangements should be created or whether existing institutional arrangements should be transformed (it is clear that they are all under-performing in this sector). More market-oriented, well-organised institutions, which could assist in vertical co-ordination or vertical integration, value-addition, relevant research, national and international marketing and the general mobilisation of the industry are required.

At this point a different question emerges.... If the current goat industry is large enough and has several organisations which could have assisted with the commercialisation of this industry, why has this not occurred until now? This question is addressed in the next chapter.

CHAPTER 3 : THE HISTORICAL CAUSES FOR NON-COMMERCIALISATION OF INDIGENOUS GOATS IN SOUTH AFRICA

"Ek wil haar hê vir 'n vrou, vir my seun".... Die kaptein is tevrede, toe haal hy die beeste en die skape en die bokke uit vir die meisie."

"I want her as a wife for my son"...The Chief was satisfied, so he took out his cattle and sheep and goats for the girl."

Minnie Postma, Legendes uit Basoetoland.

3.1 Introduction

The previous chapter has shown that the goat resource in South Africa is large enough to commercialise and that it could become a viable industry. The question thus becomes why it has not happened up till now? Goats have been part of the South African landscape for centuries and other countries have successfully commercialised and developed their goat industries (Australia and New Zealand for example). The line of reasoning here is that there are certain historical reasons for non-commercialisation in South Africa in particular, that are of lesser relevance today, thus making the commercialisation of goats an option for rural development in the current setting.

Several factors need to be investigated to test this second hypothesis. Firstly, the historical and traditional context of goats in South Africa needs to be understood. Furthermore, the institutional arrangements that have governed the industry up till now need to be studied. These institutional arrangements include those governing marketing and research. And finally, but most importantly, consumer perceptions of goat products need to be investigated. With this information in hand it becomes possible to address limitations and to suggest improvements or new avenues for development.

3.2 Goats in history and folklore

The goat has, for centuries, been intertwined in cultural history and tradition. Its long association with man has made it a common subject, or object, in myths, folklore, and fairytales. Unfortunately, because of some of these histories goats sometime have a negative connotation. If the origins of these uses could be understood then it is more likely that consumers will accept goats for what they are – an important livestock species that also has symbolic associations.

In the Egyptian town of Mendes the sacred goat Ba-neb-Djedet (the Billy goat, lord of Djedjet) was a symbol of fertility and abundance (The Gods and Symbols of Ancient Egypt, 1974). In Celtic religions, the goat represented fertility, and goat-horned divinities are recorded in Britain and Gaul (France) (Green, 1992). The use of goat's milk by the Gauls is also, comically, illustrated in "Asterix and the Banquet" (Goscinny and Uderzo, 1979). In Scotland, images of the goat have been found to represent fertility and aggression. In British fairytale, the goat is pictured as the steed of the king dwarf from Fairyland (Briggs, 1978). The Urisk or Uruisg was a solitary rough kind of brownie, half-human, half-goat, who herded cattle, did work around the farm, and was very lucky to have in the house (Briggs, 1978). In Norwegian myth, a goat that fed on the great world-tree, Yggdrasill, gave mead instead of milk, and this mead supplied the great feasts that the gods held (Barber, 1979). In Germany, an altar dedicated to the triple Matronae has, on the reverse, a carving of a snake-entwined tree and a triple bodied goat.

During the Renaissance dances were often styled on animals and birds. More sedate dances imitate the behaviour of birds such as the peacock, whereas the French dance, the capriole, imitated the bawdy behaviour of the goat (Lonsdale, 1981.). The most significant goat-use in mythology is most probably that of the mythology surrounding Dionysus, or Bacchus. This god was the god of vegetation and the vine, and the goat was sacred to him. Thus, the Greek tradegy plays had their origin in the festivals that were held to commemorate him and the harvest. The word tragedy has its origins in the word "*tragoidia*" or goat song, from "*tragos*" (goat) and "*aeidein*" (to sing). The word referred to either the prize, a goat, which was awarded to the dramatists whose plays won the earliest competitions or to the dress (goat skins) of

the performers, or to the goat that was sacrificed in the primitive rituals from which the tragedy developed (New Encyclopaedia Britannica, 1986).

Also related to this mythology is the better-known Pan or the satyrs (the followers of Bacchus). The Zodiac sign of Capricorn is believed to be a representation of the Greek god Pan. The fishtail seen in this sign is thought to originate from the incident where Pan, trying to avoid the monster Typhon, jumped into the water just as he was changing into animal shape. The half above the water assumed the shape of a goat, while the lower half beneath the water assumed the shape of a fish (New Encyclopaedia Britannica, 1986). The devil is often depicted as a Satyr (hence the word Satan). These creatures with the horns, legs and tail of a goat were symbols of abundance, wine, dance, and debauchery. Now if one recalls that "wine, women and song" were not looked on favourably by the church, one can realise how the goat got labelled as being a "devilish" creature. In medieval times, the Roman Catholic priests were at their wits-end trying to draw the pagans into Christianity. What they did was, they used the pagan symbols to draw the masses to the churches by using these "devilish-looking" creatures as adornment on the outsides of the church buildings. Thus, originated the gargoyles (from the French word "to gurgle" – since these structures essentially serve as the gutters of the buildings). The pagans felt comfortable entering a place that was festooned by creatures so familiar to them. Over time however, as the new faith was adopted, these very same creatures were used to denote that which is evil and were used to graphically illustrate the beasts that the followers would encounter in hell for their sins. A 'faun' was a Latin rural deity with goat's horns, legs, and tail (Pocket Oxford Dictionary, 1984).

In Greek and Roman mythology the baby Zeus was raised by the goat Amalthea after he was hidden from his cannibalistic father Cronus by his mother Rhea. For her good work, the goat Amalthea was forever venerated by being changed into a constellation (Guerber, 1943).

The goat's influence was also seen in China, where the goat spirit was seen as a goat that had a white face, a head furnished with horns, a long beard, and a special kind of headdress. So too, the goat is one of the animals used to mark the Chinese calendar. In Mongolia it was worshipped as a composite god being combined with the image of

the dog that had two horns on its head or the hair done in the shape of two short horns (Werner, 1977).

Even in the northwest Pacific, where the early tribes of the Tsimshian lived the goat was part of the belief system. The people of Temlaham, the earthly paradise of the Tsimshian people, did not maintain the required good relation with the goats, which they hunted. In a fearful retribution, the goats summoned an earthquake that destroyed all the hunters except one that had showed mercy to a mistreated kid in the past. Even the Eskimos had songs and poems to invoke the animal or guardian spirit of the goat (Lonsdale, 1981).

Apart from goats being woven into Arabian folklore when the black goat-hair tents of the nomadic Bedouin are described (black animals were considered the possession of the rich), goats are sometimes the subject of Arabian folklore. In the story of how the fox got back its tail, it was goats and goat's milk that sent him on a search to win it back. In "Little Mangy One" a little goat bravely saves his two brothers from the belly of a mean hyena. The goat's intelligence is portrayed in "Two Close Calls" when the goat outwits both the jackal and the lion (Bushnaq, 1986).

Different cultural traditions in southern Africa place differing values on goats and their products. Large flocks were present amongst the Pedi people in the mid 1800's and were kept mostly as a source of wealth but only in association with cattle. Quin (1959) comments that the Pedi evaluate their goats as follows, "1 ox = 5 sheep or 10 goats, 1 heifer or cow = 7 sheep or 14 goats". In terms of monetary value at the time, he mentions, that cattle were valued at £5, sheep at £1 and goats at 10 shillings. Within these societies, goats are still often used in rituals and sacrifices although they have little value in themselves. As far as folklore is concerned; a Nigerian story tells of how the goat was domesticated. The Yoruba story tells how the animals used to drink from a common pool that was cleaned by the animals once a year. The crafty goat avoided the task until it evoked the anger of the Leopard, which sprang at it with a roar. The goat leapt sideways and ran with all speed to the human village. Only there did the Leopard turn back and the Goat has been quite content to live with human beings ever since, but the Leopard kills goats whenever it finds them straying outside the village. In Ghana, a story very reminiscent of Jacob and Esau involves the goat that was told

by God to organise that the more diligent of two brothers received the best of the land to be shared between them. As in the Biblical story, the less obedient son disguised himself and received the best portion of land (Parrinder, 1982).

In his book about the importance of various animals to African spirituality, Credo Mutwa (1996) writes the following poem about the goat:

I hear you cry, oh imbuzi, on the altars of our ancestors

I hear you cry, oh goat, in the shrines of our forefathers

You are the one who asks the questions

That is the meaning of your name

The animal which asks questions

Questions which often have no answer

You are the delight of the old men

Old men without teeth who grow old on your milk

You are also the delight of the gods

The angry gods who adore your flesh

You are the creature that came from the heavens

Sent by the gods to human beings on Earth

That whenever we seek knowledge from those above

We must make you ask the gods the question

You are a cousin of the impala that roam the plains of our fatherland

They cannot ask any questions, but you can

For you, oh goat – you are the wisest of the wise!

Your hooves have etched the soil of Africa deeply

Your bleating has been heard from one end of the land to the other

You are the joy of our children, the joy of our little sons and daughters who love to caress your beard, and to brush your ears, and to count the rings in your horns

Your hide keeps our grandmothers warm and our grandfathers from shivering

Your eyes are as gentle as those of a lover

But your butting is forceful as that of a Bapedi warrior!

You are the lover of the trees

You are the one who remains alive when other animals have long since perished from the face of the land

For you are the imbuzi, the asker of questions

You are the goat!

You are the animal!

Our sisters often say that your smell is overpowering, but they fail to understand that it is the perfume of wisdom

Our brothers often say that your beard is ridiculous, but they do not know it is the beard of wisdom

Our cousins say that your genitals dangle like drunkards' calabashes inside a beer-brewing hut

But they do not know that they are the gonads of fertility itself

The gods revere you, oh imbuzi

And the demons fear you below

For you are the goat, the one who asks many questions

Bayete!

In almost all the South African languages, "goat" means "the questioning animal" or "that which asks a question"; in Zulu, *imbuzi*, in Xhosa *ibhokhwe*, in Sotho and Setswana *pudi* and, in Venda, Tonga and Shangaan, *mpundzi*. This is because the goat has been used for centuries by the tribes of South Africa to communicate with the gods and ancestral spirits (Mutwa, 1996). The colour, sex and age of a goat slaughtered for cultural purposes are important, but vary from tribe to tribe (ARC, 1999; Mkhwanazi, 1997; Mutwa, 1996). So, for example, the Zulus consider a black goat as possessing the most powerful magic, a reddish-brown goat is believed to prevent conflict and bloodshed, an all-white goat is used to bless a wedding ceremony, a black-and-white goat is used in thanksgiving for wishes granted, and a red-and-white goat in thanksgiving for ending conflict (Mutwa, 1996). White goats are also slaughtered for the wedding ceremonies of the Tsonga, Pedi and Ndebele (ARC, 1999). Red or brown goats are used by young sangoma (*ithwasa*) once they have completed their training (Mkhwanazi, 1997). Black goats are slaughtered when someone has bad luck and white goats are used for thanksgiving, apologies, cleansing and requests (Mkhwanazi, 1997).

In general, ceremonies in which goats are used include, *lobola* (wedding dowries), religious rituals, asking for luck, chasing away bad luck, initiation, weddings, child births and birthdays, reporting (*amadlozi*) and asking for forgiveness (ARC, 1999). The colour and sex of the animal is often communicated in a dream to the person who will slaughter the goat (ARC, 1999; Mutwa, 1996).

In the stories of Minnie Postma (1956), where she chronicles Basotho folklore, several stories capture the significance of goats. The use of goat's milk is mentioned in 'Litsomo in die kombuis – '*Hlankanyana*', and goats are used for *lobola* in 'Die Laaste Legende – '*Tsaile*' and 'Die Droomverhaal – *Lehe*'. In a further work by Postma (1974) 'Molaetsane', she tells the story of a barren heifer that is driven away from the kraal she loves and later gives birth to many cattle and goats. These goats, speak and walk like humans, and care for Molaetsane, grinding corn, brewing beer, making porridge, fetching water, making clay pots and cooking meat.

The Shona have several superstitions about living things. It is believed that a man should not eat the intestines of a goat, lest he forget his trade and soon be out of a job (Miller, 1979). The Sotho-Tswana also practice ancestor worship, especially for curing certain illnesses. A goat can be brought into the presence of the patient, then killed by being pierced with a needle behind the shoulder. The longer it takes to die, and the louder it bleats, the more it will please the spirit, and thus affect a satisfactory cure (Miller, 1979). This is in contrast to the practices of the Zulu, who treat a goat to be slaughtered with the utmost respect and reverence. Only a person who is trained and skilled enough to cause the sacrificial animal the minimum amount of pain and agony may slaughter a goat (Mutwa, 1996).

Thus cultural use and tradition have epitomised the utilisation of goats globally, especially in Africa, for centuries but may be a reason for the non-commercialisation of its high value commodities: distaste for the practise of sacrifice felt by other religions and its associations with Satan.

3.3 Historical trends and institutional arrangements

It seems reasonable to assume that goat meat consumption in South Africa was relatively popular in the early part of the 19th century if one considers that approximately 68 000 indigenous short-haired goats could be found in Swellendam alone in 1840, and as many as 94 000 in 1843 (Uys, 1988). Blacks kept their own goats, so these statistics were probably related to the goats consumed by the White population. What then caused the demise of the popularity of goats as a commodity among the White population of South Africa?

Lack of availability and perceptions created

Could it have been caused by a similar situation to the non-use of mutton in the U.S.A.? It has been suggested that the general non-use of mutton by the Americans was caused when the American forces spent the last part of the Second World War in Europe. Apparently, the most common meat type that they were offered was mutton. On returning to America these soldiers associated mutton with the unpleasantness of war and thus their children, later to be known as the "baby-boomers" (that sector of the American population who were to set the trends in America for the next 60 years) were never exposed to mutton as they were growing up. Consequently, mutton is not a well-known commodity in the United States, and yet few people can actually explain the trend (S. Hart, E. (Kika) de la Garza Goat Research Institute, Oklahoma, USA – Personal communication, 1995).

Thus, similarly, the decrease in the use of goat meat may have been caused by the sharp decline in the popularity of mohair in the late 1920's (Uys, 1988). This prompted the South African Government to urge Angora farmers to replace their goats with Merino sheep. This situation was further exacerbated by the drought and depression of the 1930's when it became Government policy to promote the replacement of Angoras with Merino and Persian sheep (since it was felt that goats further ruined the environment – although the greater economic importance of mutton and wool could also have played a role – wool was a major South African export product along with minerals). This led to a substantial decline in Angora numbers, from 4.3 million in 1912 to approximately 624 261 in 1939 (Uys, 1988). This may have led to very few

goats being consumed by the White population during a certain period of time (it seems obvious that traditional and cultural use by Blacks continued through this period), causing goats to be unfamiliar to a certain generation of consumers, and where negative perceptions originated, these were reinforced through lack of knowledge or exposure to the product.

Popular perceptions that fuelled this negativity included the perception that goats are a cause of erosion. This fact has been debated since the 1940's. In 1944 a letter to the Farmer's Weekly by Ted Outram explained that farmers and not the goats were to blame for exploiting the grazing. His arguments in favour of goats included the less damaging browsing behaviour of goats versus the grazing of sheep close to the ground, the inclination of sheep and not goats to work in single file causing foot-paths, and also, the propensity of goats to curb bush growth which improved grazing (Uys, 1988). However, this negative perception has endured because goats are often seen in badly degraded areas. What needs to be understood is that the selective feeding behaviour allows the goat to survive in areas where other animals cannot, thus their presence is explained. However, these negative perceptions continue. If farmers feel that goats cause degradation, then few goats will be produced and less goats will be available to the market.

Organisation of the meat industry and emphasis on other commodities

The lack of commercialisation of goats was further exacerbated by several government institutions within the Apartheid government. The Meat Board, for example, paid very little attention to research, marketing or data collection for the goat industry. Meat Board resources were spent developing industries of importance to White consumers, thus those such as beef, mutton, pork and poultry (although poultry had their own marketing board).

Limited research support

From information kept by institutions such as the Boer Goat Breeder's Association, and the Milk Goat Breeder's Society (S.A. Milch Goat Annual, 1963), lack of government support did not deter the enthusiasm of a handful of goat breeders and producers. From time to time these institutions roped in the assistance of researchers,

since there are several publications available that show that some research in the field of goats was done (Work done by Hofeyer, personal communication, 2004). At that time, research was almost completely sponsored by the government, so it is reasonable to assume that much of this research was basic in nature and aimed at adding to the general international body of knowledge on goats.

This dearth in goat research results was investigated by a workshop held in 1997 to assimilate as much information on the types of goat research that has been, and is being, done in South Africa (Roets, 1998). This workshop concentrated on research regarding mostly indigenous goats. Slippers (1998) listed recent initiatives in goat research which included: Research on the production and disease resistance of Saanen X indigenous goats at Medunsa, (Donkin, 1991); Anatomical and physiological research at Medunsa (Green and Baker, 1996); Indigenous goat productivity at the University of Fort Hare (Raats and Stead, 1990); Alternative feed resources and value-adding to goat products research at ARC – Animal Nutrition and Products Institute (Smuts-Ayers and Pienaar, 1996); Research on the genetic relationships between Southern African indigenous goats at ARC – Animal Improvement Institute (Ibronke, Cronjé and Kotzé, 1996); Research on the nutritional physiology of indigenous goats in relation to conditions in less developed areas at the University of Pretoria (De Jager, Cronjé and Casey, 1996; Pambu, Cronjé and Casey, 1996, Vlok, Cronjé and Casey, 1996); Evaluation of indigenous x Saanen goats for milk production and cashmere production of indigenous goats in KwaZulu -Natal at the KwaZulu-Natal Department of Agriculture (J.F. de Villiers, - personal communication -1997); Integration of indigenous goats into small farm systems and the use of goats milk by rural households at Makhathini Experimental Station (Du Toit, 1994), Cashmere production and processing research at CSIR – Textek (Braun and Van Rensburg, 1996); Introduction and multiplication of Gorno Altai and Australian Feral Goats for cashmere production at Rumevite farm Rondebult, Pretoria (Roets, 1998).

At the workshop (Roets, 1998) these projects were further explained and other research was added to the body of work. Only those presentations that involved new research are presented here (Some papers merely reported on production issues or presented reviews on a subject of interest). Other research topics presented included: Rural leather tanning at the International School of Tanning Technology (Jackson-

Moss, 1998); Rural handcrafting of goat skins leather (Ginn, 1998); Indigenous sheep and goat farming systems research at the ARC – Range and Forage Institute (Swart, 1998); Assisted reproduction research at the University of the Free State (Greyling, 1998), and; Export protocols of goat embryos (Terblanche, 1998).

Work done at the various Department of Agriculture Experimental and Development Stations included: Bush utilisation and economic viability of various species in grazing systems in the Northern Province (Jordaan, 1998); Saanen x indigenous goat research in KwaZulu-Natal (Louw, 1998); Surveys of production and reproduction of non-commercialised goat farmer systems in Qwa-Qwa (Matli, 1998); Surveys of goat production and marketing in the North West Province (Fisser, 1998); Cashmere and Boer goat research in the Eastern Cape (Roux, 1998); Angora goat research for the Mohair industry (Snyman, 1998); Goat production emphasis in the Western Cape (King, 1998); Bush encroachment research at Armoedsvlakte (Van Zyl, 1998), and; Management of communal farming systems research in the North West Province (Celliers, 1998).

Slippers (1992) conducted a review of small ruminant nutrition research in South Africa for the period 1980 – 1990 and found that 11.2% of articles published in the South African Journal of Animal Science were focussed on goats, whereas goats make up 18% of the small ruminant numbers in South Africa. Congress presentations reflected the same relative neglect of goat research.

Most of the above-mentioned research involved little involvement of non-commercialised farmers, albeit in the context of surveys, although some work (especially work on Boer goats and Angoras) was done at the request of and with the involvement of commercial producers. Little, if any, work was done on marketing, product development, or institutional arrangements that could serve the goat industry (such as that which was done for other commodities by the Meat Board). In the discussion that followed the workshop (Roets, 1998), there was much debate regarding the identity of the intended beneficiaries of research, and although marketing and product development was mentioned as important research topics, a plan of action of how such work could be done, and who could take leadership in such work was left unanswered. Furthermore, reporting of this research is limited to scientific

journals and conference proceedings, with some work being published in station reports or the popular press such as the "Farmer's Weekly" or "Landbou Weekblad". Farmer's Days at Experimental Stations are also used as a means to transfer research results to farmers. However, it can be debated whether non-commercialised farmers have access to these information types or whether they can translate these results into practical and useful knowledge that can be applied to their production systems with real economic returns.

Thus producers have essentially been left to their own devices regarding commercialisation of their goat resources. The high cost of marketing any product, be it through magazines, to supermarkets and perhaps even on television or radio, has forced goat producers to rely on word-of-mouth marketing mechanisms, and this has led to the development of informal institutional arrangements in the goat industry in lieu of any government or state sponsored support.

Exploitive historical marketing channels

The lack of any co-ordinated support to the Goat industry led to the development of the speculator industry. Because no formal marketing channels were created, no price indices were available, no control boards were set up, and no retail stores were demanding stock for their White consumers (although the Indian and Black communities still required goats for their traditional or cultural uses), the speculator industry developed to fill this need. Thus individual speculators drive around rural areas buying goats from non-commercialised goat farmers who are in the market for cash-flow purposes (personal observation; 1996 – 2004). If larger quantities of stock are required, speculators also negotiate with livestock and meat co-operatives or agents who have connections with commercial goat farmers, or auctions are arranged at which speculators buy the stock required. The main market for the goats collected in this way is in KwaZulu-Natal, where more than 5 large auction operations sell goats to Black traders throughout the year (Letty, 1997).

Why then did the non-commercialised farmers not fill this niche themselves? The answer can be found in the limitations imposed by high transaction costs. Non-commercialised farmers often have no access to any means of transport (vehicles or roads) or communications (telephones etc.) (As mentioned in Chapter 1 of this thesis).

Thus, it becomes necessary that their animals are purchased from them on their land or as close as possible to their land, making them dependant on the "drive-by" speculator industry. Speculators do not, as a rule, develop formal agreements with non-commercialised farmers. As such, the price that will be offered for the animals is unknown, and the date of the next sale is not determined beforehand. Often, resource-poor farmers in need of cash flow will hold goats in holding pens at the side of busy roads or intersections, in the hope that a speculator will pass (Non-commercialised farmers – personal communication, 1996 - 2004). This often results in animals dying or being in poor condition when the transaction eventually takes place. Furthermore, the speculator will then argue that he has grounds for paying a lower price for poor quality goods, and the transaction ultimately holds little value for the farmer. This will either result in the resource-poor farmer being less likely to attempt this method of transaction in the future, and he will not market his animals in this way until he is forced to do it again because of dire cash-flow problems (Non-commercialised farmers – personal communication, 1996 - 2004). Cases have also been reported where resource-poor farmers needing a larger transaction would send many animals to a local market place, only to be told that the speculator had only brought money for a certain number of animals. Because it was more inconvenient for the resource-poor farmer to transport the animals back to his land, he would consent to the sale of all the animals at a greatly reduced price (Ben Benjamin, Namibian Department of Agriculture – personal communication, 2000; non-commercialised farmers – personal communication, 1996 - 2004).

Thus, the speculator industry, although currently fulfilling a vital function and service to non-commercialised farmers, has created an institutional arrangement which is maintained through lack of knowledge or access to the means of operation on the part of the non-commercialised farmer. A new institutional arrangement that brings the market to the non-commercialised farmer, that provides this market in a reliable, consistent manner and that offers the non-commercialised farmer a fair price, is needed. Also, further benefits could be found in an institutional arrangement where the non-commercialised farmer may reap further rewards from value-adding operations. The market for live animals will essentially remain, but further markets, especially for value-added products and penetration into the retail and export markets

need to be investigated. This will allow non-commercialised farmers to become truly linked to the market economy, and will encourage improved production practices, responsible resource utilisation and ultimately, quality produce in the shopping carts of consumers.

3.4 Prevailing negative consumer perceptions

As mentioned above, it seems likely that a generation gap in the everyday utilisation of goat products has led to lack of knowledge and negative perceptions regarding goat products. In rural areas, older people often mention that they recall using goat milk as children (Tribal elders – personal communication, 1999). Others remember that as children on farms or small towns in the Eastern Cape (Green, 1998) everyone in the neighbourhood had a small herd of goats, and that milk and meat was often consumed.

Nowadays, when goat meat is mentioned, mixed reactions result. Some acquaintances mention that when they tried it, they couldn't tell the difference between mutton and goat meat, while others state that it tastes terrible. A meat scientist colleague mentioned that she recalls a gala dinner where "leg of lamb" was served, which anatomically, looked remarkably like goat (Hettie Schönfeldt – personal communication, 2000)! My grandfather, Nicholas Smuts, was the chief abattoir inspector in the Cape Peninsula for most of his life. He also told me stories of misleading friends with goat meat at dinner parties. I have had many, similar, stories recounted. Some meat processors substitute mutton with goat meat when the price of mutton is high (Personal communication with butchers in KwaZulu-Natal, 1999). Thus, it seems clear that many consumers, while having a "mental block" regarding goat meat, have probably consumed it, without knowing, on several occasions. Such is the power of perception.

A consumer survey commissioned in 1997 (Smuts, 1998a) showed that negative and positive perceptions regarding goat meat exist (More detail of this survey is presented later in this text). These include that goat meat is smelly, stringy and tough, while, on the positive side, that correct farming methods are applied, and that the meat is nutritious. Mothers of young babies are generally quite knowledgeable regarding the

benefits of goat's milk for babies with allergic reactions to cow's milk. A database of producers and suppliers of goat's milk is updated annually by the Animal Nutrition and Products Institute at Irene that is often requested by baby companies, mothers and paediatricians alike.

In the consumer survey mentioned above (Smuts, 1998a), consumers responded quite positively to taste samples of both goat meat and milk. In all instances both consumer and retail respondents indicated an increased willingness to buy the products if they saw them on a retail shelf, after tasting them.

3.5 Discussion and Conclusions

This chapter has discussed the historical and traditional context of goats which may be one of the main reasons for the non-commercialisation of indigenous goat products in South Africa (and quite possibly Africa as a whole) as suggested by Hypothesis 2. The importance of the traditional use of goats far outweighs its economic worth in the tribal customs of many indigenous people. As has been the case with cattle throughout Africa, where the number of animals owned is more important than the quality or production of the animal, similarly, the size, weight, milk or meat production or product quality of a goat has not been as important as the goat itself, its colour, its sex or the use to which it will be put traditionally.

A good way to describe this trend is that some people keep several types of domestic animals for companionship, such as dogs and cats. A few people have commercialised the companion animal industry, such as the pet food industry, pedigree animal breeders, and veterinary practices and so on, but few people would think of breeding their pets for commercial gain. If however, these pet owners were faced with poverty, food insecurity and no other means of income generation, one could assume that some would turn to selling their animals and others may even turn to eating their pets, if necessary. As absurd as this may seem, a similar reaction of amusement was received from some non-commercialised farmers when they were told how sought-after goat meat or milk is in some overseas countries! The thought of eating or utilising goat products has not been part of their social paradigm. This is

similar to the reaction one would receive if you were to suggest eating cattle in India where the animal is sacred.

Thus, poverty, unemployment, food insecurity, and the gradual urbanisation and Westernisation of rural and indigenous peoples, coupled with the increased access to information regarding the various uses of goats, has created a shift in the perceived importance of goats towards one as an object of potential economic benefit. Non-commercialised farmers, once provided with the necessary information, are most keen to improve the production of their goats. However, it is interesting to note that although they will tend to increase the production potential of their animals (given the correct training and information), they also wish to maintain a certain part or number of their flock for traditional use (either for their own ceremonies or for sale to other community members who use the animals traditionally) (Non-commercialised farmers – personal communication, 1996 - 2004). This practise should be encouraged, since the process of commercialisation is not intended to strip rural inhabitants of their traditions and customs, but essentially to assist them to gain, not only economically, but also to create and maintain their traditional lifestyles in a sustainable environment, in which they can function and live comfortably in their rural surroundings. This would decrease their need to move to urban centres to ensure their livelihoods, and which would, in any event, strip them of their traditional ways of life.

Thus, information regarding the potential commercial uses of goats should be distributed effectively and widely to non-commercialised goat farmers in rural areas. It is not their lack of interest that has resulted in non-commercialisation of their goats, but a lack of knowledge regarding their economic uses. Knowledge which has not been part of their social paradigm, knowledge which was not encouraged by the institutional arrangements of the day and which has thus limited the economic utilisation of their animals.

Furthermore, where vertical co-ordination is to be encouraged, a system should be created for non-commercialised farmers to use some animals themselves, as well as to market animals to other community members for traditional use. It is felt that a draconian style of co-ordination will inhibit a sense of ownership, responsibility and

empowerment that would be necessary for the success of a vertically co-ordinated venture in this industry.

As far as the current informal goat marketing institutions are concerned, its informal nature is a clear example of how differential access to information has created a viable goat industry for some sectors of the population whereas others, without the information or resources to access the industry, have not developed, even though they own the greatest part of the goat resource base. Formal institutional arrangements need to be created, or existing institutional arrangements need to be adapted to better serve the non-commercialised farmer as part of the national goat industry. Such institutional arrangements need to manage and facilitate aspects such as branding, marketing and quality control, and need to take the information, communication, transport, and social constraints of the non-commercialised farmer into consideration in its design.

Further problems within the current industry include the rigid institutional distinctions between research and extension organisations. This was also found to be a major inhibitory factor in the servicing of the needs of farmers in real-world situations in other countries (Hall, Clark, Taylor and Sulaiman, 2001) and this institutional distinction has been debated in South Africa for many years. Generating and transferring technologies require strong national agricultural research systems. Eponou (1989) suggested that there also has to be good linkages between research and the users of the technologies. Any development programme should aim to strengthen service provision to the non-commercialised sector by various means. These include technical personnel better trained to deal with development and non-commercialised farmer issues, and services that will serve these sectors in a relevant manner. Approaches should be holistic and ensure that development initiatives will focus on the real problems of the users and not only on transfer of technology.

From the overview of research conducted at research and extension institutions it seems that most are involved in research on-station and that little work is done with, for, or by, non-commercialised or commercial goat farmers. Institutional innovations at these research and extension institutions may be required to assist with the development of this industry. Research emphasis needs to be shifted to areas where

the greatest return for farmers can be achieved. This includes product related research, product development, and market analysis. Research in nutrition, genetics and physiology will be requested as the industry matures, thus creating a demand-led research system.

And finally, although negative consumer perceptions regarding goat products exist, it seems that these may be decreased with a well-planned marketing and advertising campaign, and the presentation of high quality, well presented, convenient and varied goat product ranges, accessible to urban and foreign consumers. It seems clear that negative perceptions, coupled with a lack of knowledge regarding goat products and their benefits, and especially the lack of access to these products by the urban consumers has exacerbated the non-commercialisation of goat products in South Africa. This problem could be remedied with the supply of high value products to the retail industry coupled with an active marketing and advertising campaign expounding the benefits of goat products. These matters will be further addressed in Part 2 of this thesis.

PART 2

PRODUCT INNOVATION

Bringing an indigenous resource to the commercial marketplace requires special emphasis at the level of product design, market analysis and marketing. Several examples of indigenous resource value-adding and presentation to the economic mainstream can be seen today. The Body Shop is a good example of product innovation where products are manufactured by small entrepreneurs in developing countries, utilizing indigenous materials and methods which are environmentally friendly, and who produce these on contract to "The Body Shop". However, the products are brought to urban consumers internationally by incorporating several simple but effective marketing techniques. These include: employees that do community service, eco-friendly packaging, joining causes such as "Save the Whales" with Green Peace in 1989, forming the "Children on the Edge" programme in Romania in 1990, and starting "The Big Issue" in London – a newspaper for the homeless. The Body Shop caters to the knowledge that consumers are interested in socially acceptable products. The Body Shop uses "fair trade" agreements in the purchasing of the products from developing entrepreneurs (thus assuring the consumer that a fair price was paid to the producer), the products are natural (and often hand-made), and take the environment and sustainable use of natural resources into account. They have married these "moral codes" with a strong brand name, emphasis on the individual consumer, a strong presence in several countries, and effective market access and distribution channels (Davie, 2001; De Waal - undated).

In South Africa, similar examples include the successful linkage between European jewellery designers and Zulu women in bead crafting groups (the linkage was effected by Khumbula Zulu Craft now also a shareholder in the Tigers Eye group) bringing high quality, high value items to the European designer jewellery industry (Mary Rose, Khumbula Craft, personal communication, 2000; Bennett, 2002). The growth of the Amarula cream-based alcoholic beverage (made using marula extract and fermented marula liqueur of the wild marula fruit) to becoming the largest selling cream-based liqueur internationally has been affected by marketing the allure of Africa to foreign drinkers in the upper income brackets (www.amarula.co.za/faqs.asp).

In each of these cases the needs (and in some cases desires) of the market-place was first understood and products were then designed to cater to those requirements.

Thus, innovative product development targeted to a specific market niche is key to stimulating the use of indigenous resources.

The first section of this thesis demonstrated that the goat resource in South Africa is large enough to commercialise (Hypothesis 1) and that several historical perceptions and institutional arrangements which have hampered the commercialisation of this industry are less relevant today (Hypothesis 2). But, do markets for these products exist? Hypothesis 4 asserts that new South African and global markets exist for new goat products. In the first chapter it became clear that a more market-oriented approach to rural development is needed (ECAPAPA, 2003). Thus, it needs to be determined what these markets are, where they are and what their needs are.

Sub problem 3 questions whether products of indigenous goats can be utilised commercially. Are there products of value from indigenous South African goats? Hypothesis 3 claims that goats produce commodities that have economic value, but are little known or investigated. Thus, can products of interest to the market be developed from indigenous goats? If product development were to occur, raw product characteristics need to be understood so that value-added products can be developed that cater to the latest trends of products from region of origin, or organic products or other niche markets (Kirsten and Sartorius, 2002). In the case of goat products the further processing of an existing commodity could be demonstrated, as suggested by ECAPAPA (2003) and commercialising an indigenous resource.

This section thus illustrates how knowledge of the market place as well as an understanding of the products from indigenous goats (as well as their limitations) was used to develop new products with real market potential. This section starts (Chapter 4) with the results of a national market survey that was conducted and follows with separate chapters on each of the four goat products: meat (Chapter 5), cashmere (Chapter 6), leather (Chapter 7) and milk (Chapter 8).

Although many of the steps of product development and market testing were done in parallel, these two processes informed each other continuously so that the innovative products that were developed emphasised the most beneficial characteristics of the raw product and de-emphasised the poorer characteristics of the raw product for a

particular perceived market. Each product was taken through basic research which determined its characteristics, followed by product development and finally, market surveys were conducted to determine the propensity to purchase these products by various markets. Where the markets indicated that products needed to be adapted, these suggestions were included in the final product design.

CHAPTER 4: GOAT PRODUCT DEVELOPMENT PLANNING

"Hy loop, hy loop, hy loop totdat hy by kinders kom wat bokke oppas. Hy sien hulle drink aan die bokke se uiers, toe sê hy: "Hoekom is julle so dom? Julle kan mos my kleipot leen dan kan julle daarin melk."

"He walked, and he walked and he walked, until he came to some children that were looking after goats. He saw that the children were drinking milk directly from the goat's udder, so he said to them: "Why are you so stupid? You can borrow my calabash and milk into it."

Minnie Postma, Legendes uit Basoetoland.

4.1 Introduction

As can be seen in the previous chapters, the trade in goats in South Africa is limited, and yet South Africa has a wealth of indigenous goats (Chapter 2). Also, there are certain cultural and historical reasons why goats have not been commercialised which are of lesser relevance today (Chapter 3: Hypothesis 2). Furthermore, research efforts in South Africa have mostly concentrated on the study of goats as an animal model (Chapter 3). That is, the nutrition, physiology, genetics and so on of goats have been studied. Some researchers have also investigated indigenous chevon and milk quality, but little has been done in the way of adding value to these products. But, what should or could these products look like? Can anything of any worth be manufactured from indigenous goats? And, most importantly, would anyone want to buy them? The answer to these questions will assist in determining the result of Hypothesis 4. Hypothesis 4 asserts that new South African and global markets exist for new goat products. In the first chapter it became clear that a more market-oriented approach to rural development is needed (ECAPAPA, 2003). Thus, there is a need to determine what these markets are, where they are and what their needs are.

To create a viable industry there should be various products, product ranges, and target markets. Yet, very little product development has occurred in the indigenous goat sector. Furthermore, it has been assumed that there are no markets at which

these products could be targeted. But, other countries have viable industries. This, and the next four chapters serves to investigate the market possibilities and consumer requirements. Finally, various products are developed to supply consumers in these requirements.

Of the six categories of new products that are mentioned by Kotler (2000) quoting Booz, Allen and Hamilton (1982) goat products can be categorised as being "New product lines" (i.e. new products that allow a company to enter an established market for the first time), "Improvements and revisions of existing products" (i.e. new products that provide improved performance or greater perceived value and replace existing products) or "Repositioned products" (i.e. existing products that are targeted to new markets or market segments). This may seem like an anomalous classification. However, this is the case depending from which perspective you view the products. Goat meat (chevon) is a known commodity to certain segments of the population in South Africa, notably Black and Indian urban and rural consumers, for religious purposes. Thus, presenting high value processed chevon products to this same market segment, could be seen as "a revision of an existing product" since instead of presenting the animal live (as is currently the form in which it is sold primarily), it would now be processed, it may attempt to replace other high value meat products, and it may suggest improved health due to its low levels of cholesterol and fat. If a new market segment, such as the White urban consumer of South Africa were targeted, this could be viewed as "repositioning". Similarly, if an existing meat packer, currently dealing in mutton packaging and distribution were to move into goat meat (chevon) for the Middle Eastern market and compete directly with other foreign companies for that market, this could be classified as the meat packer going into a "new product line".

It is true that products have been developed from goats across the globe for many centuries. The challenge here is to overcome the inhibitive institutional, historical, cultural and consumer perceptions in creating products and markets from indigenous goats from South Africa. Product development will only be successful if markets for the products exist. Markets will only exist if the products meet the consumers' needs. This implies that consumers' needs are known. Moreover, if South African consumers' needs cannot be met, or their negative perceptions prove too difficult to overcome,

new markets need to be identified elsewhere that can be penetrated, depending on the types of products that can be developed from South Africa's indigenous goats.

According to Kotler (2000) product development occurs via the following process:

- Idea generation
- Idea screening
- Concept development and testing
- Marketing strategy development
- Business analysis
- Product development
- Market testing
- Commercialisation

Essentially, these steps were followed for the development of goat products in this study (although not necessarily in that order). The first three steps of this process will be dealt with in this chapter, whereas steps 4 through 8 will be dealt with in each product chapter following this one.

4.2 The process and philosophy of product development for job-creation

At this point it becomes important to differentiate between product development goals between private companies and public enterprises. Firstly, the idea to develop new products or improved products from indigenous chevon, milk, skin, fibre and possibly genetic and live resources, may hold no benefit to a research organisation aside from being able to reach its goals of knowledge generation and development of technology for the benefit of the rural poor. A private company would seek to maximise its market share, generate more profit, or expand its operations. A research organisation is mandated to assist in the development of indigenous resources for the benefit of the

rural poor. These objectives, strategies and the resources in question differ substantially from those that would be targeted or utilised by commercial companies venturing into product development. The goals of private companies when undertaking product development are essentially capitalistic and profit-seeking.

Thus, in this study, the potential of goat products was screened for their purpose to increase the income generation potential of non-commercialised goat farmers who were currently not enjoying any value-added benefits that could exist for goats. It was also known that the goat resource is in abundance and under-utilised. Furthermore, special emphasis is placed on poverty alleviation and job creation in South Africa. These are the more "altruistic" goals of public sector product development.

Typically, product development services for the "public good" centre around products that would benefit society as a whole, for example, new vaccines, better communications systems, disease-resistant food plants and so on (Of course, some private companies also do this type of research for their own gain - Patenting and commercialisation of research findings by public entity organisations has been hotly debated in scientific policy literature in recent years; www.sarima.co.za/docs/dstpaterson_policy%/20issues_june2003.ppt). Thus here, the reasoning is that a public organisation, in this case a research institution, should be able to use tax-payers' money for the benefit of certain sectors of the population that would not be able to pay for their specific product development needs.

Examples of projects where government departments have assisted with product development exist. In Ecuador, assisted by an export boom and tourist influx, a group of institutions, the national government, the United Nations, and the International Labour Organisation, implemented training courses for indigenous weavers and implemented policies of import substitution commercialisation, in an attempt to promote indigenous crafts for tourists and external markets as far back as the mid-1950's (Korovkin, 1998). The weavers were taught to improve the quality of their products, to diversify their product ranges and to apply their traditional designs to modern products such as rucksacks, handbags and bangles. What is important to remember here is that the product development exercise is not initiated by the entrepreneur him or herself (As is the case with a private company). The reason for

this is that the entrepreneur quite possibly does not have access to the information that would show him or her that a certain market potential exists. Thus, the mandate for product development services for the rural poor must lie with public sector institutions and such institutions must be created by legislation or government policies.

The next step in product development is that of concept development for each raw product. Questions such as; Who would potentially use each product? What requirements do consumers have for a product? And, what are the current perceptions regarding the product? are asked. In this study product concepts were tested in the marketplace through a pilot national consumer, retailer and exporter study.

4.3 Market Pilot Survey

A structured pilot market survey in 5 urban centres of South Africa served as the first step to determine the existence of a retail demand for processed goat products (since it is already known that goats have a market for cultural use in rural areas or live to the Indian and Black market in KwaZulu-Natal). The main objective of the pilot market survey was to determine the trends, requirements, perceptions and behaviour of those consumers who may potentially buy goat products if they were available through the retail sector into urban areas. This information could then be used to design appropriate products that meet the requirements of the urban consumer. It was not the purpose of this survey to test the penetration of goat products into the market since limited goat products are available in the South African retail industry. Data were gathered through face-to-face interviews with respondents who make themselves available for surveys for a small fee. Thus, the number of respondents was limited by the resources available for the survey..

The following objectives were identified:

- The awareness of the market for goat products, on both spontaneous and prompted levels
- The current and future purchasing behaviour of the market

- Price expectations of the market in terms of the different commodities
- The needs of the market in terms of the different products
- The needs of the market in terms of goat and related products
- The perceptions of the market in terms of goat products, as opposed to other existing commercialised products

Research details and methodology

The structured survey tested responses of consumers and retailers – current and possible future sellers – of various goat products (meat, milk, leather and hair), using face-to-face interview techniques. This technique yields the best responses regarding purchases made and allows tie-in with goat products. The survey hypothesis was that, while the biggest demand for goat products lies in its cultural significance amongst various groups, goat commodities could also be positioned as high quality products on par with other products in the retail sector (where they have limited penetration currently).

Therefore, a range of middle- to upper-market consumer respondents were selected, with focus on the purchaser of such commodities, this being the woman in the household. It was agreed that while men are generally the primary breadwinners in a household, women are invariably responsible for the final purchases, as they have the best knowledge of their family's wants and needs.

The respondents were selected from the four main population groups in South Africa, these being Black, White, Asian and Coloured. Regarding their income, the LSM (Living Standards Measurement) segmentation model was used (www.saarf.co.za), and respondents interviewed fitted into LSM 6, 7 and 8 (categorised from 2001 as 6, 7, 8, 9, and 10). LSM is a wealth measure based on standard of living rather than income indices alone (www.fastmoving.co.za/detail.jsp?providerNo=1959). LSM 6, 7, and 8 are considered as the "emerging market", the "established affluents" and the "progressive affluents", respectively. Further, as the main demand is for cultural purposes (which shows limited regional difference), the urban respondents were proportionally interviewed in the catchment areas of the major metropolitan areas of

South Africa: Gauteng (Johannesburg and Pretoria), Cape Town, Durban, Port Elizabeth and Bloemfontein. The respondents were interviewed at their convenience, which is classified as in-home interviews. The reason for selecting this methodology was that the survey requested answers regarding the household purchases of the respondents, and therefore they would feel more at ease at home. Also, a taste test was done, and this required a quiet, relaxed environment.

The fact that retailers would ultimately be the link between the consumers and the manufacturers of the goat products meant that a survey of retailers was necessary. Their inputs into the market study yielded information from a completely different angle than from the consumers i.e. retail stocking decisions. The following retail respondents were interviewed:

- Larger retailers such as Pick 'n Pay, Spar, Woolworths, OK, Checkers, Hyperama
- Smaller retailers, including local cafes and supermarkets
- Curio shop owners and flea market operators
- Fresh produce shops, dairy shops and home industries
- Export companies

The targeted respondents at the above merchants were: merchandise buyers, store owners, managers, marketing managers, and directors. Respondents were interviewed at their places of work, because this provided the most convenient location for them to talk about their products and services.

Once the questionnaires were completed (these are attached as Appendix 2), the forms were edited, back-checked for validity, and all the open-ended questions were coded. Thereafter, data were captured and analysed according to the various important demographic splits. The results were charted to yield the best understandable picture of the information gathered.

In the sections below, the major findings according to the objectives are summarised, and the major strategic recommendations are presented. The market study findings provided details on the demand side of the market and provided direction for planning product development.

Sample demographics

Consumer respondents

The total number of respondents interviewed was 450 of which 350 were consumer respondents and 100 business (retail) respondents. The gender, population group and regional splits were pre-determined for the survey. Thus, 64% of the sample was female respondents, and 36% were male. The bulk of the respondents interviewed were from Gauteng (30.6%) and Cape Town (31.7%), with the rest coming from Durban (21.1%), Bloemfontein (4.9%) and Port Elizabeth (11.7%). Black respondents made up 30.3%, Asians (28.3%), Whites (27.1%) and Coloureds (14.3%).

The ages of the respondents varied from 11.7% being between 16 and 25 years old, to 12% being older than 50 years. The bulk of the respondents were of the ages 26 to 45, which is generally accepted as the population that determines household food trends and which makes the household food purchases (i.e. not children). This segment of the population is considered to be responsible for the economic growth of the country, and therefore the target market for household expenditure items.

The respondents were a well-educated group. Less than 7.5% of the respondents had not completed their primary education, and none were classified as being totally uneducated. Most respondents were English speaking (49.1%), followed by vernacular languages (32.6%) which included Zulu, Xhosa, N. Sotho, S. Sotho, Tswana, Pedi and Venda. The remaining respondents (18.3%) were Afrikaans speaking.

Regarding occupations, most people were unemployed (housewives – 28.3%). This was expected as the consumer survey targeted respondents who are responsible for household purchases. Other occupations included bank managers and supervisors (19.4%), clerical, reception and secretarial positions (15.1%), plumbers, artisans,

mechanics and hairdressers (10.3%), people from the educational sector (teachers, lecturers, principles – 8.6%), labourers, messengers and domestic workers (7.4%), nurses, childcare, community workers (6.3%), tourism related workers (2.6%), and medical and other professionals (2.0%).

Seventy (70%) percent of the consumer sample were Christians and 18% were Hindu. Only 3.4% were from the Islam religion, and the rest of the sample varied from Jewish (0.9%) through to no religion (1.4%), and others (6.3%). Regarding the income breakdown, which was almost pre-determined by the LSM 6, 7 and 8 quota, an expected result was achieved. Five point eight (5.8%) percent of respondents refused to declare their salaries. This is considered to be quite low. People are seldom prepared to divulge information of the type requested, in particular, respondents were asked for their monthly, household (all income earners in the house combined) income. Households earning less than R 3 000 made up 20.3% of the sample, between R 3 000 to R 6 000 (40.8%), between R 6 000 to R 9 000 (21.0%) and R 9 000 and more (12.1%). Thus, the bulk of the respondents were from households earning up to R 6 000, and only one in every five households earning less than R 3 000. The top income group (A-income) in South Africa starts at R 10 000, and is only represented by about 5% of the population.

Regarding the tourist sample segment of the survey, the only demographic question relating to them, was their place of origin. Most tourist respondents originated from other countries in Africa, followed by Europe, the Far East, Australia, and North America. These results are interesting because they indicate possible business opportunities. First, 32% of the tourists were Black – mostly coming from the other African countries – which may reveal a potential for future export of goat products to African countries especially if it is determined that demand for goat products is culturally driven by Africans. The same export opportunities could apply to other selected countries, such as India or other eastern countries.

Although the demographics of the sample are split in the above-mentioned way (which, to an extent, mirrors the demographics of the populations in the cities sampled), the results are not split according to these demographics, but overall results and responses to the questions are recorded. This was done to obtain a response

that would be comparable to the response obtained if products were presented in the normal retail environment. Although some stores are frequented by certain customers, it is assumed that all population groups, genders, religions and so on, have free access to all retail outlets in the cities sampled.

Business demographics

The business respondents were mostly found in the economic hubs of the country, namely Johannesburg (49.5%), Durban (19.8%) and Cape Town (30.7%). These areas were targeted in order to gather the relevant information from institutions that form a part of the country's main business activities. Within the companies responding, 80% were retail oriented and 20% were import/export companies. The focus was on small and medium companies, because at present these businesses represent the retail segment better than large multi-nationals do. Almost twenty-two (21.8%) percent had 51 or more employees, 18.8% had 21 to 50 employees, and the majority remainder had 6 to 20 (29.7%), and 1 to 5 employees (29.7%). Eighty percent of the respondents in this sample were managers or owners of the companies – the main decision makers. However, interviewees also included a number of merchandise buyers (11.9%) and directors (5%).

Awareness of goat and related commodities

Awareness was determined on both a spontaneous and a prompted level, where spontaneous indicates the "top-of-mind" awareness of a product following a question: such as "Please tell me all the different types of meat that you know of or have ever heard of". Prompted awareness indicates the awareness of a product, when prompted to answer Yes or No to remembering it – an indication that the respondent is aware of the product, but it is not the first thing that comes to mind when speaking about the product.

A high spontaneous awareness indicates a well-established brand or product, while a high prompted awareness, with a low spontaneous awareness, normally indicates the need for advertising or communication to the consumer. Awareness exercises were done for meat types and dairy products – the main product areas planned for goat commodities.

Awareness of different meat types

As was expected, the well-known meat types were very well known, the following percentage of the respondents mentioning these types spontaneously, and then when prompted: beef (37.4% spontaneous and a further 59.1% when prompted), mutton (33.7% spontaneous and a further 60.9% when prompted), and poultry (23.7% spontaneous and a further 71.1% when prompted). Followed by pork (6% spontaneous and a further 68.6% when prompted %), seafood (2.6% spontaneous and a further 66.6% when prompted), and venison (0.6% spontaneous and a further 29.7% when prompted). Chevon was mentioned spontaneously by 0.3% of the respondents, but when prompted was mentioned by 26.3% (similar to venison). This indicates that a promotional or informational campaign for chevon is required to make this meat type more known to consumers.

It is interesting to note that the responses for this result came mostly from Black, Asian and Coloured respondents. There were very few responses for this result from Whites (data not shown for this split).

Awareness of different dairy products

Dairy awareness was done merely for interest, as it is too complicated to conduct an exercise similar to the meat-type test for all the various dairy products. However, the total response results indicate that the most known dairy product was milk (97.7%), followed by cheese (96.6%), spreads (80%), yoghurt (77.7%), cream (67.1%), desserts (27.4% and others (14.3%). Respondents were less aware of dairy products originating from different animal species.

Awareness of goat products

Amongst the awareness of goat products specifically, the order of spontaneous awareness, followed by prompted awareness was as follows; milk (57.1% spontaneous and a further 28.6 % when prompted), chevon (55.4% spontaneous and a further 28.3 % when prompted), cheese (36.3% spontaneous and a further 26 % when prompted), live goats (16% spontaneous and a further 55.1 % when prompted), leather products (10% spontaneous and a further 55.1 % when prompted), mohair

(6.6% spontaneous and a further 44.5 % when prompted), cashmere (4% spontaneous and a further 35.4 % when prompted), processed chevon (2.3% spontaneous and a further 28 % when prompted), and powdered milk (0.6% spontaneous and a further 31.7 % when prompted). These findings indicate that general products (milk, cheese, chevon) are more known to the consumer (top of mind) than specialised ones (cashmere, processed chevon).

Conclusions

The meat-type results indicate that processed chevon is not top-of-the-mind for consumers that buy meat, although it definitely exists in 26% of the consumers' minds. This is substantiated by the knowledge that goats are largely used for cultural purposes, and people do not think about goats as something to buy in a retail store for general household purposes. The results also indicate the need for an education campaign on chevon, to make people aware of the meat, while explaining the features and benefits of chevon to them.

The dairy results shows that the respondents buy the general items (milk, cheese etc.) more than they buy special (luxury) items like desserts and cream. This indicates that dairy from goat milk should be positioned as being similar to general purchase needs, and not necessarily as a luxury item. The goat product awareness confirms the above conclusions. Goat products should be positioned as a general product, and not necessarily as processed luxury items.

Buying behaviour regarding goat and other commodities

Respondents were asked to describe their behaviour regarding different meat types, dairy products, as well as goat products, choosing the most relevant behaviour from the following list:

- Regularly buy/currently stock this item, and will continue to do so
- Occasionally buy/stock this item and will continue to do so
- Used to buy/stock this product – don't anymore, but may again
- Don't buy/stock this item, but may in future

- Used to buy/stock this item, and won't again
- Don't buy/stock this item, and won't in future
- Don't know of this item

The results of the meat behaviour were expected, with poultry, mutton, fish and beef being the most frequently used (See Figure 4.1). A positive indicator of interest in goat products, however, is that chevon showed a very large (25.4%) proportion of people saying they are prepared to use chevon meat in future, even if they do not use it currently. This positive consumer response could be enhanced and exploited by goat producers/marketers.

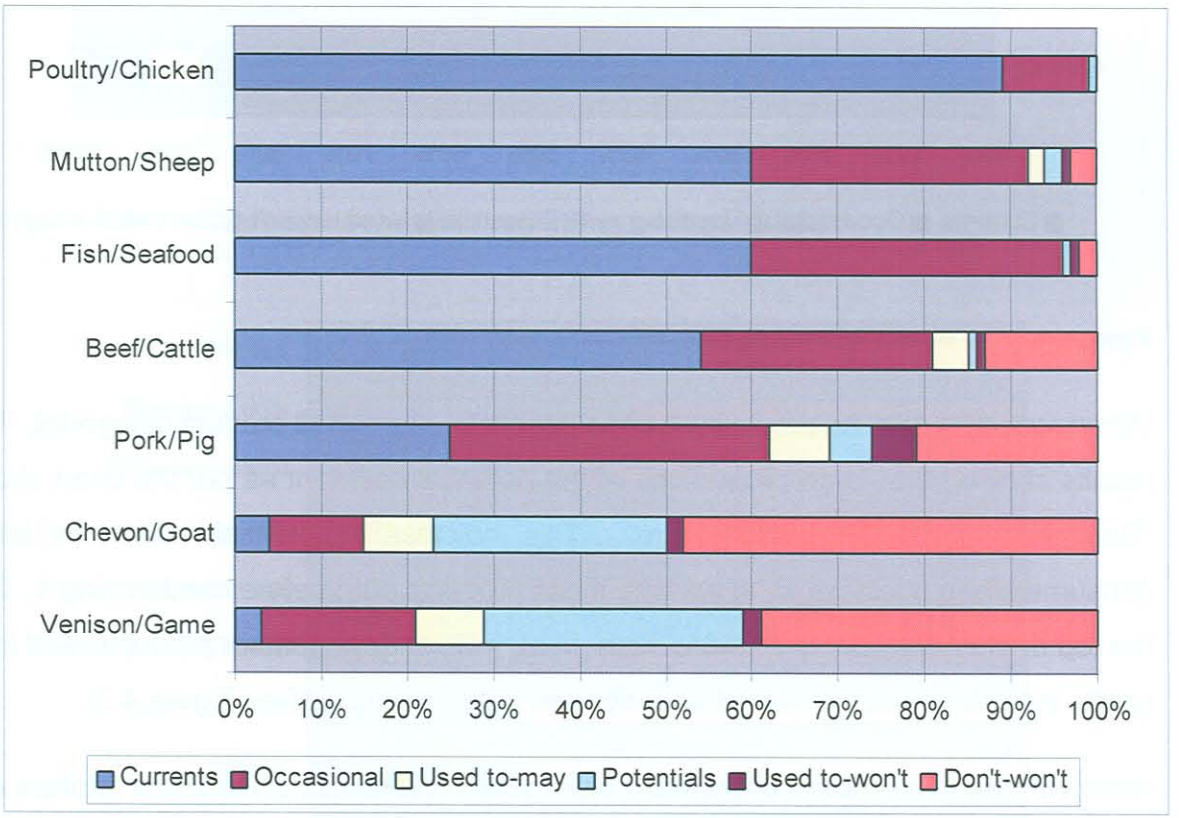

Figure 4.1 Behaviour towards meat products

Regarding the dairy products, the only significant result is that (again) milk, cheese, and spreads are the most commonly used, followed by yoghurt, desserts and creams

(See Figure 4.2). This confirms once again that luxury items are used less than the more general necessities.

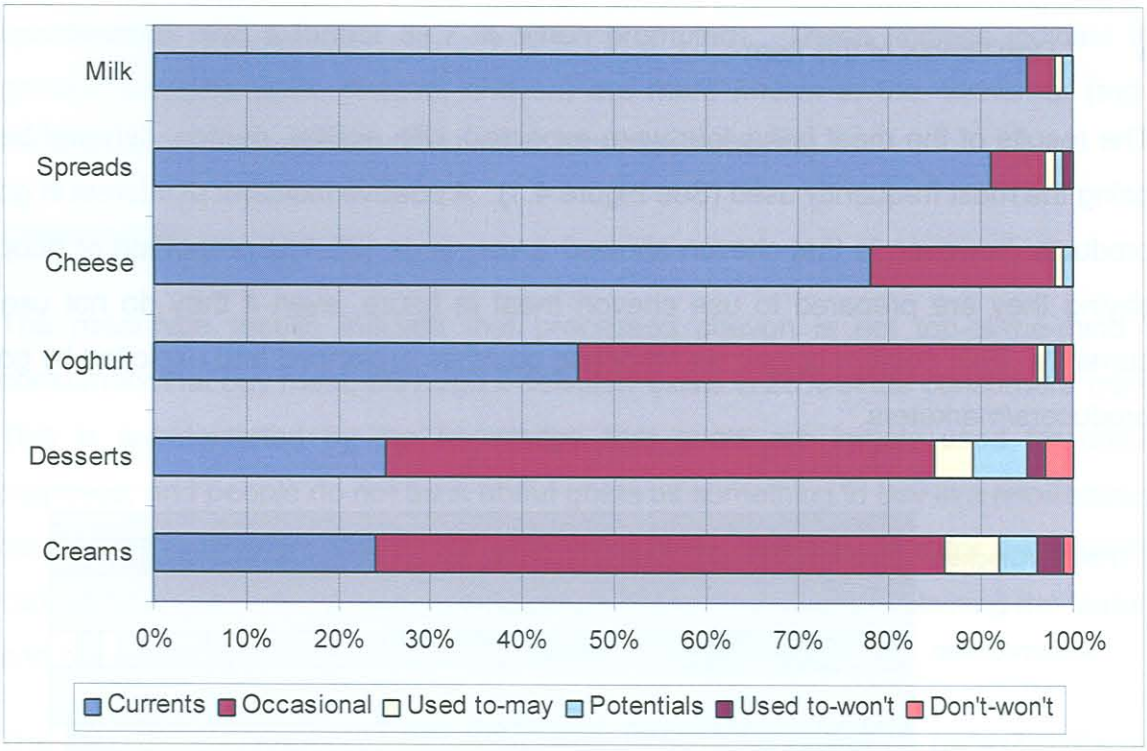

Figure 4.2 Behaviour regarding all dairy products

When reporting on goat products, a trend develops. Across all product categories, the results showed that large proportions of the potential segment as per the chart show "Don't buy/stock, but may in future". This indicates a potential market for both consumers and business to "at least try these products out", before condemning it. On the top of the behaviour chart were fresh meat, milk, cheese, leather products, and live goats, indicating that the market already uses these products (See Figure 4.3).

However, the results for retailers show less meaningful results since some retailers do not stock curios, for example butcher shops, whereas, curio stores would not stock dairy products.

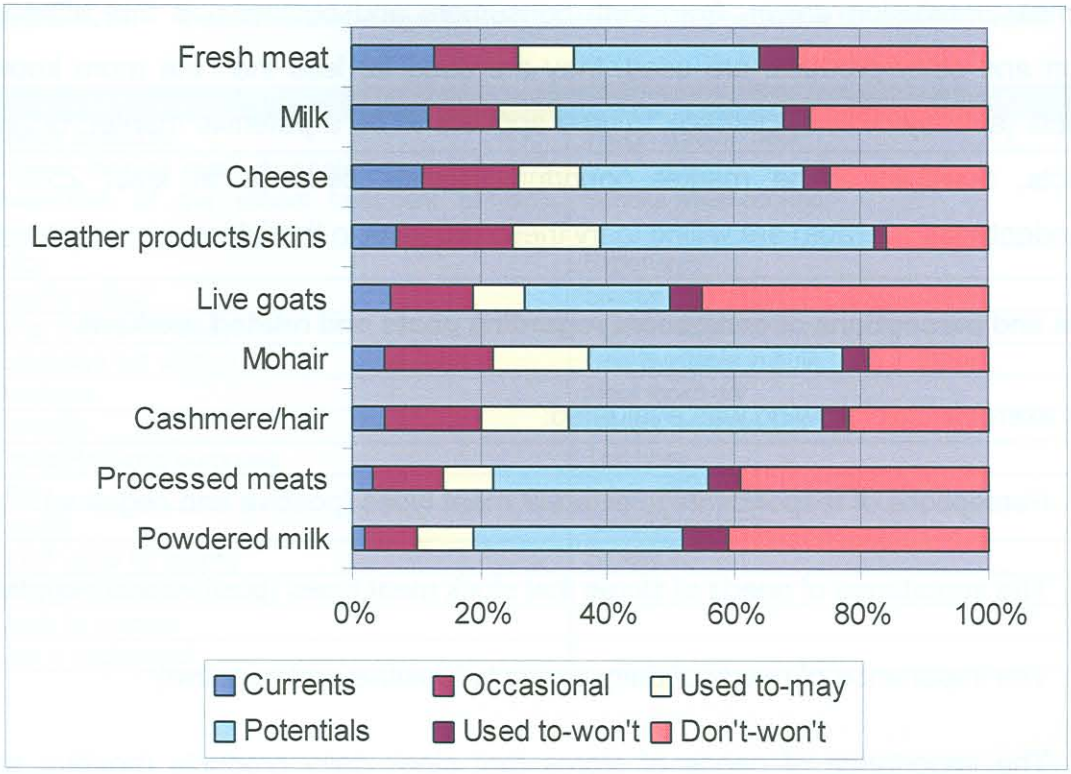

Figure 4.3 Consumer behaviour regarding goat products

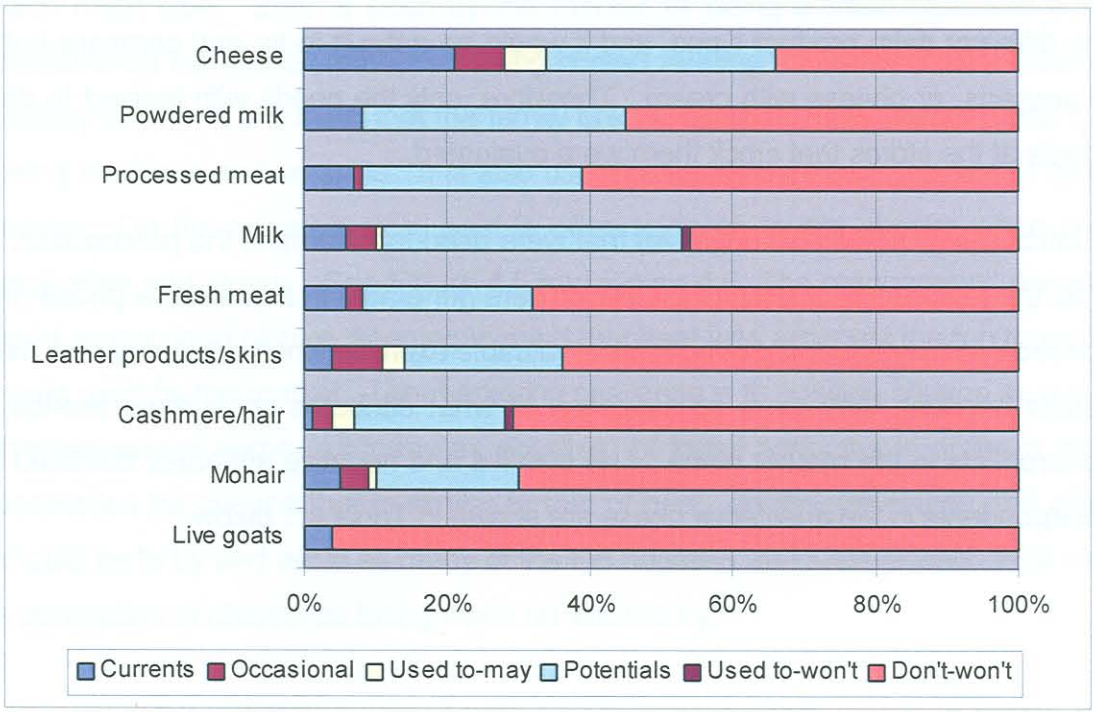

Figure 4.4 Retail behaviour regarding goat products

The main conclusion drawn, from both consumers and business, is that although chevon and other products are used, they are used far less than the more known products (already commercialised). There appears to be a potential market for goat products, however. The market opportunity exists because at least 25% of respondents (on average) are willing to try these products in the future.

Needs and perceptions of consumers regarding goats and related products

In this exercise, the following was evaluated:

- Perceptions of respondents to different meat types (positive and negative)
- The importance of needs of stores that stock meat types (positive and negative)
- The importance of needs of dairy products (positive and negative)
- The importance of needs of stores that stock dairy products (positive and negative)

Perceptions regarding different dairy products were not evaluated, as there are too many different dairy product types, and it would be difficult to try and compare butter with desserts, or cheese with cream. Therefore, only the needs with respect to dairy products at the stores that stock them were evaluated.

The attributes (positive and negative) that were used to determine the perceptions, as well as the relative importance of the need, were generated in a qualitative phase (that preceded this survey), and proved to be a valuable exercise when designing new meat products because they gave an indication of what attributes consumers ascribe to meat products in the market place. The positive and negative attributes identified by the respondents in the qualitative phase are shown in Table 4.1 below.

Table 4.1 Positive and negative attributes of importance to consumers

Positive attributes	Negative attributes
Widely available	Tough type of meat
Correct farming methods applied (a measure of awareness of the ethical treatment of farm animals)	Shrinks when cooked
Juicy	Expensive
Healthy colour	Stringy
What the family enjoys	Against religious or personal beliefs
Expensive but worth it	Only available in bulk
Nutritious	Meat looks dry
Versatile	Upsets my stomach
Trade/Religious purposes	Too bony
Lean	Goes off quickly
Tender	Stale/bland taste
Good value for money	Smelly
Easy to prepare	
Quick to prepare	
Low in cholesterol	

Meat

The perceptions are described by using attributes that received the highest score for each meat type. Beef is seen by the market as being a meat type that is widely available on the market, produced using correct farming methods, a juicy meat with a healthy colour. It is a meat that the family enjoys, and is expensive, but worth it, while being nutritious and versatile. It is also used for traditional purposes, and is lean and tender. On the negative side, beef is often seen as tough, shrinks when cooked, expensive and stringy. See Figure 4.5 and Figure 4.6. The respondents' perceptions paint a very good picture, keeping in mind that beef was amongst the top three meats being used by the market. The marketing challenge is to position chevon as a product that possesses some (as many as possible) of these attributes in order to create a perception for chevon that is similar to that of beef. At the same time, the objective should be to try and avoid as many of the top negative attributes of beef, thus creating a perception of chevon as being worth (at least) a try.

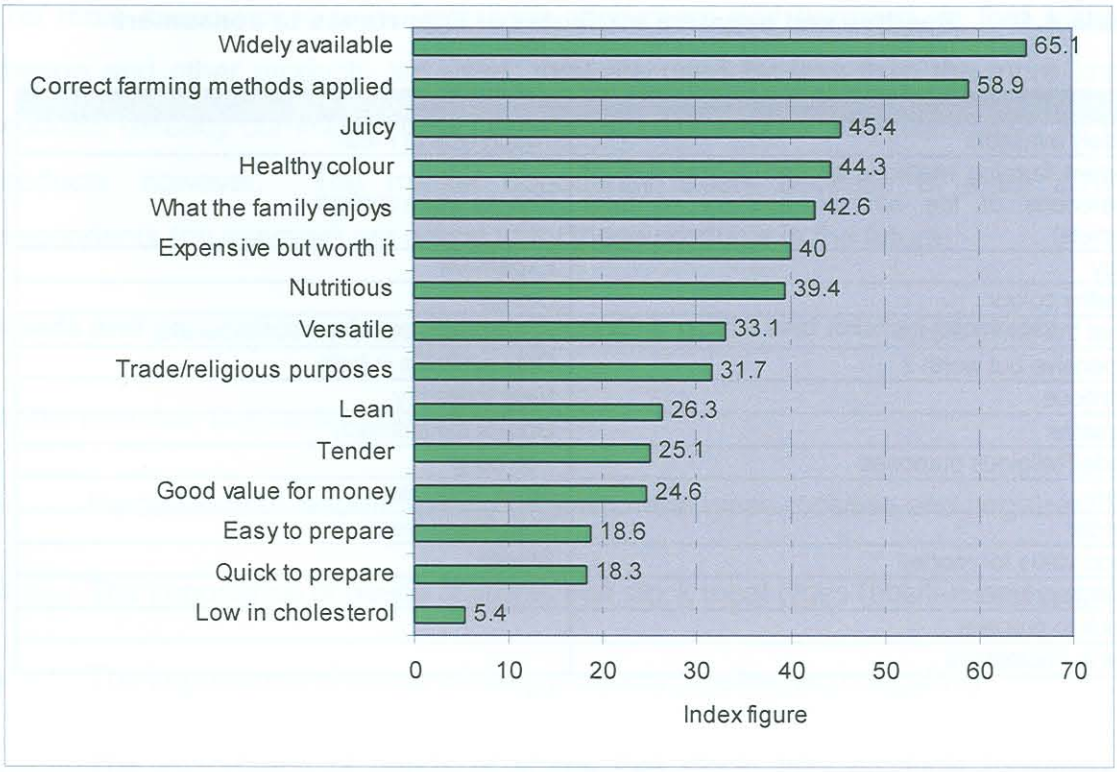

Figure 4.5 Perceptions: Beef attractors

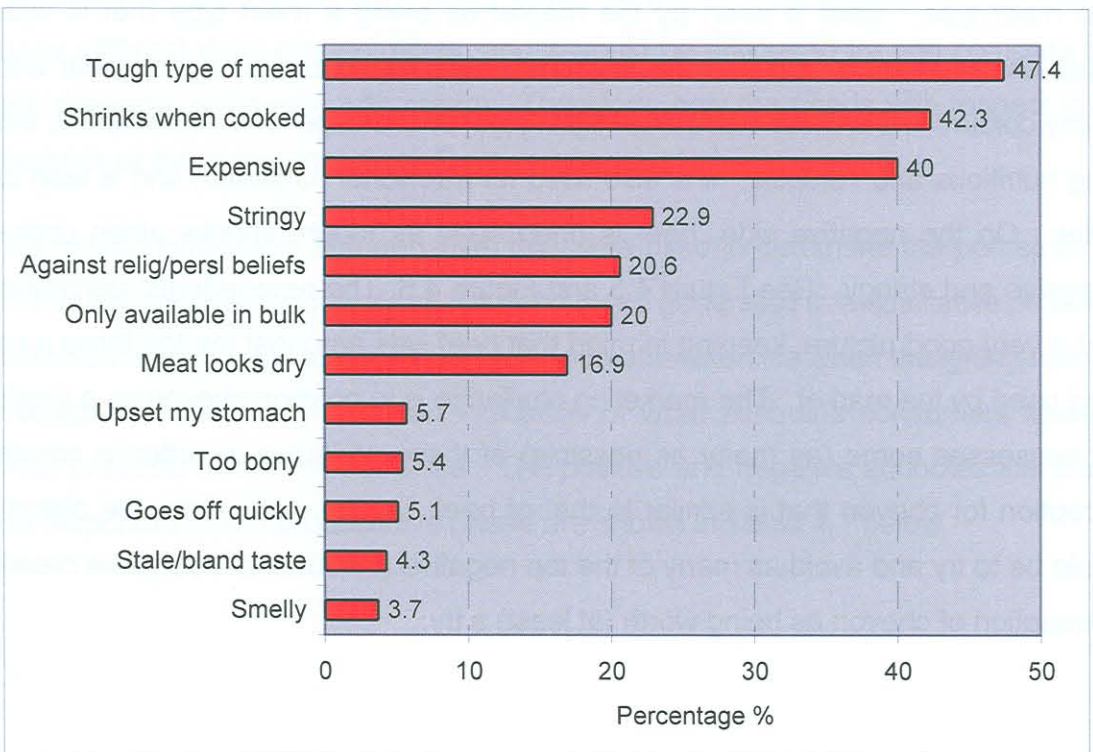

Figure 4.6 Perceptions: Beef repellors

Pork is seen as widely available, with correct farming methods applied, and as nutritious, enjoyed by the family, with a healthy colour. It is juicy, and is good value for money, while being versatile and tender. Negatively, pork is seen as against peoples' religious beliefs, upsetting their stomachs and as meat that perishes quickly. Pork is not used for traditional purposes, but is perceived similarly by the market as beef, with few negative strings attached (See Figures 4.7 and 4.8).

Poultry is seen as a meat that is widely available, easy to prepare, something the family enjoys, and quick to prepare. It is good value for money, versatile, tender and low in cholesterol. On the negative side, poultry is seen as quickly perishable, shrinks when cooked, too bony, and is sometimes regarded as a dry meat (See Figures 4.9 and 4.10).

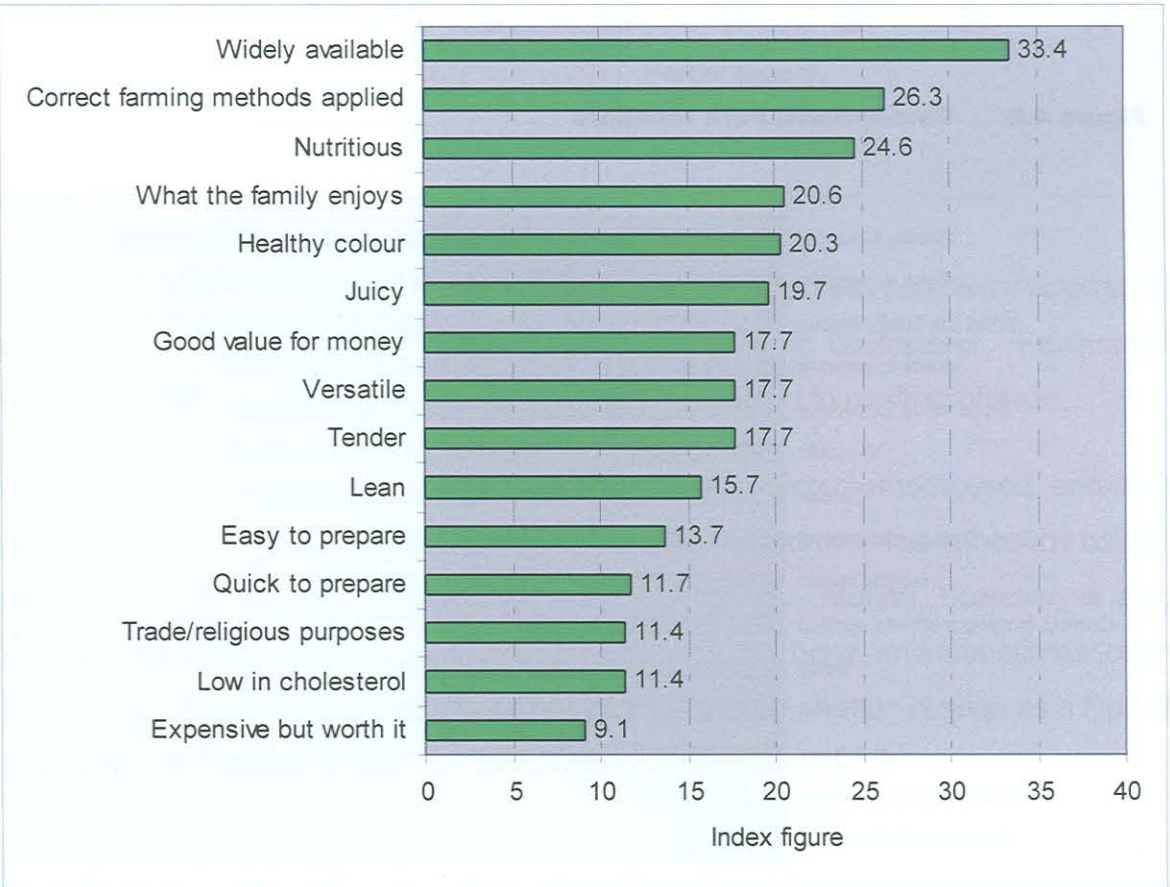

Figure 4.7 Perceptions: Pork attractors

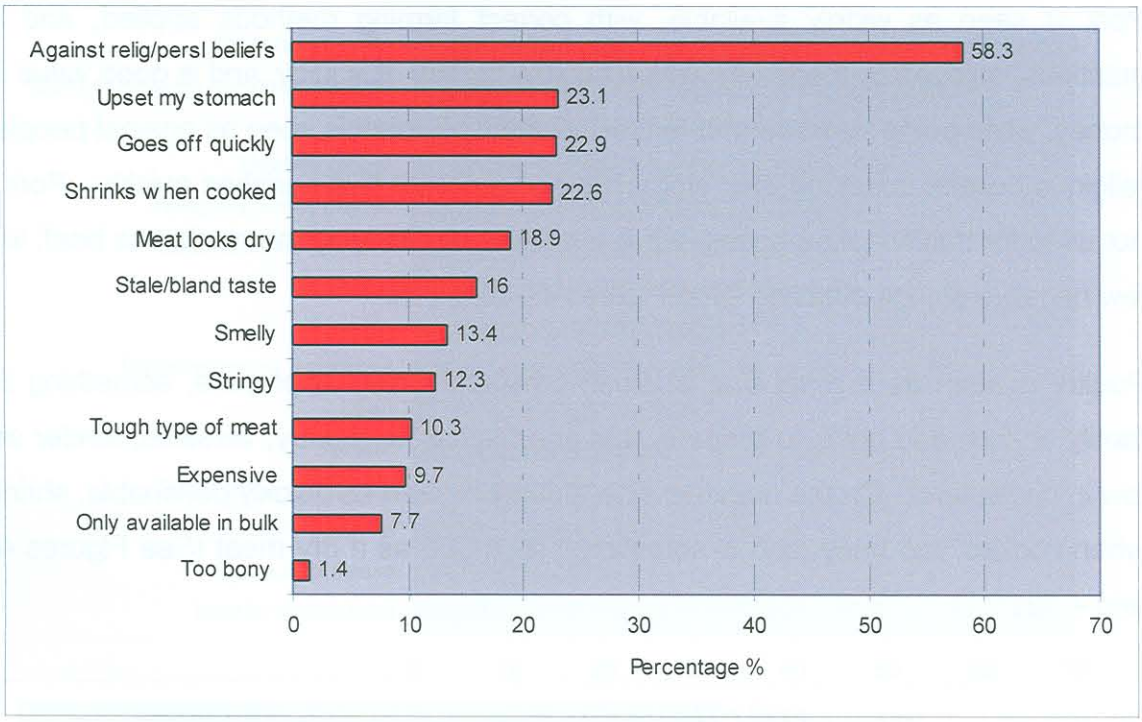

Figure 4.8 Perceptions: Pork repellors

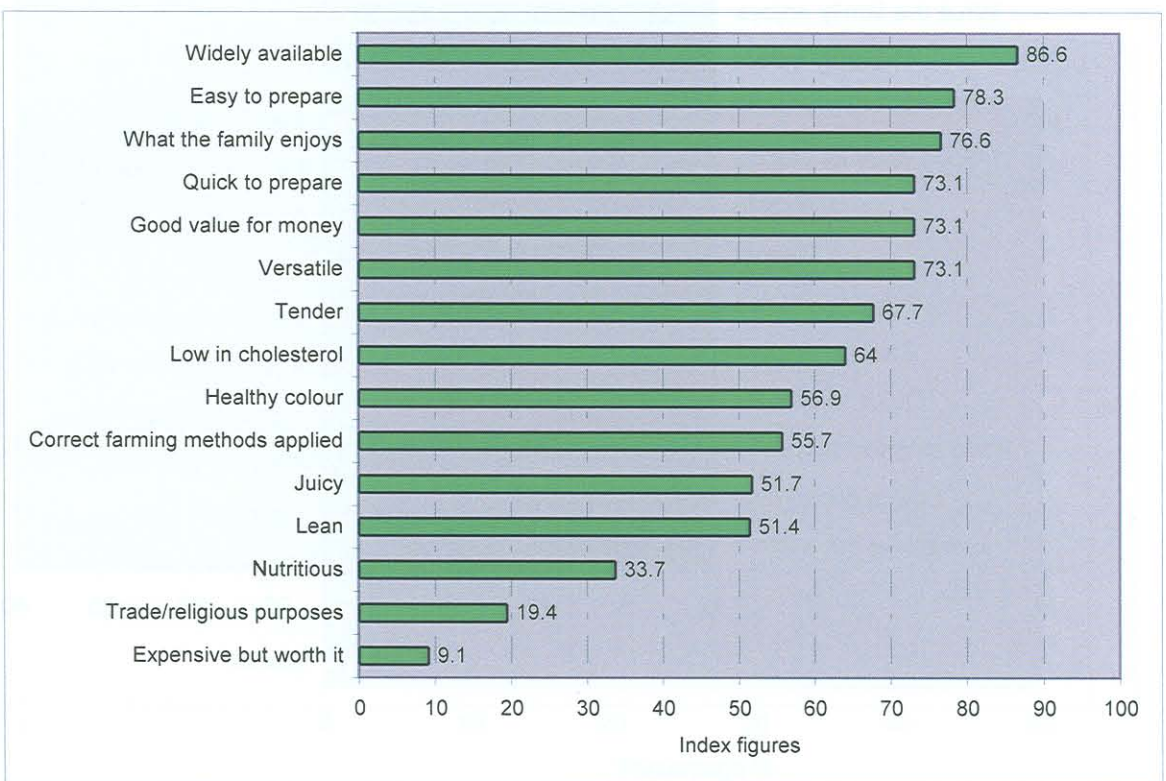

Figure 4.9 Perceptions: Poultry attractors

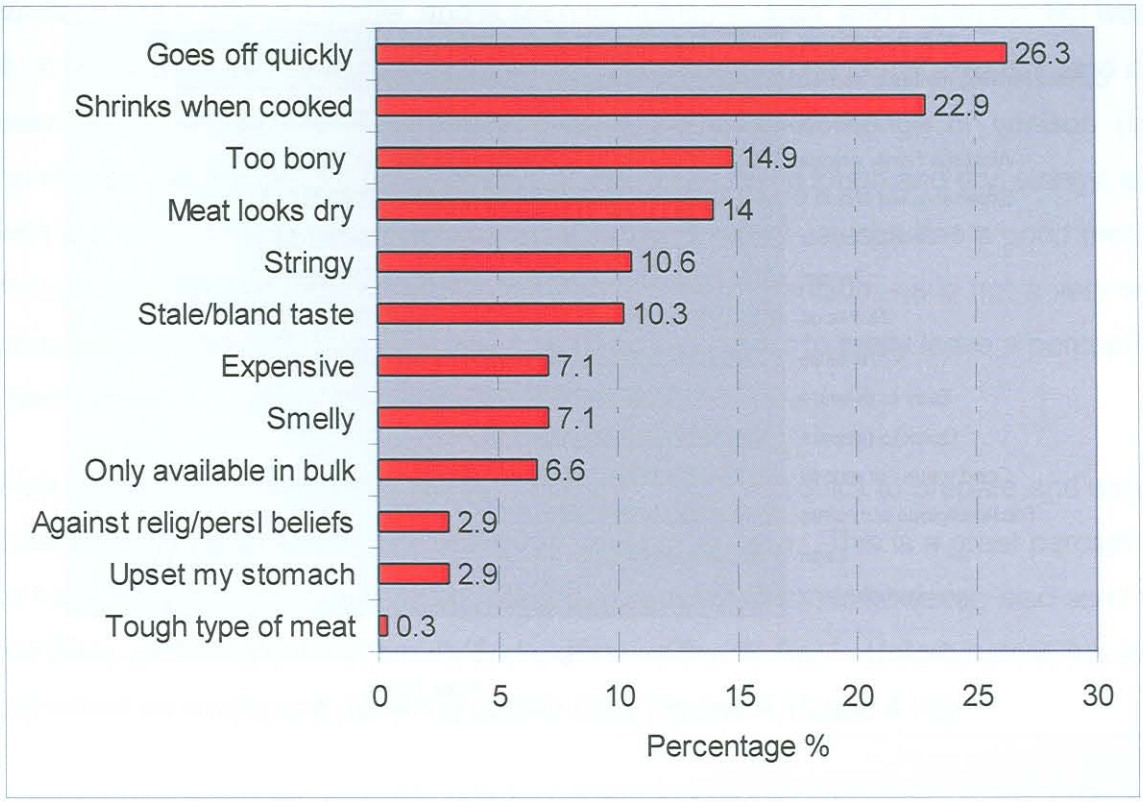

Figure 4.10 Perceptions: Poultry repellors

Nutrition seems to play a big role in meat purchases. Beef and pork were referred to as nutritious; meanwhile poultry was described as low in cholesterol. Favourable nutritional attributes, thus, are an aspect that could be used to position chevon.

Mutton is also seen as widely available, with correct farming methods used, and as a juicy meat. It is enjoyed by the family, is expensive but worth it, has a healthy colour, and is tender, nutritious, versatile and easy to prepare. Mutton, however, is also perceived as expensive, shrinks in size when cooked, too bony, and sometimes tough (See Figures 4.11 and 4.12). As was the case with poultry, mutton is seen as a type of meat that is very practical and worth paying the extra few rand.

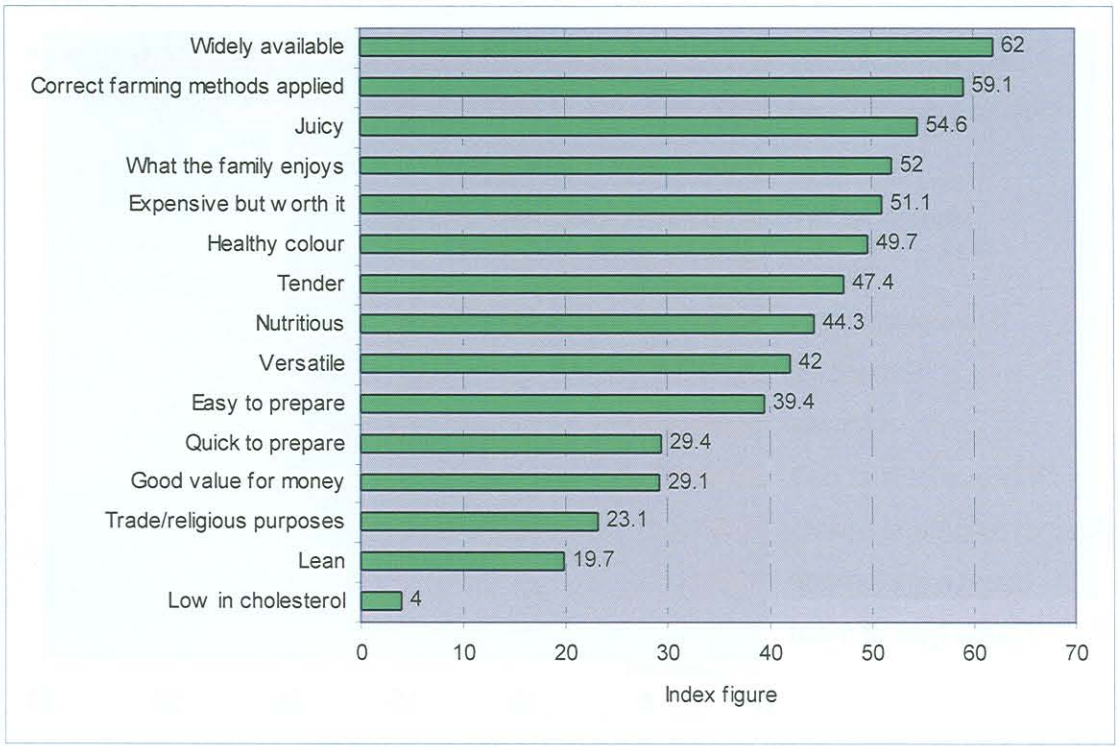

Figure 4.11 Perceptions: Mutton attractors

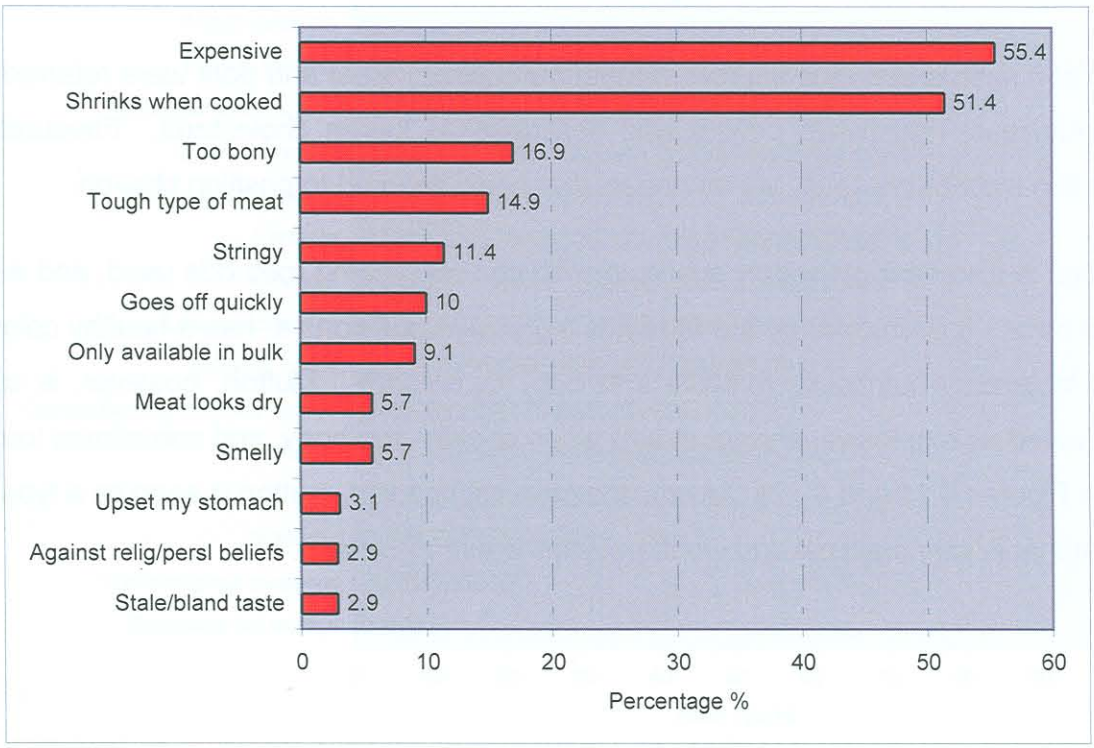

Figure 4.12 Perceptions: Mutton repellors

Venison has a different profile, and is seen as nutritious, lean, and expensive but worth it. It has a healthy colour, is juicy and low in cholesterol. The family enjoys it, and it is seen as a versatile meat. Respondents expressing knowledge of venison (low numbers), see the meat's most negative attributes as being tough and dry, stringy, and with a stale and bland taste. The responses indicate that venison has a good profile, though few respondents could accurately comment on venison – it is not a very well known meat type, and there are also too many derivatives to really leave a perception (See Figures 4.13 and 4.14).

Fish is seen as nutritious and low in cholesterol, easy and quick to prepare and widely available. It is lean and tender with good value for money. This is a great perception to have: very healthy, practical, yet not too expensive. Fish, is however, also seen as too bony, perishing quickly, smelly and expensive (by others). Unfortunately, it is also perceived as smelly and perishing quickly (See Figures 4.15 and 4.16).

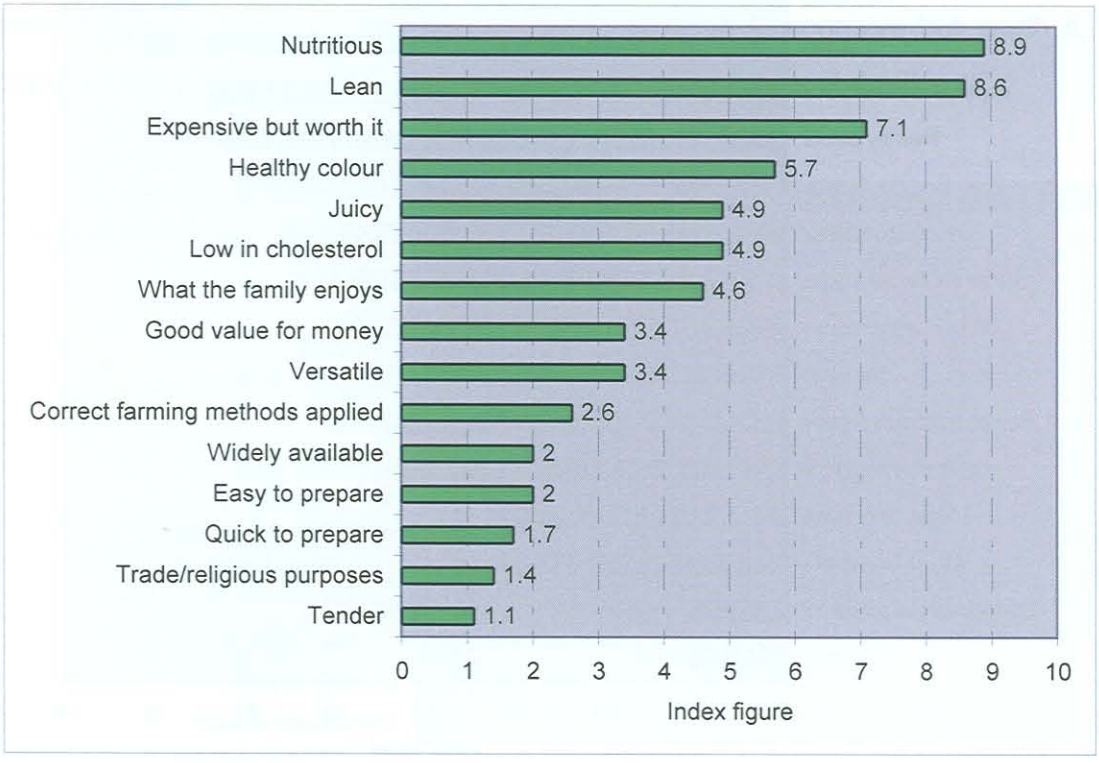

Figure 4.13 Perceptions: Venison attractors

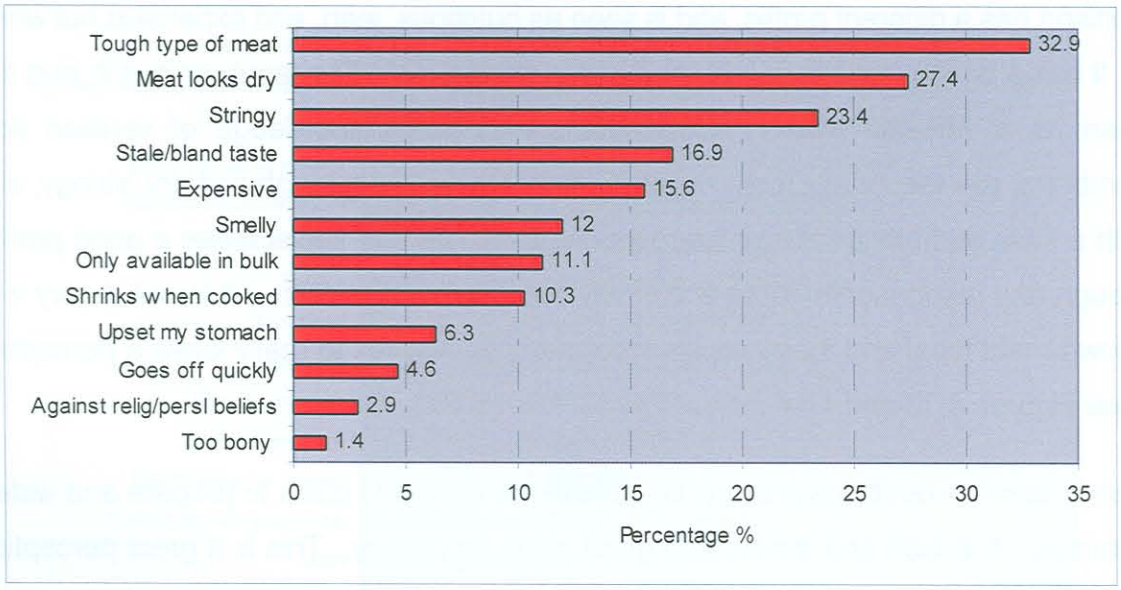

Figure 4.14 Perceptions: Venison repellors

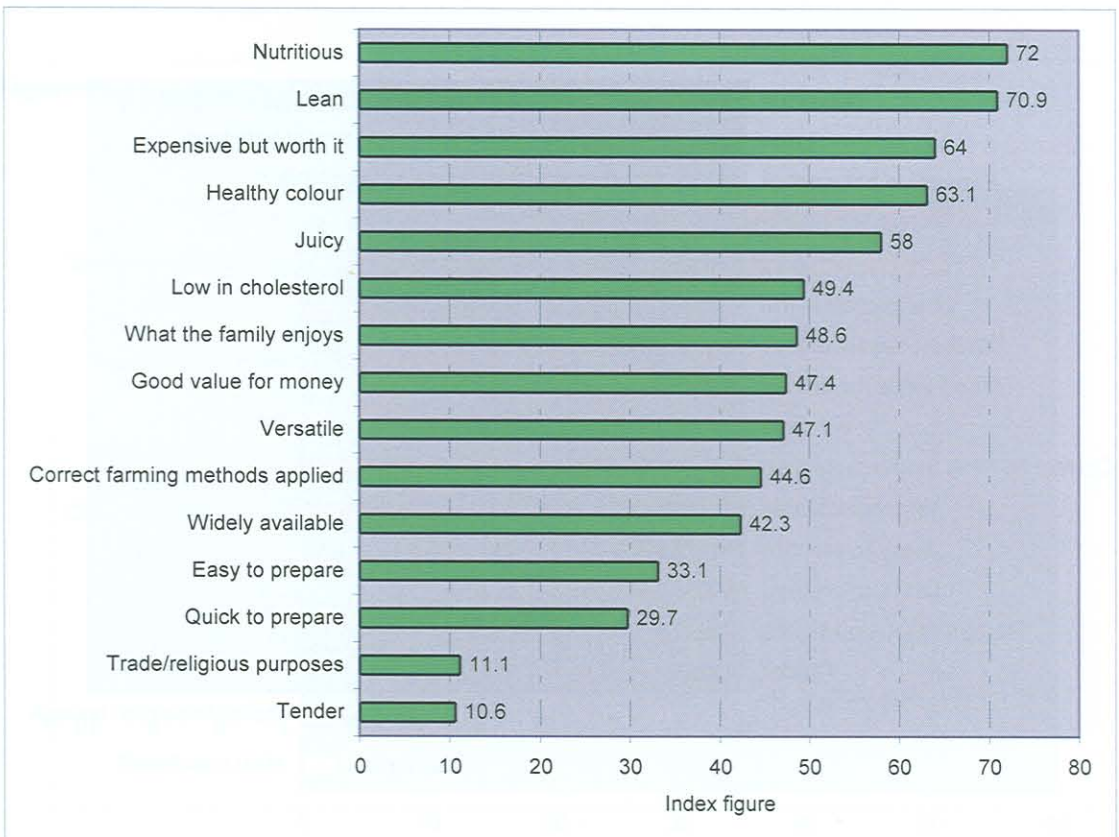

Figure 4.15 Perceptions: Fish attractors

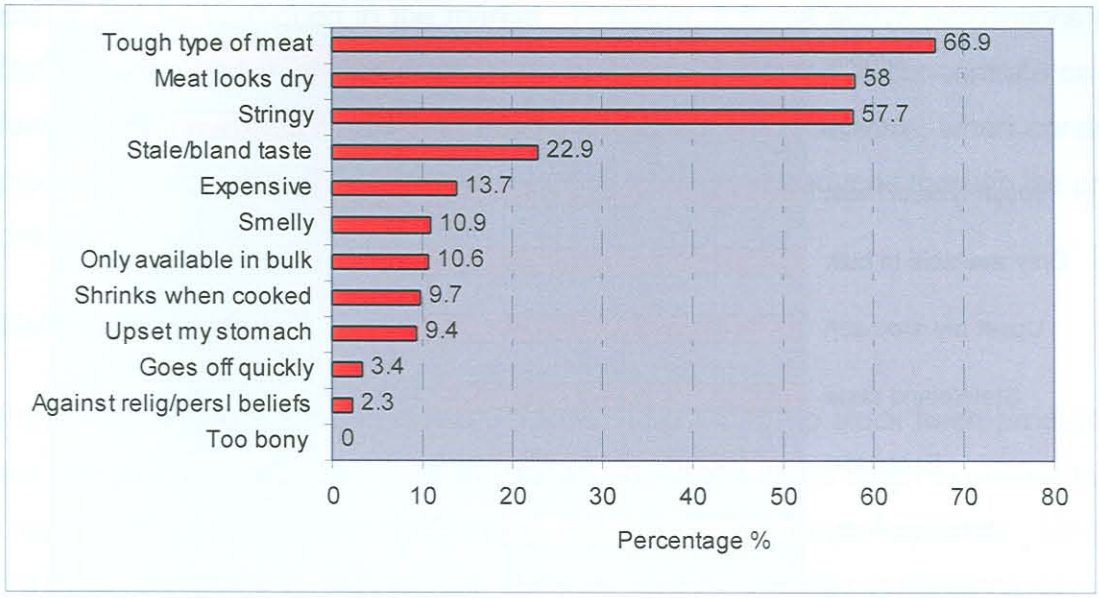

Figure 4.16 Perceptions: Fish repellors

Chevon was firstly seen as being used for traditional and religious purposes, with correct farming methods applied, nutritious, juicy, and expensive but worth it, whilst being widely available and a lean meat (See Figures 4.17 and 4.18).

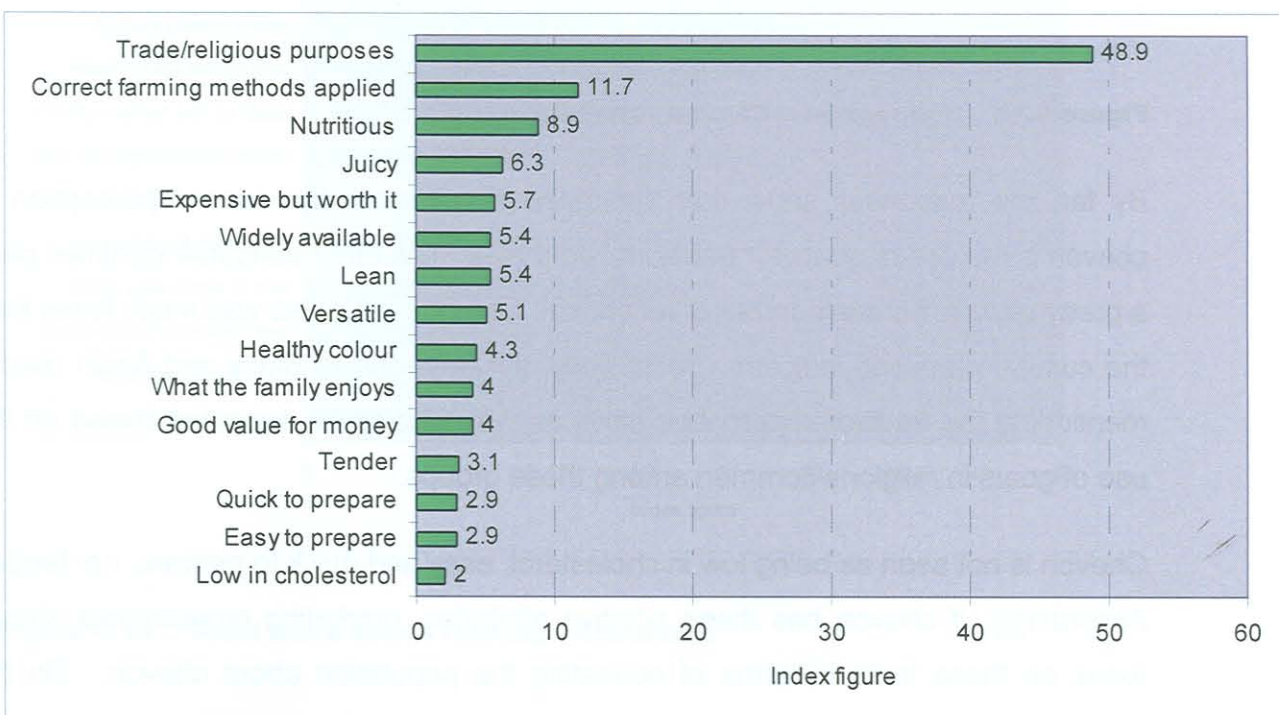

Figure 4.17 Perceptions: Chevon attractors

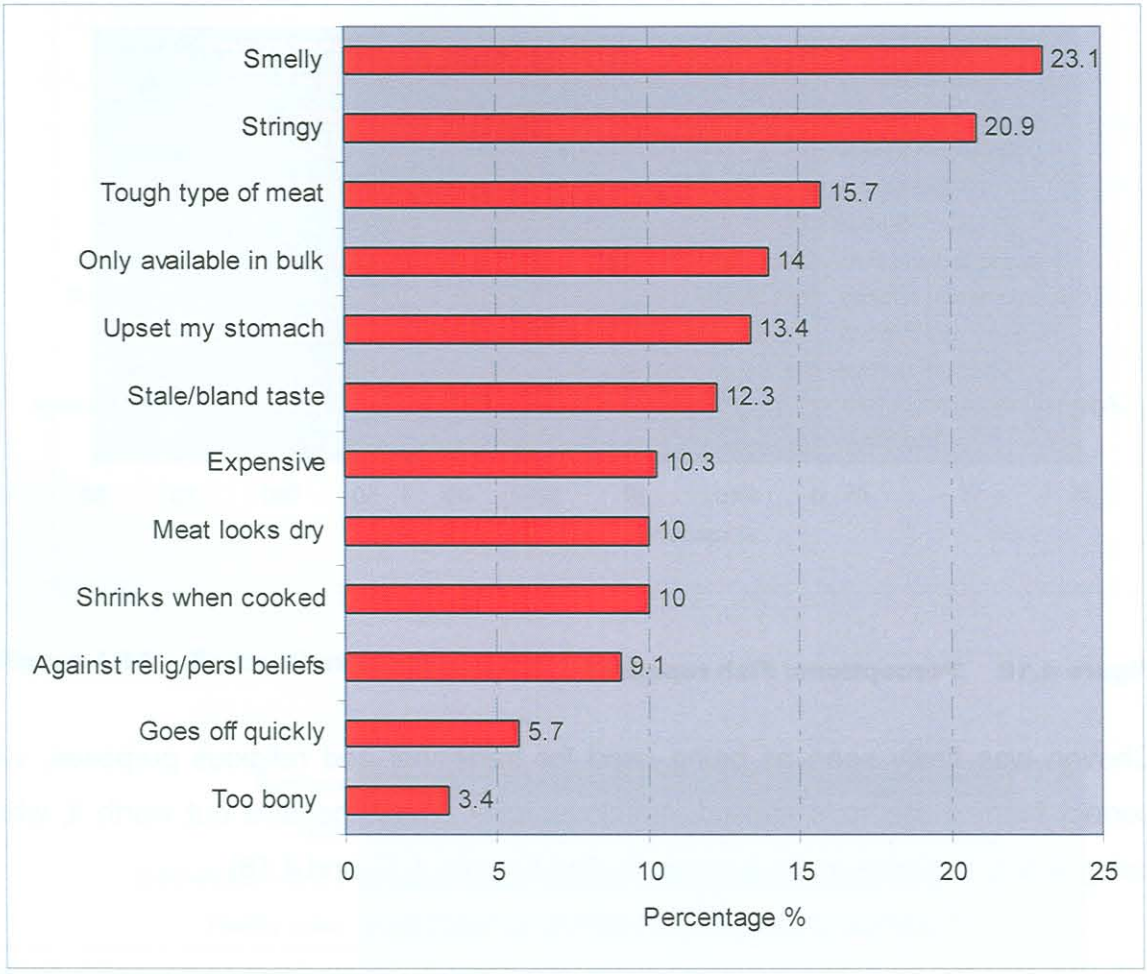

Figure 4.18 Perceptions: Chevon repellors

By far, the responses show that the main ingredient in the current perception of chevon is the use of goats for traditional purposes. The other attributes identified paint a pretty picture, but the number of responses for those attributes was much lower than the cultural purposes indicator. Most likely, this was due to Black and Asian people mentioning the traditional purposes attribute, which could be expected based on the use of goats in religions common among these groups.

Chevon is not seen as being low in cholesterol, easy and quick to prepare, nor tender. Accordingly, if chevon has these positive attributes, marketing programmes should focus on these traits in terms of educating the population about chevon. On the negative side, chevon is perceived as a smelly meat, and quite stringy. It is a tough type of meat that is only available in bulk. It upsets my stomach, and usually has a stale and bland taste. Clearly, the negative responses set the scene for how chevon

should not be positioned in the market. However, if these above perceptions are in fact true, then the marketing campaign should be structured to concentrate on other features of the products, and not any of the above. Furthermore, when conducting product development, these negative attributes should be reduced through the product design.

Meat store needs

From the consumer's perspective, the need is for stores to stock fresh products that are competitively priced and clearly graded. Care should be taken to ensure that the meat is well packaged and refrigerated, with clearly marked sell-by dates. Marinated meat, de-boned meat, and vacuum-packed meat is of lesser importance as are the range of cuts or variety of pack sizes. If stores want to repel people, they should sell perished meat, under unhygienic conditions, or meat that is bloody and not properly cleaned. These consumers' needs can be seen in Figures 4.19 and 4.20.

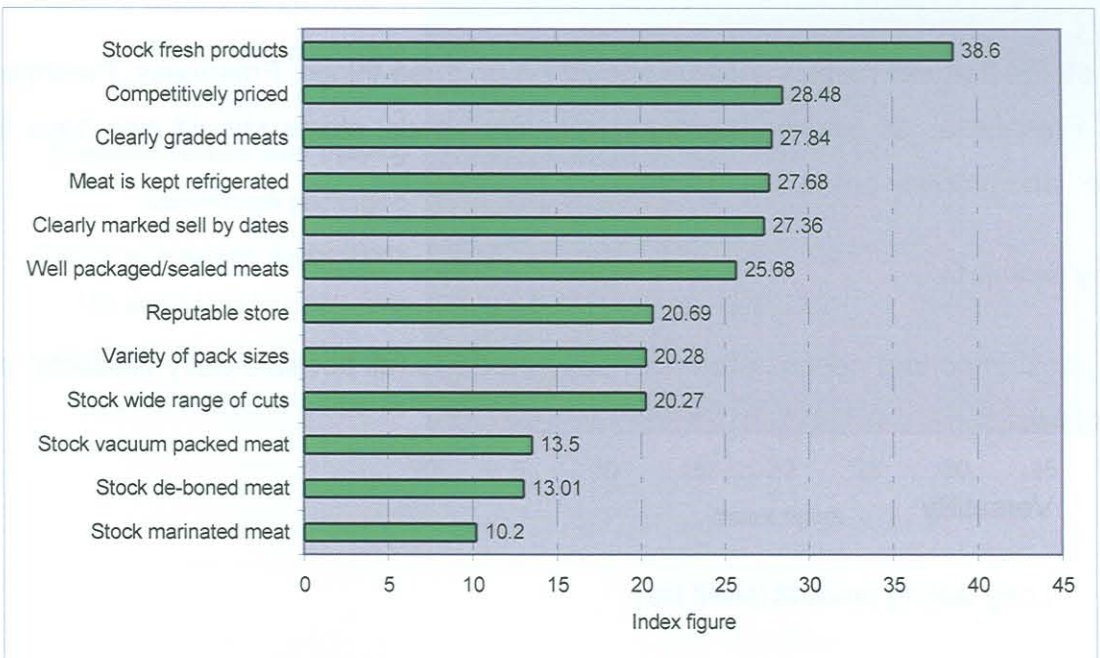

Figure 4.19 Meat store needs ranking - Attractors

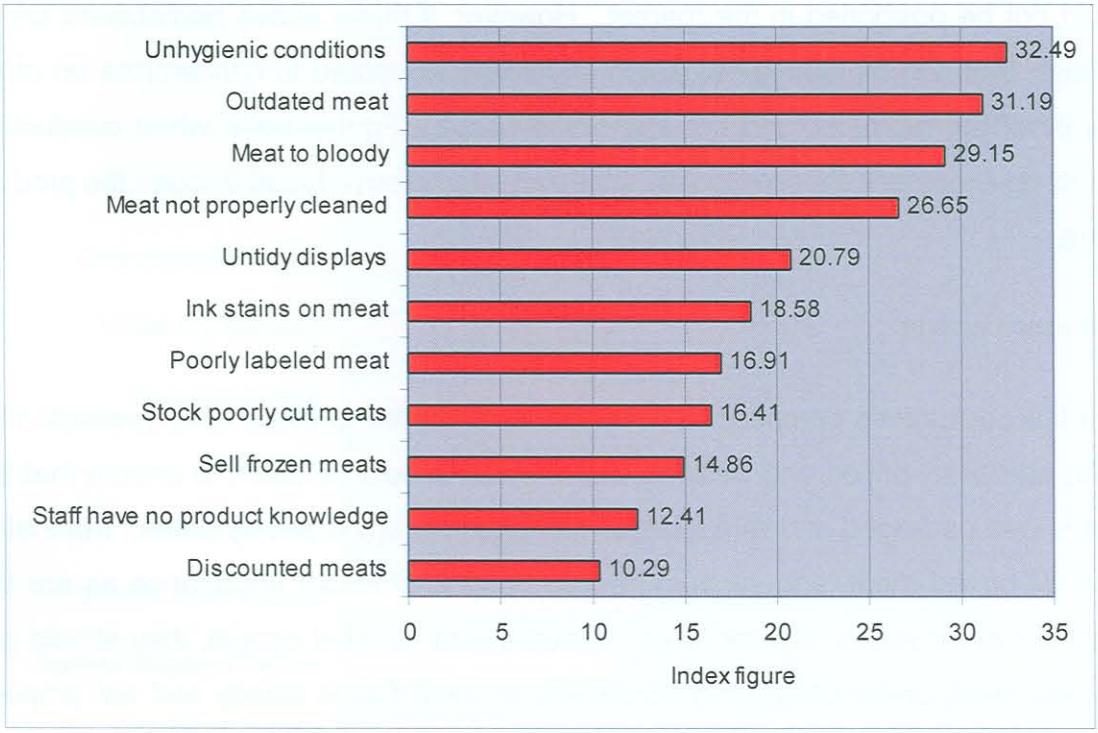

Figure 4.20 Meat store needs ranking – Repellors

For stores that sell meat, the focus should be on three things: Freshness, Freshness and Freshness. In addition, to meet consumer needs, stores should also have fair prices and properly grade their meats.

Dairy products

The most important needs in terms of dairy products (all possible dairy products) are as follows:

- Versatility
- Long lasting product (shelf life)
- Low in cholesterol
- Nutritional information listed on the packaging
- Taste should be maintained after thawing
- Available in different sizes

- Expensive, but worth it – value for money
- Re-sealable packaging

Less important needs were food for traditional purposes, re-usable containers, alternative for cow's milk, and serving suggestions. Dairy products should not perish quickly, should have expiry dates and must be healthy.

The rankings for dairy needs are shown in Figures 4.21 and 4.22 below.

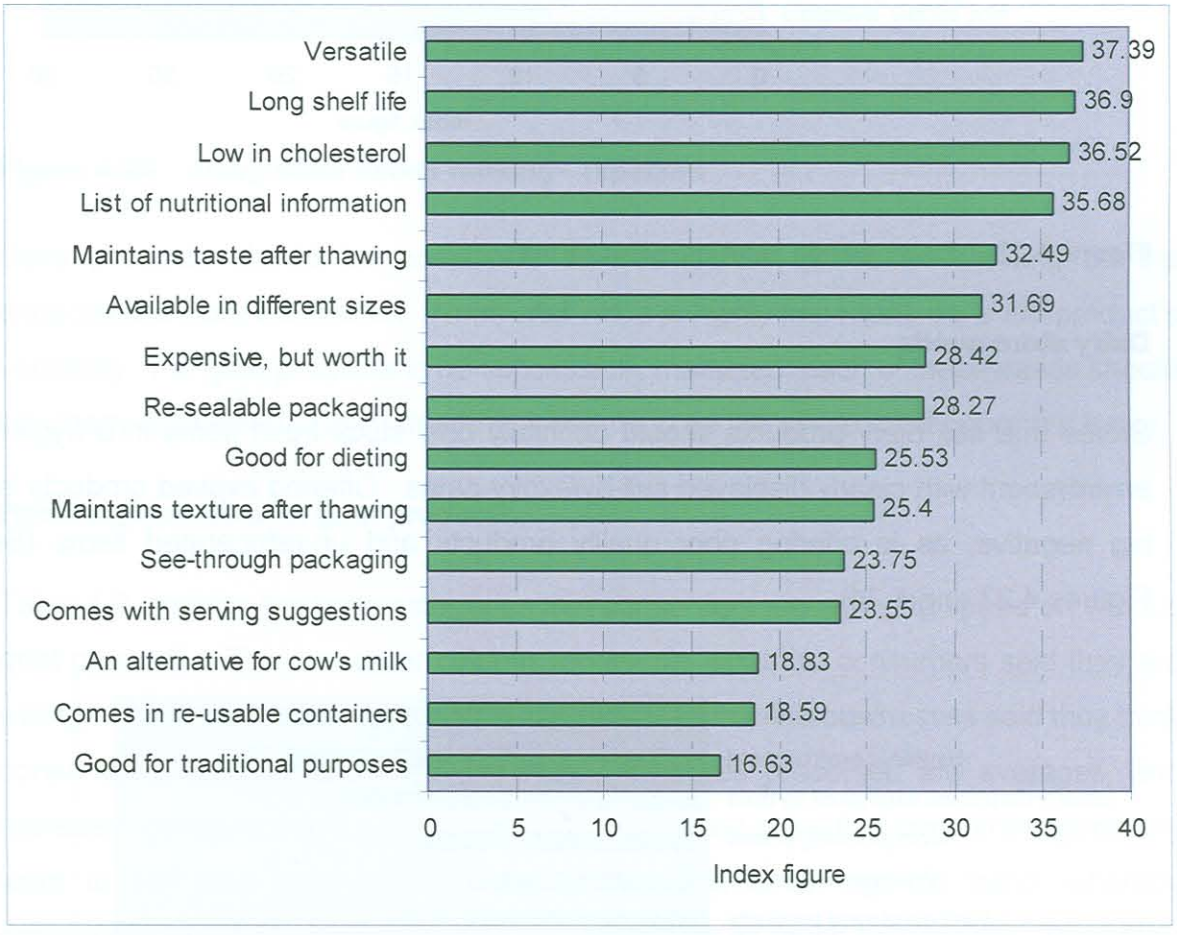

Figure 4.21 Dairy needs ranking – Attractors (all possible dairy products)

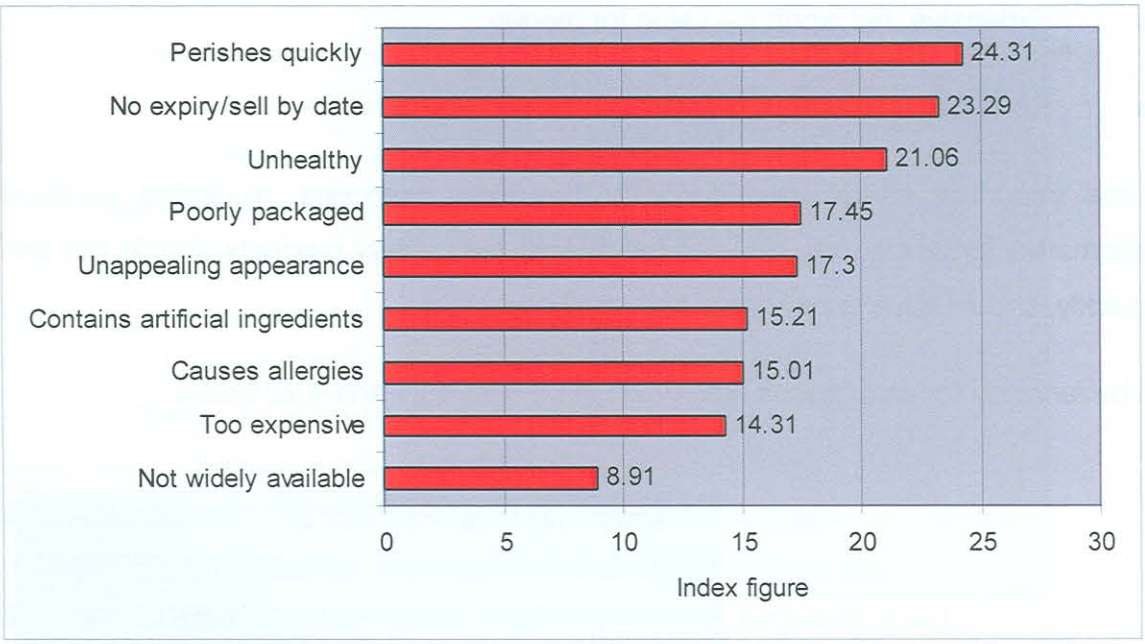

Figure 4.22 Dairy needs ranking – Repellors

Dairy store needs

Stores that sell diary products should definitely only stock fresh items in a hygienic environment with clearly displayed sell-by/expiry dates. Offering expired products is a big negative, as is offering poor quality products and un-refrigerated items (See Figures 4.23 and 4.24).

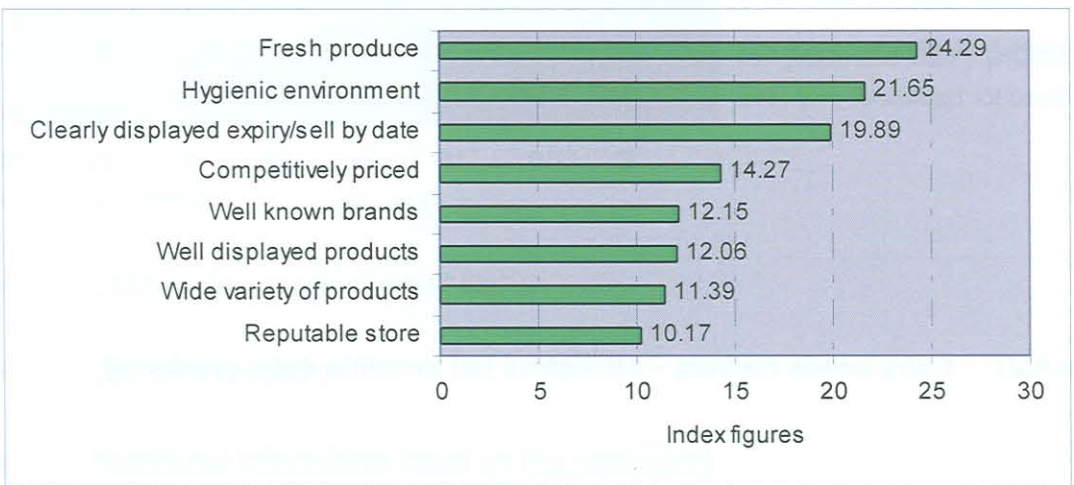

Figure 4.23 Dairy store needs ranking – attractors

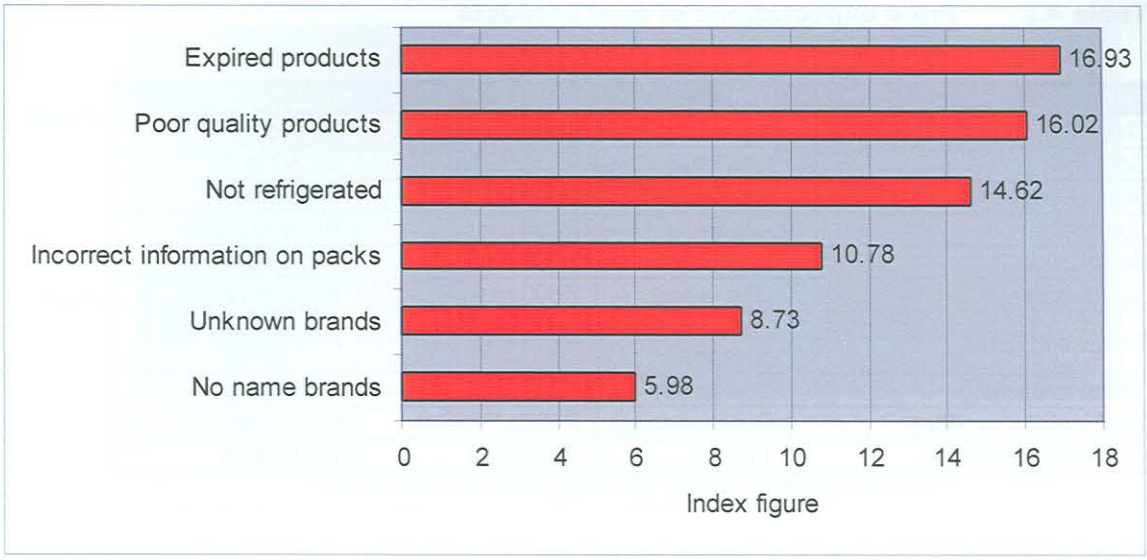

Figure 4.24 Dairy store needs ranking – repellors

Dairy products should be positioned as fresh, clean products following on the expectations from the market. Nutritional value is highly important, as is the product's versatility. For goat products to be successfully marketed, each of these needs should be clearly addressed. Again, freshness seems to be the single most important factor.

Price expectations of goat products

Table 4.2 explains the price categories that consumers are willing to spend on various goat products. The consumer column represents what the consumers said they are willing to pay, and the business column represents what the businesses said they think consumers would be prepared to pay. The figures presented are averages, and represent trends as seen by the market. These prices show that consumers generally want to pay less than retailers might think. This is an age-old trend, whereby consumers would always pay as little as possible for as much as possible. Therefore, the price for goat commodities should be within the identified market range; however, pricing should also closely follow the marketing programme themes. For example, to position goat commodities as being of a high quality, prices should be a little higher rather than the low-end of the range, building the consumer perception of quality. Consumers may be willing to spend a little extra, if they are convinced it is really worth it.

Table 4.2 Price expectations of goat products

PRODUCT	UNIT	CONSUMER	BUSINESS
Chevon	Kg	R 5 to R 20	R15 to R25
Goat milk	Litre	R1.50 to R3	R2.50 to R4
Goat cheese	Kg	R5 to R20	R 25 plus
Live goats	Animal	R250 plus	R150 to R300
Mohair rug	2x3m	R100 to R 300	R350 plus
Goat leather jacket	One jacket	R500 plus	R500 plus
Processed meat	Pack of sausages	R5 to R15	R10 to R20
Cashmere jersey	One jersey	R100 to R300	R200 plus
Goat leather handbag	One handbag	R50 to R150	R100 to R 200
Powdered Goat milk	1 kg tin	R0 to R20	R7.50 plus

However, it is quite obvious that people are more acutely aware of prices for general items (milk, cheese, meat etc.) than for select goods, such as leather items, cashmere etc. Price attributes and comparisons with substitute products could be included in a programme of public education that is initiated.

Propensity to purchase goat commodities

Respondents were asked about their willingness to purchase chevon, goat cheese, cashmere products, and goat leather products. The responses were derived using a scale to indicate the different likelihood for the respondents. Thereafter, the respondents were given a piece of "droë wors" (dried sausage), as well as sample of goat cheese to eat (These products were chosen since they were easily transportable without the need for refrigeration). They were also shown colour photographs of cashmere and leather products, and were again asked about their willingness to purchase these products.

The main result of this exercise is that in every single case, the likelihood to purchase increased after having tasted or seen the actual products. This was the case for both business and consumers. Note, however, that the increases were less for cashmere and leather products. The increases for meat and cheese were higher than the other products, indicating that these products would probably have a better entry into the market than the others would. The effect of these increases can be clearly seen in Figures 4.25, 4.26, 4.27, 4.28, 4.29, 4.30, 4.31 and 4.32.

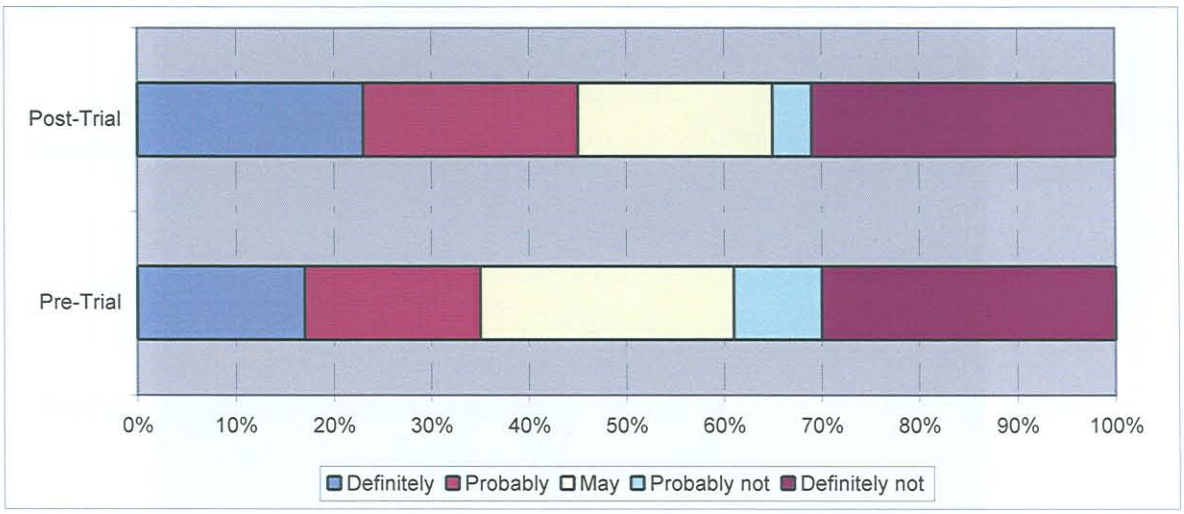

Figure 4.25 Propensity to purchase goat cheese - Business

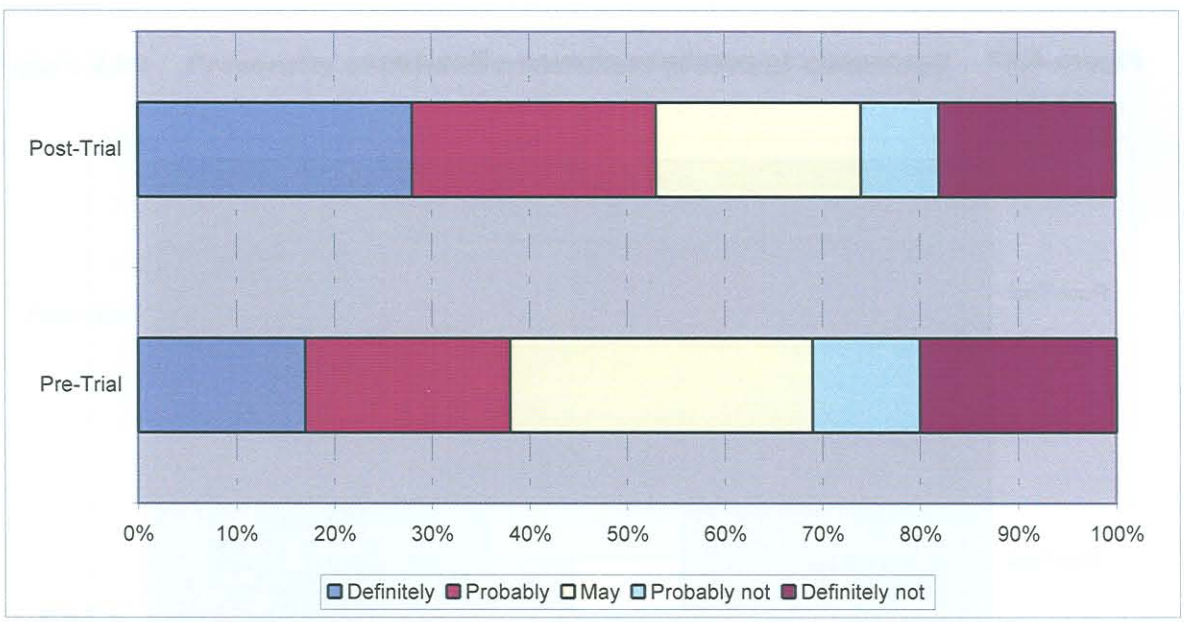

Figure 4.26 Propensity to purchase goat cheese – Consumer

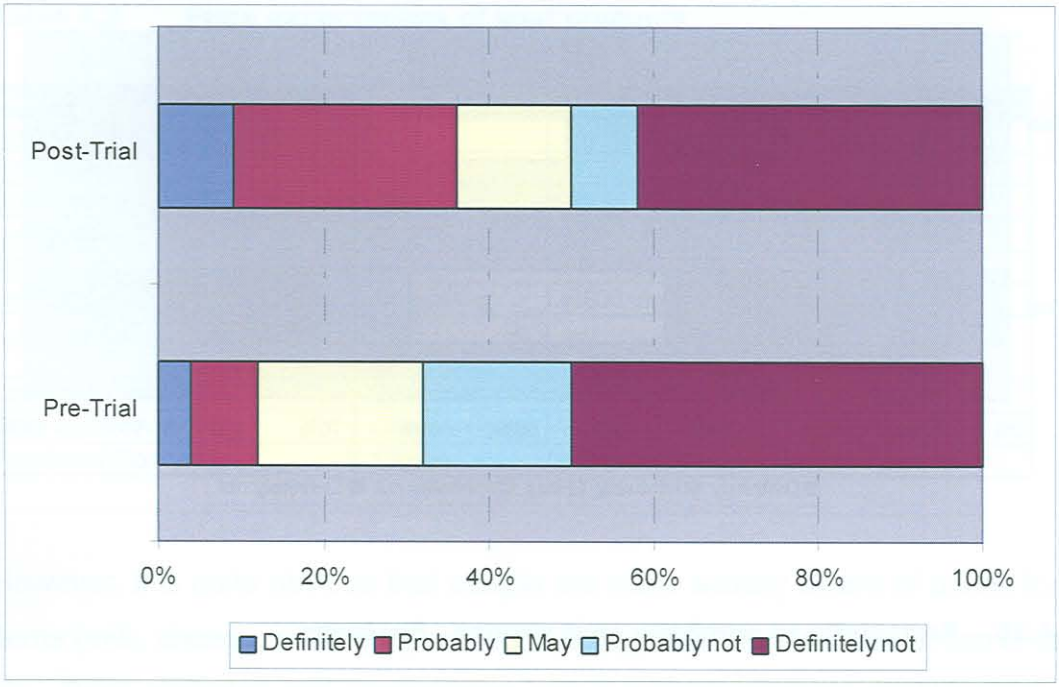

Figure 4.27 Propensity to purchase chevon – Business

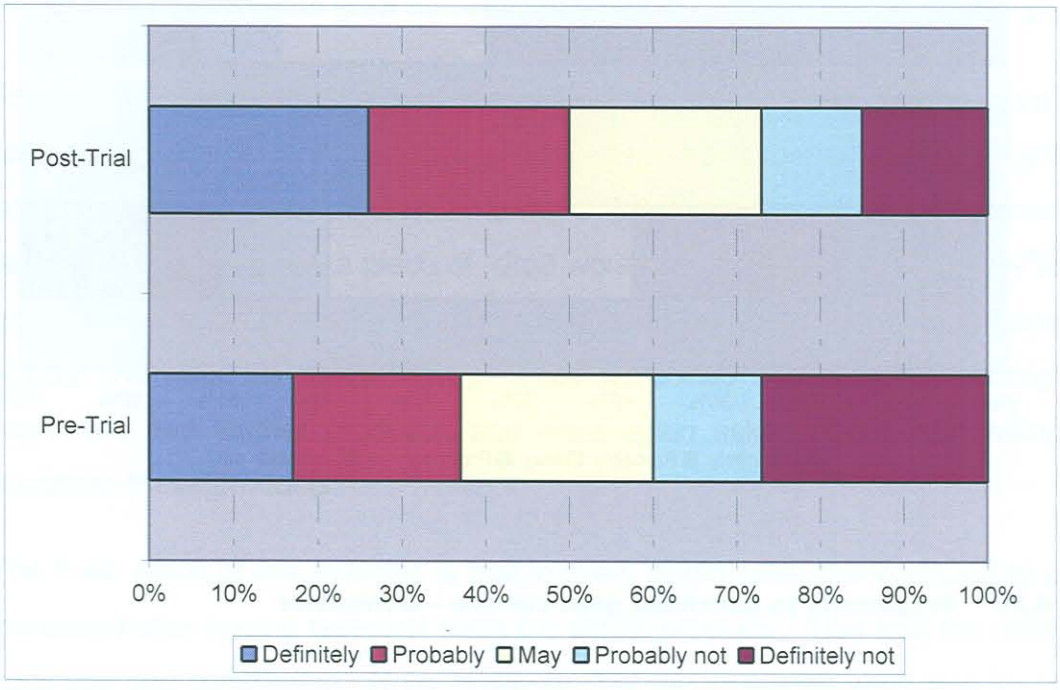

Figure 4.28 Propensity to purchase chevon - Consumer

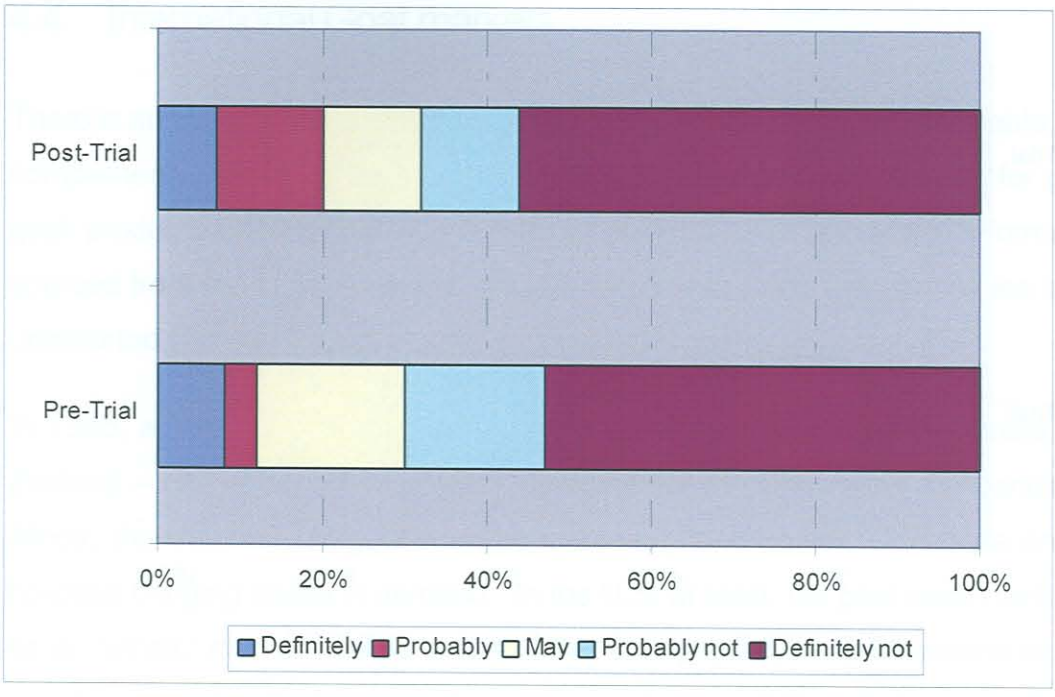

Figure 4.29 Propensity to purchase cashmere products – Business

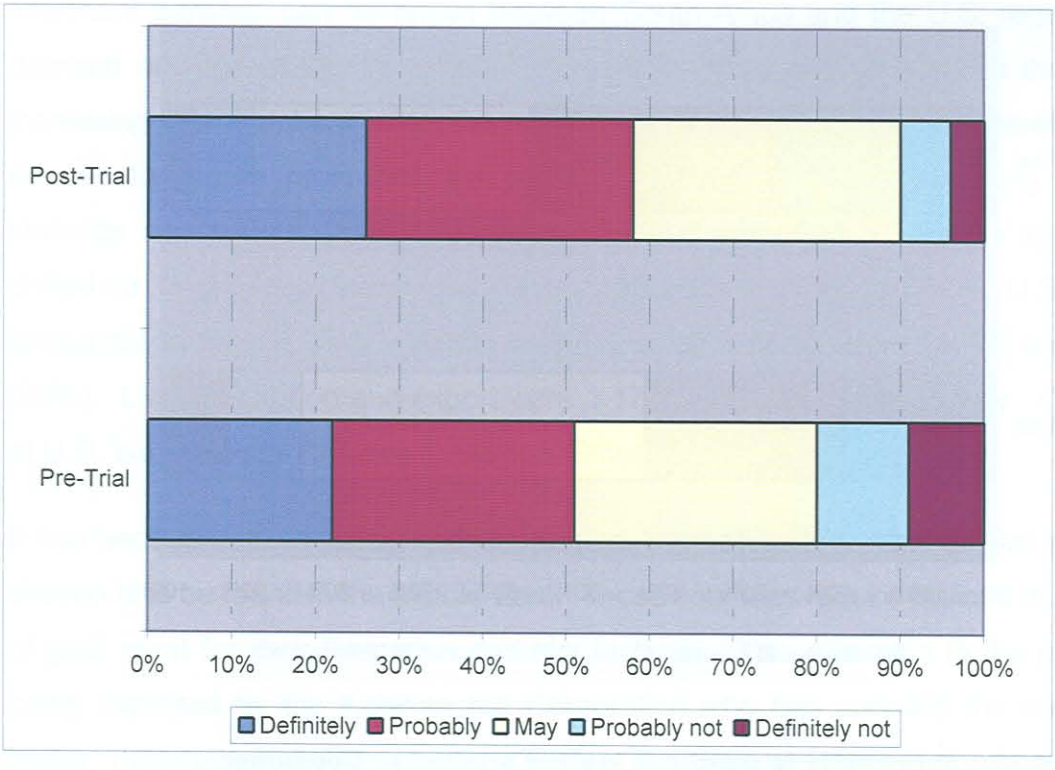

Figure 4.30 Propensity to purchase cashmere products – Consumer

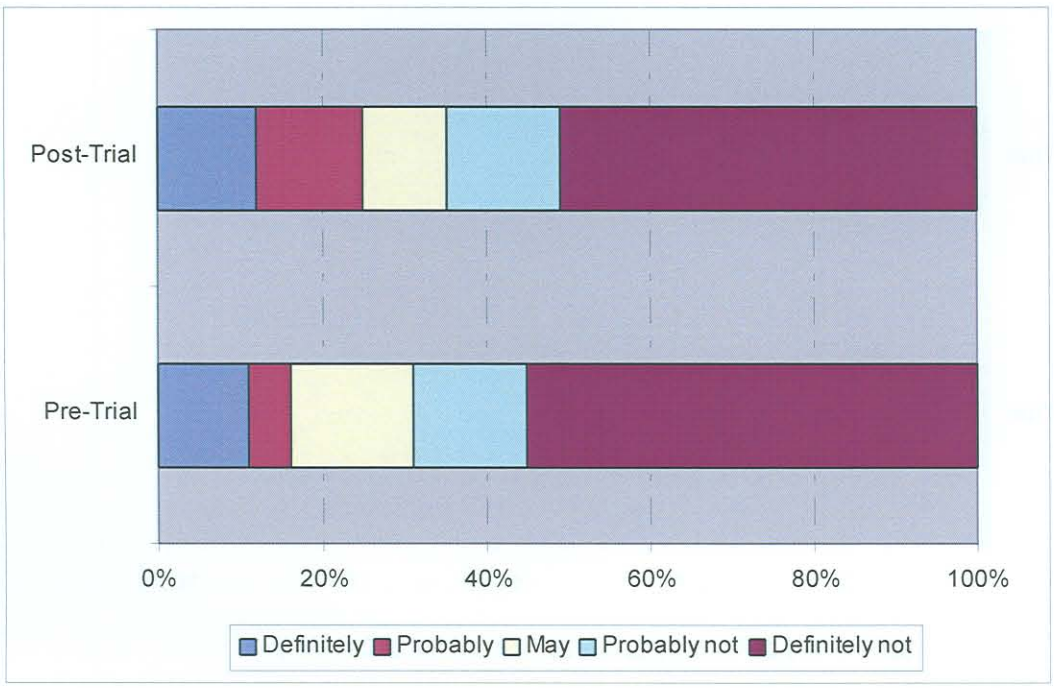

Figure 4.31 Propensity to purchase leather products – Business

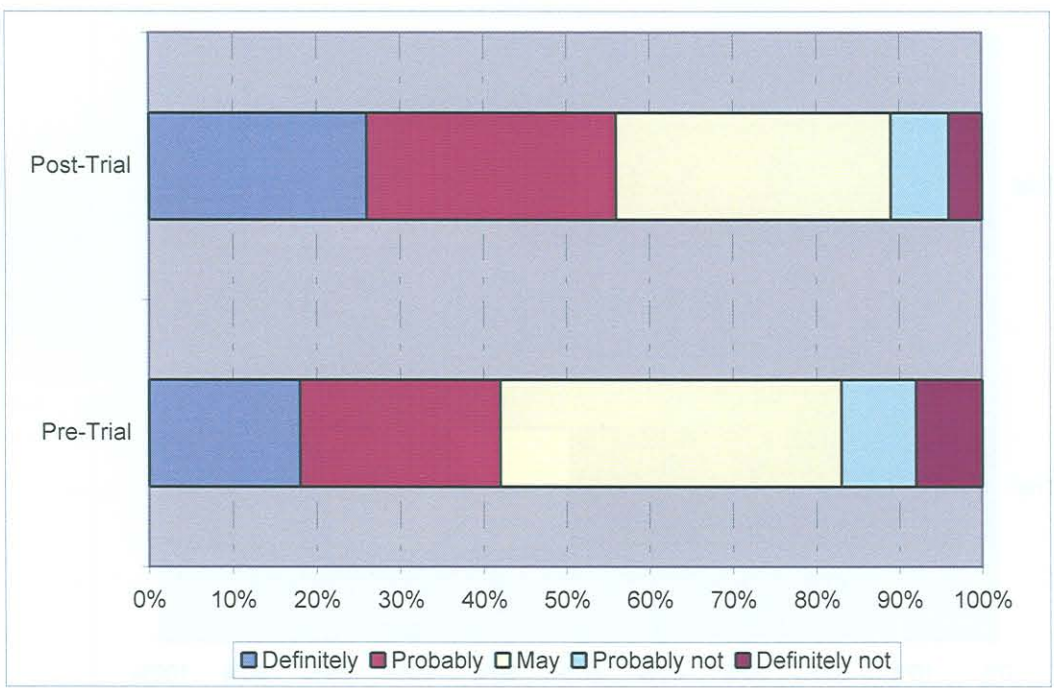

Figure 4.32 Propensity to purchase leather products – Consumer

4.4 International Goat markets

There is an abundance of international trade information resources available, providing comprehensive data; however, the resources do not treat the market for goats and goat products on a global or even regional basis. Consequently, information was sourced from the U.S., Australia, and New Zealand; emerging economies are largely unreported (Smuts, 1998b).

In 1998, a survey (Smuts, 1998b) revealed only two countries – Australia and New Zealand – as net exporters of goat meat worldwide. Confirming the trends in South Africa, the demand for goat meat is seasonal, with Easter, Christmas and Muslim holidays bringing peaks in demand. In the U.S. at least, the goat meat market is seen as an "ethnic" market relative to the overall U.S. population, and demand increases in population centres that commonly prepare goat meat. Different characteristics hold for other countries (Smuts, 1998b).

Important parallels can be drawn between South Africa and the U.S. regarding the demand and the expansion of goat production. Gipson (1996) states that "simply increasing goat numbers is not the answer. Well organised marketing strategies are needed to ensure profitability for goat producers". In 1997, according to USDA statistics reported by Cornell University, the U.S. imported 3.2 million kg of fresh, chilled or frozen goat meat, mainly arriving from Australia (95%). U.S. exports amounted to 246 700 kg with the majority being sold to Brazil (40%) and Mexico (29%). Live goat import and export were 1 172 and 66 924, respectively. Over 90 % of U.S. live goat exports were to Mexico (Smuts, 1998b).

It has become known that one of the largest international markets for live goats and chevon is to be found in the Middle-East. These countries require millions of kilograms of goat meat for their Ramadan and Haj festivals. This market is in the process of being exploited by the Kalahari Kid Corporation who has supplied the data shown below (Kalahari Kid Corporation, 2003). The Kalahari Kid Corporation will be discussed in the case studies later in this thesis.

According to the Kalahari Kid Corporation (2003), the current competitors in the international marketplace are Australia, New Zealand, Brazil, Somalia, India, Pakistan and France. Australia are selling their "feral goat", the Brazilians their "jungle goat", and the New Zealanders have penetrated the Middle East market with a high-value added gas flushed packaging (their competitive advantage). Brazilian exports are exposed to a rebate-subsidy system to allow them to be competitive on the International market. Australian suppliers are familiar with the Middle East market and similarly have a competitive edge above other suppliers due to the Australian Government rebate system. This system allows the red meat industry of Australia (AUSMEAT), to export red meat products at cost, but all exports are subject to an Australian Dollar rebate of 80c per kilogram. The Argentinean "Jungle Goat" is also being supplied to the Caribbean. Argentinean Goats have been widely accepted in the Middle Eastern markets due to the competitive prices offered. However they compete with the Indian and Somalian goat in their size and price. The Brazilian, Indian and Somalian product thus competes on price. Although the French receive a higher price for their goats, they trade on quality and are an alternate supplier to the Middle East. Thus, the French and New Zealand product are both high quality and high value products.

To Saudi Arabia specifically, fresh chilled carcasses are currently being supplied by Pakistan, India, Sudan, Ethiopia and Somalia, frozen goat carcasses are being supplied by the UAE and fresh or chilled cuts of goat with bone in are being supplied by UAE and others (South Africa is classified as a supplier under "other"). Figure 4.33 and Figure 4.34 graphically depicts the present supply of goat meat into Saudi Arabia (Exact figures cannot be reported here due to their proprietary nature) (Kalahari Kid Corporation, 2003).

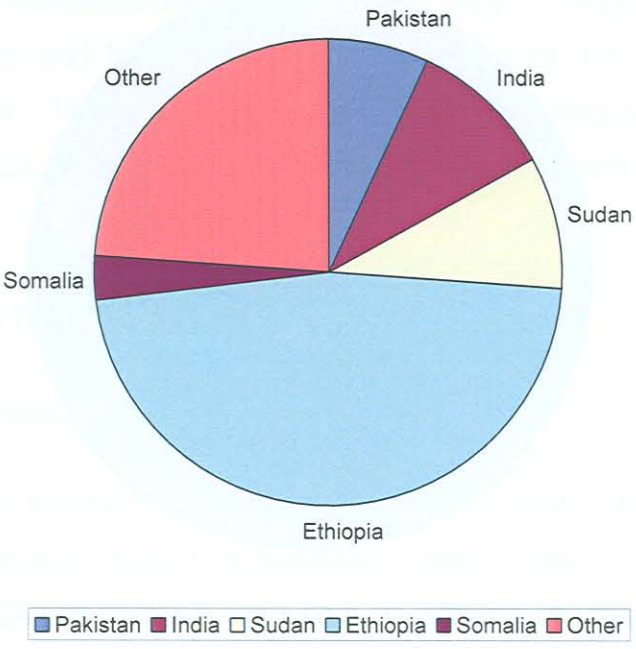

Figure 4.33 Chilled goat carcasses supplied into Saudi Arabia (Kalahari Kid Corporation, 2003)

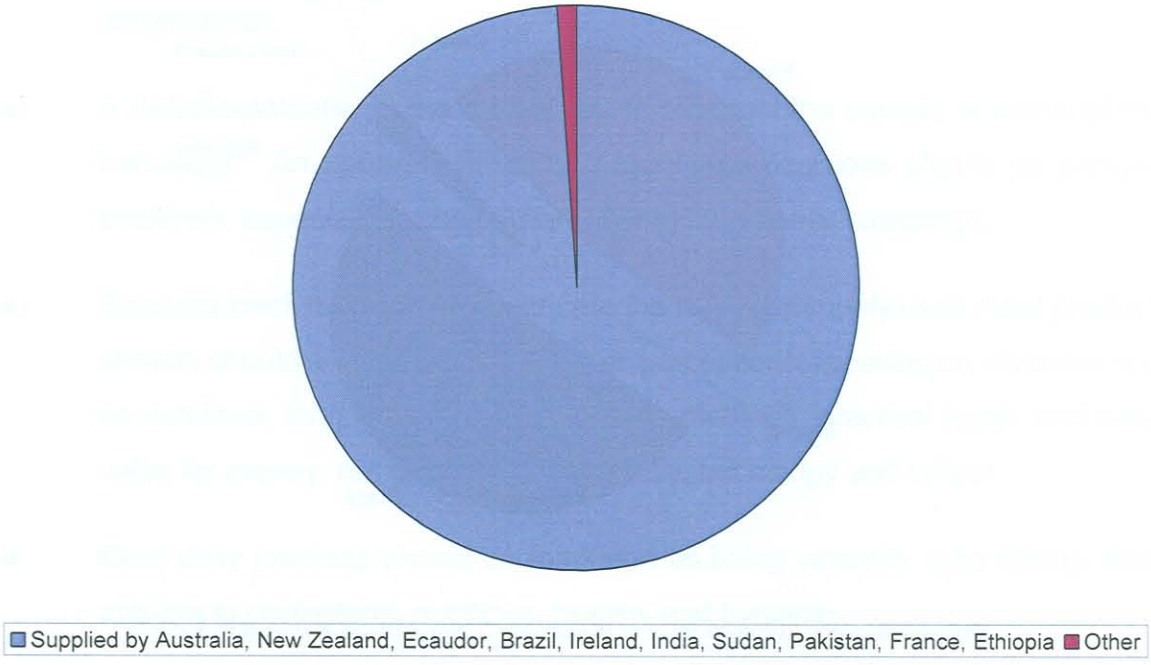

Figure 4.34 Frozen goat carcasses supplied into Saudi Arabia (Kalahari Kid Corporation, 2003)

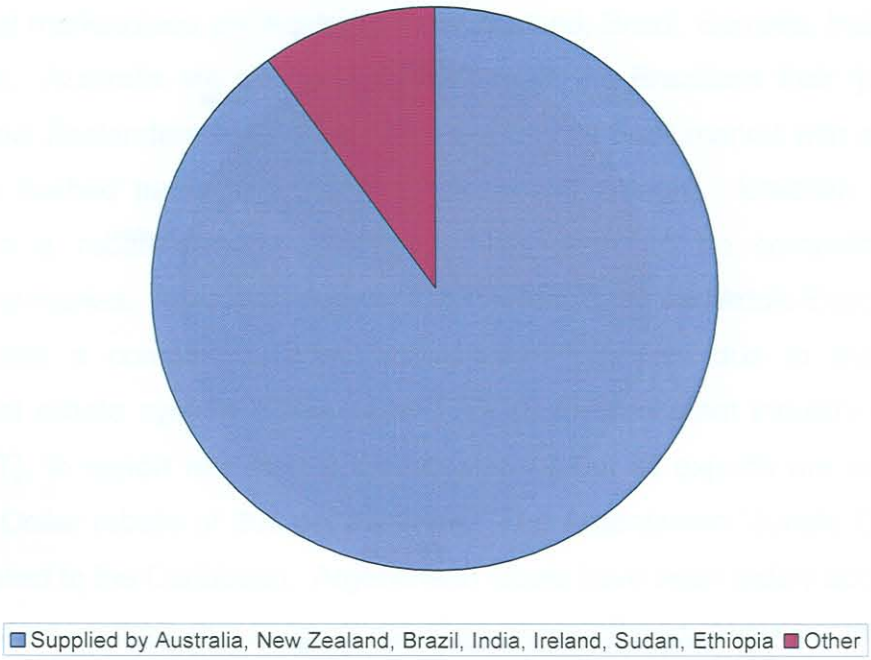

Figure 4.35 Chilled/frozen goat cuts with bones supplied into Saudi Arabia (Kalahari Kid Corporation, 2003)

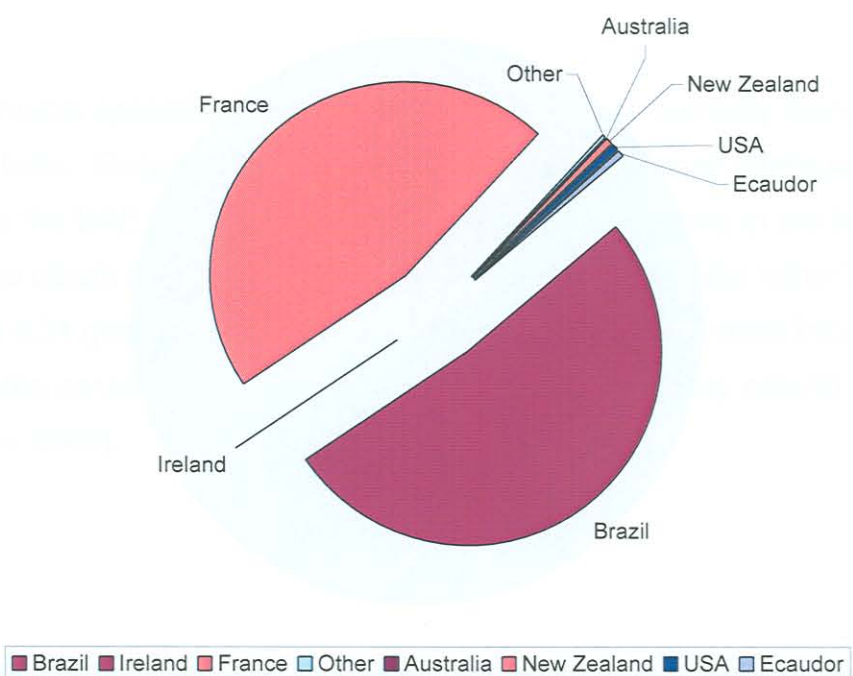

Figure 4.36 Frozen boneless goat meat supplied into Saudi Arabia (Kalahari Kid Corporation, 2003)

Furthermore, on a recent visit to China, it became clear that the market for Boer goat embryos and live animals to this country are very large. China wishes to establish its own chevon trade, and has identified the Boer goat as the animal with the most potential to do this. They have provided indications that they would require 100 000 Boer goat embryos, as well as the expertise to manage and breed these animals correctly.

4.5 Strategic recommendations

In summary, this market study revealed that:

- The interest shown in the likelihood to "try out" goat commodities amongst the targeted sample, shows that educated, middle to upper income people from all groups (with the possible exception of Whites) i.e. those interviewed, are a potential target market.
- Awareness of goat commodities is not very high. There appears to be a need for a campaign to create awareness. The campaign should focus on the more general product types, and should include the features and benefits of goat commodities.
- A definite potential in the market exists amongst the sample in terms of their behaviour. An apparent flexibility in purchase decisions should be exploited positively, especially in conjunction with an awareness campaign.
- Because beef, mutton and poultry are the most commonly used meat products, chevon should adapt to their consumer perceptions, focusing on attributes such as nutritious, long lasting, correct farming methods, practical (quick and easy), value for money, not expensive, not smelly, not stringy and tender.
- Goat dairy products should be marketed as being versatile, long lasting, fresh, and low in cholesterol, nutritious, healthy and hygienic.
- People are negative towards goat products, mainly because of lack of knowledge. Negative consumer perceptions, could possibly exist because the products have never been commercialised. There is a need for consumer

education informing consumers and retailers about the possibilities, features and benefits of goat products. This promotion process should be designed to not only make people more aware of goat products, but also to change their perceptions about these products, opening up the market for the commercialisation of goat products.

- Less resistance to the product will be experienced if overseas markets are targeted, but cognisance of the various marketing strategies used by competitors must be borne in mind. These strategies include various forms of value-addition or competing simply on price.

Hypothesis 4 asserted that new South African and global markets exist for new goat products. This survey found this to be the case. Markets for goat products already exist internationally and the local market possesses opportunities for development. In fact, enough positive feedback and consumer information was obtained to warrant further product development.

Sub problem 3 questions whether products of indigenous goats can be utilised commercially. Are there products of value from indigenous South African goats? Do the products from the indigenous goats found in South Africa measure up to the market requirements? Can products that fulfill the needs of the local or international marketplace be produced from indigenous South African goats? Utilising the information gleaned from this market survey, the further steps in the development of meat, cashmere, leather and milk will be described in Chapters 5, 6, 7 and 8, respectively, to follow.

CHAPTER 5: CHEVON PRODUCT DEVELOPMENT

5.1 Introduction

In South Africa's rural areas, the primary purpose of goats is meat production for local consumption, emergency cash flow and traditional use. However, limited market outlets for chevon in South Africa have inhibited its commercialisation. In the previous chapter it became clear that consumers have certain general reasons for not buying a meat product, and certain general reasons why they would be stimulated to buy a meat product. Furthermore, certain negative and positive perceptions regarding chevon in particular also exist. These "attractors" and "repellors" as well as the perceptions of consumers should be incorporated into the design of goat meat products for the retail market (Thus catering to the more market-oriented approach as suggested by ECAPAPA (2003)). This chapter investigates the quality characteristics of chevon and reports on the development of several goat meat products utilising the needs and perceptions of the potential consumer from the previous chapter.

5.2 Chevon quality and carcass characteristics

The nutritional value and other qualities of chevon, vary for the different goat types. However, across all breeds the compositional and structural characteristics of chevon are in rather close accord with the newly emerging consumers' preference for leaner, lower calorie meat. Thus, the continuing lack of demand for fresh chevon or processed products could be, as explained in Chapter 3, perceptions surrounding its traditional use, lack of availability, negative perceptions (exacerbated due to lack of availability), institutional arrangements that neglected its promotion and, limited research support

Chevon is relatively low in calories and has extremely low fat and saturated fat content. The meat also compares favourably with respect to protein and iron content. Goats possess little marbling and not much subcutaneous fat. Most of the fat is found around the internal organs (kidney, viscera and reproductive tract). Goat muscle is on

average lower in fat than beef or lamb. Chevon is 50 - 60% lower in fat than similarly prepared beef, but has similar protein content. The protein content of chevon is approximately 20%. Goat muscle has "high quality" protein and goat fat has approximately the same saturation as beef, but is lower in cholesterol than pork and beef fat (Casey, 1982; Casey & Naudé, 1992; Schönfeldt, 1989; Schöfeldt et al. 1993; Strydom & Tshabalala, unpublished; Tshabalala, 2000). USDA has also reported that saturated fat in cooled chevon is 40% less than that of chicken, even with the skin removed. Generally, the composition of chevon and mutton are comparable with respect to moisture and ash content.

Tough meat is the result of poor feeding and care. Thus, older animals do not necessarily have tougher meat (Schönfeldt, 1989; Schönfeldt et al. 1993). Bucks should be castrated to avoid the bucky taste in the meat or should at least be eaten before one year of age. Thus, young chevon is the most preferable chevon for consumption. In terms of quality, the best meat is produced from young goats with a live weight of 11 to 12 kg (although at this weight the dressed carcass yields small quantities of meat). At this weight and age the meat is tender with no bucky taste (Tshabalala, 2000).

It is very important that the animals are not stressed before slaughter, because this adds to meat toughness (Schönfeldt, 1989; Schönfeldt et al. 1993). Hot-processing of chevon could be considered as an alternative to the conventional method, if the goats are not to be slaughtered in a commercial abattoir. Hot-processing can be defined as the processing of meat prior to chilling. The economical advantages are: reduction of energy input, cooling space, chilling time and labour. Hot-processing also offers a number of functional advantages: improved water-holding and emulsifying capacity, a decreased cooling loss and improved meat yield.

The carcass of the goat is similar in appearance to a sheep (Tshabalala, 2000). The Australian method of dressing a goat carcass is shown in Figure 5.1. The carcass of a mature goat is divided in the same manner as lamb; into wholesale and/or retail cuts as shown in Figure 5.2 (No diagram showing the cuts of a goat carcass could be obtained).

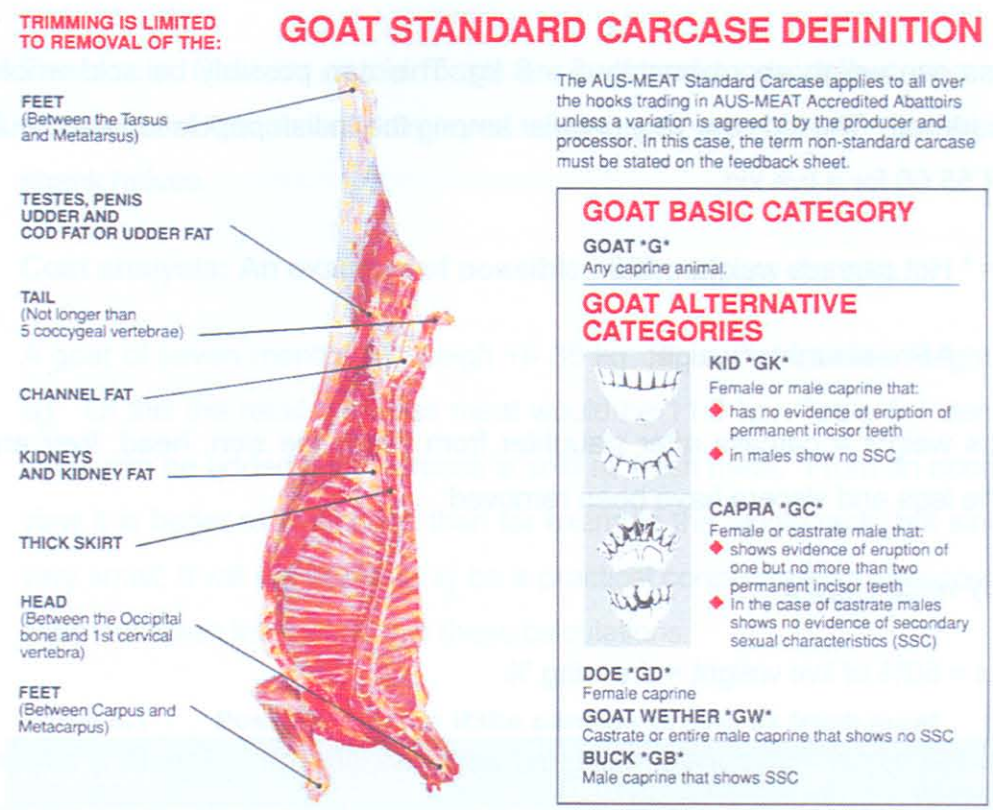

Figure 5.1 Dressing of goat carcass

Figure 5.2 Cuts of a goat carcass (done as shown for lamb)

A kid carcass can weigh approximately 5 - 8 kg. This can possibly be sold whole, halved or quartered. The kids are very popular among the Indian population and could be sold for R 55.00 for a live kid.

Dressing% = * Hot carcass weight x 100

Pre-slaughter weight

* Hot carcass weight = carcass after slaughter from which the skin, head, liver and portions of the legs and viscera have been removed

Empty body-weight figure

Goat carcass = 50% of live weight = dressing %

34% of live weight can be considered retail boneless chevon. The fore saddle, shoulder, rack, fore shank and breast make up approximately 24.5% of live weight, while the hind saddle, loin, leg and flank comprise the difference of 23.5%.

Leg: = 33% of carcass

- Whole - sirloin included, or 4 - 6 sirloin chops
- The rump, centre roast and shank

Loin: - Most valuable and most tender cut

- 4% of live weight = retail loin cuts
- double/single loin chops

Rack: - rib chops/whole

Shoulder: - less tender and palatable

- Stew/kebabs

Flank, fore shank, breast and neck:- Debone for mince meat.

Fresh cuts: Goat rib or loin roasts are preferred to chops because of the relatively small size of the rib and loin 'eyes'. Rear goat leg could be divided into sirloin and shank halves.

Cost analysis: An example of possible income from chevon.

A goat of seven months will weigh +/- 35 kg. Thus the carcass weight would be 17.5 kg. Of this the retail boneless meat would be 11.9 kg. Table 5.1 demonstrates how value can be added if the carcass is sold as fresh meat. From an economical point of view it is better to sell chops than for example the whole rack, but since the cuts are very small, it will not necessarily be a practical consideration. The costs of production were not taken into account in these calculations.

Table 5.1 Possible income if the carcass is sold as fresh meat

Fresh cuts	Retail meat (kg)	R/kg	* Income (R)
Leg: Whole or	**5.0**	**25.96**	**129.80**
Sirloin chops	2.0	22.9	45.80
Rump steaks	3.0	27.9	83.70
Loin chops	**0.8**	**34.2**	**27.36**
Rack: Whole or	**1.0**	**22.13**	**22.13**
Chops	1.0	34.94	34.94
Shoulder: Kebabs	**2.1**	**33.90**	**46.48**
Rest of fore saddle: Mince meat - fresh sausage	**3.0**	**17.97**	**53.91**
TOTAL	11.9		279.68**

* No costs were taken into account

** Rows in bold type face were used in the calculation

Several scientific studies preceded this investigation. The ground-breaking work of authors such as Casey (1982), Casey and Naudé (1992), Schönfeldt (1989), Schönfeldt, Naudé, Bok, Van Heerden and Smit (1993) paved the way for further work on this subject. As part of this study, work was conducted by Tshabalala (2000), Strydom and Tshabalala (unpublished), and Loretan (unpublished). The findings from these studies can be summarised as follows:

- Goats had proportionally larger feet, spleen and liver compared to sheep and therefore, dressed-off lower than sheep. Sheep breeds contained significantly more subcutaneous fat than goat breeds. The fore limb, ventral trunk and dorsal trunk of goat breeds were proportionally heavier than those of sheep

breeds while sheep breeds had proportionally heavier hind legs. The proportional lean content per cut of Boer goats was comparable to that of sheep breeds. The percentage carcass bone content was highest in Indigenous goat carcasses.

- The aroma intensity of Boer goat patties was significantly more ($P<0.05$) intense compared to that of Indigenous goat patties and Dorper and Damara sheep patties. The flavour intensity of sheep patties was stronger than that of goat patties. Boer goat patties were significantly more flavoursome ($P<0.05$) than Indigenous goat patties. Sheep meat patties were more tender, juicy and greasy than chevon patties as a result of differences in fat content. Indigenous chevon patties were more chewy and less tender and juicy than those of Boer goats.

- Both goat and sheep meat contained higher molar percentages of saturated than polyunsaturated fatty acid. Oleic acid was the most abundant fatty acid and its concentrations were highest in Damara sheep meat.

- The fatness of carcasses was influenced by species, breed and diet, which in turn affected the carcass composition and eating qualities. Sheep carcasses contain more subcutaneous fat and less bone than goat carcasses. Sheep meat is more juicy and more flavoursome than chevon. The high levels of fat in sheep meat mask the non-meat flavours that are often found in lean meat.

- An experiment was further designed to explore various factors that can affect the meat quality such as nutrition and feeding of a growth hormone like BST to the goat. In general it was found that while nutrition had a significant effect, growth hormone treatment in contrast had no significant effect on any of the important carcass characteristics.

5.3 Development of meat products for the retail market

Aside from the in-store repellors and attractors that were identified by respondents in the survey discussed in Chapter 4, some negative perceptions of goat meat that were

identified by potential consumers include toughness and smell. Positive perceptions included "correct farming practices applied" and nutritious. Thus, in the value-added product development these factors must be taken into account. Goat meat is indeed nutritious and low in fat and cholesterol. These factors should be emphasised. Goats should be produced humanely and slaughtered appropriately. Furthermore, only young animals or castrates should be utilised to avoid the bucky taste. To overcome the problem of toughness products such as biltong, salami, dried sausage and cabanossi could be developed that would be ideal for the delicatessen market or the tourist industry. In fact, negative perceptions were overcome when a chevon product (dried sausage) was tasted. In the previous chapter, propensity to purchase the product increased by more than 10% for both the consumer and retail respondents after a sample of chevon dried sausage was tasted. Products such as hamburger patties and sausage could further add convenience for the housewife to the product range, and fresh meat cuts may gain market ground later when the product is better established (most likely the whole leg for roasts or rolled ribs). However, it is clear that the introduction of chevon as a standard home consumption product will need to be accompanied by an active advertising and education programme.

It is important to add maximum value to chevon, since the meat yield of goats is different in comparison to sheep. This is because of the anatomical differences between goats and sheep. Sheep have more developed rumps and *Longisimus dorsi* muscles (which constitute the chops). The South African consumer is used to the large chops obtained from sheep, and may make a direct comparison between the size of the cuts instead of concentrating more on the taste and the positive nutritional attributes of chevon. It is thus better to process the meat, rather than selling it as fresh cuts. Table 5.2 demonstrates the potential for value-adding when chevon is processed. Again, the costs of production were not taken into account. However, personal communication with a butcher and two meat specialists have provided estimated production costs to the value of 24 to 35% of the direct ingredient costs for both carcass cuts and processed products even though the labour for processed products would be higher. This is because most operations do both fresh cuts and processed products and the cost of labour and other overheads is averaged across

both product types. Thus, in comparing Tables 5.1 and 5.2 an increase of 17 to 30% could be added to cover the production costs.

The highest potential value-adding would also be beneficial for non-commercialised producers if they were connected to the company manufacturing the products (through vertical co-ordination or vertical integration) and if the benefits of value-adding could be relayed back to them via the raw product price paid (Machethe, Reardon and Mead, 1997; Martinez et al. 1997; Rehber, 1998; Delgado, 1999; Gow et al. 2000; Holloway et al. 2000; Singh, 2002; ECAPAPA, 2003).

Table 5.2 Possible income if the meat is further processed to add value

Processed product	Retail meat (kg)	***Extend/loss = kg	R/kg	*Income (R)
Leg + Loin: Biltong	**5.80**	**- 50% = 2.90**	**68.90**	**199.81**
Rack: Marinated	**1.00**	**1.00**	**45.99**	**45.99**
Rest of carcass: Mince meat	5.10			
Hamburger patties	5.10	+ 20% = 6.12	19.90	121.79
Fresh sausage	5.10	+ 10% = 5.61	15.90	89.20
Dried sausage	5.10	+ 15% - 50% = 2.93	48.90	143.28
Cabanossi	**5.10**	**+ 20% - 40% = 3.67**	**59.40**	**218.00**
TOTAL	11.9	7.57		463.80**

* No costs were taken into account

** Rows in bold type face were used in the calculation

*** Increase in weight through addition of ingredients, and weight loss due to drying

The prices given in Table 5.1 and 5.2 are average prices for similar lamb and beef products obtained from a survey of four meat selling establishments in the Pretoria region in January, 1998. These prices were taken as estimates, because fresh chevon is not readily found in retail. Because fresh chevon will be difficult to market initially in the same class as lamb, because of the lack of consumer knowledge on the product, it will be a better proposition, from an economical and sensory point of view, to process the meat. Although the income of the processed products (Table 5.2) could be higher than that of the fresh cuts (Table 5.1), one must keep in mind that the processing costs could be slightly higher for the processed products, if only processed products were manufactured in the plant (but as explained above, where both types of products are produced the production costs are generally averaged over both types).

Also, deboning and processing meat (for example the drying process in biltong making) reduces the weight of the final product (although this is taken into consideration in Table 5.2). However, it is possible to further extend the processed products by including other meat and non-meat ingredients. It is advisable to bone the entire carcass of, especially, older goats for hamburger patties to which can be added goat kidney fat/fatty pork/beef tallow. Sausage from chevon, with or without meat from other species, is particularly a good choice, both nutritionally and economically. Manufacturing of sausages and other products provide convenience, variety, economy and nutritional value. However, if products are destined for the Muslim markets (as suggested by the Middle East market that exists for goat meat products) then no pork should be added to the products and no swine must be slaughtered in the same abattoir i.e. the abattoir and the product must conform to Halaal specifications – again demonstrating a market-oriented approach to product development.

Building consumer requirements into products

After finding that chevon is tougher and leaner, it was decided that reconstituted meat products would be far more appropriate for chevon than fresh cuts. The consumer also perceives that chevon is tougher, and thus this characteristic should be de-emphasized in developed products, and positive characteristics such as leanness should be emphasized. Therefore, keeping these factors in mind, it was decided to develop products such as salami (in combination with other meat types), cabanossi and dried sausage (Recipes for some of these products are shown in Appendix 3). All these products rely on deboned meat, which reduces the effect of toughness, and fat from other animals can be added to the recipe to make up for the lower "juiciness" of the chevon. However, the benefit to the consumer would be a tasty product with less fat than the normal cabanossi, salami and dried sausage products. Recipes for these products were developed and can be found in Appendix 3.

5.4 Encouraging the consumer to use chevon

It was further decided to compile and publish a book of recipes for chevon. The recipe book is to serve as a marketing tool for chevon especially among the upmarket South African consumer – the group that would pay a higher price for the meat. This type of development will encourage the use of chevon products since the consumer is supplied with tasty preparation alternatives.

Students from the second year course in Recipe Development at the Department: Food & Hospitality Management, of the Technikon Pretoria were given the task to develop and/or prepare recipes to be included in the recipe book. Firstly, the students were given some theoretical background on recipe development and emphasis was placed on the importance of taste, texture and smell when preparing recipes. The students were first given the opportunity to develop bread recipes using firstly baking-powder, then buttermilk and then yoghurt, proving that different ingredients produced different end products as regards texture and taste.

The students were then introduced to the chevon project, and specifications regarding the target market, suitability of using different cuts and different cooking methods, and using flavourings and ingredients to soften the meat were explained. A session on the scientific evaluation of a goat carcass was presented and students were given the opportunity of evaluating the different cuts for toughness and taste. A demonstration on cutting up carcasses into various cuts for various dishes was done. Techniques of deboning were explained and demonstrated, and the students were given the opportunity to practise these techniques.

The students then developed recipes for dishes using moist heat cooking methods. For these, cuts with large amounts of connective tissue (e.g. neck, thick rib and shank) were used. Recipes were evaluated and adapted where necessary before students started preparing them. Their dishes were evaluated by a panel of three lecturers who gave marks for taste, appearance, suitability (for inclusion in a recipe book) and serving possibilities. About 115 recipes were eventually evaluated. The recipes that were selected ranged from more conventional sounding recipes such as Spicy Goat

Pie (but with shredded spinach leaves, sliced mangoes and roasted almonds and covered with filo pastry) to Crumbed Peanut Goat Chops and Goat and Pear Stew. Each dish was photographed for possible inclusion in the recipe book. Several of the recipe photographs are reproduced in Appendix 3.

Some of the aspects that emerged from this exercise were that chevon is tougher than lamb, but the taste is similar. Chevon has much less fat and this needed to be kept in mind when developing recipes. Some carcasses such as the females and castrates were so lean that it was not possible to prepare any dish from them e.g. the ribs. These are findings from a consumer perspective that is corroborated by the scientific evidence that preceded it.

5.5 Discussion and Conclusions

In this chapter market-oriented chevon product development is described. The product development processes of idea generation, idea screening and concept development and testing were followed. Firstly, the perceptions of the consumer market were studied (Chapter 4) to determine the positive and negative attributes of the product. Then, goat meat was analysed for its chemical and physical attributes and preferable uses for the carcass were suggested that would lead to the highest value-added (which would be beneficial if non-commercialised farmers became more connected to the value-delivery network (or supply chain) or part of vertically co-ordinated or vertically integrated companies manufacturing these types of products). If the institutional arrangements were correct they could potentially gain a larger share of the value-added income stream as suggested in Chapter 1.

Taking the consumer perceptions (Chapter 4), the biological attributes and the most favourable value-adding options into account, value-added meat products were suggested, recipes developed and tested by consumer taste panels in laboratory settings. Following this, goat meat recipes were developed and tested by a chef school which further demonstrated the potential uses of goat meat by the general public as well as created a potential marketing tool (the recipes).

Furthermore, the products developed adhere to the requirements of the Muslim market (being free of pork products), and could effectively compete with overseas competitors because no other country applies this type of value-adding. New Zealand has added value through the packaging and presentation of fresh or frozen, whole and cut carcasses, and Brazil, India, Argentina and Somalia compete on price (also in the whole or cut carcass form), as discussed in Chapter 4. The products suggested here are new (some have a definite South African "feel" – for example the biltong and dried sausage), are high-value (due to the labour intensiveness of production, thus with higher job-creation potential), can conveniently be vacuum-packaged thus leading to a longer shelf-life (which may assist with the logistics of delivering the product to the market in the current situation of poor infrastructure in the rural areas) and could compete on price, variety and quality (whereas whole carcasses have little value-adding potential). A market for these value-added products has recently been established by the Kalahari Kid Corporation (Judith Weidemann, Marketing Manager, Kalahari Kid Corporation, personal communication, 2004).

This chapter thus describes effective market-oriented product development from an available indigenous resource to position the product as a high-value, nutritious, convenient alternative to other meat types for both the local and export market. Sub problem 3 questioned whether products of indigenous goats can be utilised commercially. Are there products of value from indigenous South African goats? Can products that fulfill the needs of the local or international marketplace be produced from indigenous South African goats? The answer to each of these questions regarding goat meat is shown to be "Yes".

If there are enough goat resources available in the non-commercialised sector (as shown in Chapter 2), and the time is right to change consumer perceptions about the product (Chapters 3 and 4), high value products can be manufactured (Chapter 5) and there are several markets for the products (Chapters 4 and 5), how can non-commercialised farmers be made part of this potentially lucrative market? To create an enabling environment in which non-commercialised farmers can operate requires attention to formal (contracts, organisations, markets) and informal (traditions, customs) institutions, both at macro (legal) and micro (organisational form) level (Chapter 1). Institutions should be kept in mind such as the legislative hygiene

requirements for perishable food products (e.g. the Public Health Safety Act), the requirements for Halaal certified products, and traceability and food labeling requirements of export markets.

The export of meat products requires that an abattoir and meat processing plant registered for export (i.e. with a ZA number) is used to manufacture the products. Also, this facility has to be specifically designed for Halaal products if swine are also slaughtered at the facility (preferably no swine should be slaughtered in the facility at all), and record-keeping of the origin of the goats must be at a high level and the products must be labeled in such a way that the point of origin can be determined. An abattoir and meat processing plant is an expensive facility, and the supply of raw product should be assured. This will not only ensure that the facility is effectively utilized, but will also ensure consistency of supply to the market, especially where bulk orders are exported overseas or required by local retailers.

The situation described here would create a method to link non-commercialised goat farmers with a processor through vertical co-ordination and ultimately to export markets with their high demands for safety, quality and consistency (Chapter 1). It thus becomes clear that a facility specific for this value-addition chain would be appropriate and best located in those regions where a high number of goats occur; for example the Eastern Cape (Chapter 2). This facility could be linked with goat producers within its area (thus reducing the transaction costs associated with transport), could specialize in the meat products developed in this chapter (allowing Halaal products to be manufactured), and can build a relationship with the goat producers in its immediate vicinity to ensure consistent supply of product. A long-term relationship with goat growers can also allow the facility to provide the growers with information relating to its raw product requirements. Thus, the structure of this collective action and the role of supply-chain governance structures become important (Chapter 1).

The operation of a goat meat facility and, to ensure its effective utilisation, its long-term relationship building with local goat producers, perfectly fits the creation of institutional arrangements involving interlocking transactions (an arrangement found in contract growing), the development and nurturing of producer groups, and can also include,

public private partnerships (due to cost of the facility), contract growing (to ensure consistency of supply), and co-operative development (to allow the farmers to work collectively to provide to the facility in an organised manner) as suggested by Kydd and Dorward (2001).

This arrangement would motivate goat farmers to improve their performance using the market as a lure (Chapter 1). It would describe a process where non-commercialised farmers become more connected to the value-delivery network (or supply chain) or part of vertically co-ordinated or vertically integrated companies (as suggested in Chapter 1). Vertical integration could lower the costs of transportation, information and marketing and the farmer could gain a larger share of the value-added income stream (Chapter 1). Through vertical co-ordination and collective action the farmers can achieve economies through size, bargaining power and elimination of duplication (Kotler, 2000) thus improving their collective consistency of supply to the market place. The benefit here for non-commercialised farmers is that no member of the chain has complete or substantial control over other members and, although they are all different companies (or legal entities) they work together for the common good. Factors such as quality of the product, consistency of supply and potentials for increasing the demand for the product (marketing) can be addressed. The design and implementation of these institutional arrangements will be further addressed in Part 3 of this thesis.

CHAPTER 6: CASHMERE PRODUCT DEVELOPMENT

6.1 Introduction

In South Africa's rural areas, the primary purpose of goats is meat production for local consumption, emergency cash flow and traditional use. However, potential for development of other value-added products such as cashmere exists. This chapter investigates the quality characteristics of cashmere from South African indigenous goats and reports on the development of several cashmere products. It also reports on the results of a market survey carried out specifically regarding the products developed and investigates the viability of cashmere as a goat product for employment and income generation.

6.2 Quality characteristics of cashmere

Cashmere, or Pashmina as it is still called in India (Shelton, 1992), is the fine secondary follicle fibre, which grows under the coarse guard hair (which originates from primary follicles) of several goat breeds (Lupton, 1992). This fibre has no medulla and is grown as an insulating coat to protect the animal from extreme cold. This undercoat fibre is one of the 3 finest fibres in the world and has three times more insulating capacity than wool. In fact, the Siberian area from which Gorno Altai goats, in particular, originate, have temperatures which vary from 40°C in summer to as low as -40°C in winter. Fibre starts to grow in mid-summer (the longest day, 22 December) and starts to shed just after mid-winter (the shortest day, 22 June) to prepare the animals for the next hot summer, thus, cashmere is a seasonal product. Under practical farming conditions farmers comb the cashmere out of the primary coat as soon as it becomes loose from the skin (Lupton, 1992). The product is graded and sold, without processing, on the world market.

There is no specific goat that is classified as a cashmere goat. Instead, the term cashmere goat refers to any goat (except the Angora) from which commercial quantities of cashmere can be harvested (Lupton, 1992). The market requirement

stipulates that the fine down hair must be less than 18.5 μ and at least 40 mm long. In South Africa, Boer goats, Savanna, Milch goats, Kalahari reds, Indigenous goats, Saffer goats and Gorno Altai goats produce cashmere, but it needs to be determined what the quality and quantities of their production would be.

As part of the Cashmere Working Group of South Africa, in collaboration with the CSIR-Textek (Mr Albie Braun) and the Eastern Cape Department of Agriculture (Cradock – Mr Joshua Roux), various aspects of a South African cashmere industry were investigated. The CSIR investigated the industrial spinning and processing characteristics of South African cashmere resources, as well as technologies to separate the cashmere from the guard hair. Their project is now purchasing raw cashmere from producers, exporting it to be cleaned and re-importing it for sale to the local hand spinning, knitting and weaving fraternity. Joshua Roux has imported various cashmere breeds and is cross-breeding and selecting the Boer goat for improved cashmere production. The idea has been to introduce these improved cashmere producing Boer goats to rural communities in the Eastern Cape (and elsewhere, in the longer term); this project is currently taking place in various areas on the ground in the Eastern Cape Province.

Basic research into the quality and quantity of cashmere production from indigenous goat types (Braker, 1997) were investigated as part of this study. These studies included investigations of the cashmere from the Boer goat and the indigenous goats owned mainly by non-commercialised farmers in rural areas. With this study it was determined that:

- Older animals produce proportionally less cashmere and more guard hair
- Older animals produce finer cashmere
- Indigenous goats produce finer cashmere than Boer goats
- Female cashmere is finer and female guard hair is coarser from indigenous goats than cashmere from indigenous male or Boer goats

In conclusion it was felt that the cashmere from indigenous goats is of good quality as far as fineness is concerned. However, the hair is rather short. Furthermore, the

minimum amount of cashmere need to justify combing is debatable. If the goats are handled every day and kraaled for the night, it would be very simple for the non-commercialised farmer to harvest the cashmere. Thus the management system would largely influence the viability of cashmere harvesting. Research to increase the production of cashmere from indigenous goats would thus increase the viability of combing.

Considering that all indigenous goats possess the ability to produce a double-coated fleece, and the great variation in cashmere weights, a domestic cashmere industry could be possible. However, if the industry were to become a significant employment generating industry, local cashmere production must be increased. This would entail special cashmere up-breeding programmes, involving the selection of high cashmere producing indigenous goats or crossing with available cashmere breeds. Such institutional arrangements would need to be established.

6.3 Cashmere product development

Whereas the CSIR Textek concentrated on the commercial processing potential of local cashmere of which the de-hairing process is a major factor, this project investigated products that could be made from combed hair i.e. cashmere that still contains guard hair. This would allow processing by small-scale rural processors with basic equipment thus adding to potential job-creation. In this respect, hand scouring (washing), carding, felting and spinning were tested with good results. With the spun fibre woven and knitted products were tested, but these, although beautiful and well-made, would not appeal to an up-market clientele.

A search for an up-market product, which did not require the removal of the guard hair led to the idea that guard hair may lend durability and strength to carpets. In January 2001, a medium-sized carpet manufacturer based in Midrand, Gauteng, was approached to develop a genuine, fully hand-made, hand-spun, hand-tufted, cashmere and wool carpet edged in goat leather. Cashmere sourced from both non-commercialised and commercial farmers and wool from the Ile de France sheep breed (that produces a very strong wool which is available at a low price), was used.

The wool and cashmere was washed, carded and spun by hand and sent to the carpet manufacturer to be processed into carpets. The carpets were edged in hand-stitched goat leather. A carpet range consisting of several indigenous designs were developed, of which some are shown in Appendix 4.

The unique characteristics of the carpets are:

- They are not being made elsewhere in the world
- They are a purely South African product
- They are completely hand made
- The expected life of a carpet with proper maintenance is 30 years
- The product is unique and exclusive
- The carpets are not dyed, only the natural colours are used in the designs

Estimate of production cost and selling price of carpets

In order to determine a fair price for the carpets, the cost of production must be known. Cashmere and wool were sourced from producers in South Africa. The raw materials were spun into yarn for the production of the carpets. The following processes were involved with the spinning of yarn:

- Washing and drying of raw fibre. This is not a time-consuming process.
- Brushing of washed fibre. This is a continuous process (A drum carder was obtained to make this process faster).
- Spinning of brushed fibre. A total of five spinners are needed to spin the fibre. It is assumed that a group of 15 could produce an average of 100 to 200 kg spun yarn per month.

The yarn is then used to produce the carpets at a fee per m^2. All the materials used in the production of the carpets are natural. The labour cost was calculated as R666 per spinner per month or R9 900 per month for a group of 15 spinners. If it is assumed

that a group of 15 can produce an average of 100 kg of spun yarn per month, which is sufficient to produce 13 carpets per month, the labour costs will then be R100 per kg yarn. The recommended price for raw cashmere fibre is approximately R70 per kg and R15 per kg is paid for wool. A total of 4 kg yarn is required to produce one m^2 carpet of which 2 kg will be cashmere and 2 kg wool. The production cost per m^2 carpet is shown in Table 6.1 (Costs of rental of a facility were not taken into account because this group does not pay for their facility or the water and lights they use – this is part of the support provided by a "business development hive" of which they are part).

The recommended wholesale price of the carpets including the manufacturing cost is approximately R 929 per m^2. The carpets can be made to any size to suite the clients' requirements, but the examples shown (Appendix 4) measure 170 cm x 112 cm. The areas of these carpets are therefore approximately 1.9 m^2, thus setting the current price of the existing carpets in the range of R 1 710. The carpet manufacturer will be requested to print the sizes and m^2 on the back of each carpet.

Table 6.1 Cost per m^2 to manufacture cashmere and wool carpets

COST ITEM	R PER M^2
Yarn	**584**
Wool	30
Cashmere	140
Labour	400
Soap	4
Overhead Costs MWS	10
Other Materials	**95**
Backing	20
Leather	60
Glue And Other	15
Carpet Manufacturing (Vat Included)	**250**
Total	**929**

A sensitivity analyses to indicate the change in production costs per m^2 of carpet produced carpet at alternative yarn production rates and at different wage rates earned by the spinners is shown in Table 6.2.

Table 6.2 Changes in cost of carpets per m^2 if spun fibre production rate or wages of spinners changes

Yarn Production per month (kg)→	100	150	200
Wage per member per month (R)↓	Production Cost of Carpet (R per m^2)		
500	829	726	674
666	**929**	792	724
900	1 069	886	794

From the information above it is concluded that the production cost of carpets is sensitive to a change in wages and yarn production rate. The production cost per m^2 carpet will, for example, be R674 at a production of 200 kg yarn per month and a wage of R500 per member per month. Production costs will increase to R1 069 at a production rate of 100 kg yarn per month and a wage of R900 per month per employee. For these reasons it was decided that for the carpets shown in Appendix 4 the price per carpet would in all likelihood be in the region of R 2 000 per carpet (directly from the carpet makers, i.e. wholesale).

6.4 Market pilot study of Cashmere and Wool carpets

It was necessary to conduct a survey to determine whether there would be an interest in the carpets. This section deals with the methodology and results of the introductory effort. A number of potential buyers were visited and interviewed and the acceptability of the prototype cashmere carpets was tested.

Methodology of pilot survey

A number of individuals and institutions were visited to obtain their perceptions regarding the marketability and price of the carpets. These organisations included: a non-profit organisation involved in the marketing of hand-made curio, decor and art items from emerging artists and craftsman; an organisation that represents the interior decorators and designers of South Africa; game lodges; an organic flea-market; a government department which assists with export marketing for local PDI organisations; carpet shops; curio retailers; and exporters. One carpet was displayed and a portfolio of other available carpets was shown. Their interest in the carpets was obtained by means of discussions.

Pilot survey recommendations

The carpets were generally well received. The overall impression gained during the survey was that the product is acceptable in the market especially with interior decorators and designers, organic flea-markets, curio marketing organisations, and exporters. It is believed, judged on the reaction of these potential buyers interviewed, that the carpets will sell. The quality and price are acceptable and the fact that designers' own designs can be incorporated in the carpets was well received. A trend exists in the market place for earthy commodities, manufactured from natural raw materials. The carpets qualify according to these norms. Game lodges, large curio retailers and carpet shops were less impressed with the carpets because the carpets were considered too bulky for purchase by foreign tourists in transit and because the carpet shops were manufacturing their own product.

The following recommendations were made:

- The carpets should be displayed at organic markets. Enlarged photos of the spinning and manufacturing process must be displayed in the stall. Spinners can spin occasionally in the stall to introduce clients to the spinning process.
- Potential buyers must be introduced to the product. A brochure should be designed and sent to all interior decorators (and other potential markets to be identified). The following concepts must be included in the brochure. "Employment creation project, up-market carpets, wool, cashmere, designers own design, natural colours, carpets are sold at cost as it is a job creation project."
- Consider displaying at large interior decorating shows. A suitable designer should be found to share exhibit space.
- Consider exhibiting at foreign exhibitions. The Department of Trade and Industry can be very helpful in this respect.
- New designs must be introduced. Tertiary institutions with design faculties may be approached in this respect.

- Publish articles regarding the carpets in selected interior decorator magazines.
- The carpet manufacturer should be requested to print the sizes and m^2 on the back of each carpet.

6.5 Conclusions

Sub problem 3 questions whether products of indigenous goats can be utilised commercially. Are there products of value from indigenous South African goats? Do the products from the indigenous goats found in South Africa measure up to the market requirements? This chapter has demonstrated the development, pricing, screening and testing of a unique, hand-made, up-market product produced utilising indigenous goat cashmere in its raw form. Prices were found suitable and the product concept testing provided good recommendations on how the design of the carpets could be improved. The results of the pilot survey were encouraging showing that interest in the carpets is good, with excellent marketing opportunities.

However, the following limitations to the production of cashmere carpets should be taken into consideration. Indigenous goats produce very small quantities of cashmere, thus limiting the viability of a small farmer producing cashmere exclusively from his/her animals as the only means of income. Thus, whilst research organisations (such as the Cradock Experimental Farm) investigate the improvement of cashmere yields from local breeds, non-commercialised farmers should firstly concentrate on meat production and comb and store cashmere throughout the season if it fits into their current management practices. This may be feasible if one considers that non-commercialised farmers generally kraal their animals every evening, and let the animals out to graze in the late morning (Personal observation and discussions with non-commercialised farmers, 1996-2004). Combing cashmere may be introduced into the management system where a child or pensioner merely combs one or two of the animals just as they are being let out for grazing. The cashmere can then be stored in a plastic or paper bag until such time that a trip is made to a collection centre where the product can be sold (or the fibre collected from them; Joshua Roux, Cradock Experimental Farm, personal communication, 2004). The amount of cashmere will only elicit a small income, but could be seen as an extra bit of income for a child or

pensioner (Income for a cashmere group – with 32 participants - in the Whittlesea area of the Eastern Cape was R 7000 in 2003, Albie Braun, CSIR Textek, personal communication, 2004 – on a visit to the project by the author). Combing cashmere in no way negatively influences the animal and, in fact, the constant combing can be beneficial in making the animal familiar with handling and reducing the external parasite load of the animal (ticks and fleas). Once enough cashmere has been collected by the collection depot, this can be sold to a processing centre for further processing.

The small amount of cashmere expected nationally would also limit the viability of several carpet manufacturing operations. Thus, the carpets should be made exclusively by a small group who could produce a consistent and quality product. This will also add to its marketability as a hand-made, rare and exclusive product, which the market survey was clear to emphasise are important attributes of the product. Since the product is not perishable, vertical co-ordination of the supply chain would thus entail linking goat producers to several collection depots that would continuously accept the product, making long-term collection facilities available at several collection depots, linking the collection depots with the spinners and carpet manufacturers (so that a constant stream of cashmere could be sourced), and linking the carpet manufacturers with interior designers or taking advantage of export stimulation activities of the Department of Trade and Industry. Also important would be creating dialogue between the carpet manufacturers and designers to assist with the latest designs and trends. Thus, linkages should be between many goat producers, several collection depots and one or a limited amount of carpet manufacturers producing an exclusive, hand-made product of high quality. The design of these institutional arrangements will be further addressed in Part 3 of this thesis.

CHAPTER 7: GOAT LEATHER PRODUCT DEVELOPMENT

7.1 Introduction

Where goats are slaughtered for home use in rural areas, skins are often discarded. This removes the value-adding potential that these skins possess. This chapter investigates the quality characteristics of leather from South African indigenous goats and reports on the development of several leather and leather-craft products. It also reports on the results of a market survey carried out specifically to investigate the market potential of the products developed.

7.2 Quality characteristics of goat leather

Goat skins are distinctive, have a pronounced and tough grain, and have traditionally been utilised in the book binding trade. The disadvantages lie in the smallness of the skin and the damage caused by the harsh South African conditions. Yet, goatskin has good stretch qualities, is tough and durable, and takes embossing and other types of decoration extremely well. Goat leather is mainly applied for clothing, hats, inner linings of shoes, suede and book binding, and small leather goods. Goat leather is very suitable for manufacturing of handcraft items. By introducing value-added processes in rural areas, there is a potential to increase the income of local people.

The International School of Tanning Technology (ISTT - previously the Leather Industries Research Institute) was commissioned to study the quality of indigenous goatskins. Goatskin leather produced from Boer goats fed four different diets supplemented either with or without growth hormones was evaluated for physical strength properties. Those animals fed the highest energy and protein diet and provided with growth hormone in the trail showed increased tensile and tear strength in the direction of the backbone. All other physical attributes of the leather showed no statistical differences between the different diets or with or without growth hormone supplementation (Jackson-Moss and Flowers, 1997). In a further study on Boer and

Indigenous goats (Jackson-Moss and Flowers, 1998), it was found that the more complex and nutritious the diet, the better the physical properties of the leather. The leather from goatskins obtained from goats fed the lowest quality ration showed the least strength, while the leather from goatskins from goats fed the most nutritious diets showed the best strength properties. The different diets had no influence on the lastometer or extension at grain crack results of the different leathers.

These results indicate that if goat farmers pay more attention to the feeding and management of their animals the quality of their skins could be improved. However, even under current conditions of production, goatskins can be considered a resource that should be exploited.

7.3 Goat leather product development

Tanning

Tanning is considered a rather high-tech operation requiring specific expertise, infrastructure and waste handling arrangements. To bring this type of technology within the reach of non-commercialised farmers or entrepreneurs it was necessary to investigate low-tech means of tanning goatskins. Two methods of tanning were investigated for their ability to be transferred to a small-scale scenario by the ISTT. These included vegetable tanning and chrome tanning. Both methods were successfully adapted for tanning in small 150 litre drums (Jackson-Moss, 1999).

Equipment necessary for this type of tanning includes a plastic drum of 150 litre capacity, a broom handle, a fleshing knife, a metal or wooden frame to stretch and dry the skins (as shown in the figure in Appendix 5) and obviously the necessary chemicals and water. The skins are first soaked, any flesh still on the skin is removed, and then the skins go through a number of steps using different chemicals. A tanning kit including the equipment and the chemicals was developed. A tanning course was developed and several have successfully been presented. With this type of system 10 skins can be tanned hair-on or hair-off per week.

Leather-craft development

The services of Craft Africa Projects Training (CAPT - Previously of LIRI) were solicited to assist in leather craft product design. It was decided that handmade articles, based on cultural tradition and decorated with uniquely South African designs, should be the cornerstone of the product development, which should have strong tourist appeal. This is similar to work done by the Ecuador government, the United Nations, and the International Labour Organisation in Ecuador where local weavers were taught to apply their traditional designs to modern products in the 1950's (Korovkin, 1998).

In the past, traditional leather articles utilised calf-skin, hair-on goat skin, and the pelts and skins of small mammals. However, hair-on articles will prove difficult to export, thus CAPT adapted several traditional designs to vegetable tanned, hair-off goat leather. Vegetable tanned leathers are easy to decorate with embossing, beading, dye-colouring, and branding. These techniques are used to enhance the leather articles.

The price for raw goatskins varies considerably. Current prices paid for dry goatskins vary between R 0.70 and R 9.50 per skin, depending on quality. The International School of Tanning Technology has provided figures of between R 0.50c to R 5 per salted skin. By means of tanning or manufacture of leather craft items, considerable value can be added to goatskins. A tanned skin's value is conservatively estimated at R 120 per skin. If the skin is used for ethnic leather craft, the added value could increase the price to R 500 per skin (Mike Ginn, Craft Africa Projects Training, 2004 – personal communication). These figures are considered conservative; good designs and decoration, skilled beading, and good marketing can increase the added value dramatically.

Products and designs would need to be market driven, but three potential areas of development of design were identified:

- Employment of the design potential of local features of interest to the tourist trade as decorative motifs to be incorporated into the leather craft. These would include local decorative emblems, beadwork and plaiting.

- The reintroduction of hair-on ethnic traditional leather previously in daily use. For the tourist trade these would be created in goat leathers, with accompanying swing-tags giving something of the history behind such pieces. (NOTE: There is a problem with regard to hair-on leather goods designed for the export market due to potential spread of bacteria etc. across national borders and resulting customs restrictions.)
- A variety of hair-off vegetable tanned goat leather bags, pouches, containers, slippers, hats and clothes, decorated in local area traditional beadwork, embossing, stamping and by other means and marketed either empty or containing potential local products, particularly of a medicinal or traditional "magic" nature. (NOTE: These items would constitute the major thrust of the Leather craft project).

The international and local tourist is more likely to purchase items of leather craft if something of the history behind the piece of leatherwork is available and if the item is useful. It is therefore imperative that swing tags are researched, prepared and attached to each item giving some of the background of the article and the people who have made it. Much can be made of the unique features of each region of South Africa, its pre-history, anthropology, history and its peoples. If available, local historians, anthropologists, palaeontologists, etc could be consulted.

In this regard the following were noted for various areas around South Africa for which product development was done:

- Local places of interest and landmarks.
- Local potential tourist attractions including social contact with the rural people of the area who are welcoming and friendly.
- Local people "types", their interests and skills, both past and present. If the old tradition of using leather objects that formed part of the cultural heritage is revived and samples are created for sale to the tourist, there is good potential for sales. Leather craft linked to such history would find a market amongst tourists who had visited the area and at such venues as international airports.

- Plant and bird life of interest to visitors who are not familiar with the area.

An example of a product range developed for an Eastern Cape project is described and shown in Appendix 5.

Costing of items

Table 7.1 provides recommended prices for the products developed (Shown in Appendix 5). The prices are based on the cost of the materials and on the time taken to make the samples and thus are essentially wholesale prices. Beading and careful painting of leather with enamel coat paints; is labour intensive, but both add enormously to the appeal of the goods and should not be abandoned.

To provide the market with consistent supplies of these products, which take considerable amounts of time to manufacture, crafters should be encouraged to work collectively. Transportation costs to retail outlets could also be reduced if crafters could sell the goods from their work stations and, preferably, if they could be assisted in setting up craft cluster retail outlets.

Table 7.1 Recommended prices of leather-craft products developed (wholesale)

ITEM	RECOMMENDED PRICE
Slippers	R 220.00
Leather nxili	R 120.00
Old man's hair-on goat leather bag	R 160.00
Young man's veg and chrome goat leather bag	R 170.00
Beaded sueded leather pouch	R 27.00
Goat vegetable-tanned embossed key pouch	R 22.50

7.4 Leather articles market survey

For various regions different product ranges were developed. Market surveys were then conducted throughout each region to assess the marketability of each product range within a specific region. The products described above were specifically designed for the Eastern Cape. Therefore the market survey relevant to this area is described here. Other surveys were conducted and results of these are available from the author.

The following issues were addressed in this particular market survey: A brief discussion of the terms of reference, demarcation of the study area, a discussion of the methodology and sampling method, analyses of the data and results of the study and a discussion of conclusions and recommendations. The cooperation from respondents was excellent and they support the overall product concepts. Their opinions regarding the products with respect to quality, price, likes and dislikes etc. regarding the specific product range described above will be given.

The area included retail curio outlets in Port Elizabeth, East London, Grahamstown, Queenstown and surrounding areas on the N2 National Road. Major exporters of curios in the Pretoria/Johannesburg region were also included in the study since these areas have the greatest tourist through-flow.

The study included two major marketing divisions which will be discussed separately, viz.:

- Retail Curio Outlets and
- Major exporters of curios

Retail Curio Outlets

A questionnaire was compiled and circulated to project participants for comments and amended accordingly. During each interview notes were made of aspects not included in the questionnaire.

Craft Africa Projects Training (CAPT) in Grahamstown, produced several articles to be shown to respondents in order to obtain their views and comments. Recommended wholesale prices were provided by CAPT and these prices were displayed on the articles. Respondents were requested to comment on each individual article.

Lists of curio shops and outlets were obtained from Tourist Associations in the respective areas. Additional names were obtained from City Councils. CAPT also provided a full list of curio outlets in the East London area. All the names on the lists were contacted telephonically beforehand and appointments were made.

Respondents were visited in their shops and they replied on general questions in connection with the curio trade. All the articles were then displayed and their comments on each article were recorded individually. Interviews lasted from 1.5 to 2.5 hours per interview. All the known curio outlets in Port Elizabeth participated in the study. The most well-known outlets in the East London area were included. A total of 14 questionnaires were completed in the study area. A major curio shop in Pretoria was also interviewed. Although this outlet is outside the study area certain conclusions can be drawn from this information. The number of curio outlets (15) who participated in the study represents 82 per cent of the known curio outlets in the area.

Outlets varied according to the type of commodities stocked and traded. The following classification has been made including the number of shops visited:

- Gift shops (Trade in gifts, curios and African Craft) 5
- Shops specialising in African Curios 10

An attempt was made to obtain the turnover of the outlet per annum, but none of the respondents were willing to give this information. As an alternative, the interviewer classified the outlet as large, medium or small. The stock on hand in the shop was used as an indicator to determine the size. Some of the outlets trade in other commodities where African Curios form a sub division. In these cases the stock of African Curios was taken as the indicator. Of the 15 outlets surveyed seven outlets were classified as large, three as medium and five as small.

The respondents were requested to give an indication of the main buyers of their commodities. Main buyers have been classified as foreign visitors and local buyers. The results are shown in Table 7.2.

Table 7.2 Main buyers of curios according to size of outlet (%)

MAIN BUYER/SIZE OF OUTLET	LARGE	MEDIUM	SMALL	AVERAGE
Foreign visitors	68	70	31	67
Local buyers	32	30	69	33
TOTAL	100	100	100	100

Foreign visitors are the main buyers (68 %) of commodities in the large outlets. These outlets have the influence to arrange touring busses to stop at their shops. Small

shops are more dependent on local business. According to the survey results, only 31% of the small outlets' business is dependent on foreign visitors. Across all the outlets surveyed foreign visitors comprise 67 % and local buyers 33 % of the clientele. Only one of the outlets surveyed was involved with exporting products.

The respondents were requested to indicate if they experience an increase in demand for curios. Sixty (60) % of respondents felt that the demand was increasing, 20% indicated that the demand had stagnated (stayed the same) and 20% of the respondents felt that the demand had decreased. It is therefore accepted that an increasing demand is experienced, mainly as a result of an increase in tourism. A seasonal demand for curios is also experienced. Foreign buyers peak during November to May while local buyers peak during Easter, Christmas and school holidays. The origins of curios found in these outlets are shown in Table 7.3.

The large outlets buy most of their curios (61 %) from foreign countries. Smaller shops, on the other hand, import less from foreign countries, buying most of their curios (92 %) from local suppliers. The average percentages for the origin of curios were 54% foreign countries and 46% local suppliers. The main foreign countries supplying curios are Zambia, Kenya, Malawi, Swaziland, Namibia and other African countries. The quality of curios is generally good as buyers buy selectively. All the respondents classified imported curios as good. The quality of South African curios was classified as good by 47% of the respondents, as reasonable by 40% of the respondents and as poor by 13% of the respondents. It is clear from these analyses that South African curios are of a lower quality than imported curios. The quality of Eastern Cape curios, if available, was classified as good by 14% of the respondents, as reasonable by 36% of the respondents and as poor by 50% of the respondents. All (100 %) of the respondents indicated that a demand exists for good quality genuine South African curios. The availability of curios according to origin is shown in Table 7.3.

Table 7.3 Origin of curios (%)

ORIGIN/SIZE OF OUTLET	LARGE	MEDIUM	SMALL
Foreign countries	61	29	8
Local	39	71	92
TOTAL	100	100	100

Table 7.4 Supply of curios according to origin

ORIGIN/SUPPLY	GOOD	REASONABLE	POOR	TOTAL
Curios in General	43	43	14	100
South African Curios	20	47	33	100
Regional Curios	0	13	87	100

The sample items were shown to the respondents and they were requested to comment on each item individually in terms of quality, likes, dislikes, price and general recommendations. Each of the items is discussed separately.

Slippers

- 7 respondents were impressed with the article and thought it was a good idea.
- 6 respondents felt that it was only catering for a limited (foreign) market (because of price)
- 6 responded that the slippers were too expensive.
- 5 felt that it will not sell and they would not buy it.
- 3 commented that it looked like an Indian design.
- 3 respondents suggested it should have rubber soles.
- 1 respondent stated that shoes need too many sizes to stock in a curio shop.

Recommendation

- To simplify the design to make it more cost-effective.

Leather Bags

- 11 Respondents were impressed with the idea and thought it was an attractive article.
- 5 respondents stated that it would sell.
- 4 felt that it is authentic and caters for a specific market.
- 4 commented that the foreign market would not approve of the hair-on bag or any fur article.
- 4 suggested that the opening should be wider.
- 4 respondents felt that it could be more practical.
- 3 respondents commented that beading is not traditionally correct and suggested less beading.
- 2 respondents felt that the young man's bag was too big

Recommendations

- The bags must be designed in such a manner that it can be used as a consumer's article.
- The foreign market will buy it as a memento and want specific authentic meaning to it. Burn names onto leather such as "Handmade in South Africa, Transkei, and Wild Coast etc."
- Will sell more if the leather bags are simplified and more cost effective.
- The opening should be wider with a flap over the opening.
- Traditional articles do not necessarily sell well; it must have a practical purpose.

Key Holders and Beaded Pouch

- 10 Respondents stated that it would sell well as it is a light (travel friendly) article.
- 4 Respondents were impressed with the beaded pouch
- 2 Respondents stated that the beading is of poor quality.

Recommendations

- Respondents suggested embossing only would look more sophisticated.
- To print "Handmade by Xhosa" on key holder as it is popular with foreign buyers.
- Respondents suggested embossing the big five as it is usually popular and also ethnic designs or a Xhosa Woman and penguins, with "Eastern Cape", or the specific town.

All the respondents were of the opinion that the quality of the articles is very good. In conclusion, the following specific recommendations were made:

- The slippers were too expensive. It should be considered to reduce embossment on the slippers in order to bring the price down. A massive export market opportunity is not excluded if the price can be reduced substantially.
- It must be considered to adjust the design of the bags so that it may have consumer value.
- The key rings received positive reaction and there is no doubt that these articles will sell.

Recommended wholesale prices were attached to each article. The respondents were requested to express an opinion on the wholesale price of the articles. The results are shown in Table 7.5.

Table 7.5 Opinion of respondents on recommended prices of sample articles (% of respondents)

ARTICLE	WHOLESALE PRICE		
	High (%)	Reasonable (%)	Low (%)
Slippers	80	20	0
Goat Leather Nxili (Women's Smoking Poach)	33	67	0
Young Man's Goat Leather Bag	20	80	0
Old Man's Hair-On Goat Skin Bag	40	60	0
Embossed Key Ring	27	73	0
Embossed Key Poach	0	100	0
Beaded Suede Leather Poach	13	87	0

The respondents were also requested to recommend alternative prices if they were of the opinion that the recommended prices were too high. The results are shown in Table 7.6.

Table 7.6 Alternative prices (R per item) according to business size (number of outlets responding shown in brackets)

	SIZE OF OUTLET			
Item	Large	Medium	Small	Average
Slippers	98 (6)	90 (2)	107 (3)	99 (11)
Leather nxili	58 (2)	60 (1)	60 (1)	58 (5)
Young man's goat leather bag	72 (3)	60 (1)	82 (2)	73 (6)
Old man's hair-on leather bag	70 (3)	80 (1)	79 (2)	75 (6)

The packaging was considered satisfactory. Respondents however recommended that recycled materials be used as it is popular in the foreign market. Most of the respondents were of the opinion that a logo will not promote sales. One respondent suggested a shepherd as a logo. A swing tag with information regarding the country and region of origin and some basic information is sufficient. The main buyers of the articles will be foreign tourists.

The majority of respondents were of the opinion that separate display of articles will not promote sales. Should this be done it needs to be stocked very well with a variety of articles. Brief information with respect to the products and their origin should relate to all the articles. There must be sufficient stock in the space at all times. Most of the respondents indicated that they would prefer to do the arrangement themselves. Most of the outlets pay 30 days after delivery.

Quality, price, a swing tag with basic information, and a brochure giving details of the article (similar to those attached to the articles at the time of the survey) were considered important for the marketing of curios. The mark-up on the wholesale price is shown in Table 7.7. It is clear that smaller outlets' mark-up is lower than the larger outlets. According to the survey the average mark-up is 78 %.

Table 7.7 Mark-up on wholesale price

SIZE OF OUTLET	MARK-UP PERCENTAGE	N
Large	95	7
Medium	100	3
Small	46	5
Average	78	15

Major Exporters of Curios

The same methodology as discussed above was followed with major exporters of curios. Two major exporters in Johannesburg were interviewed using the same methodology as described above. These outlets are involved in the local marketing and export of curios. They concentrate on the upper market and as a result the samples shown to them were not in their main line of business. They were not very interested in the articles shown to them. They were of the opinion that the prices of the articles shown to them were high. They expressed the opinion that leather articles are in good supply and the competition is very strong. Producers must be innovative in their designs to stay in the market. The outlet involved in exporting of curios showed particular interest in the slippers. The quality is fine and most probably suitable for the export market. His agents in the USA will be able to comment on the export potential if he is furnished with photos of the slippers. The wholesale price needs to be decreased to R100 per pair in order to be competitive. Should these slippers be in demand he will require many slippers on a regular basis.

Both of them were however of the opinion that the demand for quality curios are increasing. They perceive a seasonal trend in the demand for curios. The peak period is August to April. The origin of their curio stock is mainly from South Africa. These outlets mark-up the price of articles approximately 150 % on the wholesale price.

7.5 Discussion and Conclusions

This chapter has investigated the potential of value-adding to goat skins in the production of goat leather products for various markets. To increase the potential for job-creation the study decided to investigate products for the curio craft market which could be manufactured by hand in the rural areas. Although the quality of the articles was perceived as good and all the respondents included in the study confirmed this, several adjustments to the designs could be made to increase acceptability. It appears that articles that are traditionally authentic will not necessarily be in demand, they may however, qualify as collector's items. It became clear that articles that are consumer friendly are preferred to those that are ethnically correct. Leather article design must be innovative and pricing must be competitive. Another matter of concern was the reaction to the pricing. The articles are hand-made and take some time to produce. However, the majority of the respondents indicated that the price of the slippers were too high, although the prices of the remaining articles were reasonable. A reduction in price would make the slippers more acceptable in the market place. It could be considered to make the slippers simpler in order to reduce the price.

These results suggest that other, more modern and practical items need to be designed in addition to the curio items developed. In South Africa Nguni skins and game skins are becoming very trendy in the home décor industry. Hair-on goat skins have similar interesting patterns as Nguni skins, and the possibility exists to venture into the interior decorating realm. It may thus be prudent to manufacture products such as cushions, lampshades, furniture, carpets, and bed-throws using almost whole skins both with hair-on or hair-off. These items require little labour to manufacture per item, and can be sold in bulk to several interior decorating outlets which have appeared on the South Africa home décor scene (e.g. Boardmans, Mr Price Home, @Home etc.). A previous market survey in the North West Province (Smuts, 1998c) indicated that the following curio items are popular with tourists: traditional African drums are high on the priority list as curios (Drums are not freely available and the demand is good); leather belts; leather hats; burnt leather engravings; sling bags; men's wallets; sandals; leather jackets; ladies handbags; catapults made of goat horn; miniature shields; leather coasters; and leather place mats. Again, these items

suggest that more modern, practical items are required by the marketplace. However, as suggested by one respondent, a swing tag with an ethnic story of the item's origin could still add appeal to the item for the local or international tourist.

The methodology designed to allow small-scale leather tanning, although convenient, is also open to criticism. The number of skins that can be tanned by hand in one week is small, and the disposal of the effluent in an unorganised manner may lead to environmental and public health concerns (especially in some rural areas where water quality is already a contentious issue). If a substantial number of goats were to be slaughtered at a central location (as suggested in the Conclusion of Chapter 5), then a similarly large number of goatskins would be available at this central location. This creates the need for a medium sized tannery close to the abattoir (to reduce transport and handling transaction costs). Tanneries are expensive facilities (asset specificity) and need to operate at effective capacities, thus a consistent supply of raw product would assist in the viability of such an operation. Effluent disposal and pollution are also concerns. However, with the latest market trends in hair-on leather products (for interior décor), a hair-on tanning facility would negate the need for the sulphur processes which are associated with hair-off tanneries (these sulphurs give the "rotten-egg" odours associated with tanneries). Furthermore, on a smaller scale, tannery effluent can be re-used (both chrome and veg tanning chemicals), and once finally spent, can be stored for collection and disposal by larger operations (Dr Clive Jackson-Moss, ISTT, personal communication, 2000).

These inherent limitations to tanning in rural areas may be overcome with vertical co-ordination with contract goat growers supplying to an abattoir, and the tannery having a contractual supply relationship for skins with the abattoir. Here, a constant supply of skins can be maintained increasing the viability of the tannery. The possibility also exists that if the goat growers are in any event contracted to supply goats to the abattoir, then a relationship could also be built with them to supply raw skins obtained from traditional use (which are often discarded). Such a relationship could also allow the tannery to educate the goat growers on improved nutrition practices to strengthen their goat skins (as indicated by the research in this chapter), and management practices which would limit scratches and scarring (such as the use of barbed wire fences). Furthermore, if only hair-on tanning were to occur (due to environmental

concerns), a relationship with a hair-off tannery could be established for two reasons. Firstly, skins that do not have interesting hair patterns can be bartered, swapped or sold to obtain hair-off leather, and, as often as required, the hair-off tannery could be contracted to collect and dispose of the used chemicals of the tanning process. Leather crafters producing items from the skins will also benefit by the consistent supply of hair-off and hair-on skins, and the bulk in which the leather will be available will allow many crafters to manufacture items which could do well in bulk retail markets (thus allowing co-operative crafting groups to be formed as suggested in this chapter).

The above discussion describes how a market-oriented approach to product development from a previously under-utilised indigenous resource has led to the suggestion of institutional arrangements which can assure that the goat producer has access to information to improve their production practices, a consistent market for skins often discarded when goats are slaughtered for household or traditional use, and the potential to be part of a vertically co-ordinated value-addition chain (which may allow the goat grower to access some of the value-added economic gains). Furthermore, employment opportunities in this sector could be high since the manufacture of the items is labour intensive. Here too the leather item manufacturers and crafters can be linked to the leather tannery (and thus to the goat producers), allowing consistent supply of raw product (and the potential to relay information regarding the characteristics of the raw product to the goat producers and the tanners – i.e. regarding quality, dyeing possibilities etc.). The value-adding potential of goat skins is the greatest of all the products from goats, and if the supply and manufacturing chain for goat leather were vertically co-ordinated through contract growing this opens up the potential to relay the financial benefits back to the producer (if the correct quality is delivered). The design of these institutional arrangements will be further addressed in Part 3 of this thesis.

CHAPTER 8: GOAT MILK PRODUCT DEVELOPMENT

8.1 Introduction

Although goat milk is currently produced on a limited scale in South Africa, interest in the milking of goats has increased considerably over the last three years. More and more farmers and small-stock owners are considering the milking of goats as a possible farming alternative. This chapter investigates the quality characteristics of goat milk available in South Africa and reports on the development of several milk products taking into consideration the consumer requirements and perceptions identified in Chapter 4.

8.2 Quality characteristics of goat milk

Goat milk is seen as a popular alternative for the nutrition of babies allergic to cow milk and for various therapeutic uses. Goat milk is also, of course, sought after for the production of up-market cheeses and powdered milk. There are several constraints to the increased consumption of goat milk. Generally they can be regarded as; an unfamiliarity to goat milk or its products, a poor public image of goat milk and goats in general and, a lack of public knowledge of, and appreciation for, the unique qualities of goat milk. Very few South Africans have ever tasted goat milk or its products. In part, this is due to the above-mentioned factors, but one should also keep in mind that goat milk and its products are not readily available to the consumer (Factors similar to those suggested for meat in Chapters 4 and 5).

Goat milk differs in various ways from cow and other milks as shown in Table 8.1. A comparison of goat milk and cow milk reveals the following differences in goat milk (ARC, 1999):

- More C6 to C10 fatty acids, especially caproic acid.
- More casein micelles and fat globules in a smaller range.

- Lack of an agglutinising agent to cause a "cream line".
- Differences in the binding of calcium.
- Lack of carotenoid pigments (the milk is white).
- It freezes and thaws with relatively little change because of the nature and dispersion of the fat globules.
- It has its own characteristic flavour. This should be less obvious in good-quality milk, but is more apparent when the milk if heated and made into cheese.
- It has a different curd form, which improves its digestibility.
- It makes cheese with many distinctive flavours and textures.
- Folic acid needs to be added when it is used for infant diets.

Goat milk has been shown to be deficient in folic acid when compared to human milk. This becomes important when babies are fed goat milk due to allergic responses to cow milk (Of course, it should be remembered that mother's milk should always be considered as the first option). Allergic reactions to cow milk and cow milk products by children and adults may be manifested in conditions such as skin rashes and eczema, runny noses, chest infections and asthma, and digestive upsets, such as colic and diarrhea. To overcome these problems, goat milk is often recommended. However, since the major allergic responses occur with infants, the nutritional value of goat milk is of the utmost importance. Folic acid is important in iron metabolism and the formation of red blood cells. Therefore, it is possible that an infant fed goat milk may develop anemia. As a general recommendation, a vitamin supplement of folic acid should be given to the child.

Table 8.1 Nutritional value of various types of milk

ITEM	GOAT	COW	SHEEP	HUMAN
	GRAMS PER 100 GRAMS			
Moisture	87.0	88.0	80.7	87.5
Protein	3.6	3.3	6.0	1.0
Fat	4.1	3.3	7.0	4.4
Carbohydrates	4.5	4.7	5.4	6.9
Isoleucine	1.207	0.199	0.338	0.056
Leucine	0.314	0.322	0.587	0.095
Lysine	0.290	0.261	0.513	0.068
Methionine	0.08	0.083	0.155	0.021
Threonine	0.163	0.149	0.268	0.046
Tryptophan	0.044	0.046	0.084	0.017
Valine	0.240	0.220	0.448	0.063
Argentine	0.119	0.119	0.198	0.043
Histidine	0.089	0.089	0.167	0.023
C_{10}	0.26	0.08	0.4	0.06
C_{12}	0.12	0.09	0.24	0.26
C_{11}	0.32	0.34	0.66	0.32
C_{16}	0.91	0.88	1.62	0.92
$C_{16:1}$	0.08	0.08	0.13	0.13
$C_{18:0}$	0.44	0.40	0.9	0.29
$C_{18:1}$	0.98	0.84	1.56	1.48
$C_{18:2}$	0.11	0.08	0.18	0.37
	Mg per 100 grams			
Cholesterol	11	14	11	14
Calcium	134	119	193	32
Magnesium	14	13	18	3
Phosphorus	111	93	158	14
Potassium	204	152	136	51
Sodium	50	49	44	17
Thiamin	0.05	0.04	0.07	0.01
Riboflavin	0.14	0.16	0.36	0.04
Vit B_6	0.046	0.042	0.09	0.011
Vit E	0.04	0.09	0.12	0.34
	Microgram per 100 gram			
Vit A	56	31	42	64

(Source: Langenhoven et al., 1991)

The allergic reaction to cow milk is quite different from that seen when there is lactose intolerance. Lactose intolerance is seldom seen in children, but may develop in adults when the ability to digest lactose is lost. In such a situation, the lactose passes undigested to the large intestine, where it is subject to bacterial action, leading to cramps, excessive gas production and even diarrhoea. A simple solution to the problem of lactose intolerance is to use fermented milk products (such as yoghurt or amasi), where "friendly" bacteria have been used to break down the lactose to lactic acid.

There is also great variation in the quality of milk produced by different breeds of goats (See Table 6.2). Several milk goat breeds are currently found in South Africa. The

most popular is the Saanen. However, small populations of Toggenburg and British Alpine are also found. The Indigenous South African goat has also been investigated for its milk quality and quantity.

The work of Donkin at MEDUNSA paved the way for further work on milking goats in the non-commercialised agricultural sector of South Africa. In a study by Donkin (1991), Saanen goats yielded 602 ± 139.2 kg over 279 ± 10 days. This milk analysed for 2.91 ± 0.43% milk fat and 2.64 ± 0.3% protein. In contrast, indigenous goats yielded 23 ± 12.8 kg over 94 ± 39.3 days. Indigenous milk analysed for 8.89 ± 2.22% milk fat and 5.36 ± 0.71% protein. Habteyohannes (2001) found a fat % of 4.96 ± 2.0 and a protein % of 4.2 ± 0.2 in indigenous goat milk and a fat % of 3.14 ± 0.1 and a protein % of 2.75 ± 0.01 in milk from Saanen goats. Interesting results were also obtained from crossbred (indigenous X Saanen) goats (Donkin, 1991). Milk from these does yielded ±5.44% fat and 3.73% protein. Yields from crossbred does were in the order of 1.6 to 2.5 kg daily as compared to the 2.4 to 3.3 kg per day for the Saanen does. These crossbred does also had lactation lengths in the same range as the Saanen goats.

The market survey discussed in Chapter 4 indicated an increasing potential for goat milk and goat milk products since respondents indicated an increased propensity to purchase the product after a goat cheese sample was tasted. Dairy results from a number of participating respondents showed that by comparing the general buying power of cow milk products to that of goat milk products, there was a general perception that consumers often buy items which are known to them (cheese, milk etc.) more than the so called "luxury/speciality" items. This shows that even products from goat milk should be offered or presented as similar to general daily purchases and not as luxury items. It was also shown that goat milk commodities among the targeted respondents were favoured by the educated, middle to upper income people from all groups. The general perception was that if these products have to be considered as a "luxury" they then have to be marketed to upper class consumers only, preferably those in high-income areas.

Table 8.2 Differences in composition of goat milk between different goat breeds (Mean ± SE)

BREED	MILK FAT, %	PROTEIN, %	LACTOSE, %
Saanen	3.43 ± .53	2.88 ± .34	4.49 ± .2
Indigenous	9.33 ± 1.84	5.04 ± .82	5.12 ± .56
Crossbred	5.47 ± .67	3.88 ± .29	4.81 ± .18
Three-quarter Saanen	5.1 ± .64	3.5 ± .41	4.73 ± .17

(Source: Donkin, 1991)

Goat milk research was conducted in collaboration with the University of Pretoria and the University of Orange Free State. Quality attributes of Feta cheese made from a mixture of goat and cow milk were studied. The results compared well with most literature studies and the cheese samples were well accepted (Pitso, 1999) by consumer panels. In the studies by Habteyohannes (2001), Gouda cheese was manufactured from goat milk only. Raw milk from this study showed that hand-milked goat milk was of good quality and had lower microbial counts than milk from Saanen goats that were machine-milked. This shows that if proper hygiene practices are applied it may be possible for non-commercialised farmers to produce dairy products of high standard if milking equipment is not available.

8.3 Review of existing goat milk products

The use of goat and or sheep milk is popular in the European Union (E.U.) especially in the eastern countries with the Mediterranean region dominating. The production of dairy products is often on a small scale and is regarded as traditional. Cheese-making in particular is localised or regionalized in a sense that each product is regarded as a "speciality" of that particular area. Greece, Italy and Cyprus are a few of those countries that produce almost 60% of traditional dairy products from goat milk. In the E.U. efforts are made to globalise these products to enhance the economy of the rural inhabitants involved in dairy making (Pirisi, Sanna and Caria, 2000). As stated by Sordo (2000), Europe produces 2245 tons of goat milk compared to 2599 tons produced in Africa.

Goat milk has been made into products for many centuries. Some uses of goat milk are: Cheeses: soft French style goat cheese, Camembert and Brie-type goat cheese, cottage cheese, Mozzarella, soft molded goat cheese, herbed soft molded goat cheese, chive-n-garlic slice goat milk cheese, mild and strong Feta cheese, Colby,

Cheddar, Monterey jack, Ricotta; Fermented milks: maas; Yoghurts: plain, flavoured yoghurt, frozen yoghurt; Dips; Ice-cream; Sorbets; Fudges; Puddings and pie fillings; Soap; and Paint (Whitewash) (Toth, undated).

Recipes for all these products are available to the public. Furthermore, courses in the making of these products are presented at the Animal Nutrition and Products Institute in Irene. Research into goat milk product development is continuing at the Animal Nutrition and Products Institute in Irene. Emphasis is being placed on the use of indigenous cultures, the combination of cow and goat milk in various products, and cheese-making with the inclusion of other traditional South African food items, such as crystallised fruit, marula fruit and others (these suggestions are also being implemented already by the Tantinki Goat Dairy Farm in Oudsthoorn). A further avenue of development is the provision of goat milk to the pedigree companion animal breeding fraternity as a milk replacer for orphaned pedigree puppies and kittens, and the possible use of goat milk as a breast-milk alternative to babies of mothers living with HIV/AIDS.

The producer price for goat milk varies between R3.00 and R4.00 per litre. Accordingly, goat milk prices are relatively high in comparison to cow milk producer prices, which average approximately R 1.80 per litre. If goat milk is positioned to compete for a market share in the fresh milk market it will need to be traded at competitive prices (Smuts, 1998a).

Retailers and producers only sell small quantities of goat yoghurt at approximately R5.25 per litre; sales are generally to consumers with allergic conditions. The retail price for powdered goat's milk is R 111 per kg and for canned goat milk is R 42 per litre. A spot price test at the Pick 'N Pay retail store at Fairy Glenn, Pretoria (28/02/98 – Smuts, 1998b) showed that goat cheese is relatively expensive in relation to the more well-known and popular cheese types (Table 8.3). Personal communications with goat cheese producers (Stillerust, Tantinki, Fairview, Middelpos) in 2004 found prices as high as R 120/kg for goat cheeses being obtained in the retail sector.

Table 8.3 Retail prices at Pick 'N Pay, Fairy Glenn, Pretoria, Cow and goat cheese.

PRODUCT	R PER KG
Cow cheese	
Cheddar	29.00
Gouda	27.95
Processed	27.99
Goat cheese	
Chevin	71.92
Rabiola	85.49

(Source: Independent spot price survey; Smuts, 1998b)

8.4 Conclusion

As shown in Appendix 1, several commercial goat dairies and goat product manufacturers exist in South Africa. Knowledge and information relating to this type of farming system is available, and the potential to develop new products for the South African consumer is large. However, access to this industry for the emerging entrepreneur is hampered by serious constraints in legislation, transportation, and information. The most important aspect of any successful and sustainable goat milk production and processing development will be to link farmers, researchers, the private sector, science and technology as well as professionals. All these aspects however, must operate based on legislation (institutions) set by the government (Vallerand, 2000). Current issues, which warrant attention include: The cheese making heritage of local populations; studies into traditional products or recipes; planning and co-ordination of the two dairy sectors (cow & goat); research information dissemination and the formation of farmer's groups; seeking governmental support for the development of an infrastructure that will deal with goat milk collection, transportation and the relevant equipment to be used.

Since milk is a highly perishable product innovative institutional arrangements to overcome this limitation need to be sought if the small-scale producer in South Africa is to become involved in this sector. Firstly, legislative matters may need to be addressed. In South Africa no additions to milk are allowed. This is different to some other developing countries where the addition of lactoperoxidase is allowed for by legislation. Lactoperoxidase is a naturally occurring preservative which lengthens the shelf-life of milk by several hours. If the addition of this preservative were allowed it may open up the possibility of satellite goat milk producers producing on contract to a

central processing facility (with the necessary refrigeration infrastructure). However, currently this is not possible. The suggestion of lactoperoxidase addition has been tabled with the necessary authorities (2001), with no outcome as yet.

Barring these institutional changes, the perishability of milk forces the production of goat milk and its products at a centrally managed infrastructure (as is found in all the commercial goat milk operations in existence in South Africa currently (Chapter 2)). Although many of the products investigated can be made at the kitchen level, penetration of retail markets require large volumes of product and consistency of supply and quality. Public health legislation would also inhibit the manufacture of products for sale from unregistered facilities. Goat milk is not yet recognized as "dairy" by the Milk Producer's Organisation of South Africa. Thus, the current institutional arrangements that exist for the collection, transportation and processing of milk in South Africa is not available for goat milk. The disadvantages of high costs of establishing new infrastructure for transport and processing thus lends itself more to a totally integrated company where the producers are also the processors (as found in all the commercial goat milk operations in existence in South Africa currently – Chapter 2 – with one exception: Fairview buys in milk on contract from Stillerust Dairy to augment its own supply).

Only one goat milk producer and cheese manufacturer currently has the capacity to supply in bulk to the large retailers (Pick 'n Pay) in South Africa (Fairview: Paarl: Chapter 2). TT Dairies (Pretoria) is however penetrating select stores of several retail chains and health food stores in the Pretoria vicinity, and Stillerust (Bonnievale) has recently received a national contract from Woolworths. Fairview and TT Dairies are totally integrated, both producing and processing the milk into value-added products. Stillerust however, has gone into a partnership with a cheese manufacturer based in Bonnievale, where the partnership will entail that Stillerust produces the milk, and the cheese manufacturer is responsible for producing the product. Stillerust receives the product back from the manufacturer and does the packaging and delivery, thus keeping the presentation of the product, the ultimate quality control and cold chain requirements in-house (demonstrating effective vertical co-ordination). Stillerust also delivers milk, on contract to Fairview. Thus, the institutional arrangements which may

allow non-commercialised farmers to penetrate this industry are different than for meat. These will be further addressed in Part 3 of this thesis.

PART 3

INSTITUTIONAL INNOVATION

From the preceding two sections it becomes clear that:

- The South African goat industry currently has the capacity to mobilise to meet national and global market demands or trends (Hypothesis 1).
- There are several historical reasons for the non-commercialisation of indigenous goats in South Africa that are of lesser consequence today (Hypothesis 2).
- Goats produce commodities that have economic value, but are little known or investigated (Hypothesis 3).
- New South African and new and existing global markets exist for new and existing South African goat products (Hypothesis 4).

If the goat resource is large enough, the political and economic environment has changed, research has identified new products with economic value, and markets for these products exist, then, what is the final constraint in commercialising the Goat Industry in South Africa for the benefit of the non-commercialised and commercialised goat farmer in South Africa? Having read up to this point, Williamson (2000) would most probably apply the Rudolph Spreckels move that: "When I see something badly done, or not done at all, I see an opportunity to make a fortune". Here liberty has been taken to adapt this statement to: "The utilisation of indigenous goat resources in South Africa is being done badly, or mostly not at all and there is an opportunity to make a fortune". In this thesis inefficiencies in the utilisation of indigenous goats in South Africa have been demonstrated (Chapters 1 and 2). Through Chapters 2 and 3 this thesis has sought to investigate the reasons for these inefficiencies and they have been found to be due to short-sightedness (influenced by politics) and ignorance (influenced by education and lack of access to information), but more fundamental difficulties also exist (a research problem as described by Williamson, 2000). The conclusions of Chapters 4, 5, 6, 7 and 8 have suggested some institutional arrangements that may overcome these inefficiencies (A methodology of New Institutional Economics as suggested by Williamson, 2000). Part 3 of this thesis (Chapters 9 and 10) takes the suggestion of these institutional arrangements further.

Hypothesis 5 of this thesis declares that new institutional arrangements can be created or various existing institutional arrangements can be adapted to assist the increased involvement of, and be of benefit to, the non-commercialised goat producer and processing entrepreneur in a commercialised goat industry. What are the features of these institutional arrangements? What institutional arrangements would best suite this new industry? What institutional arrangements could best serve all the role-players? What institutional arrangements would take into account the demands of the global market place?

New Institutional Economics investigates varying forms of institutional arrangements, their advantages and disadvantages for various production, processing, and marketing scenarios and offers solutions to the reduction of high transaction costs. In this section these alternatives will be investigated for their suitability for the challenge of commercialising the goat industry in South Africa. The Conclusions of Chapters 5, 6, 7 and 8 have suggested various institutional arrangements which may create enabling environments for non-commercialised farmers, whilst keeping the attributes of the various products (their perishability, the limitations of legislation etc.), their manufacturing requirements (asset specificity, labour intensiveness, reliability of sourcing of raw product), and the market requirements (trends, perceptions, quality, consistency of supply and health requirements) in mind. These suggestions will be further investigated in Chapter 9 and case studies demonstrating their practical application will be presented in Chapter 10.

CHAPTER 9: INSTITUTIONAL INNOVATION TO COMMERCIALISE THE INDIGENOUS GOAT INDUSTRY

9.1 Introduction

To move goats from non-commercialised farmers in deep rural areas to discerning international consumers bent on quality and safety requires specialisation at various steps along a pathway (as suggested for vertical integration by Coase, 2000) and is influenced by the property rights associated with the inputs required by that pathway (as suggested for vertical integration by Furubotn and Richter,2003). This concerns the flow of real goods over time and the exchanges of those goods between the different parties owning them. The productivity of such a system will depend on the costs of the exchanges along that pathway, and these are influenced by the institutions (the laws, the politics, the social constructs and the cultural norms) of the country (as suggested by Adam Smith: as quoted by Coase, 2000), the institutional arrangements between the various resource-owners along the pathway and the willingness of all parties to transact. These relationships are governed by contracts (whether formal or informal) which aim to reduce the transaction costs associated with obtaining the inputs to the flow of goods on a consistent and reliable basis to the extent that profit (residual) is maximised for all or some of the parties involved. The organisation of the firm and the institutional arrangements which may provide the most benefits to the parties associated with the commercialisation of indigenous goats will be described in this chapter.

Since form follows function, the critical factors in the process from goat production, through processing or manufacturing of goat products and finally the marketing and sale of those products need first to be determined, and then the various role-players (or asset owners) along the pathway can be identified and the best relationship between them devised. Sections 9.2, 9.3 and 9.4 of this chapter will therefore follow the process: identification of factors critical to the process, identification of role-players

required for the process, and determination of the institutional arrangements governing the relationships between the role-players.

9.2 Identification of critical issues within a consumer friendly goat production and marketing chain

Globalisation has brought with it new demands by retailers (following from direct pressure from consumers and consumer groups) for traceability, quality and consistency of supply. A consumer wishes to find the product he/she requires now (regularity of stocking), on the shelf where he/she found it previously, equal in appearance to the previous purchase (branded), equal in quality to the previous purchase (consistency), at an acceptable price and feel satisfied that he/she can trust its safety for consumption. If proved unsafe, the consumer would wish to have some form of recourse, which is enabled through the mechanism of traceability back to source. Thus, the design of a product value-adding chain must start with the requirements of the final consumer in mind and every attempt must be made by the rest of the chain to deliver on those needs (whether on price, quality, consistency and so on).

These requirements have become all the more important in the livestock products market following the sanitary breaches of the 90's regarding *Salmonella* poisoning, and the fatal consequences of the Bovine Spongiform Encephalopathy or BSE (Mad Cow Disease) outbreak. To reduce the risk of microbiological contamination during food processing, systems such as HACCP (Hazard Analysis Critical Control Point) were introduced into several food processing systems such as abattoirs, milk bottling plants, cheese processing factories etc. in the 90's (where HACCP was essentially used as a method to trace processed products back to processing firms as it was assumed that the problems originated at this point). However, the BSE outbreak led to a call for traceability back to origin (i.e. the producer), since BSE has been directly linked to the use of animal by-products (specifically carcass meal) in animal rations. This further strengthened the consumer preference for "natural" and "organic" labelled farm produce which, in itself, requires stringent labelling, record-keeping and monitoring, since certification is required and a premium is paid for such products.

These demands have led to the increased occurrence of vertical co-ordination and vertical integration in agricultural food and non-food product markets and has become a norm in many industries around the globe (some examples include: the pork industry in the United States (Martinez et al. 1997), the tomato, chilli and potato industry in India (Singh, 2002), the sugar beet industry in Slovakia (Gow et al., 2000), the pot plant industry in the Netherlands (Engelbart et al. 2001) and the poultry and swine industry in South Africa (SAMIC, 2002)) and are being developed in both developed and developing situations. Vertical integration occurs when a firm combines or collaborates with another that owns different assets to its own and undertakes activities unlike its own, whether up-stream or down-stream of its own activities, within the sequence required in moving a product from the producer to the consumer (Rehber, 1998). This would be the case in the commercialisation of indigenous goats since although it can be argued that the production and marketing of goats could be undertaken by a single firm, it should be realised that a huge amount of technology and information transfer, capacity building and capital would be required to produce a firm of large enough scope to successfully enter the national and international market due to the requirements for consistency of supply of large quantities of product to penetrate these markets, quality of product and legislative requirements. Furthermore, the creation of such a firm would invariably exclude the thousands of non-commercialised farmers, all over South Africa, whom this endeavour is attempting to empower since this type of integration is an expensive exercise and a single firm would not be able to have ownership of all the resources (expertise, raw materials etc.) which are necessary to move the product to the market. Thus, specialisation by different role-players at various steps of a supply chain or vertical chain becomes necessary (Coase, 2000) and these role-players would invariably be positioned in different firms. However, co-ordination of activities in the supply chain becomes critical. Finding the correct co-ordination mechanism or governance structure which would ensure that consumer requirements are met is therefore needed.

The terms vertical coordination, vertical integration and contract production are often used interchangeably (Cramer and Jensen, 1988) to describe the relationships between role-players within a production or supply and marketing chain. However, vertical integration is the more binding of the three, where the boundaries of the firm

are more inclusive of the different role-players. With vertical co-ordination and contract production, the firms are more clearly separate from one another. Vertical integration increases the efficiency and effectiveness of logistical operations with which a group of firms can deliver healthy, safe and desirable products to the consumer, but strategic alliances also ensure possibilities of strong market position due to critical mass (Downey, 1996). Of particular importance here may be the governance structures and enforcement systems required, especially if there is to be a shared brand name (Raynaud, 1999). Thus, vertical co-ordination creates the need to define the activities of, and relationships between, the role-players in the agricultural production and marketing (or value-delivery) chain. The relationships are defined by the ownership, activities and functions of the respective firms involved in the chain and their respective aims (whether political, but mostly economical). Coase (2000) argues that the costs of these transactions (or relationships) will affect the overall efficiency (and thus profitability and viability), level of co-ordination and integration of the value-addition chain.

Knowing that certain requirements of the consumer and retail market need to be met, and understanding the current exploitive and information-poor situation in which non-commercialised farmers reside, the following activities become critical to the achievement of a consumer-friendly production and marketing process which is inclusive for non-commercialised farmers:

Indigenous goats suitable for processing

Historically, indigenous goats were primarily utilised for traditional and religious purposes and emphasis was not placed on maximising the commercial potential of the animals. The quality required by the traditional and religious markets is based mainly on colour patterns and size; larger animals often being preferred, and, depending on the ceremony, male or female goats may be required (Chapter 3). In the process of changing the indigenous goat into a consumer product, and in order for the non-commercialised farmer to survive in the modern competitive market, he/she needs to be assisted to understand the importance of age, body conformation score, weight, accurate record keeping and animal identification (As described in Chapter 5).

In practical terms, farmers must be taught how to weigh the goats, must be shown how to use a scale (and must be provided access to a weighing scale on a continuous basis) (weights under 35 kg being preferred), must learn how to tell the age of a goat (goats less than 18 months old being preferred), be able to judge the body condition score of an animal (body condition scores of 3 or 4 being preferred), must begin an accurate record keeping system for his/her herd, and must apply ear tattoos and ear tags to each of his/her goats. This new knowledge will ensure that the product meets the required product quality specifications. These specifications are simple and will assist the farmers to attain the requirements under their current circumstances and with their current goat resource.

An obvious omission here is any discussion of superiority of, or preference for, specific breeds. This is based on the results of the market surveys (Chapters 4 and 5), and knowledge of the goat resource in general (Chapter 2). From the surveys it becomes clear that the consumer requires tasty, safe, nutritious products. The consumer is less inclined to demand particular breeds (Unless the breed is specifically being promoted as has been the case recently with the Hereford cattle breed). Furthermore, with the emphasis on value-adding via reconstituted meat products (such as salami, cabanossi and sausages), the importance of size of the carcass is reduced. With these products the entire carcass is de-boned and the meat ground. It is felt that as the industry develops non-commercialised farmers will intuitively seek faster growing and more fertile breeds which can produce multiple offspring in a shorter period of time (personal communication with non-commercialised farmers who attributed faster growth rates to improved breeds introduced to them, 2004). For the interim however, emphasis need only be placed on the provision of young, healthy goats into the marketing chain.

Collective action

Most non-commercialised farmers have small herds varying in size from 10 or 20 animals (Eastern Cape), although herds as large as 300 animals can be found in the Northern Cape. Small herd sizes increases the transaction costs for the individual farmer since the effort asserted to sell one animal is invariably the same as the cost to sell 100. Furthermore, specialised inputs that may be required can be prohibitively expensive. For example: medicines and ear tags (small pack sizes cost more),

management tools (dosing guns, ear tattoo machines, ear tag applicators are expensive), transport facilities, and holding pens. Also, herd structures are often incorrect. Only one buck is needed for every 40 does. Most farmers have their own buck and does, but the bucks are largely unproductive whilst utilising expensive resources (feed, management time, medicines etc.). These obstacles can be overcome through the collective action of goat farmer co-operatives. Each farmer becomes a member of the co-operative, and receives a membership number. Through these co-operative groups costs of medicines and ear tags can be reduced when bought in bulk, and management equipment and marketing infrastructure can be shared. Group formation also ensures that those farmers who are interested in becoming commercial goat farmers are identifiable, and can receive targeted support. This support may include the provision of marketing infrastructure, transport assistance, training and technology transfer and financial services. Co-operatives can reduce the cost of registering brands (tattoos in the case of goats and sheep), by registering a single brand for the co-operative (This change in legislation was brought about as a result of this work through discussions with Mr Keith Ramsay, Registrar of Livestock Brands, 2003). Although the co-operative brand then appears as an ear tattoo on each goat, the ear tag can include the membership number of the member farmer, and the animal number. This will assist in complying with the traceability requirements of the retail and international markets. To establish a consistent supply of raw product, farmer groups can plan and define their production and delivery capabilities together, and provide this information to the next link in the chain (the transporters or the processors). Consistency of supply is thus achieved by a group where different owners can present their animals for sale at different times, but the supply generated by their group activity is consistent. This will create the critical mass required to supply the market chain consistently.

Holloway et al. (2000) describes similar farmer cooperatives that were formed in East Africa to reduce the transaction costs associated with input purchasing and output marketing in small-scale fluid milk production. The formation of the cooperatives also led to access to higher quality information (higher in quality than the available extension services) and collateralised loans to producers. Another positive point here is that cooperatives that were established for specific purposes (i.e. in the cases

illustrated by Holloway (2000) for fluid milk production) were also better managed and exhibited lower levels of moral hazard (i.e. shirking and financial irregularities) than more general cooperatives.

A natural future outcome of the formation of farmer cooperatives will be the targeted supply of research interventions which can assist non-commercialised farmers realise improved rates of return from their goat herds. Technologies such as improved feeding practices, the use of artificial insemination and increased use of pharmaceuticals are obvious researchable subjects as the industry develops. The identification of dedicated non-commercialised goat farmers through the formation of cooperatives creates a perfect target for participatory research projects in the future.

Targeted and specific technology and information transfer

In South Africa extension services are plagued with limited resources, means of transport, and appropriate skills. In the current scenario the situation is further exacerbated because goats are not known as a potentially commercialisable livestock species, and historically little attention has been given to their production and care (Chapter 2 and 3). In fact, extension services often include goats in the treatment campaigns of other species such as sheep scab and cattle dipping campaigns in the Eastern Cape. The information surrounding the new market possibilities of goats, and the methods required to achieve production to this standard is thus new to the extension officer. Thus, the provision of specific technology and information to the non-commercialised goat farmer may not necessarily lie in the hands of the current extension services unless training in these specifics are initiated (Thus requiring a new departmental arrangement or policy). The formation of goat cooperatives also reduces the propensity of training large masses of people who are, in essence, not really interested in goat farming *per se*. The goat cooperatives become a vehicle through which specific market and product information can be relayed to a vertically linked and interested audience.

Collection and transport of goats

Although the assumption here is that goats should be marketed live by the non-commercialised farmers, it needs to be understood that in South Africa, these farmers

face peculiar challenges in dealing with transport issues based on two factors. The first is the large size of South Africa, and the large distances from deep rural areas to current processing infrastructure (which are generally located near to urban centres – the rural areas having been left out of infrastructure development policies since they fell within the former "homelands"), and secondly, the poor state of infrastructure (roads and railways) in these former "homelands". Further exacerbating the problem is these farmers' limited resources to procure their own means of transport, or to construct holding facilities which could reduce transaction costs if they could provide bulk buying facilities to their buyers. This is further constrained by lack of ownership of land, thus, permission and buy-in first needs to be obtained from tribal leaders before such facilities can be constructed – the ownership and maintenance of these structures then become controversial.

The provision of collection and transport facilities is crucial to the success of the marketing chain. Currently, marketing of small numbers of goats are done through mobile pens constructed at road intersections. Correctly designed holding facilities, and loading and weighing infrastructure are also important for final product quality (bruising and stress-related quality effects).

Processing

In an attempt to move the goat industry from a commodity (live animals) into a consumer product, processing or value-adding becomes a necessity. Value-addition by firms with producer integration will also allow a greater share of the ultimate value of the product to be returned to the producer, if profit sharing incentives are included in the institutional arrangements. However, value-adding can be of different forms and at different levels depending on the requirements of the market. In fact, specific supply and processing arrangements are suggested due to the multi-dimensional nature of each of the products and their respective markets (as suggested for other commodities by North, 2000). These specific arrangements have been suggested in the conclusions of Chapters 5, 6, 7 and 8, for meat, cashmere, leather and milk respectively, and will not be repeated here.

Branding and packaging

Various market surveys and feasibility studies indicate clearly that the quality and appearance of products, especially products such as fresh milk and meat, is of utmost importance to consumers. Consumers are not willing to buy products that do not comply with quality standards. The perception of quality is strongly associated with brand recognition. A brand is the main communication between "sellers" and consumers (Raynaud, 1999).

Often, when a single firm is too small to establish its reputation in the market, a shared brand name may substitute for a single producer brand. This allows a group of smaller players to take advantage of economies of scale in establishing, and sharing the costs of establishing, a reputation. In the highly competitive agri-food industry, a shared brand may be an important differentiation strategy for small firms. Thus, within a shared brand name, there may be several "products" but a single promise of quality (Raynaud, 1999). Successful branding of goat products is essential to ensure that goat products can be recognized, requested, and chosen. Branding also assists in negotiating shelf space with retailers, since the consumers' affinity towards the selected brand and its packaging can be demonstrated quantifiably and the combined resources of several firms will assist in paying listing fees of the larger retailers.

Packaging is now recognized as one of the most important areas of meat technology and probably the one where, at the present time, more developments are taking place than in any other (Jansie Kruger, Animal Nutrition and Products Institute, Irene, ARC, personal communication, 2002). Supermarkets are designed primarily to sell food and are unwilling to devote valuable store space and labour to its preparation. This is particularly so with meat with its special hygiene and refrigeration requirements. For present day retailing, these requirements are stringent, and highly dependent on the correct use of packaging. However, packaging must be more than just functional. Where meat is readily available and facing increasing competition from other foods, the package must also effectively sell the meat. There is therefore a constant demand from supermarkets, in particular, for innovative forms of packaging with which they can identify themselves and which make the meat more attractive to the consumer. However, the main aim of innovative packaging should be to prolong the shelf-life of

meat during storage, transport and distribution so that it can be sold in prime condition over a longer retailing period.

Quality control

Managing quality throughout the chain is imperative to the success of the venture. Quality control needs to start at the farm level, with the correct management, health and record-keeping systems applied. Transport must adhere to animal welfare requirements. At the level of processing international levels of humane slaughter, hygienic standards, and product quality (and consistency) must be applied. Depending on the market the animals may need to be slaughtered Halaal, and if destined for the export market, must be slaughtered in an export registered abattoir. From the processing plant the cold chain must be maintained without a break, so that the shelf-life of the final product is not reduced. This means that the placement of orders at retailers must be done in advance, shelf-space needs to be constantly negotiated, and a distribution agent must be vigilant in keeping shelves stocked and attractive (See in-store repellors and attractors in Chapter 4). The complexity of the vertical chain thus implies that there is strong technological innovation and weak technological homogeneity throughout the chain which can lead to variations in product consistency and quality – this variation must be reduced and managed (Raynaud, 1999) especially if the products are to share a single brand. Effective co-ordination and governance structures must thus be in place.

Where goats are being collected from farmers in various parts of the country, and being taken to a series of abattoirs for processing, a standard set of quality standards need to be set. Those groups that do not comply with these standard procedures must be assisted in getting their operations to fit in with the rest: at no point can the consistency in the quality of the product be jeopardised. Thus, some level of control (or governance) will be required at a regional level and could include various stages of the production process. The numerous stages, namely, breeding, feeding, health care, processing, and packaging simultaneously affect the final product, and if branded under a shared brand, need a comprehensive governance system to produce homogenous products (Raynaud, 1999). Thus, a standard set of product specifications have to be established along with an enforcement system. The simpler

this set of product specifications, the more likely the input suppliers will be in adhering to these specifications. This will be especially important for non-commercialised farmers who are not accustomed to complex measurements. Aside from the quality control measures to assist the building of the image of the brand name, other national structures such as the Department of Veterinary Public Health should be contracted to assist with quality control (at the abattoir and milk processing plant level).

Marketing

A sound marketing strategy will be crucial for the project's success. Market surveys indicate clearly that the majority of the products are fairly unknown to the general public and that the establishment of a market and future growth will only be achieved by means of an initial marketing campaign that will introduce the product ranges to the target markets (Chapters 4, 5, 6, 7 and 8). From the market surveys it appears as though consumers are willing to purchase products once they are exposed to them. However, less obstacles are expected when entering foreign markets who already use goat products on a daily basis (Here the challenge is to compete successfully against other goat product suppliers such as Brazil, Sudan, Australia, India and France).

The outsourcing of the marketing function should be considered as this is a specialised area. Marketing agents with the necessary expertise should be appointed to assist in the launch of new products. An initial marketing strategy should be developed and should include details of the target distribution regions, areas within each region, and retailers within each area. In conjunction with contracts entered into with major retailers target income groups need to be identified. Initially, emphasis should be placed on general products to ensure market penetration (As suggested specifically for milk products in Chapter 4). A positive culture towards goat products has to be created via an extensive marketing campaign, to inform the consumer of the quality attributes of goat products.

Product distribution

Market surveys and feasibility studies indicate that a market exists for the sale of the proposed products. Subsequently retailers should be identified coupled with the idea that major retailers will expect 100% commitment towards the consistent supply of

products as well as 100% quality products. The following factors should be taken into account when evaluating the location of the processing facilities. Locations should: Be easily accessible to where the market demand is at its highest; Be located within the areas of greatest raw product supply (to lower transaction costs); Utilise premises already available (if feasible); and Take into consideration the size requirements and environmental concerns of each of the processing facilities. These factors will influence the prompt distribution of goods and will ensure that contractual commitments with retailers are adhered to.

Pricing

The intended products are not commonly available in the market, which complicates the process of setting market prices. However, several criteria can be used to determine selling prices. The most obvious criteria available would be: Existing market prices; Market prices of related products; and Actual production cost and mark-up. It will be imperative to establish a fine balance between the quality of the product and a selling price that will be acceptable to the consumer. Other market price considerations include: Acceptability of price by consumer; Competitive market prices; and the Premium attached to high quality products. Suggested prices for each product range have been described in Chapters 5, 6, 7 and 8 and consumer expectations of price were noted in Chapter 4. These prices may be used as guidelines. The pricing methodology of products from region of origin or organic products should also be investigated, since these are usually higher than other product prices. Internationally and in South Africa "Fair Trade", for example, works to educate consumers regarding socially responsible and development oriented products. In this way they familiarise the consumer to the idea of paying more for a product that will help others (Social consciousness). This supports the debate in Chapter 1 of producing indigenous products, made by hand, "with love", and "Out of Africa" for which consumers are willing to pay a premium.

Putting all the critical success factors together

The functions of supplying goats with the correct specifications, collective action, co-ordination of collection and transport of goats, processing, branding and packaging,

quality control, marketing, product distribution, and setting of market prices, needs to be co-ordinated in some manner. The critical factors in the process are illustrated graphically in Figure 9.1 below and can be assumed to be largely generic across all the product types.

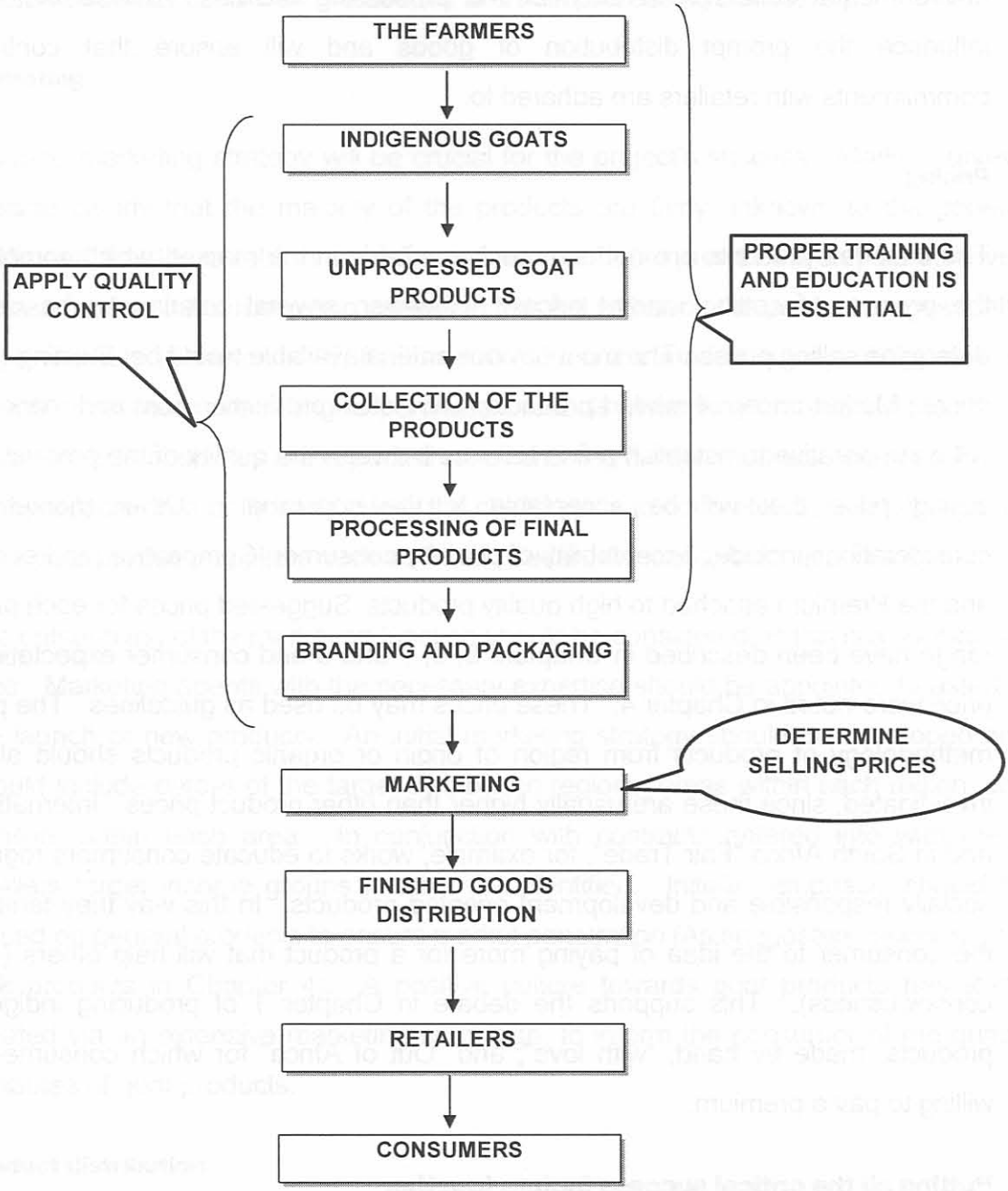

Figure 9.1 Critical factors in the process

9.3 Identifying Potential Role-Players

Collaboration will be key to the success of the commercialisation of indigenous goat resources. The system created to move goats from rural areas to international consumers will be a complex mixture of rules, norms, conventions and behavioural beliefs of different parties, and this will determine how effectively the system works. Although generic in some respects (as shown in 9.1 above) each goat product will require a different system, since each of the products described are influenced by their own particular set of institutions (laws, rules etc). Thus the system created and its resultant transaction costs will not only be influenced by the particular attributes of the products themselves, but by the various role-players (or resource owners) who are needed to get the products to the market place (Leffler and Rucker, 1990). Thus, description of all these interrelated factors is complex, and their implementation (as will be described in Chapter 10) have taken much dedicated work over a long period of time to discover (as rightly suggested by Coase, 2000).

There are currently several role-players in the existing goat industry in South Africa, and various new players that need to be locked into (and invited into) the system to create a viable goat industry in South Africa into the future. The role of each of the players required for the smooth functioning of such an industry in a global perspective needs to be defined, the relationships between each of these players should be explained, and the strengths and expertise that they bring to the venture need to be elucidated to present a viable whole. It is important to look at existing institutional arrangements and role-players within South Africa to see where transaction costs can be reduced and the most mutual benefits can be obtained. Finding and creating institutional arrangements between parties with the same goals and vision is an important step. At this point partnerships with organisations that are not willing to improve the livelihoods of non-commercialised farmers cannot be entertained since it is the purpose of this work to assist in the development of the "Second Economy" as suggested in Chapter 1. Thus, it is important to develop organisations, contracts and co-ordination that will be of benefit to all, but especially non-commercialised farmers (As will be described in Chapter 10).

As shown in Section 9.2, a supply chain can be defined as an integrated process through which a number of firms co-operate in an effort to acquire raw materials, process these materials into another form, and deliver these products to consumers (Bearnon, 1998). It is necessary to ascertain who the varied likely role-players would be in the production, transportation, transformation and marketing chain of goats to the consumer.

Possible role players

The following role players were identified as necessary to the envisaged vertically co-ordinated goat production, processing and marketing chain:

Non-commercialised farmers throughout South Africa

A consistent, reliable source of raw product is necessary to ensure consistency of supply to the consumer at the end of the chain. Furthermore, the raw product needs to conform to certain regulations or product specifications (those of traceability, quality, and health requirements). Thus, the chain depends fundamentally on the farmer's commitment towards achieving the goals and objectives of this business and his ability to provide a raw product of consistent and measurable quality to the process.

A question commonly asked regarding the potential success of this venture is, "How do you change the mindsets of non-commercialised farmers to understand the importance of reliable product supply? How do you enforce a supply contract when they do not even understand what a contract is?" The answer is simple and is demonstrated in a series of experimental economics games played by Ensminger (2000) with nomadic cattle tribes in East Africa. One of the games played by Ensminger was the Ultimatum Bargaining Game. Here one player is offered a fixed sum of money to be divided in any way he/she chooses with another, anonymous player. The second player is told the amount received by player one and the amount that player one is offering to player two. Player two has the option of refusing the split, in which case neither player receives anything. If the second player accepts the offer, they both receive what the proposer determined the split to be. The results of this game were that the mean offers were 44% with the lowest offer being 30% and there were only 2 refusals (3.6 percent of all offers) at this offer rate. The mean offer rate

was much higher, and the refusal rate much lower than when similar games were played in the USA (for comparable monetary gains). The reason given for these results is the same reason that the rural goat farmers should be reliable suppliers of goats to the vertical supply chain – they were *obsessed* with the possibility that their offer might be refused, in spite of the fact that they thought (correctly) that it was unlikely that people would refuse even a small offer. Very few wanted to take such a risk. Similarly, the rural goat farmers for which this project is proposed are not likely to be untrustworthy in the supply of the goats to the vertical chain, since they have something to gain (even if it is very little). A farmer (in fact a chairman of one of the Goat Co-operatives which has been created as part of this work) stated poetically recently (2004) that "If one knows that a fig tree will only bear fruit in 3 years, what would be the purpose of chopping it down before then?" (Mr Setaka, Umzimvubu Goats Chairman, Personal communication, 2004). The rural goat farmers which would be involved in the vertical chain envisaged are highly risk averse, and thus their commitment is secured. However, this risk aversion may make these farmers vulnerable to exploitation, and thus the system must serve to avoid exploitation in its design; trust is vital to this system. This can be done through exclusively securing raw product from them (member exclusivity), prices slightly above the market norm, and through other programmes which are beneficial to them (Some of these activities will be suggested later in this chapter).

To further build and sustain farmer commitment, communication of the venture's critical issues should be highlighted. Farmers should be advised what the economic benefits attached to this venture are, and how they can be realised. They also need to be informed about the types of products that will be produced from the indigenous goats and what the raw product specifications would be to manufacture value-added products of satisfactory quality. They then need access to the information necessary to improve their production systems if required. They need to be informed what the potential markets for these products will be and why certain product specifications are important. The institutional arrangement linking them to the market must be understood by them. Also, the availability of financial support to increase their viability may also need to be developed and conveyed to them.

In order to obtain the maximum benefits from the relevant markets, farmers need to be informed that certain feeding and breeding standards need to be adhered to, that systems of traceability need to be in place, and that planning of production targets need to be communicated.

Training and technology transfer agents

Non-commercialised goat farmers in South Africa are currently only aware of the traditional live goat market, supported by the activities of speculators and auctions within their areas. However, the technical matters related to the quality of the animals and products for new and developing markets need to be communicated to them. These matters relate to issues regarding breeding, feeding and animal healthcare, as well as advice to improve the quality of the respective products derived from the goats (reduction of scars on the skins, no use of animal by-products in the feed etc.) Furthermore, knowledge of animal management equipment, new pharmaceuticals, and new feeding methods available in the industry will assist farmers in improving the efficiency of their operations. Farmers also require assistance to understand and apply basic business and financial principles which will assist them in producing efficiently. The product specifications required by the processing operations also need to be described in detail, whilst keeping these specifications simple will aid in their successful delivery to the processing operations. Training in these issues is essential.

Collection points and transport contractors

The movement of goats to the market is currently one of the main inhibitory transaction costs for non-commercialised farmers (as described in Chapter 3). Not only is the creation of collection centres as a middle point between farmers in deep rural areas and processing centres of utmost importance, but the cost of transport to and from these centres needs to be taken into account. The construction of suitable collection and processing centres closer to the source of the animals may also be a solution to this inhibitive transaction cost (as suggested in Chapters 5, 6, 7 and 8 regarding meat, leather, cashmere and milk). For this construction communication and buy-in of tribal leaders is required in some provinces (Eastern Cape, Limpopo, North West Province).

Investors or donors

The facilities required to process the products envisaged in Chapters 5, 6, 7 and 8 are expensive. Poor farmers, even with collective action, will not be able to afford such facilities. Furthermore, the facilities are specific for their intended purpose and need to be located closer to the source of the raw product. To construct infrastructure that may be necessary to effect the collection, transport and processing of products, and to pay legal and other specialist fees, certain funding is required. This is especially the case during the initial development phases of the industry. Investors or donors can be drawn from both the public (government) and private sectors. The fact that this business will support and develop non-commercialised farmers will make it attractive to international and national funding agencies (As suggested by Singh, 2002). Current funding initiatives and gaps identified (in the author's experience) are illustrated in Figure 11.1 in Chapter 11.

Bankers and lawyers

Financial institutions are required at various levels of the venture. Loans may be required by farmers to increase the size of their operations, private investors may require loan capital to fund their parts of their investment, each firm within the greater goat commercialisation venture will need banking services for their respective business management, and most importantly, a method to ensure the safe movement of payments between the various links in the vertical chain from farmer to customer needs to be developed (As was done in India with the payment of contract growers for chilli, tomatoes and potatoes (Singh, 2002)). Historically, formal financial institutions have been averse to supplying financial services to rural consumers. This is because the costs of administration and enforcement are high, the clients often renege on their responsibilities, and their repayment ability is low. However, linking non-commercialised goat farmers with a production, processing and marketing chain, with elements of traceability and contractual obligations, will make these farmers more "visible" and "bankable" to financial institutions. Firstly, the farmers are sedentary, since they are producing a commodity for a specific market within their areas and secondly their income earning is secured through their commitments to supply on contract and be remunerated for their supply.

In bringing together various role-players within the marketing chain, each player will have certain obligations, responsibilities and requirements that need to be fulfilled. Contracts can be used to define these relationships between players. Legal matters thus need the inputs of lawyers and other business experts. Unlike some developing countries (Gow et al. 2000) South Africa has a stable and sophisticated legal framework.

Processors

All of the products developed and described in Chapters 5, 6, 7 and 8 will require specialised expertise to produce and personnel with the necessary skills to manufacture the products to market specifications. The overall quality of products will be imperative to the success of the venture. Existing suitable processing infrastructure needs to be identified and where necessary new infrastructure may be required (particularly in deep rural areas where no suitable infrastructure increases the cost of transport for non-commercialised farmers). In Chapters 5, 6, 7 and 8 and section 9.2 of this chapter specific supply and processing arrangements were suggested due to the multi-dimensional nature of each of the products and their respective markets (North, 2000).

Marketing agents

The market surveys (Chapters 4, 5, 6, 7 and 8) indicate that the proposed products are fairly unknown to the general public in South Africa. However, these same surveys have indicated a consumer interest in the products and shown that international markets exist. Methods to introduce the products to the South African consumer need to be devised. For export markets, access can be initiated through trade fairs and exhibitions (as was done in Mexico (Farias, 2001) and the support programmes offered by the DTI as shown in Chapter 6 for cashmere carpets), and agents marketing overseas (several were identified during the market surveys). This specialised field requires dedicated marketing staff that knows the product, and that can successfully present the products to various target markets.

Distribution agents

The distribution of products to the selected target markets will be essential to ensure that a consistent supply to retailers is achieved. The distribution network will have to be established once target markets are identified.

Retailers or foreign markets

National or foreign retailers will be the role players responsible to ultimately deliver the final product to the consumer. Good relations with selected retailers need to be developed and retailers need to be well informed with regard to specific product information to ensure that the retailers understand the product they are selling. Marketing campaigns can be established in conjunction with retailers. This issue is of great importance if one realises that the increase in retail outlets in Africa have essentially excluded the small, non-commercialised farmer (ECAPAPA, 2003) and should be managed from the outset of a new industry. Furthermore, a strong relationship should be developed between the manufacturers and the retailers for especially the perishable products. Chapter 4 described several attractors and repellors identified for stores by consumers, which can seriously negatively impact on the consumer acceptance of the products.

Consumers

The consumer of the final product is one of the most important role players that can ensure the success of this venture since the intended financial benefits related to the venture are generated at this level of the chain. The market surveys in Chapters 4, 5, 6, 7 and 8 have shown that goat products are not known in South Africa, and the international market is competitive with strict requirements. Effective marketing is needed to inform and expose consumers to the products, and to ensure that the consumers buy the products. The fact that the products are developed from indigenous resources, and the ultimate aim to commercialise the smaller goat farmer should be used in marketing campaigns, emphasizing "natural", "indigenous", "culturally-based", "Out of Africa", and nutritious since there is an international trend towards products of this nature (Sautier, 2000; Farias, 2001; ECAPAPA, 2003).

The vertically co-ordinated supply chain of the envisaged goat industry is shown in Figure 9.2.

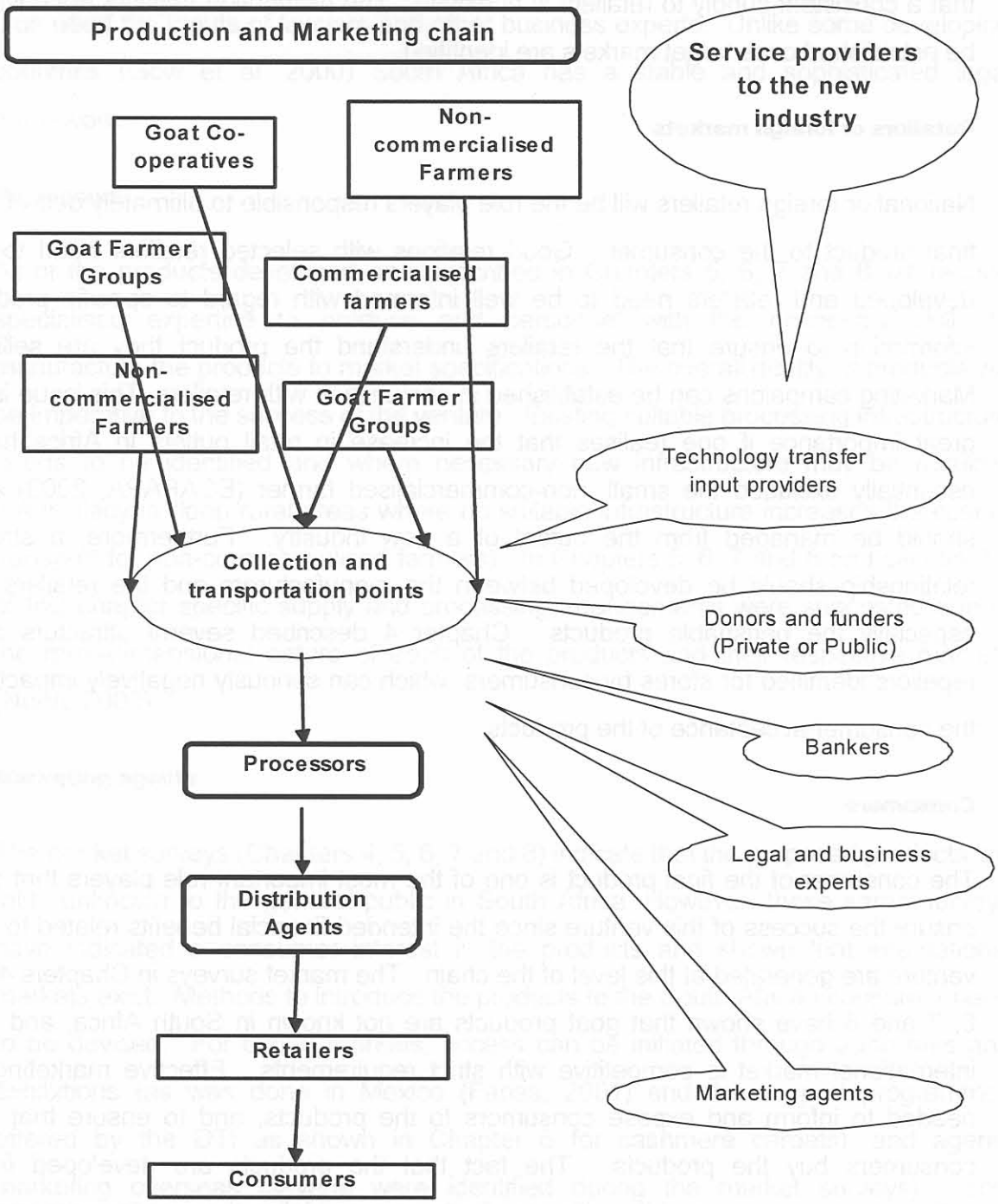

Figure 9.2 Supply chain for goat products

9.4 Defining the relationships between each of the role-players and activities in the production and marketing chain

Since the production and marketing chain envisaged for the goat industry requires a consistent flow of raw product into the chain, a possible mechanism to ensure this (without creating an employee-employer relationship) would be through formal vertical coordination within the industry. Sporleder (1992) mentions that vertical linkages occurring throughout the food production, distribution and marketing system is due to changing consumer demand for specialised and relatively low-volume food markets and that this is replacing spot market transactions for mass marketing of undifferentiated commodities. Rehber (1988) recognises four types of vertical coordination which can occur whereas Sporleder (1992) and Hobbs (1996) describes these as a continuum of exchange arrangements. These are:

a) Coordination without a contract: This can be called a spot market or open market transaction in which there is no written or oral contract between the firms in the production and marketing chain. Here each player in the chain can buy or sell his/her inputs and outputs to whomever he/she pleases, often based on price. The disadvantage of this lack of formal relationship is that there is uncertainty regarding future successful transactions taking place. The current goat industry is driven by spot markets and these are used effectively currently by commercial goat farmers who have access to telecommunications and transport infrastructure, and market information. They are thus not appropriate for non-commercialised goat farmers at the present time.

b) Contract farming: This entails relationships between producers and private or state enterprises that provide processing, export or purchasing activities that regulates advance prices, production practices and product quality, which replace spot markets. Variations of contract farming have been called "outgrower schemes", "nucleus-outgrower schemes" and "satellite farming" in various parts of the world, and are generally promoted as an institutional innovation to improve agricultural performance, delivery of agricultural inputs and information in less developed countries.

c) Ownership integration: Here each individual firm loses its identity and becomes an entity within a larger company.

d) Farmer Co-operatives: Here the emphasis is that the firm is owned and controlled by the producers, and operates for the mutual benefit of its members (producers or patrons).

It would be difficult to "own" each of the non-commercialised goat operations in South Africa so "ownership integration" is not an option to consider. The spot market system is the system in which the industry currently resides, has proved lacking in its ability to ensure the greater development of the goat industry and it often excludes (and where it does not it exploits) the smaller, less-informed role players, is inconsistent and unreliable as a production planning tool, and prices are variable. The first part of this chapter, and the conclusions of Chapters 5, 6, and 7 have suggested the viability of vertical co-ordination through contract growing for all the goat products envisaged (all products except milk). For the reasons expounded there the formation of co-operatives and contract growing becomes the vehicles of choice to commercialise the goat industry. As shown in Figure 9.1, different legal entities could be suitable for contract farming arrangements. These include individual farmers, farmer co-operatives, farming firms (companies), farmer groups (farmers associations or clubs), and both non-commercialised farmers and commercial farmers. The South African legal system has several business forms which can be suitable for the establishment of a legal farmer entity. The differences between these legal entities needs to be known and conveyed to those farmers who feel the need to join forces with other farmers to reduce transaction costs and increase consistency of supply to a purchasing, processing or export enterprise. The forms of legal entities that exist in the South Africa legal system are shown in Figure 9.3 but their different characteristics will not be discussed here. Suffice to say, investigation of these entities has shown that farmer co-operatives lend themselves to the requirements of the vertically co-ordinated goat production and processing venture envisaged here since they allow for large numbers and variation in numbers of participants, are governed by a Board of Directors (thus are self-governing) and encourages collective action (which operates in a similar manner to the cultural norms that most non-commercialised farmers are accustomed to e.g. Ubuntu – an African concept which pronounces that "I am because

you are"), and have the interests of the members of the co-operative at heart. However, it should be remembered that "Ubuntu" also does not view the success of the individual in a good light, and conflicts may occur within these co-operatives if a select few of the members do better than others within this system.

Table 9.1 Business structures that exist within South Africa

Unincorporated Entities	Incorporated Entities
Co-operation Agreement	Close Corporations
Joint Projects	Private companies
Joint Ventures	Public Companies
Partnerships	Section 21 Companies
Franchise operation	
Trusts	
Agricultural Co-op	

(Source: Smuts, 1999)

Contract farming refers to the system by which produce is supplied under a forward contract, where a commitment is expressed to deliver a commodity of a specific type, quality and quantity, at a certain time and price to a known buyer (Artz and Brush, 2000; Singh, 2002). The more precise the contract specifications the more likely that the specific requirements will not be violated (Artz and Brush, 2000). It also stands to reason that the more simple the product specification, the less likely that the requirements will not be met, thus it is important that these specifications be kept as simple as possible. It is interesting to note however, that NIE literature (an overview by Hobbs, 1996) states that spot markets are more relevant where there are low levels of uncertainty in the quality characteristics of the product to be traded. However, here the need for vertical co-ordination through contracting for a simple product is motivated by a different reason: development. Also, in contrast to what is expected, spot markets are generally found where transactions are frequent. In this scenario frequent transactions (of purchasing and delivering goats on a daily and weekly basis) would be better served by vertical co-ordination since the processing firm will not need to continuously seek the product elsewhere than on its own doorstep, and thus a constant supply is assured.

For the purchasing, processing or export enterprise the establishment of a contractual relationship becomes obligatory if they are to ensure consistency of supply to retailers

and other clients, and because of the high sunk costs and specificity of infrastructure and other relationship-specific costs (negotiating shelf-space e.g. listing fees, organising transport and distribution e.g. time-based contracts etc.: Sporleder, 1992; Gow et al., 2000) that would have to have been invested in the process to get the product to the consumer. In this specific scenario too, the goat resource is mainly in the hands of the non-commercialised farmer, thus contracts could ensure not only the critical mass required to enter the retail and international market place (of benefit to the processor), but could also assist in "locking" the non-commercialised farmer into a formal industry (a benefit for the non-commercialised farmer). A "mutual dependency" is thus created between the producer and the processing, export or purchasing enterprise, and this relationship is best described by a legal contract since the number of parties involved would be too great for verbal assurances alone, and the risk of providing heterogeneous products to consumers would be too high. Thus, the vertical co-ordination envisaged here is driven by asset specificity (non-commercialised farmers own the goats, and the processors hold the expertise and facilities for value-adding and getting the product to the market, but these premises are located within the areas of production) and the high incidence of transactions required (to use the facility most efficiently and to allow bulk throughput for bulk retail and export markets). Contract breach will be lowered due to the high risk aversion of both parties for these reasons.

Three broad groups of contracts are classified by NIE (Hobbs, 1996): market specification contracts (where the buyer pledges to provide a market for the seller's product); production-management contracts (the buyer participates in the management of production and may specify input usage); and resource-providing contracts (the buyer provides a market for the product, supervises the production and supplies the key inputs).

In the vertically co-ordinated goat production, processing and marketing chain envisaged here, elements of all three groups may be found. It is clear that the processing centre would not want to get involved in farming goats (its expertise and assets lies in the processing and processing infrastructure), but it needs the product of the producer to efficiently operate its plant. However, the processor has links to the market with its own set of requirements. For example: if a higher profit could be

generated with goat meat products labelled "organic", then the processor could request the producers to manage their production in this manner (and also, in this case have to offer training in how this could be done, as well as monitor compliance – since organic labelling requires certification). If however, to achieve compliance requires that only a unique organic medication which is not found conveniently on the shelf must be used rather than all other medications, and the processor goes into a strategic alliance with such an organic pharmaceutical company to provide this product to the goat producers at a cheaper price, then resource-providing contracting becomes apparent. These various forms of contracting may illustrate various stages over time that the goat operations envisaged may proceed through.

Within these broad groups, three different types of contracts are defined in the NIE literature (Artz and Brush, 2000; Furubotn and Richter, 2003). These include:

- Classical contracts where each transactor's obligations are specifically defined. These contracts are utilised mainly for simple contracts where the responsibilities can be easily defined and where uncertainty and asset specificity is low.
- Neoclassical contracts are more complex and attempt to correct for external influences on the success of the transaction. These contracts are more costly to write, enforce and monitor.
- Relational contracting occurs where an exchange contains a significant social component as well. These contracts do not spell out the complete set of terms and conditions, but allow for periodic renegotiations to adjust the specifications of the transaction.

For the commercialisation of goats a classical contract may be suitable because the product specification is simple and prices can be determined beforehand. For example, goats delivered for slaughter must be ear-tagged and tattooed (showing ownership of the goat to a registered co-operative member), the animal must be younger than 18 months old (not yet 2-tooth, i.e. milk teeth will still be present), the animal must weigh between 25 and 35kg and the goat can be of any breed. Prices for goats should be set slightly above the norm (as suggested in the sugar beet example

described below), and could easily be achieved if the high value-adding potential of the products suggested are taken into account when calculated. If these were the only specifications then a classical contract may be suitable.

A neoclassical contract may become necessary where the terms of delivery and price become variable. The abattoir would need a constant supply of goats to remain operational. This requires co-ordination of the supply of goats to the facility in such a way that holding facilities are not overcrowded but the abattoir has a constant and regulated flow of animals through the facility. To co-ordinate this delivery some specification of delivery dates and delivery obligations must also be found in the contract. If the products sold have little value-adding, and the raw product price is governed more directly by the external market price for the raw commodity then contracts may need to explain the conditions that would determine the price form time to time.

However, in the vertically co-ordinated goat supply, processing and marketing chain envisaged here, a more relational type of contract would be more appropriate. The processors are dependant on the producers, and in the current state of unemployment and poverty, the producers are equally dependant on the processors and their ability to further market the products (Thus the reasons for expected low contract breach for both parties in this case will be different). Both parties would be expected to want to work more collaboratively to ensure the success of the venture for the benefit of both groups. This implies that communication between the two parties should be strong and that this communication will allow adjustments to be made to the contract as and when required (which could move the contracts from merely market specification contracts towards more resource-providing contracts: Hobbs, 1996). However, the more simple the specifications required by both parties and the more collaboratively the parties plan the process or share information the greater the success of the transaction will be (Artz and Brush, 2000).

The enforcement of contracts has often proved problematic in developing countries where the public law enforcement institutions are in disarray or in the process of formation (Gow et al. 2000). Although this is not necessarily the case in the South African situation with its sound legal system, public legal enforcement channels are

inhibitively expensive (this being the main reason that formal financial institutions avoid service provision to the informal agricultural sector where administrative costs to enforce contractual obligations and the incidence of contract breach are high). However, contracts and legal processes are an unknown field for non-commercialised farmers, so private sanctions could be created to assist them in reducing the possibility that they could create a hold-up in the production and processing chain. Sanctions can include the termination or non-renewal of the relationship (or renewal of future contracts biased against the reneging party in terms of pricing or conditions), or damage done to the reputation of the party who caused the hold-up (Gow et al., 2000). Some of these innovations may be useful in the design of contracts for the goat industry. It can be argued that placing a specific asset within a non-commercialised goat growing area, opens up the possibility of opportunism by non-commercialised farmers since the facility requires a specific raw product. This is unlikely due to the high risk aversion by these very poor farmers, as demonstrated by Ensminger (2000) in East Africa, where the rural farmer would not want to risk termination of his contract.

Artz and Brush (2000) mention that increasing the relational content of the exchange greatly reduces opportunistic behaviour. This was shown to be the case by Gow et al. (2000) who describes several internal institutional innovations applied by a private company (Juhocukor a.s.) to increase contract compliance in the sugar beet industry in Slovakia. Some may be applicable to the goat industry production and marketing chain:

- Input provision and investment facilitation programmes for farms that signed a long-term contract with Juhocukor a.s. were introduced.
- A fixed base-price (slightly higher than the market price) and timely payment for deliveries were implemented – bonuses and penalties for pre-set quality were established.
- Juhocukor a.s. negotiated price reductions and guaranteed the repayment of purchases with a select group of input suppliers that producers were encouraged to deal with.

- Juhocukor a.s. developed a formalised programme with the main agricultural bank in Slovakia (Polnobanka) for the provision of financing for machinery investment and working capital, guaranteeing repayment and negotiating reduced interest rates for the producers.
- Technical support and extension programmes were introduced which also allowed Juhocukor a.s. to monitor the farms.
- A media and public relations campaign further assisted in the dissemination of these new benefits to the producers.

These contractual and institutional innovations dramatically increased the production of sugar beet by producers as Juhocukor a.s. was seen by producers as being willing to put its reputation on the line to back their contracts with timely payments at a good price.

Singh (2002) reports that farmers felt that contracting helped them become better farmers, gave more reliable incomes, generated employment, provided new skills in farming, and did away with patron-client relationships between large and small producers. Where contract growing has been established in developing countries several lessons have been learned and these should be kept in mind when implementing such as system. Singh (2002) describes some reasons for contract default by chilli, tomato and potato contract producers and their contracting companies in India. Some of the reasons for disenchantment with the contract growing system included: Companies became more strict on quality when they had over-contracted or when yields were good (the contracts are based on acreage planted and not necessarily on weight delivered), trust was reduced when the companies (who supply seedlings to contract producers) sold off excess seedlings to non-contracted producers, some of these seedlings were reported to be of poor quality, farmers felt that the companies had corrupt arrangements with the fertiliser and pesticide companies whose products they recommended to their farmers, poor coordination of activities, poor technical assistance, delayed payments, and manipulation of norms by the companies. However, although these problems occurred, most producers (from 62% to 80%) wanted to continue with contract farming, and felt benefited by the arrangement.

Further benefits in the development of contractual farming operations is that such arrangements can allow the purchasing, processing or export enterprise to access government and international funding agency investments or incentives since it is assisting in the development of non-commercialised farmers. Additionally, farmers become more "visible" to other development agencies, government programmes, financial service providers and providers of input supplies (Singh, 2002).

9.5 Conclusion

Part 1 of this thesis investigated the current goat industry and the various industry role-players as well as investigating the goat resource base available for commercialisation. It then went on to describe those factors which have contributed to the inefficiencies in the current system and showed that these reasons are largely irrelevant in the current context. Part 2 investigated potential markets for various goat products, studied the particular attributes of each of the products, designed new products from these raw products, and tested these products in the market place. Having determined that markets for these products exist, the means to get them from the non-commercialised farmers to the market place was investigated in Part 3. This chapter has described the various critical factors that need to be addressed to assure the presentation of quality products as required by the market. These include: the supply of a suitable raw product; collective action; targeted and specific technology and information transfer; collection and transport of goats; processing specific for meat, leather, cashmere, and milk; branding and packaging; quality control; marketing; product distribution; and pricing. Describing the issues of each of these critical factors allowed the identification of the role-players (or asset owners) which are likely to add value to the process. These were identified as: farmers; training and technology transfer agents; investors and donors; bankers and lawyers; processors; marketing agents; distribution agents; retailers or foreign markets; and consumers.

Identifying each role-player led to a definition of the relationships between them. This section investigated: co-ordination without a contract (as in spot markets); contract farming: farmer co-operatives and owner integration. Contract farming by farmer co-operatives was shown to be the most suitable of these choices for moving goats from rural areas to international markets. Thus, this exercise showed that vertical co-

ordination would hold certain benefits for each of the parties in the production, processing and marketing chain. To increase the efficiency with which the chain functions several contract groups were identified: market-specification contracts, production-management contracts; and resource-providing contracts. It was surmised that as the relationship between producers and processors grows and more market information becomes available to the processors, that market-specification contracts may transform into more resource-providing contracts as time goes on. Several contract types were studied. These included: classical contracts; neoclassical contracts; and relational contracting. Relational contracting was shown to be the contract method of choice since it creates avenues to reduce contract breach and opportunistic behaviour while encouraging trust, communication and collaboration mutually beneficial to all parties.

Vertical co-ordination can do much to commercialise the goat industry in South Africa, and can be especially beneficial in assisting non-commercialised farmers in obtaining access to information, markets, finance and sustained growth. This will greatly improve on the inefficient results of the current spot market system which has proved exploitive of non-commercialised farmers. Important here too, is the formation of a reliable, trustworthy, processing, purchasing or export enterprise with whom non-commercialised farmers can contract. Such a firm may be able to access government funds to start-up (Singh, 2002), and will need to keep the lessons learned from other similar enterprises in mind. Chapter 10 will describe several case studies which have applied some of the issues described in Chapter 9.

CHAPTER 10: IMPLEMENTATION - CASE STUDIES

10.1 Introduction

Case studies are information rich cases from which one can learn a great deal about issues of central importance to the purpose of the research. Case studies seek to describe a unit in depth and detail, holistically and in context (Patton, 2001). The case studies presented here are dynamic and developing, with "treatments" changing as it is learnt what does and doesn't work, and as methods of delivery are changed. Thus, it is a major challenge to describe and understand these dynamic programme processes and their holistic effects so as to provide information to other service providers in a similar position. Thus, description of all these interrelated factors is complex, and their implementation has taken much dedicated work over a long period of time to discover (as rightly suggested by Coase, 2000). Patton (2001) suggests that for results from case studies to "fit", categories must emerge and be readily applicable to the data under study. They should be meaningfully relevant and be able to explain the behaviour or trends under study. Thus a process of moving back and forth between induction and deduction, between experience and reflection on experience is necessary.

This chapter reports on several case studies of commercialisation of indigenous goats which are presently taking place in South Africa. Their implementation has revealed several interesting features related to New Institutional Economics. These features will be described and by comparing different approaches on several different projects, it is possible to show various successes and failures, and ways of overcoming them can be recommended.

10.2 Umzimvubu Goat Production and Processing Facility

This project started as an initiative of a Member of Parliament (MP) who became interested in the possibility of goats for Eastern Cape rural development after viewing a Goat Product exhibit in Parliament in 1999 by the author. This illustrates the importance of linking innovative research outputs with potential beneficiaries of the knowledge (Eponou, 1989). An NGO (United Nations Office of Project Services: UNOPS) in the Mount Ayliff area of the Eastern Cape was tasked by this MP to contact the author and a series of goat production and product demonstrations at several villages in the area were organised. Following the positive sanction of interested goat farmers of the region, the idea of a goat production and processing facility was born.

Almost immediately linkages with the local governance structure of the region, the District Municipality, were formed. The District Municipality took ownership of the project concept, and assisted in the design of a funding proposal to National Government. In this case specifically, funding was obtained from the Integrated Sustainable Rural Development Programme (ISRDP), managed by the Independent Development Trust (IDT), and granted via the Department of Local Government and Housing. Spending occurs through the Local Economic Development Fund (LEDF) of the Alfred Nzo District Municipality of the Eastern Cape Province. "Goats" were listed as a priority by villagers during the process of priority setting that informed the Integrated Development Plans (IDP's) of the region. Thus, the importance of grass-roots sanction, local government and national government support should be highlighted here (Their role is illustrated in Figure 11.1 in Chapter 11).

Chapters 5, 6, 7, and 8 highlighted the specific market, legislative and labour requirements of the manufacture of each of the possible products of goats and suggested institutional arrangements which would allow their movement from rural goat owners to national and international consumers. Chapter 9 further described these institutional arrangements. Chapter 2 showed that the Eastern Cape possesses the largest goat resource in South Africa (over 50%), over 3 million. These animals are mainly found in the northern reaches of the province in the former Transkei and Ciskei areas. The goat resource is largely unimproved: the medium-sized multi-

coloured goat being most prevalent. These goats are used for traditional (cultural) purposes (Chapter 3), but also for cash flow when required. Goats are sold to neighbours, traditional healers and speculators on an *ad hoc* basis. Within the Alfred Nzo District alone the goat resource is estimated to be over 279253 goats. Table 10.1 shows the numbers of goats per district of the Eastern Cape.

Table 10.1 Goat numbers found in the municipal districts of the Eastern Cape

MUNICIPALITY	GOATS
Western District DM	16 619
Amatole DM	466 649
Chris Hani DM	374 411
Ukwahlamba DM	220 310
O.R. Tambo DM	721 991
Alfred Nzo DM	279 253
Total	2 079 233

(Source H. Dombo – Stockowners Co-operative, 2004)

These indigenous goats are not suited to milk production, but their meat, leather and cashmere were tested (Chapter 5, 6 and 7) and found suitable for several value-added products. No collection, processing or marketing infrastructure for goats is found in the District. Dipping tanks exist, and goats are run along with sheep and cattle through these tanks when Department of Agriculture Extension Officers provide this service. Sheep scab operations have been concentrated in the O.R. Tambo, Chris Hani and Ukwahlamba districts, but little action has taken place in this regard in Alfred Nzo district. Several farmers' associations (affiliated to NAFU) were present in Alfred Nzo at the start of this project but these were general in nature.

Taking such stock of the district assisted in the design of the project. The Umzimvubu Goat Production and Processing Project thus decided to combine elements of infrastructure development, social facilitation, institutional development, and technology transfer and training. The organisation of the firm consists of a central "umbrella" farmer co-operative (as recommended in Chapter 9) (Umzimvubu Goats), managed by a board of 9 directors. The members of this co-operative are currently six (6) district (or regional) farmer co-operatives operating in wards within the Alfred Nzo District Municipality. Each of these regional co-operatives has their own identity, are legally registered, have their own boards of directors, and member farmers drawn from

the villages within each ward. Membership numbers vary amongst the regional co-operatives (300 to 750 farmers), and members are drawn from a varying range of villages in each case (7 to 15 villages). Membership has been voluntary and guided by a step-by-step social facilitation process described for project beneficiaries and service providers in a "Farmer facilitation and Co-operative Development Process" manual (Roets, 2004a). This process is summarised in Table 10.2. As stated in Chapter 9, co-operatives are a culturally acceptable business form since they work on similar principles to "stokvels" and burial societies already familiar to non-commercialised farmers. The logo (brand) of Umzimvubu Goats is shown in Appendix 6.

Collective action was deemed necessary for this project because most non-commercialised farmers in this district have small herds varying in size from 10 or 20 animals. Small herd sizes increases the transaction costs for the individual farmer since the effort asserted to sell one animal is invariably the same as the cost to sell 100. Furthermore, specialised inputs that may be required can be prohibitively expensive. For example: medicines and ear tags (small pack sizes cost more), management tools (dosing guns, ear tattoo machines, ear tag applicators are expensive), transport facilities, and holding pens. Also, herd structures are often incorrect. Only one buck is needed for every 40 does. Most farmers have their own buck and does, but the bucks are largely unproductive whilst utilising expensive resources (feed, management time, medicines etc.). These obstacles can be overcome through the collective action of the goat farmer co-operatives. Access to land has never been stated as a constraint by these farmers in the entire period of involvement of the author with these groups. It appears that the tribal leaders have "bought-into" the concept and land for communal grazing and locations for village-level infrastructure construction are made readily available.

Table 10.2 Farmer facilitation and Contract Growing Development Process

PHASES
Phase 1: General Awareness creation (through churches, youth groups, Farmer's Associations)
Phase 2: Goat interest group formation (GIG's): (Names, addresses, contact numbers, numbers of goats owned are collected at this meeting, and fed into the Social Facilitators database)
Phase 3: Cooperative education (Basic information regarding the functioning of Co-operatives)
Phase 4: Choosing of Co-operative leadership
Phase 5: Development of Co-operative constitution (Guidelines are provided)
Phase 6: Development of Co-operative business plan (Guidelines are provided)
Phase 7: Co-operative registration - Putting together all paperwork and mailing to National Dept. Agriculture: Agricultural and Financial Co-operative Development Directorate
Phase 8: Registering the members of the Co-op, membership numbers and membership cards
Phase 9: Recruit Umzimvubu Goats Producers – Signing of Umzimvubu Goats Contract Growers Agreement (Production schedule fed into producer's database)
Phase 10: In-depth training – A 3 to 5-day Co-operative training course can be arranged for Boards of Directors only, or if required, the entire membership - Training in goat management and Contract Growing principles, guidelines and rules (PAETA training).
Phase 11: Opening of bank accounts
Phase 12: Registering a Co-operative brand or tattoo
Phase 13: Producing goats and purchasing goats

Each farmer becomes a member of the co-operative, and receives a membership number. Through these co-operative groups costs of medicines and ear tags can be reduced when bought in bulk, and management equipment and marketing infrastructure can be shared. Group formation also ensures that those farmers who are interested in becoming commercial goat farmers are identifiable, and can receive targeted support.

An institutional change affected by this work was the change of legislation catering only to individual farmer animal brand registration to co-operative registration. Since legislation (from 2005) requires traceability back to origin, and a large number of farmers would be required to supply to the processing facility, the cost of every farmer (owning between 10 and 30 goats each) having to have their own brand presented a inhibitive transaction cost to enable these farmers to comply. Discussions were held with the Registrar of Brands who then agreed to consider co-operative brand registrations. Now, instead of 3000 farmers having to pay R 162 each for animal

brand registration, this transaction cost has been reduced to R 162 for 6 co-operatives associated with this project. (Discussions with Mr Keith Ramsay, Registrar of Livestock Brands, 2003). Although the co-operative brand then appears as an ear tattoo on each goat, the ear tag can include the co-operative membership number of the member farmer, and the animal number. It is pleasing to note that cooperatives that were established for specific purposes (i.e. in the cases illustrated by Holloway (2000) for fluid milk production) were better managed and exhibited lower levels of moral hazard (i.e. shirking and financial irregularities) than more general cooperatives. It is felt that the goat specialisation of the Umzimvubu Co-operatives will have a similar outcome. This is also corroborated by the high risk aversion of these very poor farmers (as explained by Ensminger's game theories in Chapter 9).

In all six regional co-operatives, Phase 8 has been successfully reached. A "joining fee" is an internal initiative taken by the co-operatives to ensure that members are indeed interested in being part of the venture. Furthermore the exercise of constitutional development (Phase 5 in Table 10.2) has been an interesting one. Co-operatives have been enthusiastic about setting their own rules. For example, some co-operatives only allow members that currently own goats. Others however, have been more accommodating and allow others who want to become goat farmers as members. Furthermore, at board meetings it has been noticed that certain members become absent and new board members are introduced. In all cases the reason given is that the previous incumbent did not do his work or did not attend board meetings and was thus replaced. This demonstrates that the Co-operatives are entirely self-governing, and are developing their own systems of managing moral hazards and free-riders. Phase 8 was also considered the necessary stage of development before the central "umbrella" co-operative could be formed, since it was important that the central co-operative would have representation of farmers throughout the region (this creates a built-in relational context since the farmers are both suppliers to and "owners" of the processing facility).

Technology transfer activities have followed a trial-and-error process in the case of Umzimvubu Goats. Initially, involvement of the Eastern Cape Department of Agriculture Extension Officers was pledged to support the farmer training drive. Approximately 25 Extension officers were trained in the project concept, goat

management practices, value-adding opportunities, and farmer facilitation and co-operative development processes. However, the differences between the institutional cultures of the District Municipality (which are under obligation to perform to performance contracts) versus the Regional Agricultural Department (with their limitations in vehicle resources, level of competence of the extension officers, poor supervisory arrangements) soon became apparent, and little or no activity was observed from the side of this group of Extension Officers (apart from the work of two individuals who were very active and very successful in their regions despite the same constraints as their colleagues). The limitations of agricultural extension services is a matter often commented on in development literature. Because of these limitations, it was decided that farmer training should be handled internally (to the project). To affect this, a manual "Regional Co-operatives, Membership, Goat Production and Delivery Guidelines" was developed (Roets, 2004b), containing information on the following issues:

1) Breeds of goats suitable for sale to Umzimvubu Goats (Product specification information – this is an important transaction cost since non-commercialised farmers have felt that their goats are inferior to other improved breeds)

2) The obligations of Umzimvubu Goats to Regional Co-operative Goat Producers (Training programmes, extension services, negotiation of reduced costs of inputs with select suppliers etc.)

3) The first step – membership (Issues of animal identification are linked to membership. Also, the project is exclusive, only goats from members will be purchased.)

4) Goats suitable for growing (Product specifications, such as weight and age – these specifications are kept very simple to assist with compliance)

5) Required Goat Management Practices (Pharmaceutical use, judging body condition score, housing, nutrition and ethical treatment of goats is discussed here. Only those issues which have an influence on final product quality are discussed. The rest are irrelevant.)

6) Delivery of goats to Umzimvubu Goats (Central collection depots are discussed and that transport costs from these collection depots to the facility will be borne by the facility, thus reducing transaction costs.)

7) Grower obligations (Obligations such as providing only animals of the suitable specification, regularly, and reliably are discussed)

8) Delivery price (This has been left as a relational issue, where the price will be negotiated based on the value-added generated, and will change from time to time.)

This manual is available in the local language, Xhosa, and is made available to each member of each co-operative when he/she joins the co-operative and pays their "joining" fees.

A third development has occurred due to the formation of the National Qualifications Authority in South Africa (an initiative of the Department of Labour), the development of the Sector Education and Training Authorities, and specifically, in the case of primary agriculture, the formation of the Primary Agriculture Education and Training Authority (PAETA). This body is mandated to assist in the training and development of adults within an "employer-employee" relationship. However, the contract growing model has drawn interest since it encourages learning within the sector, but caters for a different form of "employer-employee" relationship. This illustrates a second institutional change affected by this work where the "contract-growing model" has been allowed as a form of "employer-employee" to disburse funding from the National Skills Fund to educate previously disadvantaged groups in the agricultural sector. Without this policy change, those farmers outside the formal agricultural sector (i.e. not employed by commercial farmers) would have been ignored for training assistance. A full N1 level qualification, the "Contract Grower Goat Management Learnership Programme" has been developed (Roets, 2003). This 10-month training programme teaches the non-commercialised goat farmer all the intricacies of goat contract growing to market specifications and entails 25% theory and 75% practical assignments. Aside from ensuring total understanding of the principles of goat farming for market requirements, it also provides adult learners with a formal tertiary qualification which could assist the individual in obtaining employment in other sectors. Funding for this

training is supported by PAETA and the MQA (Mineworkers Qualifications Authority) through their National Skills Fund Programme. As is demonstrated here, the formation of the East African cooperatives led to access to higher quality information (higher in quality than the available extension services) to producers (Holloway, 2000).

Due to the nature of the goat resource, the lack of processing infrastructure in the district, and high unemployment rates (55% of the population of the E. Cape are not economically active and 24.6% are unemployed - thus, 79% of the population of the E. Cape are not involved economically: Stats South Africa, 2001), it was decided to develop an abattoir, meat processing plant, tannery, leather crafting workshop, tourist centre and their associated civil infrastructure which together would have the most employment potential as well as serve to utilise the goat resource of the area.

Aside from the resources (labour and goats) available, the following factors also informed this decision: An abattoir and meat processing plant are expensive facilities, and the supply of raw product should be assured. What better place to assure supply than in a district with over 200 000 goats? This will not only ensure that the facility is effectively utilized, but will also ensure consistency of supply to the market, especially where bulk orders are exported overseas or required by local retailers. These requirements would demand the "locking in" of non-commercialised goat farmers with the processing facility. Thus a facility specific for this value-addition chain was appropriate and best located in those regions where a high number of goats occur. This facility is linked with goat producers within its area (thus reducing the transaction costs associated with transport), will specialize in the meat products developed in Chapter 5, and a relationship has been established between the facility and the goat producers in its immediate vicinity to ensure consistent supply of product. A long-term relationship with goat growers can also allow the facility to provide the growers with information relating to its raw product requirements (thus building a relational contracting type). The operation of a goat meat facility and, to ensure its effective utilisation, its long-term relationship building with local goat producers, perfectly fits the creation of institutional arrangements involving interlocking transactions (found in contract growing), the development and nurturing of producer groups, and can also include, public private partnerships (due to cost of the facility), contract growing (to ensure consistency of supply), and co-operative development (to allow the farmers to

work collectively to provide to the facility in an organised manner) as suggested by Kydd and Dorward (2001).

This arrangement has motivated goat farmers to improve their performance using the market as a lure (Chapter 1). It will allow non-commercialised farmers to become more connected to the value-delivery network (or supply chain) and part of a vertically co-ordinated company. This vertical co-ordination will lower the costs of transportation (since the processing facility is located within the goat producing region), information (through relational contracting) and marketing (Through vertical co-ordination, non-commercialised farmers will be able to link with export markets with their high demands for safety, quality and consistency (Chapter 1)) and the opportunity exists for the farmer to gain a larger share of the value-added income stream (Chapter 1) since profit sharing is built into the design.

To establish a consistent supply of raw product, goat farmer co-operatives can plan and define their production and delivery capabilities together, and provide this information to the next link in the chain (the transporters or the processors). Consistency of supply is thus achieved by a group where different owners can present their animals for sale at different times, but the supply generated by their group activity is consistent. This will create the critical mass required to supply the market chain consistently.

If a substantial number of goats are to be slaughtered at the central location, then a similarly large number of goatskins would be available at this central location. This creates the need for a medium sized tannery close to the abattoir (to reduce transport and handling transaction costs). Again, tanneries are expensive facilities (with asset specificity – both in the infrastructure and the expertise required for operation) and need to operate at effective capacities, thus a consistent supply of raw product would assist in the viability of such an operation. Effluent disposal and pollution were also concerns in this decision. These constraints were overcome in the following manner: the latest market trends are for hair-on leather products (for interior décor); also, a hair-on tanning facility would negate the need for the sulphur processes which are associated with hair-off tanneries (these sulphurs give the "rotten-egg" odours associated with tanneries). Furthermore, on a smaller scale, tannery effluent can be

re-used (both chrome and veg tanning chemicals), and once finally spent, can be stored for collection and disposal by larger operations (Dr Clive Jackson-Moss, ISTT, personal communication, 2000).

By linking goat growers to an abattoir, and the tannery having a contractual supply relationship for skins with the abattoir, a constant supply of skins can be maintained increasing the viability of the tannery. The possibility also exists that if the goat growers are in any event contracted to supply goats to the abattoir, then a relationship could also be built with them to supply raw skins obtained from traditional use (which are often discarded). Such a relationship could also allow the tannery to educate the goat growers on improved nutrition practices to strengthen their goat skins (as indicated by the research in this chapter), and management practices which would limit scratches and scarring (such as the use of barbed wire fences). Because a decision was made for only hair-on tanning to occur (due to environmental concerns), a relationship with a hair-off tannery was established with the following conditions: Firstly, skins that do not have interesting hair patterns will be swapped to obtain hair-off leather from the ISTT in Grahamstown, and, as often as required, ISTT will collect and dispose of the used chemicals of the tanning process.

The development of a tannery (due to the establishment of an abattoir) leads naturally to further job-creation through leather crafting. Leather crafters producing items from the skins will also benefit by the consistent supply of hair-off and hair-on skins, and the bulk in which the leather will be available will allow many crafters to manufacture items which could do well in bulk retail markets (thus allowing co-operative crafting groups to be formed). Here too the leather item manufacturers and crafters can be linked to the leather tannery (and thus to the goat producers), allowing consistent supply of raw product (and the potential to relay information regarding the characteristics of the raw product to the goat producers and the tanners – i.e. regarding quality, dyeing possibilities etc.). The value-adding potential of goat skins is the greatest of all the products from goats, and if the supply and manufacturing chain for goat leather were vertically co-ordinated this opens up the potential to relay the financial benefits back to the producer (if the correct quality is delivered).

Thus, it was decided that the central infrastructure of the facility would include:

- 560-goat holding pens (to allow a 2-week buffer goat supply) and infirmary
- Feed, equipment and medicine stores
- Goat abattoir (maximum 40 goats per day) and meat processing plant
- 40-skins a day hair-on tannery and leather craft workshop
- Labelling and packaging facility and cold storage area
- Effluent treatment plant
- Administrative buildings and shop, Ablution facilities
- Security housing, Fencing around perimeter
- Water (reservoir, pipeline and pump), electricity (stand-by generator), sewerage (pipeline) and road infrastructure

Figure 10.1 shows this facility under construction and Figures 10.2 and 10.3 illustrates an artist's impression of the site.

Figure 10.1 Umzimvubu facilities under construction showing the tourist facility nearing completion

Figure 10.2 Artist's impression of the Umzimvubu Goat facilities: Tourist facility

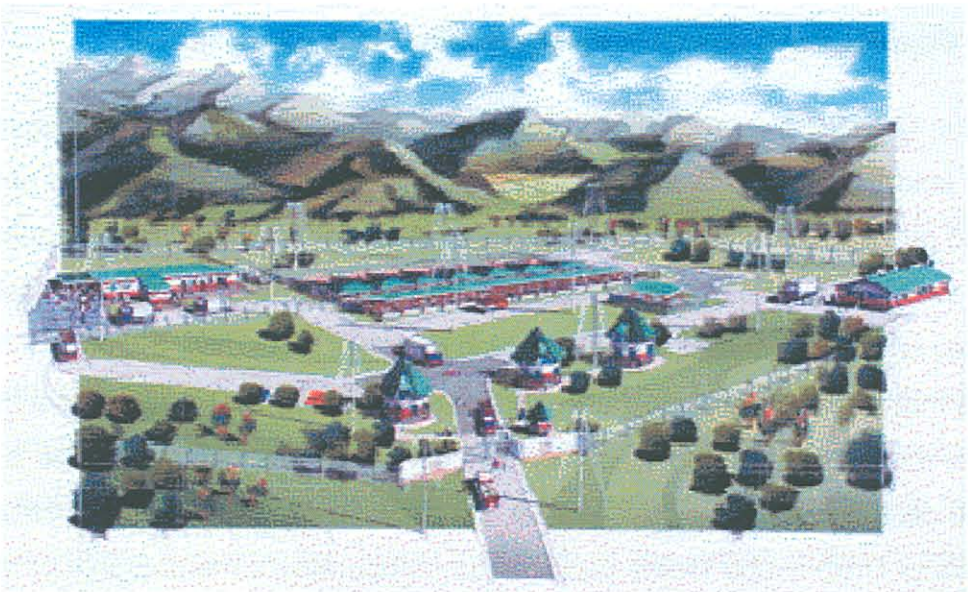

Figure 10.3 Artist's impression of the Umzimvubu Goat facility: Animal Husbandry centre and processing plant

The organizational structure of the venture then becomes as depicted in Figure 10.4 below:

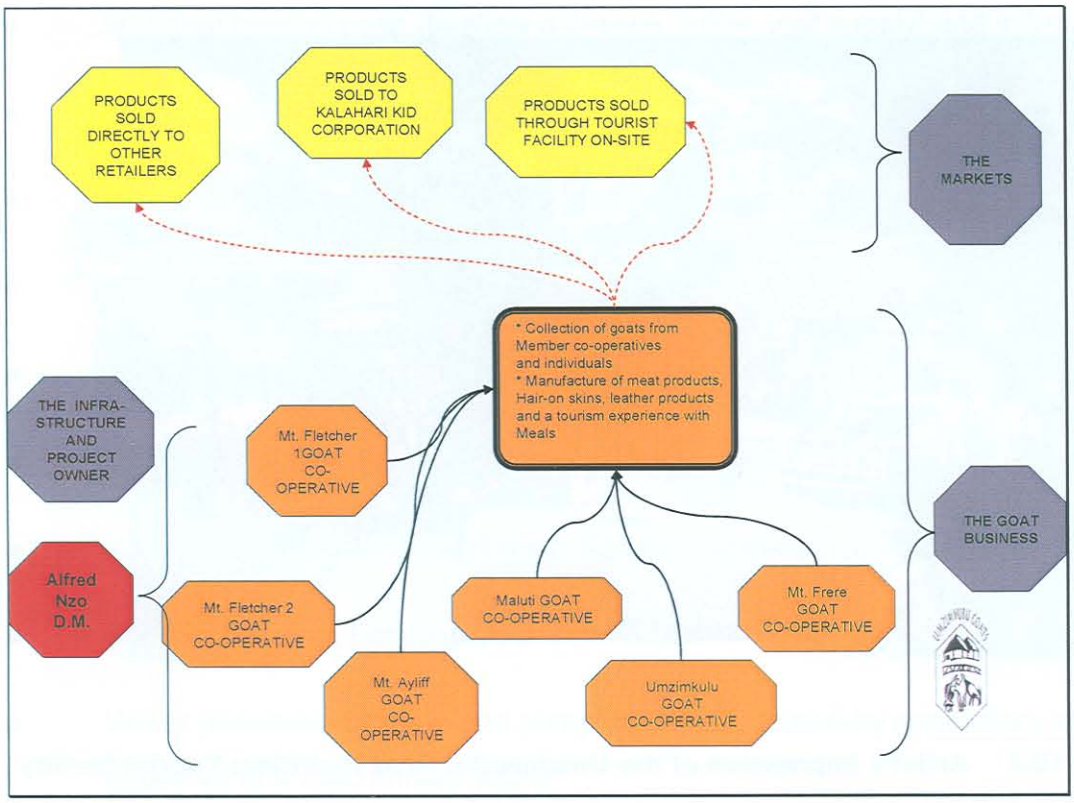

Figure 10.4 Organisational structure of Umzimvubu Goats

As mentioned in Chapter 9, farmer co-operatives have been chosen as the legal entity because they lend themselves to the requirements of the vertically co-ordinated goat production and processing venture envisaged here since they allow for large numbers and variation in numbers of participants, are governed by a Board of Directors (self-governing), they encourage collective action (which operates in a similar manner to the cultural norms that most non-commercialised farmers are accustomed), and have the interests of the members of the co-operative at heart. Each district co-operative is a member of the central processing co-operative, Umzimvubu Goats. Thus, aside from being members of Umzimvubu Goats each district co-operative's membership of the central co-operative is governed by a contractual obligation towards the central cooperative. This organisation of the role-layers creates a "Co-operative Contract Growing" enterprise.

The business of the venture will be that all the raw products (live goats, skins and cashmere) will be drawn from goats that are owned by non-commercialised member farmers in the Alfred Nzo Region of the Eastern Cape. The business will entail the manufacture of goat leather products for local and international markets, and fresh and

processed goat meat products such as cabanossi, droë wors and salami. These products were chosen because they take the limitations of the current goat resource of the area into account (too small for meat cuts or whole carcasses), and also present new products to the international market (thus no direct competition). The facility will produce to Halaal specifications (which opens up the possibility to export to the Middle East but also to penetrate the Muslim market in South Africa – mainly based in KwaZulu-Natal which is within 30 km from the facility). Cashmere will merely be stored for further sale to a cashmere carpet manufacturing group that has been established in Soweto (The Mighty Wool Spinners see 10.6 below).

The objectives of the project are to:

- Provide a consistent, reliable, market for live animals from the local non-commercialised farmers
- Provide a market for currently under-utilised goat skins and cashmere
- Provide transport of their animals and products to the central infrastructure
- Provide local permanent employment to 55 beneficiaries
- Provide temporary employment to approximately 300 local building contractors
- Will draw tourism to the Mount Ayliff area

In defining the relationship between the central "umbrella" co-operative and the regional co-operatives a contract was designed. The full contract is shown in Appendix 6, but is discussed here. The contract makes provision for the processing enterprise (Umzimvubu Goats Co-operative), the individual farmer and the regional co-operatives' obligations and responsibilities. On the one-hand Umzimvubu Goats is created to promote goat farming in the area, will ensure traceability (through bar-coding and record-keeping), quality (Halaal and Veterinary Public Health inspectors) and consistency of supply (through constant throughput) to various markets, and will provide several services to regional co-operatives (on payment of a membership fee) such as on-going advice on the management, breeding and caring for goats, will assist producers in producing goats to the required standards (as set out in the Contract

Producer's Manual), will ensure a sustained, consistent, reliable and efficient market for goats from member producers, will hold shares of the member co-operatives in trust and assist in the collection and distribution of any dividends from the operation, implement a system of training, advise on preferred feed and pharmaceutical products to use, purchase all goats that meet the required standards, shall pay out a 2% annual bonus if the regional co-operatives meet their production targets, will assist in the establishment of regional cooperatives, and will pay for all purchased animals within 7 days of the acquiring the stock from the regional co-operatives (directly into bank accounts). Umzimvubu Goats will negotiate shelf space with various retailers utilizing its own brand name (and logo), but may also co-brand or package and brand under other brand names (e.g. Kalahari Kid), as explained later. The services of Umzimvubu Goats to its members are similar to those suggested by the sugar beet processing plant as described by Gow et al. (2000) to increase contract compliance. These services will also foster collaboration and mutual benefit sharing through active communication between the parties. Thus, although classical in appearance, this contract has elements of relational contracting as suggested by Artz and Brush (2000) and Furubotn and Richter (2003).

The individual producer is required to submit an annual production estimate, indicating the number of goats and the times at which these would be available to be delivered to the central cooperative, must deliver the numbers of goats pledged, must apply the recommended record keeping and numbering system to the goats, must produce goats of the quality specified in the Contract Producer's Manual, and must have a bank account. The specifications of the goats have been kept to a minimum so that contract compliance is not difficult for the individual producer to achieve. In information sharing sessions farmers are continuously informed that all goats can be sold, as long as they are less than 18 months old, and between 25 and 35kg in weight. To assist with this compliance, farmers are being taught how to tell the age of goats (by their teeth), and are provided with and shown how to operate a weighing scale. The requirements of ear-tagging and branding (or rather tattooing in the case of small stock) have also been relayed. This information exercise has been so successful that one district co-operative has taken the initiative to mark goats destined for sale to Umzimvubu Goats with a different coloured ear-tag to those

goats destined for traditional or household use. This is a clear indication that the traceability requirements of the abattoir are understood.

The regional co-operatives are established to plan delivery dates with their members, provide a collection point to which all animals to be sold should be brought, arrange with the central cooperative for the transport of the animals to the abattoir, must assist in ensuring the traceability, quality and consistency of supply to the central cooperative and must have a bank account.

The contractual obligations of importance are those which attempt to reduce hold-ups, build trust between the central and regional cooperatives, and improve the producers' access to inputs. These include the necessity to plan delivery schedules, the fact that goats will only be purchased from members, and the services provided to the farmers by the central co-operative. These obligations are necessary if the central infrastructure is to provide processed products to further markets on a consistent basis, but also to utilize the infrastructure most efficiently, since a large capital investment was made to build these specific assets. To ensure the supply of goats to the facility Umzimvubu Cooperative has pledged to provide training and advisory services (an Agricultural Officer will be appointed at the central facility), has negotiated special services and products with a pharmaceutical company (Virbac), and is in the process of negotiating a finance warehousing scheme with the Land Bank, in an effort to bring much needed finance to non-commercialised farmers in the project. Furthermore, Standard Bank is assisting the members of cooperatives and the cooperatives themselves with the opening of banking accounts. These innovations are similar to those adopted by Juhocukor a.s. in Slovakia, when repositioning themselves towards their sugar beet producers (Gow et al., 2000). Thus, in the Umzimvubu Goat Project this support includes the provision of marketing infrastructure, transport assistance, training and technology transfer and financial services. This relationship has been established by ensuring participation of the farmers (through their proxies, the regional co-operatives) and decision-making powers on the board of the central co-operative.

10.3 The Laphum'ilanga Goat Project

The Laphum'ilanga Goat Project (their logo is shown in Appendix 7) is similar in size and scope to the Umzimvubu Goat Project and is owned and managed by the Ntinga O.R. Tambo Development Agency which has been created to assist the O.R. Tambo District Municipality in its Local Economic Development drive. Funding for this project is also sourced from the ISRDP. The same technology transfer lessons were learned by first training extension officers and then moving to an "internal" form of technology transfer (Roets, 2004b).

The organisational structure is similar with the formation of 7 regional co-operatives which will produce live goats to be delivered to a central cooperative. The projects differ essentially at the level of infrastructure and purpose. In Laphum'ilanga Goats the central infrastructure consists of:

- A Goat holding facility with feed provision (1000 animals)
- An auction facility
- Infirmary
- Feed, equipment and medicine store
- Leather craft workshop
- Composting facility
- Administrative buildings and shop
- Water (boreholes, reservoirs, pipelines and pumps), electricity (stand-by generators) and road infrastructure

In addition to the infrastructure at the central cooperative, regional cooperatives are also being assisted with the construction of collection points. These centres will serve as a holding facility for animals to be sold, will serve as a meeting place and training centre for the regional cooperatives, and will house animals of superior genetic merit

so that members of that cooperative can improve the genetics of their own herds. One of these facilities nearing completion is shown below in Figure 10.5.

Figure 10.5 Isilindini Regional Co-operative infrastructure (meeting and training venue, collection facility, loading ramp, handling facilities, storage room, office and ablution)

Farmer facilitation and cooperative development also follows the 13-Phase process described for Umzimvubu Goats (Roets, 2004a), and similarly a Contract Growers Manual (Roets, 2004b) has been developed to train farmers in the process of contract growing and to keep to standardised norms of goat management, pharmaceutical use and health care. The purpose of this facility would be to collect live goats from the O.R. Tambo Region of the Eastern Cape, bringing them to a central location and offering sales/auctions to live goat buyers on a regular basis. This facility plans to

overcome the high transaction costs of goat buyers from KwaZulu-Natal who can generally buy only small quantities at a time, and who are averse to traversing the poor roads of the Eastern Cape. This facility thus offers prospective goat buyers a centralised convenient location for accessing the goats of the deep rural areas of the O.R. Tambo region. Creating a facility which reduces the inconvenience and transaction costs for buyers (i.e. the market) would also thus increase the access of non-commercialised farmers of the region to these markets.

10.4 The Kgalagadi Dipudi Project

The Kgalagadi Dipudi Enterprise originated from an initiative of a group of unemployed women in the Bendal village (84km Northeast of Kuruman in the Northern Cape Province) who each donated 5 indigenous female goats from their family farms, and upgraded these with an improved Boer goat ram. The project was allocated a piece of ground on the farm Greyfield, and a new area, more suitable to goat farming was later identified and permission was obtained to utilise this new area for the operation. Infrastructure for this site, including water, electricity, handling facilities, fencing and accommodation for a manager, were built. Land access is often mentioned as a constraint in this project, and thus the LRAD programme of the Department of Land Affairs has been accessed in this regard. Limitations in land available for purchase and the funds to purchase potential land have however proved limiting.

Further non-commercialised goat farmer facilitation and involvement was effected throughout the Kgalagadi Region by the operation of a group of extension officers from the Departments of Agriculture of the North West Province and the Northern Cape. These officers received training in goat management, the project concept, business structures, goat meat, leather, cashmere and milk processing, market surveys, and also the facilitation of Goat Interest Groups. Their activities on the project form part of their Department's Performance Management System, and Key Performance Indicators related to the project have to be reported on in their performance appraisals. The excellent work of this group of extension officers led to the successful registration of the Kgalagadi Dipudi Goat Cooperative consisting of 360 members in February, 2003.

The Kgalagadi Dipudi Project is located in the municipal district of Kgalagadi near the town of Kuruman in the Northern Cape, and is also funded via the District Municipality's Local Economic Development Programme, receiving funds from the ISRDP. High level political involvement in this project (National Ministerial and Provincial MEC level) has created complexities. Despite the excellent progress made at the start of the project, the author is unaware of the project's progress to date.

10.5 The Picardy Milk Goat Project

This project will consist of a milk goat operation including a milking parlour, milk processing factory, a leather crafting workshop, restaurant, ablution facilities, and administration offices located on the Picardy farm in the Balfour region of the Eastern Cape. This infrastructure is almost complete. The project is funded via the Community Based Public Works Programme of the Amatole District Municipality. Ultimately, approximately 150 goats will be grazed on the 200 hectares of land owned by the community (following an LRAD grant process) of approximately 32 families. A farmer's cooperative with its own management structure has been registered by the group. Training in aspects such as goat management, milk processing, catering and business management will be provided to the community to own and operate the business.

The community of the Picardy farm will operate the goat milk herd and processing facility as a tourism and product processing venture. As such the community will manage a herd of milk goats, milk the goats, produce various value-added goat milk products such as drinking yoghurt and amasi, produce goat leather craft items, operate a tourist restaurant where local cuisine and the goat milk products will be served, and operate a goat leather craft workshop where tourists can view leather-crafters at work.

In the scenarios sketched in the business plan (Roets, 2004c), the facility will produce the following products and quantities of products: 270 litres of milk will be processed into 108 litres of maas and 162 litres of drinking yoghurt per day, 49 male kids will be available for sale in January/February of each year, and 17 handbags, 36 pouches, 90 key pouches or key chains, and 15 pairs of leather slippers will be manufactured every

week. The facility will create employment for: 7 management / co-ordinator personnel earning R 1 700 per month each, 5 milk processors earning R 1 200 per month each, 7 animal husbandry staff earning R 1 200 per month each, 15 leather crafters earning R 1 200 per month each, and 2 Restaurant staff and 1 curio shop manager earning R 1 200 per month each.

The main market will be sales to tourists on-site. This entails that the facility will need to link with other tourism ventures in the region to become visible. Excellent tourism opportunities such as the Katberg Hotel, the Mpofu Game Reserve and Grahamstown are nearby. The infrastructure is currently under construction and no contractual linkages have yet been introduced to the project, although a "chain-store" concept with reciprocal exchange of products with other goat enterprises is envisaged. The possibility also exists that the Picardy Project will enter into a contractual relationship with the marketing group Kalahari Kid. The specificity of this infrastructure and the perishable nature of the products have necessitated a different organisational framework than the projects located elsewhere. Here the operation is centralised with no contract growing arrangements taking place. This facility is essentially similar to those of other milk goat operations in South Africa, with one difference: here the farm will be owned and operated by a group, whereas the other facilities on South Africa are owned by individual operators. This has been made possible by the ownership of the land by the participants through the LRAD process.

10.6 The Mighty Wool Spinners group

A Women's Group in Soweto searching for employment was made aware of the business opportunity of adding value to cashmere fibre through information and awareness creation exercises. Business training assisted the Women to develop their own business plan and activities. Training in fibre washing, carding, spinning, hanking and setting provided the skills necessary to provide the required quality of product to a carpet manufacturer based in Mid-Rand, Gauteng. Relationships and trust were developed between the Women and the carpet manufacturer through the testing and manufacturing of a sample product range. The manufacturing of the product range was used as a quality development and control, and communication and value-chain building exercise. This group is now linked to several goat growing groups in the

Transkei for their supply of cashmere. However, the establishment of several of the processing centers mentioned above (with dedicated storage facilities for cashmere) will greatly increase the consistency of supply of cashmere to this group. As mentioned in Chapter 6, the yield of cashmere from indigenous goats is low, thus negating the possibility of the development of several of these value-adding groups. As suggested by the market survey described in Chapter 6 stronger linkages with interior decorating and export firms still need to be established.

10.7 The Kalahari Kid Corporation

The Kalahari Kid Corporation (their brand is shown in Appendix 7) is a public company registered on the 3 October 2002. This company was created to develop the goat industry in South Africa, and has as its core functions the branding, brand management, quality control and marketing of goats and goat products from the entire South Africa. The company is a joint initiative between private sector commercial partners (5%) and the Northern Cape Provincial Government (95%) where funding is channelled to the project via an Economic Development Unit established to assist in the economic development of the Province. Its main goal is to establish goat meat in the local retail and international export markets (Its penetration into the Middle East market was illustrated in a cartoon published in the Farmer's Weekly in 2003: Appendix 7). To do this it is building the brand name "Kalahari Kid", negotiating shelf-space with various retailers (Checkers Hypermarket, Pick 'n Pay, Spar), paying listing fees where necessary, presenting the product to the public through various publicity campaigns (such as up-market lunches with radio, TV and "foodie" personalities, food exhibitions and magazines, pamphlets, posters, and international exhibitions (utilizing funding from the Department of Trade and Industry SMME Export Support initiatives)), developing a reliable distribution network, soliciting the support of several key, high grade processing centres (abattoirs), and building a client base (both in South Africa and abroad). These activities were required for the establishment of the brand.

On the supply side the Kalahari Kid Corporation is working at grass-roots level building a supply base from non-commercialised goat producers (currently in the Northern Cape, but with plans to expand to other parts of the country). Kalahari Kid's ultimate

objective is to market the meat, offal, leather, milk and fibre products of 1 million goats per year.

To build trust and secure contract growers the Kalahari Kid Corporation is also providing certain services to non-commercialised farmers as a means of ensuring compliance to contractual obligations. These are similar to those described for Umzimvubu Goats and include negotiation with a pharmaceutical company regarding co-branded goat remedies, the support of various government departments such as the Department of Land Affairs and the Department of Agriculture, who assist with land issues where they are identified, the provision of cooperative development assistance and training provided through funding of PAETA. Furthermore on qualifying as a Kalahari Kid Contract Grower farmers are given assistance to: Be trained (by a qualified official from the Kalahari Kid Corporation); and Be registered as a legal entity (e.g. co-operative name and registration number). Compliance requires: Agreeing to the contractual arrangements (Quality of goats offered, Quantity of goats offered, Keep to delivery date schedules, Not sell to other traders -this is enhanced through relational contracting, Be part of the programme); Have adequate management facilities (e.g. housing, feeding); and, Have access to land (Permission to occupy, Own, Lease).

Land access is often mentioned as a constraint by non-commercialised farmers in the Northern Cape. To overcome this problem discussions have been held with local and district municipalities regarding the sale of municipal land (commonage). The LRAD programme of the Department of Land Affairs has also be accessed. However, the Northern Cape has limited land available for sale and it can be debated whether the current equations used to determine the funding for land per potential land owner is applicable in this province where the production capacity is much lower than in other provinces and where large tracts of land are necessary for viable production systems. This issue needs to be addressed at a policy level (institutions).

Thus, as with the other projects, the Kalahari Kid Corporation must in some way work with the supply side of the vertical chain to influence quality and timing of deliveries (Sporleder, 1992). The key difference between the Kalahari Kid Corporation and the previous projects described is its emphasis on the market linkages whereas the other projects are concentrating more on the supply side of operations. This thus lends itself

perfectly for these two types of operations to combine forces in creating a completely integrated marketing chain from producers to consumers (both local and foreign) or to enter into a strategic alliance (Sporleder, 1992), where each firm would offer specific inputs that would be complementary within the production, processing and marketing chain. However, the contracts describing these relationships still need to be defined.

As mentioned previously, the opportunity exists to share a brand, but opportunities should also be created where the separate companies can market a share of their produce under their own brand names. Contracts will have to be designed to encapsulate such situations and are often permissible in strategic alliances (Sporleder, 1992). Furthermore, the strong technological innovation of the products (Raynaud, 1992) requires that monitoring of the product quality and consistency must ensure a consistent product from different centres. This may be particularly difficult to achieve with processed meat and milk products, although leather and cashmere products are expected to show some variation in consistency and appearance.

Thus, whereas the Kalahari Kid Corporation, like Umzimvubu and Laphum'ilanga, has a standard "Contract Grower's Agreement" where benefits and obligations of goat producers and the purchasing company are described, it is clear that at the current stage of development of the industry, the Kalahari Kid Corporation possesses the most "marketing power" (Sporleder, 1992) and if it continues its strong marketing activities will soon also possess "referent power" (Neves, 1999). i.e. the brand will be so strong that others will want to be associated with it. Thus, if the other goat production and processing operations want to share in some of this "power" a further contractual relationship will need to be designed between the Kalahari Kid Corporation and processing enterprises such as Umzimvubu (leather and meat products), Picardy (milk and leather products) and Laphum'ilanga (leather products and live goats). That is if these enterprises are interested in making use of the marketing expertise of this company and wish to provide products under the brand name "Kalahari Kid". This "shared branding" could culminate in a semi-franchise operation (Raynaud, 1999) or other forms of strategic alliances (Sporleder, 1992) (such as contracts). For this to be achieved, standard operating and production and processing systems need to be in place, and strictly monitored (Raynaud, 1999).

However, the production and processing centres also possess power due to the resource dependency of the Kalahari Kid Corporation (Sporleder, 1992). The Kalahari Kid Corporation requires their produce, and where infrastructure investment has been made by other parties (District Municipalities), the Kalahari Kid Corporation may be sore pressed to make similar investments themselves. Thus, a situation of mutual dependency and mutual obligation (Sporleder, 1992) is created. However, it is doubtful whether the marketing function will also be entrusted to the processing centres (which are common practice in such franchise operations (Raynaud, 1999)) in the short term, and this will in all likelihood be the greatest cause of conflict and opportunistic behaviour in the future. This is because the industry is only just developing and the creation of competition at this stage will do little to build a strong client base from which to grow. It is of course, likely, that as skills in this sector develop, that splinter companies capable of doing their own marketing will appear.

10.8 Conclusion

This chapter has described several goat commercialisation ventures currently occurring in South Africa. These ventures were initiated once value-added products had been designed (Chapters 5, 6, 7 and 8) and markets for these products had been identified (also Chapter 4). The reasoning behind their establishment (high unemployment and availability of the goat resource: Chapters 1 and 2), the form of their organisational structures, the infrastructures associated with each, and several institutional arrangements that have been put in place, have been described. The rationale for the vertically co-ordinated contract growing system used in most cases was described in Chapter 9.

Developments are occurring at Balfour (Picardy), Mount Ayliff (Umzimvubu Goats) and Ntabankulu (Laphum'ilanga Goats) in the Eastern Cape, Soweto (Mighty Wool Spinners), Kuruman (Kgalagadi Dipudi) and 63 other communities (Kalahari Kid Corporation) in the Northern Cape, with further projects planned in Limpopo, Mpumalanga, and North West Province. All the raw products will be drawn from goats that are owned by non-commercialised goat farmers in the regions surrounding each project (Mostly areas with high goat populations (Chapter 2) and high unemployment (Chapter 1)). Some projects include value-adding operations including the

manufacture of goat leather products such as handbags, slippers and key chains (described in Chapter 7) , goat meat products such as spiced and vacuum packed meat cuts, salami and cabanossi (described in Chapter 5), cashmere carpets (described in Chapter 6) and drinking yoghurt and amasi (described in Chapter 8). The primary markets for these products are tourism facilities on-site, and marketing activities to national retailers. However, an opportunity to effect strategic alliances with the marketing company, the Kalahari Kid Corporation, can extend the marketing power of these projects to include wider national distribution and export sales.

Individual legal entities have been established for each project (as suggested in Chapter 9). At the producer and processing level mainly cooperatives have been formed (due to the cultural familiarity with this type of structure), whereas the marketing company has chosen a public company registration (due to its primary source of investment). The collection and value-adding infrastructures are all owned by the District Municipalities and will be rented to the cooperatives as the businesses reach independence. These infrastructures consist of collection, handling, meeting and training facilities at ward level in some cases, and feedlots, abattoirs, auction facilities, tanneries, restaurants, curio-, meat- and dairy-stores, and meat, leather and milk processing facilities in other cases, depending on the project (As suggested in Chapter 9). Funding to establish these projects has been sourced from Local Economic Development Funds of the Integrated Sustainable Rural Development Programme, the Community Based Public Works Programme, and Economic Development Units specifically established to create economic development opportunities in rural areas. These funds are used for farmer facilitation, institutional development, design and construction of infrastructure, and training and technology transfer up to the implementation of the business and beyond as back-stopping and advisory services (some of these activities were listed in Chapter 1 and are illustrated graphically in Figure 11.1 in Chapter 11).

Approximately 5000 non-commercialised farmers are already involved in these projects. Representatives from Provincial Departments of Agriculture, Departments of Economic Affairs, District Municipalities, Local Municipalities, Departments of Health, Local Development Agencies (or Local Business Service Centres), Offices of Environmental Protection, Departments of Water Affairs and Forestry and Veterinary

Public Health Departments as well as the farmers themselves are convened in Project Steering Committees, which guide the development of each Project.

It is envisaged that although marketing of products will be done on-site by each of the projects through tourist facilities, it would also be beneficial to create strategic alliances (or contracts) with the goat marketing firm that has been established (the Kalahari Kid Corporation). This organisation has expertise in the marketing, branding, and quality control aspects demanded of the market place.

These case studies illustrate slightly different approaches that have been undertaken in the development of projects concerning the commercialisation of indigenous goats involving non-commercialised goat farmers. It is interesting to note that the provision of incentives to Department of Agriculture Extension officers has proved beneficial in obtaining quick progress on the Kgalagadi Dipudi Project. This project has intense political support, and thus pressure has been placed on all collaborating members to deliver required actions quickly.

In the case of the Umzimvubu Goats Project farmers are much more involved with the implementation and governing of the project than with Kgalagadi Dipudi. The understanding and co-operation of the non-commercialised farmers has given new direction and impetus to the Umzimvubu Goats project. The formation of goat cooperatives is seen as integral to the project, and farmers have asked for assistance in co-operative development before they start with goat management training. Another process that has contributed to successful farmer involvement at Umzimvubu Goats has been the inclusion of social facilitators (largely because they speak the local language). This group continuously meets with farmer groups, monitors problems being experienced and assists with understanding and monitoring. All problems and misunderstandings are relayed to the project managers, who deal with these issues quickly. This group has helped greatly in the improved flow of information between the project management and the farmers.

The use of social facilitators within the project has also been beneficial in the Laphum'ilanga Project. This has also increased the sense of ownership of the project within the region. However, "internal to the project" in this case means that the social facilitators are employees of the funding agency, the Municipal Support Services

Organisation of the District Municipality. This may create a sense of dependency as the project reaches maturity. The importance of information flow is reflected in all projects. Pamphlets have been developed which are widely distributed to all farmers, the processes of farmer facilitation are well defined, and specifications for goat production and linkages with collection, processing and marketing enterprises are well communicated through several training approaches.

Contracts defining the obligations and relationships of the producers and collection, processing and marketing enterprises provide several self-enforcing clauses to ensure reduction in contract breach, and to build trust between the various role-players in the vertically co-ordinated chain (Chapter 9), even though opportunistic behaviour is expected to be low. Product specifications are simple to assist with compliance.

CHAPTER 11: CONCLUSIONS AND RECOMMENDATIONS

This thesis has shown that, the development of non-commercialised goat farmers and entrepreneurs and the transformation of the currently fragmented industry into a formal mainstream industry have been constrained by historical, institutional, market, information, and research factors. Furthermore, the high transaction costs of obtaining (market and other) information, the costs of negotiation and the cost of monitoring have impeded the involvement of non-commercialised farmers in the mainstream economy. Simply teaching farmers the best means of producing goats (or vegetables, or poultry, or cattle: which has defined development efforts in the past) does little to create viable, sustainable (read – profitable) commercial industries in which non-commercialised farmers participate actively in the market economy.

This thesis has examined the biological (Chapters 2, 5, 6, 7 and 8), socio economic (Chapters 1 and 3) and institutional environment (Chapters 2 and 3) in which the goat industry currently operates, and has proposed methods to link it successfully with global markets (Chapters 4, 5, 6, 7, 8 and 9), whilst creating new institutional arrangements of benefit to non-commercialised goat farmers and entrepreneurs (Chapters 9 and 10).

This thesis demonstrates that the task of integrating non-commercialised goat producers into a national and international agro-industrial goat industry requires certain activities. These include product information (Chapters 2, 5, 6, 7 and 8), product innovation (Chapters 5, 6, 7 and 8), market analysis (Chapters 4, 5, 6, 7, and 8), provision of collection, transportation and processing infrastructure (Chapter 10), and culturally acceptable institutional innovations (Chapters 9 and 10). Institutional innovations by themselves are insufficient to encourage entry of non-commercialised farmers and training in itself will not assist non-commercialised farmers to obtain access to the market. Institutional innovations must be accompanied by infrastructure and information transfer. Information transfer is required due to the current lack of knowledge by non-commercialised farmers regarding the value of their goat resource,

potential products that can be manufactured from them and the existence of markets for these products. They also lack the goat management, organisational, business and finance skills which would equip them with the tools to improve the efficiency of their farming enterprises. Those areas of the country where the largest goat resources are found mainly fall within the previous homelands of South Africa. Consequently, the infrastructure of these areas is particularly ill-suited for marketing. Roads are inadequate, communication infrastructure is limited and no collection, processing or marketing infrastructure exists. Institutional innovations are required to replace the exploitive nature of the speculator system, where the next purchase of the product by the market is unreliable and prices are not known. Institutional arrangements which allow a reliable, consistent market for the goats of non-commercialised farmers, and which allow the non-commercialised farmer access to the value-added downstream in the chain are required.

This thesis has shown that the goat resource in the country (mainly owned by non-commercialised farmers) is large enough to ensure a consistent supply of product to the market (Chapter 2). Several historical perceptions, marketing systems and the institutions that governed them are of little consequence today due to changes in perceptions and political changes (Chapter 3). Shifts in global consumer preferences and trends have created a demand for "exotic" (read indigenous) products of interest to the discerning consumer (Chapters 2 and 4). Interesting and innovative product development for specific target markets and based on sound market analysis is key to commercialising an indigenous, previously under-utilised resource (Chapters 4, 5, 6, 7 and 8). The goat resources available (indigenous goats), though variable (Chapter 2), possess unique products with attributes that can be manipulated to suite consumer requirements (Chapters 5, 6, 7 and 8). Finally, infrastructural and institutional arrangements have to be created to link primary producers in deep rural areas (Chapters 9 and 10), who are the main owners of the goat resource (Chapter 2), to markets.

It has been postulated that international trade opportunities and globalisation has created a niche for the commercialisation of indigenous South African goats. However, to successfully enter and occupy this niche, certain enabling institutional arrangements, that are culturally acceptable to non-commercialised farmers, needed

to be created, while at the same time, addressing the global challenges of quality, consistency and high standards that can be affected through traceability mechanisms. Both of these requirements can be affected by vertical co-ordination through "Co-operative Contract Growing" arrangements. Of importance is that vertical co-ordination or the development of supply chains governed through contracts can be used as a development tool to "lock" non-commercialised farmers into a value-chain, allowing them access to the mainstream economy. Each role-player in this supply chain has unique assets and expertise (the farmers own goats but have little knowledge of value-adding or marketing whereas the processors are not interested in farming, but require a reliable source of raw product and are located within these areas: Chapter 9). It has been shown that although spot markets usually occur when the quality characteristics of the product to be traded are certain, and where frequent transactions take place, here, in contrast to the literature, vertical co-ordination is preferred for a different reason: development. Thus, a vertically co-ordinated institutional arrangement better serves the issues surrounding asset specificity, the high incidence of transactions required and the high aversion to risk of non-commercialised farmers.

Vertical co-ordination creates distinctions between the role-players, which open up the necessity of relational contracting since the different firms in the vertical chain are mutually dependant on each other. Contract breach or opportunistic behaviour is reduced by simple, obvious and easily measurable product specifications, trust, communication and collaboration (through inclusive decision-making institutional arrangements), and asset specificity (farmers own the goats and the processors own the expertise and equipment to add value). The observation in the field of high risk-averse behaviour by non-commercialised farmers is supported by results of economic game theory in similar environments (East Africa).

In the development of the industry care should be taken not to infringe on traditional uses of the commodity, and it would be beneficial if aspects catering specifically for traditional and household use are made inherent to the system (Chapter 3). Similarly, organisational forms that are culturally familiar to the producers should be utilised (Chapter 9 and 10).

In this thesis, methods to reduce the costs of transacting for non-commercialised farmers have been described (Chapter 10). These include: reduced costs of animal branding effected through co-operative brand registration (reduced cost of monitoring for traceability); the construction of processing and marketing facilities close to the source of the product (reduced cost of transport to market); provision of training to better understand the market requirements (reduced cost of information); simple product specifications (reduced cost of information and monitoring – measuring the value of the product); vertical co-ordination where others in the supply chain add value (reduced cost of negotiation); farmers are represented on the decision-making boards of the organisation (reduced cost of negotiation); more open channels of communication through co-operative formation (training, manuals, meetings, discussions, information sessions and inclusive decision-making: reduced cost of information). Costs are being reduced by initially accurately identifying interested farmers, providing targeted assistance to them to form self-governing, collective-action groups, providing them with market information and specifications through training and technology transfer, including several options of production and use (different products for different markets), utilising local government organisations to effect the delivery of required infrastructure, and the development of institutional arrangements which link them to the market place.

In contrast to views regarding the reduced role of governments in the global market economy (The Washington Consensus) and subsequently the reduction of their role in development efforts, this thesis has emphasised the role of government funding agencies and programmes and public institutions for the development of an indigenous resource (Chapter 1, 9 and 10). In this work government funding and public institutions has proved necessary for resource surveys, product development, market analysis, infrastructure development, project facilitation and linkages to markets (See also Figure 11.1 below). This is due to the high risk and capital investment involved in developing such ventures, and the aversion of such risk by the private sector (with the exception of philanthropists). Several government programmes have proved useful for the development of the goat industry described in this work (Chapter 10). These include funding for the infrastructural requirements (LEDF) and training (NSF). The importance of being able to transform institutions (policies or laws) to

lower transaction costs has also been demonstrated through the changes in policy regarding co-operative animal branding and inclusion of non-employed farmers into the training mandate of PAETA. However, taking the process further may be constrained by the formal tax and other financial compliance measures that even start-up ventures must comply with in South Africa. A further matter for study entails the methods by which Government structures can wean businesses (created through these funding mechanisms) from government institutions into the future. Systems such as ware-housing of shares for a period of time before complete hand-over, and methods to effectively hand-over require some study.

The role of private sector initiatives should also not be underestimated. Very often enterprising individuals notice opportunities due to inefficiencies such as is the case in this sector (the Rudolph Spreckels move: Williamson, 2000), but lack the financial or technological resources to fully implement such systems. Incentive schemes (tax breaks etc.) could be created to encourage the commercialisation of indigenous resources, if job creation, beneficiation, and ownership by the previously disadvantaged can be demonstrated.

Several problems have occurred in developing this industry and may present themselves in the future. Although contracts have been designed to reduce hold-ups, with benefits and obligations shared by various parties in the production and marketing chain, contract breach and opportunistic behaviour, although limited (Chapter 9), will naturally occur for a variety of reasons. It is important that the reasons for these breaches must be analysed quickly and methods to overcome them sought. This can be done where the contracts are of a relational nature where communication and collaboration is fostered within a trusting and mutually beneficial environment (Chapter 9). The strategic alliances between producer/processing groups and a marketing enterprise may also present problems in the future as the industry matures and competition between these entities develops. It is hoped that this competition does not occur too early in the industry's development, so that the product can effectively penetrate into the market-place.

This thesis throws down the gauntlet: Other indigenous resources owned by non-commercialised farmers or the rural unemployed must be investigated for

commercialisation. Such investigation includes market analysis (and the concomitant study of international and local market trends), investigation of the properties of the indigenous resource (bio-mining is an example of this), innovative product development (possibly through competitive grants programmes catering exclusively to indigenous resource beneficiation, or competitions which highlight entrepreneurial successes in this field – as is done in the Australian Department of Farm Diversification), more study of indigenous knowledge systems (from where many resources can be identified and novel uses and practices commercialised, for example in the traditional medicines field), infrastructure appropriate to market-oriented resource beneficiation must be established within the areas where the resource can be found, and institutional arrangements that are culturally acceptable, non-exploitive, and utilising mutually beneficial governance structures must be developed. Government assistance programmes should be more widely publicised to the non-commercialised sector. Export support, infrastructure development and entrepreneurial development programmes exist, but few people are aware of them. Gaps identified in this process are illustrated in Figure 11.1. This representation provides an overview of the steps to commercialisation and directly relates to the LOGFRAME provided at the start of the study (Chapter 1).

Of urgent importance is the securing of the Intellectual Property rights of many indigenous resources with commercial potential (As discussed at the Bio-Piracy Summit at the World Development Summit, 2002). Institutions (both policies and laws) must be developed urgently to stop the exploitation of these resources by parties other than the true indigenous resource owners. Indigenous animals are a particularly difficult subject. However, this issue is being discussed at several forums internationally (Karen Agreement, 2003), but progress on this issue must be made quickly to avoid further exploitation.

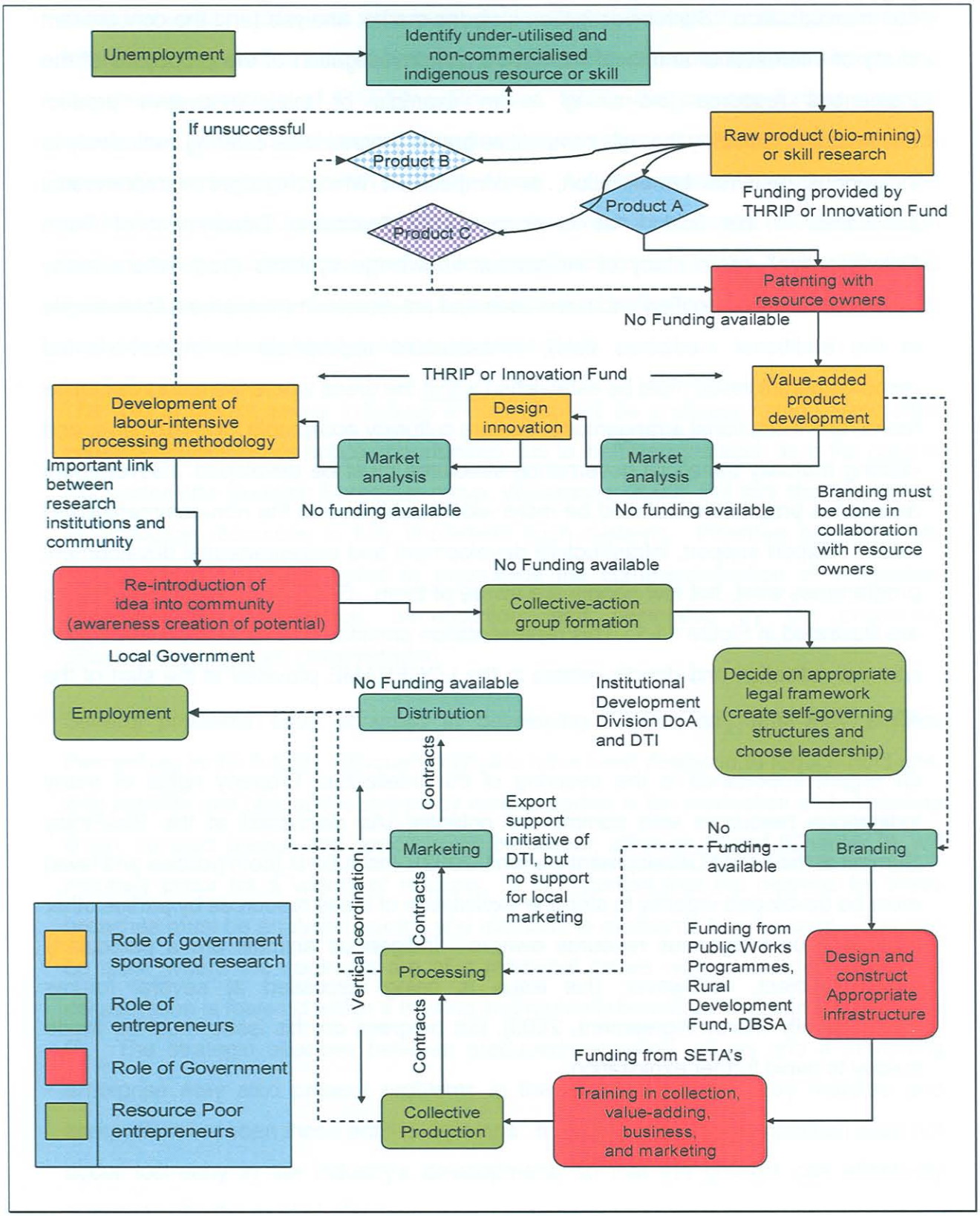

Figure 11.1 Role players, support programmes and gaps identified for indigenous resource commercialisation

Further study on the longer term effects of the institutional arrangements created here will be required. These studies can investigate whether opportunism develops and, if so, how it is addressed by the non-commercialised farmers themselves. Whether competition develops within the vertical chain as each role-player becomes more confident in their abilities will also be of interest. Other institutional arrangements should be assessed for their ability to successfully commercialise indigenous resources. This would make for interesting comparative analysis. A comparison between successful government support programmes in developing countries with subsidy and rebate schemes in developed countries (regarding the same commodity) may also shed some light on the free trade and development debates around the world.

The methods used in this body of work: from market analysis, through product innovation, infrastructure provision, technology transfer and culminating in institutional innovation and implementation, is a process which can be replicated by other emerging niche industries. The success with which other indigenous South African and African resources can be commercialised remains to be seen.

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APPENDIX 1 : CONTACT DETAILS OF INSTITUTIONS OF RELEVANCE TO THE GOAT INDUSTRY

Production-Oriented Institutions

Boer Goat Breeder's Association of South Africa (BGBA)

The BGBA was established in 1959 to improve and protect the interests of the Boer Goat farmers and to introduce a uniform breeding policy and selection criteria. The aims of the BGBA are to:

- Improve the Boer goats in South Africa
- Provide secretarial services for BGBA
- Institute courses and train judges and inspectors
- Disperse knowledge with respect to the breed
- Provide inspection services for classing and inspection of flocks
- Organise a South African Championship Show in order to show the best quality Boer goats available in South Africa
- Improve the grading system of Boer goat meat
- Staging of auctions and inspection of animal offered on auctions

Their contact details are:

Boer Goat Breeder's Association of South Africa

P.O. Box 282, Somerset East, 5850, Tel/Fax: (042) 243 2130

South African Milch Goat Breeder's Society

The South African Milch Goat Breeder's Society was founded in 1958. The total membership of the society currently stands at 28 active breeders. The objectives of the society are to promote and coordinate the interests of the milk goat farmers.

The contact details of the Society are:

The S.A. Milch Goat Breeders' Society,

P.O. Box 873, Bloemfontein, 9300.

Tel: (051) 430 2457 or Fax: (051) 447 3964

(http://studbook.co.za/milch).

South African Stud Book and Livestock Improvement Association (SA Stud Book)

The S.A. Stud Book represents all breeders of registered or recorded dairy cattle, beef cattle, sheep, goats, horses, pigs, and ostriches, as well as registered livestock breeder's societies. Furthermore, through its responsibility for managing the Integrated Registration and Genetic Information System (Intergis) in collaboration with the Animal Improvement Institute of the Agricultural Research Council, the Association also represents the interests of breeders participating in the four national livestock improvement schemes. The S.A. Stud Book is also the only organisation that issues pedigree certificates for all breeds mentioned above. Its other functions include recommending semen donor animals, importing genetic material, preparing the annual reports of breeder's societies, and approving breed standards.

Stud book registers goats of the following breeds: Angora, Boer goat, British Alpine, Gorno Altai, Indigenous goat, Saanen, Savanna, and Toggenberg.

Some breeds have no formal breeder's societies. In terms of the Livestock Improvement Act, it is the responsibility of SA Stud Book to serve such breeders directly. SA Stud Book therefore serves as a breeder's society for these breeds. Goat direct entry breeds include the Gorno Altai, Kalahari Red and the Savanna Goat.

The contact details of the Association are:

SA Stud book and Livestock Improvement Association

P.O. Box 270, Bloemfontein, 9300

Tel: (051) 448 9347, Fax: (051) 447 3964

Kalahari Red Club

The main aim of the Kalahari Red Club is to develop and maintain a goat breed that will be functionally efficient, yet with maximum economic value. Although the Kalahari Red is a registered breed, they do not have a breeder's society, and thus their matters are managed by SA Studbook as a direct entry breed.

Their contact details are:

Kalahari Red Club

P.O. Box 3, De Aar, 7000

Tel: (053) 712 3193

Angora Goat Stud Breeder's Society of South Africa

The Society aims to improve and maintain the high standard of Angora Goats in South Africa. It serves this purpose by regularly inspecting all studs and investigating all flock histories upon receipt of application for membership.

Their contact details are:

Angora Goat Breeder's Society of South Africa

P.O. Box 50, Jansenville, 6265, Tel: (049) 836 0140

South African Mohair Grower's Association

This organisation is the representative organisation of the mohair producers of South Africa.

Their contact details are:

South African Mohair Grower's Association

P.O. Box 50, Jansenville, 6265

Tel: (049) 836 0140

Camdeboo Mohair

Camdeboo is a producer driven enterprise representing the best quality mohair in the world and a quality system that embraces quality through certification, global partnerships and exclusive branding.

Their contact details are:

Camdeboo

P.O. Box 87, Cradock, 5880

Tel: (041) 881 5050

Assisted reproduction, analyses and Genetic material services

Ramsem

Ramsem was founded in 1985 and is the oldest small stock artificial insemination (AI) and embryo centre in South Africa. Ramsem specialises in the provision of embryos and semen to the small stock industry. Technologies employed include semen collection and freezing, laproscopic AI work, embryo flushing, transfer and export. Ramsem is a government approved, registered quarantine embryo centre for sheep and goat embryo programmes.

Their contact details are:

Ramsem

P.O. Box 2843, Bloemfontein, 9300

Tel: (051) 333561/2/3 or (051) 441 7913

(http:www.studbreeders.com/ramseminfo.htm)

Taurus

Taurus Laboratories test milk samples for farmer and buyer quality control and for the National Dairy Milk Recording Scheme. Samples are tested for fat, protein, lactose, somatic cell counts and urea. Taurus plays an important role in the National Milk Recording Scheme and is active in the collection and dissemination of milk samples and their results. Taurus is also one of the main users of the information resulting from the milk sample tests, using these for the selection of artificial insemination sires.

Although Taurus is also known for bull testing, semen collection, marketing, and performance testing, no semen of goats are collected and no performance testing of male goats is done by Taurus.

Onderstepoort quarantine facility of the ARC

This vector-free quarantine facility has standing room for approximately 120 small stock. The laboratory is also equipped and staffed to perform all the blood-work necessary to approve animals for export. This facility is also proficient in the blood-work necessary regarding the export of embryos. In the past they have been involved in the export of live Boer goats to Israel, Malaysia and China.

Their contact details are:

Dr Helen Booker

ARC-Onderstepoort

Tel: (012) 529 9272

Agricultural Research Council – Animal Improvement Institute

The ARC – AII manages (along with S.A. Studbook) the National Milk Recording Scheme and the Small Stock Livestock Performance Scheme. The Milk Recording scheme benefits farmers by providing them with quantitative and qualitative data regarding the genetic potential of their animals. This data is a useful management tool. Furthermore, the performance recording of an animal increases the value of the

animal and serves as an excellent marketing mechanism for the animal itself as well as its progeny.

Afribreed

This is a privately owned and operated embryo collection and quarantine facility in Colesburg. This facility was involved in the export of 550 Boer goat embryos and 50 Savanna embryos to Canada, and 150 Boer goat embryos to Australia in 2000.

The contact details of this company are:

Francois Marais

Afribreed

E-mail: Franlann@interkom.co.za

Tel: (051) 753 1306

Schick Exports

Schick Exports is a registered, vector protected quarantine facility that can house approximately 1 000 adult animals and 1 200 young animals at any one time. This quarantine facility was involved in the export of approximately 800 live Boer goats to China, 240 to Malaysia and 240 to Thailand before the Foot-and-mouth outbreak in 2000.

The contact details of this company are:

Mr. Schickerling

Schick Exports

Otterfontein, P.O. Box 158, Koster, 0348

Wolwefontein Quarantine

This quarantine facility in Colesburg is involved in the export of embryos and was previously involved in the export of approximately 15 000 Boer goat embryos to several countries.

The contact details of this company are:

Gavin Rous

(051) 753 0608

Brakfontein Embryo Centre

This quarantine facility is involved in the export of Boer goat, Kalahari Red and Savanna goat embryos.

The contact details of this company are:

Dr J.C. van Niekerk

P.O. Box 177, Bedford, 5780

Tel: (046) 685 0519

Marketing-Oriented Institutions

SAMIC

The South African Meat Industry Company is a Section 21 company with a Board of Directors that was established following the expression of the need for an umbrella organisation that would ensure the effectiveness and survival of the South African red meat industry in a deregulated environment. They are responsible for ensuring the application of appropriate meat classification standards, have been instrumental in the development of a Hygiene Assessment System for abattoirs, are involved in the influencing of international trade for the long term success of the South African red meat industry, and manage the Red Meat Research and Development Trust which was instituted to fund specific red meat research and development projects. They keep some data on goat slaughtering at various abattoirs and are very keen to become involved in developing the goat industry.

Their contact details are:

SAMIC, Web site: www.samic.co.za

Tel: (012) 361 4545

Vleissentraal Ltd.

Vleissentraal Ltd. is a closely-held public company. The company was established in 1932 as a central cooperative involved with the marketing of livestock and livestock products. During 1996, Vleissentraal restructured into a non-listed private company. Its shareholders consist of 30 agricultural cooperatives.

The activities of Vleissentraal Ltd. are classified as follows:

- Livestock marketing by means of auctions for live animals
- Operation of carcass auctions at City Deep, Bloemfontein, East London, and Port Elizabeth on an agency basis.
- Broker services whereby buyers and sellers of livestock are introduced to each other
- Arrange stud stock auctions on a commission basis
- Marketing of real estate on an agency basis
- Present short-term insurance facilities

Cape Mohair and Wool

This company is the largest mohair brokering company in the world with grower access to the entire global mohair market.

Their contact details are:

Cape Mohair and Wool

P.O. Box 3314, Port Elizabeth, 6056

Tel: (041) 486 1143

Mohair South Africa

Mohair South Africa is the representative organisation for the mohair industry in South Africa. The company serves the interest of the total industry through a partnership approach. The company focuses its activities on the support of research, product development, market development and awareness creation regarding mohair.

Their contact details are: http://www.mohair.co.za

BKB

BKB currently operates as an agricultural cooperative, but is in the process of being transformed into a company. The main activities of BKB focus on livestock fibre production and markets; however, the cooperative is also involved in livestock marketing.

BKB operates country-wide but concentrates its activities in the Eastern and Northern Cape Provinces. Its specific activities include:

- Technical advice with respect to livestock breeding
- Marketing of livestock by means of liaison services
- Marketing by means of auctions
- Stud auctions
- Agent for exporting livestock

Agricultural Co-operatives

A substantial number of agricultural cooperatives and companies are involved in livestock marketing, primarily acting as brokers or agents. However, a very small portion of these are involved in marketing goats. Some of those interviewed stated that their involvement in the goat trade can be either through the organisation of auctions, or through the setting up of trade between farmers and speculators. Most of the cooperatives contacted stated that they do little (less than 700 animals per year and then mostly Angoras) or no trade in goats.

Speculators

A number of speculators are active in South Africa. Speculators take ownership of livestock and sell them at a profit. It has been stated that the speculator industry probably represents approximately 80% of the goat trade in South Africa.

Abattoirs

The following abattoirs have recorded goat slaughtering in the past: City Deep, Chamdor, Benoni, Springs, Maitland, Cato Ridge, Port Elizabeth, East London, Bloemfontein, and Kimberley. Data regarding their goat statistics is shown later.

Processing-oriented Institutions

South Africa has an active and well-developed industry for processing of animal products in general. However, little processing of goat products occurs. The following is an indication of the limited size of the goat processing industry.

Meat Processors

No processing of goat meat occurs. However, some processors, who cannot be named, stated that they sometimes replace mutton with goat meat (chevon) in products such as sausages and polonies, if the price of mutton is very high.

Dairy and Milk Processors

None of the larger milk processors such as Bonita, Nestlé, Parmalat, Clover or Dairy Belle process any goat milk. However, smaller private processors of goat milk exist.

Fairview

Fairview is the most well-known and largest goat milking operation in the country., situated in the Paarl They currently milk approximately 430 does per year with an average production of between 900 and 1 000 litres per lactation cycle. This amounts to approximately 408 500 litres per year. They are known for their production of various goat cheese types.

Their contact details are:

Fairview

P.O. Box 583, Suider Paarl, 7624

Tel: (021) 863 2450

Stillerust

Stillerust is situated in Bonnievale and currently milk approximately 260 of their 500 goats. Approximately 156 000 litres of milk is produced annually. This milk is delivered exclusively to the Lamontanara cheese processing plant where Romano cheese is produced.

Their contact details are:

Stillerust Bokmelkery

P.O. Box 394, Bonnievale, 6730, Tel: (023) 616 2149

Leather Processors

Although South Africa has many operating tanneries, including the following major tanneries:

- Mossop Western Leathers
- Exotan
- African Hide, Port Elizabeth
- Cape Produce Company, Port Elizabeth
- Cape sheep Skin, Cape Town
- Springbok Hide and Skin, Port Elizabeth
- Stottelaar and Sons, Port Elizabeth
- Riverside Tannery, Uitenhage

- Woods Tannery, Uitenhage
- Seton SA, Garankuwa
- Nigel, Garankuwa
- Eagle Ottawa, Garakuwa
- Howe Tannery, Garankuwa
- Kwandebele Tannery
- Edenvale, KwaZulu-Natal
- Corium, Cape Town
- Klein Karoo Coop, Oudtshoorn
- Ostriches galore, Johannesburg
- Gringo Leather, Port Shepstone,

None of these tanneries currently process, in any way, goat skins.

However, a market exists for salted or sun-dried goatskins through several skin traders in the industry. These include,

- Pelts Products, P.O. Box 323, Port Elizabeth, 6000 Tel: (041) 461 1515
- African Hide Trading, P.O. Box 2526, Port Elizabeth, 6056 Tel: (041) 405 7000
- Springbok Trading, P.O. Box 34310, Newton Park, 6055 Tel: (041) 461 2352
- Sparglobal, 4 Carstens Road, Kamma Ridge, 6025 Tel: (041) 379 3900

The prices paid for goatskins by these agents are however, very low. The skins are not processed, but are sold, in the raw form to countries such as Italy and countries of Asia. Marketing possibilities to the United States also exist.

After the untimely demise of the Leather Industries Research Institute in 1999, two independents were formed that are involved in the commercialisation of indigenous

goats. The one is the International School of Tanning Technology that provides advice on the development of small to medium scale tanneries, tanning training, advice on effluent treatment, and provides information on markets and the industry. Craft Africa Projects Training offers historical and contemporary product range design and training services.

Fibre processors

No processing of cashmere occurs in South Africa. However, several mohair processors can be found that will not be discussed here.

Research-oriented Institutions

The following research organisations are involved with goat research, or have been involved with goat research in the past.

University of Venda – Department of Animal Science

Farming Systems Research is studied under the leadership of Dr A. E. Nesamvumi.

Their contact details are:

University of Venda

Private Bag X 5050, Thohoyandou, 0950

University of the North – Department of Animal Production

This department does work in Farming Systems Research, the socio-economic aspects of goat production, and the potential of agro-forestry utilising shrubs and tree legumes.

Their contact details are:

Faculty of Agriculture

Private Bag X 1106, Sovenga, 0727

University of Pretoria – Department of Animal and Wildlife Sciences

This Department has been involved with nutritional, physiological, meat, reproduction and socio-economic research.

Their contact details are:

Prof N.H. Casey / Dr E. Webb

Faculty of Agricultural and Biological Sciences

University of Pretoria, Pretoria, 0002

University of Pretoria – Faculty of Veterinary Science – Animal Production and Ethology

This Department has been involved in the crossbreeding of indigenous and Saanen goats, ration formulation, heart water resistance, tick tolerance, anatomy and physiology of indigenous goats, fluoride tolerance, and out-of-season breeding.

Their contact details are:

Prof. E.F. Donkin

Faculty of Veterinary Science

University of Pretoria, Private Bag X04, Onderstepoort, 0110

University of Pretoria – Faculty of Veterinary Science – Department of Theriogenology

This Department have been involved in embryo and semen research as well as assisted reproduction technology.

Their contact details are:

Prof. Johan Terblanche/ Dr Eben Du Preez

Faculty of Veterinary Science

Private Bag X04, Onderstepoort, 0110

University of Zululand

This University ahs been involved in Farming Systems Research and indigenous goat research.

Their contact details are:

Prof. E. Collins Lesweti

Private Bag X 1001, Kwa Dlangezwa, 3886

University of Natal, Pietermaritzburg

The School of Agricultural Sciences and Agribusiness has dealt mostly with goat nutrition research in this field.

Their contact details are:

Steven Slippers

University of Natal

Private Bag X01, Scottsville, 3209

University of Stellenbosch – Department of Animal Science

The Department has done some work on the nutrition of milk goats and Boer goat research.

Their contact details are:

J.D. Thornton/ Prof. S.J. Schoeman

Department of Animal Science, University of Stellenbosch, Stellenbosch, 7600

University of Stellenbosch – Department of Human and Animal Physiology

This Department has done work on goat artificial insemination and multiple ovulation embryo transfer.

Their contact details are:

Dr Danie Barry

University of Stellenbosch, Stellenbosch, 7600

University of the Free State

This Department has been involved in assisted reproduction research and breeding and evaluation plans.

Their contact details are:

Prof. J. Greyling/ Prof. G. Erasmus

Department of Animal Science

UOFS, P.O. Box 339, Bloemfontein, 9300

University of Fort Hare

This department has been involved in grazing and selection patterns, Farming Systems Research, and comparison of communal and commercial goat farming systems.

Their contact details are:

Prof. J. Raats

Department of Livestock and Pasture Science, Fax: (040) 653 1730

ARC – Animal Improvement Institute

This Institute has concentrated on recording and performance evaluation of small stock, the characterisation of indigenous goats, conservation of indigenous biodiversity, assisted reproduction technology, and the exportation of genetic material.

Their contact details are:

Graham Hallowell / Antoinette Kotze / Jean Rust / Cobus Fourie / Jenny Bester

Private Bag X2, Irene, 0062

ARC – Animal Nutrition and Products Institute

This Institute has concentrated on information dissemination, demonstrations, feasibility studies and business plans, training in management and value-adding, market surveys, product development and implementation of goat businesses. Their research has concentrated on goat nutrition, assisted reproduction, product development and goat commercialisation.

Their contact details are:

Thomas Langa

FSRE & SMME Development Programme

Private Bag X2, Irene, 0062

ARC – Onderstepoort Veterinary Institute

This Institute has worked on the development of herd health protocols and systems, and small farm systems research and development.

Their contact details are:

Deon van der Merwe

Private Bag X05, Onderstepoort, 0110

ARC – Range and Forage Institute

This Institute concentrates on Farming systems Research and feeding systems.

Their contact details are:

Dr Derrick Swart / Jan Meyer

Roodeplaat Range and Forage Institute

ARC – Animal Improvement Institute – Loskop South Genetic Resources Centre

This facility studies Farming Systems and maintains an indigenous goat gene pool.

Their contact details are:

Ephraim Matjuda

Private Bag X2, Irene, 0062

CSIR – Textek

This group is involved in mohair and cashmere research.

Their contact details are:

A.L. Braun

P.O. Box 1124, Port Elizabeth, 6000

International School of Tanning Technology

This group is involved in goat leather research and tannery training.

Their contact details are:

Dr Clive Jackson-Moss

P.O. Box 2085, Grahamstown, 6140

Craft Africa Projects Training

This group concentrates on historical and cultural goat leather product development and training.

Their contact details are:

Mike Ginn

P.O. Box 185, Grahamstown, 6140

Grootfontein Agricultural Development Institute

This facility works primary on Angora Goat research and development as well as assisted reproduction techniques.

Their contact details are:

Dr M.A. Snyman

Private Bag X 529, Middelburg, 5900

Extension-oriented Institutions

The following extension service oriented institutions exist in the Provinces of South Africa and can be seen as the most valuable resource currently available to obtain access to rural non-commercialised farmers.

Limpopo Province

All the Limpopo Agricultural Development Centres can be contacted at:

Towoomba ADC

Private Bag X 1615, Bela-Bela, 0480

Tel: (012) 736 2250

Messina ADC

This agricultural development centre is situated in an arid sweet bushveld production environment and does work on mixed production systems and bush control.

Mara ADC

Mara is situated in an arid sweet bushveld production environment and has compared Boer and indigenous goats, integrated production systems and bush control.

Delftzyl ADC

Delftzyl is situated in mixed sweet/sour bushveld and has looked at integrated production systems, fluoride tolerance and goat selection preferences.

Towoomba ADC

Towoomba, situated in a sourish mixed bushveld production environment has studied bush control, integrated systems and selection preferences.

North West Province

All North West Province Agricultural Development Centres can be contacted at:

N.W. Province Department of Agriculture,

Private Bag X 804, Potchefstroom, 2520

Potchefstroom

This ADC is situated in a highveld sourveld production environment and has concentrated on farming systems research.

Armoedsvlakte

Armoedsvlakte is situated in a sweet bushveld production environment and has worked on management and grazing systems and bush control.

Free State Province

Glen ADC

Glen is situated in a mixed Themeda veld production environment and has studied farm systems.

Mpumalanga

All Mpumalanga ADCs can be contacted through:

Department of Agriculture

P.O. Box 3, Ermelo, 2350

Nooitgedacht ADC

Nooitgedacht functions within a highveld sourveld production environment and has studied this environment's grazing systems.

Athol ADC

Athol is found in a highveld sourveld production environment. Sourveld grazing systems has been studied here.

Figtree Project

The Lebombo flats grassveld production environment has led to the study of indigenous goats and bush control at this ADC.

Kwa-Zulu Natal

All Kwa-Zulu Natal ADCs can be contacted through:

KZN Department of Agriculture

Private Bag X 9059, Pietermaritzburg, 3200

Makhatini

This ADC is situated in a coastal sandveld production environment. Indigenous goats and integrated small farm systems have been evaluated here.

Bartlow Combine

This ADC is situated in a sweet bushveld production environment and indigenous goats have been evaluated here.

Cedara ADC

The Cedara ADC is situated in the Natal Midlands were mostly planted pastures occurs. This ADC, very active in indigenous goat research has evaluated indigenous X Saanen goats for milk production, farming systems research And development, goats on kikuyu pastures ad cashmere from indigenous goats.

Northern Cape

The Northern Cape ADCS can be contacted at:

Grootfontein ADI

Private Bag X 529, Middelburg, 5900

Grootfontein ADC

This ADC is active in the arid Karoo veld and concentrates on farming systems research and development and breeding and improvement of fibre of Angora goats.

Eastern Cape

Dohne ADC

This ADC is situated in a valley bushveld production environment and has done work on Boer goats. They can be contacted at:

Dohne ADI

Private Bag X 15, Stutterheim, 4930

Adelaide ADC

Adelaide ADC, J.C. Steyn , Steekpoort and Koopmansfontein can all be contacted at:

Cradock Experimental Station

P.O. Box 284, Cradock, 5880

The Adelaide ADC is situated in a valley bushveld production environment and has studied farming systems with Boer goats and cashmere production potential.

J.C. Steyn

Also situated in valley bushveld this ADC has studied integrated farming systems utilising cattle, game and bore goat combinations.

Steekpoort

The Steekpoort ADC has concentrated its work on the production of white cashmere from indigenous and Saffer goats.

Koopmansfontein

At Koopmansfontein work has concentrated on research on the cashmere production of Boer goats.

Western Cape

Western Cape Province ADCs can be contacted at:

Department of Agriculture: Western Cape

Private Bag X1, Elsenburg, 7607

Elsenburg

Elsenburg one of the most well=known ADCs has concentrated its work mainly on milk goats due to its proximity to the main milk goat production businesses in South Africa.

APPENDIX 2 : NATIONAL MARKET SURVEY QUESTIONNAIRE

(CONSUMER)

INTERVIEWER:_____DATE OF INTERVIEW:_____

RESPONDENTS

NAME:_____TEL.NO:_____

EDITED BY:_____BACK-CHECKED BY:_____

SCREENING: Do you and your family eat meat and consume dairy products?

YES -1 [Continue] NO -2 [Close interview]

---

1. **DEMOGRAPHICS:** [CIRCLE NUMBER OR WRITE ANSWER IN SPACE PROVIDED]

a. **TOWN**: 1. Johannesburg / Pretoria -1 2. Durban -2 3. Port Elizabeth -3 4. Cape Town -4 5. Bloemfontein -5.

b. **POP. GROUP**: 1. Black -1 2. White -2 3. Coloured -3 4. Asian -4.

c. **GENDER**: 1. Male -1 2. Female -2.

d. **AGE**_____

e. **MONTHLY H/H INCOME**: R_____

f. **HIGHEST EDUCATION**: 1. Some Primary -1. 2. Primary Completed -2. 3. Some High -3. 4. High Completed -4 . 5. Tertiary Education -5.

g. **HOME LANGUAGE**: 1. English -1. 2. Afrikaans -2. 3. Zulu -3. 4. Xhosa -4. 5. N.Sotho -5. 6. S.Sotho -6. 7. Tswana -7. 8. Pedi -8. 9. Venda -9. 10. Other [Specify]:_____

h. **RELIGION**: _____

i. **OCCUPATION**: _____

j. **MARITAL STATUS**: 1. Single -1. 2. Married -2. 3. Divorced -3. 4. Widowed -4.

k. **COUNTRY OF ORIGIN** [TOURIST ONLY]:_____

---

2. **SPONTANEOUS AWARENESS – MEATS:** Please tell me all the different types of meat that you know of or have ever heard of. [DO NOT PROMPT. CIRCLE RELEVANT NUMBERS. RECORD **FIRST MENTION** UNDER COL.a. AND **ALL OTHER MENTIONS** UNDER COL.b.]

1. BEEF/CATTLE	-1 –1	5. VENISON/GAME	-5 –5
2. MUTTON/SHEEP	-2 –2	6. CHEVON/GOAT	-6 –6
3. POULTRY/CHICKEN	-3 –3	7. FISH/SEAFOOD	-7 –7
4. PORK/PIG	-4 –4	8. OTHER (SPECIFY)	-8 –8

3. **BEHAVIOUR:** (SHOW CARD – BEHAVIOUR STATEMENTS) I am going to read to you a list of different types of meat. For each one, please choose a statement that best describes your behaviour towards that meat. [WRITE STATEMENT NUMBER IN BOX PROVIDED]

1. BEEF/CATTLE	[___]	5. VENISON/GAME	[___]
2. MUTTON/SHEEP	[___]	6. CHEVON/GOAT	[___]
3. POULTRY/CHICKEN	[___]	7. FISH/SEAFOOD	[___]
4. PORK/PIG	[___]		

4. **MEAT ATTRIBUTES ASSOCIATION:** (SHOW CARD – MEATS) a. ATTRACTORS – On this show card is a list of different types of meats. I am going to read to you a list of positive statements describing meats. For each one that I read to you, please tell me which ones are best described by that statement. You may mention as many or as few meats as you like. [CIRCLE RELEVANT NUMBERS NEXT TO EACH STATEMENT].

1. Lean	-1 –2 –3 –4 –5 –6 –7	9. Low in cholesterol	-1 –2 –3 –4 –5 –6 –7
2. Easy to prepare	-1 –2 –3 –4 –5 –6 –7	10. Juicy	-1 –2 –3 –4 –5 –6 –7
3. Tender	-1 –2 –3 –4 –5 –6 –7	11. What the family enjoys	-1 –2 –3 –4 –5 –6 –7
4. Healthy colour	-1 –2 –3 –4 –5 –6 –7	12. Quick to prepare	-1 –2 –3 –4 –5 –6 –7
5. Versatile	-1 –2 –3 –4 –5 –6 –7	13. Expensive, but worth it	-1 –2 –3 –4 –5 –6 –7
6. Good value for money	-1 –2 –3 –4 –5 –6 –7	14. Correct farming methods	-1 –2 –3 –4 –5 –6 –7
7. Widely available	-1 –2 –3 –4 –5 –6 –7	15. Religious/Traditional	-1 –2 –3 –4 –5 –6 -7
8. Nutritious	-1 –2 –3 –4 –5 –6 –7		

b. **REPELLORS** – I am now going to read to you a list of negative statements describing meats. For each one that I read to you, please tell me which ones are best described by that statement. You may mention as many or as few meat as you like. [CIRCLE RELEVANT NUMBERS TO EACH STATEMENT].

1. Smelly	-1 –2 –3 –4 –5 –6 –7	7. Expensive	-1 –2 –3 –4 –5 –6 –7
2. Tough type of meat	-1 –2 –3 –4 –5 –6 –7	8. Against religious/personal	-1 –2 –3 –4 –5 –6 –7
3. Stringy	-1 –2 –3 –4 –5 –6 –7	9. Goes off quickly	-1 –2 –3 –4 –5 –6 –7

4. Stale/bland taste-1 –2 –3 –4 –5 –6 –7
5. Too bony -1 –2 –3 –4 –5 –6 –7
6. Upsets my stomach-1 –2 –3 –4 –5 –6 –7
10. Only available in bulk -1 –2 –3 –4 –5 –6 –7
11. Shrinks when cooked -1 –2 –3 –4 –5 –6 –7
12. The meat looks dry -1 –2 –3 –4 –5 –6 –7

5. **STORE NEEDS RANKING:** a. (SHOW CARD – STORE ATTRACTORS FOR MEAT) On this card is a list of **positive** statements describing stores that sell meat. Please study them carefully, then rank them in order of importance. Read the statement numbers out to me, starting with the MOST important, followed by the NEXT important, etc. [RECORD THE STATEMENT NUMBERS IN THE BOXES BELOW IN ORDER OF RESPONSE FROM LEFT TO RIGHT]

[__] [__] [__] [__] [__] [__] [__] [__] [__] [__] [__] [__]

b. (SHOW CARD – STORE REPELLORS FOR MEAT) On this card is a list of **negative** statements describing stores that sell meat. Please study them carefully, then rank them in order of importance. Read the statement numbers out to me starting with the statement that repels you the MOST, and ending with the statement that repels you the LEAST. [RECORD THE STATEMENT NUMBERS IN THE BOXES BELOW IN ORDER OD RESPONSE, FROM LEFT TO RIGHT]

[__] [__] [__] [__] [__] [__] [__] [__] [__] [__] [__] [__]

6. **SPONTANEOUS AWARENESS – DAIRY PRODUCTS:** Please tell me all the different types of dairy products that you know of or have ever heard of. [DO NOT PROMPT. CIRCLE RELEVANT NUMBERS. RECORD **FIRST MENTION** UNDER COL. a. AND **ALL OTHER MENTIONS** UNDER COL.b.]

	a.	b		a.	b
1. MILK	-1	–1	5. DESSERTS	-4	–4
2. CHEESE	-2	–2	6. CREAM	-5	–5
3. YOGHURT	-3	–3	7. OTHER (SPECIFY)	-6	–6_____
4. SPREADS (e.g. BUTTER/MARG)	-4	–4			

7. **BEHAVIOUR:** (SHOW CARD – BEHAVIOUR STATEMENTS) I am going to read to you a list of different dairy products. For each one, please choose a statement that best describes your behaviour towards that dairy product. [WRITE STATEMENT NUMBER IN BOX PROVIDED]

1. MILK [__]
2. CHEESE [__]
4. SPREADS (e.g. BUTTER/MARG) [__]
5. DESSERTS [__]

3. YOGHURT [___] 6. CREAM [___]

8. **DAIRY PRODUCTS NEEDS RANKING:** a. (SHOW CARD – DAIRY ATTRACTORS) On this card is a list of positive statements describing dairy products. Please study them carefully, then rank them in order of importance. Read the statement numbers out to me, starting with the MOST important, followed by the NEXT MOST important etc. [RECORD THE STATEMENT NUMBERS IN THE BOXES BELOW IN ORDER OF RESPONSE, FROM LEFT TO RIGHT].

[___] [___] [___] [___] [___] [___] [___] [___] [___] [___] [___] [___] [___] [___]

b. (SHOW CARD – DAIRY REPELLORS) On this card is a list of **negative** statements describing dairy products. Please study them carefully, then rank them in order of importance. Read the statement numbers out to me, starting with the statement that repels you the MOST, and ending with the statement that repels you the LEAST. [RECORD THE STATEMENT NUMBERS IN THE BOXES BELOW IN ORDER OF RESPONSE, FROM LEFT TO RIGHT].

[___] [___] [___] [___] [___] [___] [___] [___] [___]

9. **STORE NEEDS RANKING:** a. (SHOW CARD – STORE ATTRACTORS FOR DAIRY PRODUCTS) On this card is a list of positive statements describing stores that sell dairy products. Please study them carefully, then rank them in order of importance. Read the statement numbers out o me, starting with the MOST important, followed by the NEXT MOST important, etc. [RECORD THE STATEMENT NUMBERS IN THE BOXES BELOW IN ORDER OF RESPONSE, FROM LEFT TO RIGHT]

[___] [___] [___] [___] [___] [___] [___] [___]

b. (SHOW CARD – STORE REPELLORS FOR DAIRY PRODUCTS) On this card is a list of **negative** statements describing stores that sell dairy products. Please study them carefully, then rank them in order of importance. Read the statement numbers out to me, starting with the statement that repels you the MOST, and ending with the statement that repels you the LEAST. [RECORD THE STATEMENT NUMBERS IN THE BOXES BELOW IN ORDER OF RESPONSE, FROM LEFT TO RIGHT].

[___] [___] [___] [___] [___] [___] [___]

10.a. **SPONTANEOUS AWARENESS – GOAT PRODUCTS:** When thinking of goats, what products do you know of that could produced by goats? [CIRCLE RELEVANT NUMBERS IN COL.a.]

b. **PROMPTED AWARENESS:** Please tell me whether you knew that the following products could be produced by goats. [READ PRODUCTS LISTED BELOW. IF YES, CIRCLE RELEVANT NUMBERS IN COL.b.]

	a.	b		a.	b
1. FRESH MEAT	-1	–1	6. LEATHER / SKINS	-6	-6
2. MILK	-2	–2	7. PROCESSED MEAT	-7	-7
3. CHEESE	-3	–3	8. CASHMERE/HAIR	-8	-8
4. LIVE GOATS	-4	–4	9. POWDERED MILK	-9	-9
5. MOHAIR	-5	-5	10. OTHER (SPECIFY)	-10	–10

i_____ ii._____iii._____

11. **CURRENT BEHAVIOUR / PROPENSITY TO PURCHASE:** (SHOW CARD – BEHAVIOUR STATEMENTS) I am going to read to you the same list of goat products. For each of the products I read to you, please choose a statement from the card that best describes your behaviour towards that product. [WRITE STATEMENT NUMBER IN RELEVANT BOX]

1. FRESH MEAT	[___]	6. LEATHER PRODUCTS/SKINS	[___]
2. MILK	[___]	7. PROCESSED MEAT	[___]
3. CHEESE	[___]	8. CASHMERE/HAIR	[___]
4. LIVE GOATS	[___]	9. POWDERED MILK	[___]
5. MOHAIR	[___]		

12. **PRICE EXPECTATIONS:** Referring to the same products, I would like you to tell me how much you would be prepared to pay each one. [PLEASE WRITE DOWN ACTUAL AMOUNT. IF REALLY IMPOSSIBLE, THEN USE THE FOLLOWING BREAKDOWNS, AND CIRCLE RELEVANT NUMBER:

1 = A HIGHER PRICE THAN ORDINARY PRODUCT
2 = THE SAME PRICE AS ORDINARY PRODUCT
3 = CHEAPER PRICE THAN ORDINARY PRODUCT
4 = REALLY DON'T KNOW]

1. FRESH MEAT (per kg)	R_____	-1 –2 –3 –4
2. MILK (per litre)	R_____	-1 –2 –3 –4
3. CHEESE (per kg)	R_____	-1 –2 –3 –4
4. LIVE GOATS (per animal)	R_____	-1 –2 –3 –4
5. A MOHAIR RUG (2m x 3m)	R_____	-1 –2 –3 –4

6. A GOAT LEATHER JACKET R_____-1 –2 –3 –4
7. PROCESSED MEAT (i.e. pack of sausages) R_____-1 –2 –3 –4
8. CASHMERE JERSEY R_____-1 –2 –3 –4
9. POWDERED MILK (1kg tin) R_____-1 –2 –3 –4
10. A GOAT LEATHER HANDBAG R_____-1 –2 –3 –4

13. **PROPENSITY TO PURCHASE – PRE-TRIAL:** (SHOW CARD – PROPENSITY TO PURCHASE) On this card is a list of statements describing how likely you would be to buy something. Please choose a statement that would best describe how likely you would buy.

a. GOAT CHEESE [___] c. CASHMERE PRODUCTS [___]
b. GOAT MEAT [___] d. GOAT LEATHER PRODUCTS [___]

INSTRUCTION TO INTERVIEWER: ASK RESPONDENT TO TASTE SAMPLES OF GOAT CHEESE AND MEAT, AND SHOW RESPONDENT PICTURES OF CASHMERE AND LEATHER PRODUCTS

14. **PROPENSITY TO PURCHASE – POST – TRIAL:** (SHOW CARD – PROPENSITY TO PURCHASE) Now that you have tried the products and seen the pictures, please choose a statement from the card that best describes how likely you would be to buy:

a. GOAT CHEESE [___] c. CASHMERE PRODUCTS [___]
b. GOAT MEAT [___] d. GOAT LEATHER PRODUCTS [___]

APPENDIX 3 : GOAT MEAT PRODUCT RECIPES DEVELOPED

Dried Sausage

Ingredients

- 4,5 kg chevon
- 1 kg sheep's tail fat or beef fat
- 300g crushed ice/300ml ice water
- 35 ml fine salt
- 20 g whole coriander (50ml)
- 5 ml ground cloves
- 10 ml freshly-ground black pepper
- 90 g sheep (thin) casings

Step 1: Get all ingredients together.

Step 2: Cut/mince meat and fat into 50 mm cubes and sprinkle with spice from the home recipe. Mix your spice with the crushed ice.

Step 3: Mince the meat through a 3.0 - 4.5 mm plate.

Step 4: Fill into casings

Hang to dry in a well ventilated cool area for 4 – 6 days, until dry. Remember, only half the amount of dried sausage will be left with, as a lot of shrinkage (50%) takes place, due to evaporation of water.

Cabanossi

For the making of cabanossi the steps are the same as dried sausage. For the spices, use the batch pack from Crown National. Either put in liquid smoke according to the recipe on the batch pack or smoke the meat for 30 minutes and cook until the internal temperature reaches 72°C (use a meat thermometer) in a cooking cabinet or smoker. You can eat them fresh or hang them up to dry, like dried sausage. Remember, more than half the amount of dried sausage will be left with, as a lot of shrinkage (30%) takes place, due to cooking and evaporation of water.

Recipe:

- 6 kg chevon
- 18.3 kg lean pork
- 4.5 kg pork fat
- 90 g Liquid smoke (omit if wood chip smoked)
- 1.2 kg Country Cabanossi Batch pack (Crown National)

Equipment needed:

Deboning or butcher's knife

Cutting board

Mincer – hand, butcher or industrial with different plates and knives

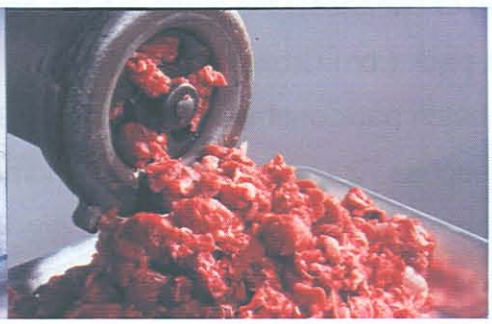
Mixing bowls and plastic trays

Sausage nozzle (fits on mincer)

Steps in the preparation of dried sausage or cabanossi

Step 1

Step 2



Step 3

Step 4

Several chevon dishes developed

APPENDIX 4 : CASHMERE CARPETS DEVELOPED

Examples of the cashmere and wool carpets developed (These carpets are currently being manufactured by the Mighty Wool Spinners of Soweto)

APPENDIX 5 : GOAT LEATHER PRODUCTS DEVELOPED

Stretching and drying a goat skin on a frame

Descriptions of products developed

Wool and goatskin slippers©.

These have a typical Mfengu beaded look, but no real beads, these being simulated from embossed goat veg (It was felt that real beads were too time consuming and venerable to breakage). The demand for the slippers seems good, especially for the export market. Designs for any region could be created to prevent direct marketing clashes, but each region should also have specific market outlets exclusive to them. Various crafting groups in the Transkei/Ciskei regions could co-operate in the event of a big order.

Modernized Nxili in leather.

This design consists of a buffed, chrome-tanned leather bag with knotted and beaded thongs. Each crafting group would be able to add their own beading methods and designs and charge accordingly.

Hair-off vegetable-tanned itasi amabokwe.

This is the young man's courting bag. It is veg and chrome. The veg base will allow development of branded patterns in due course. These will allow each group to personalize their work.

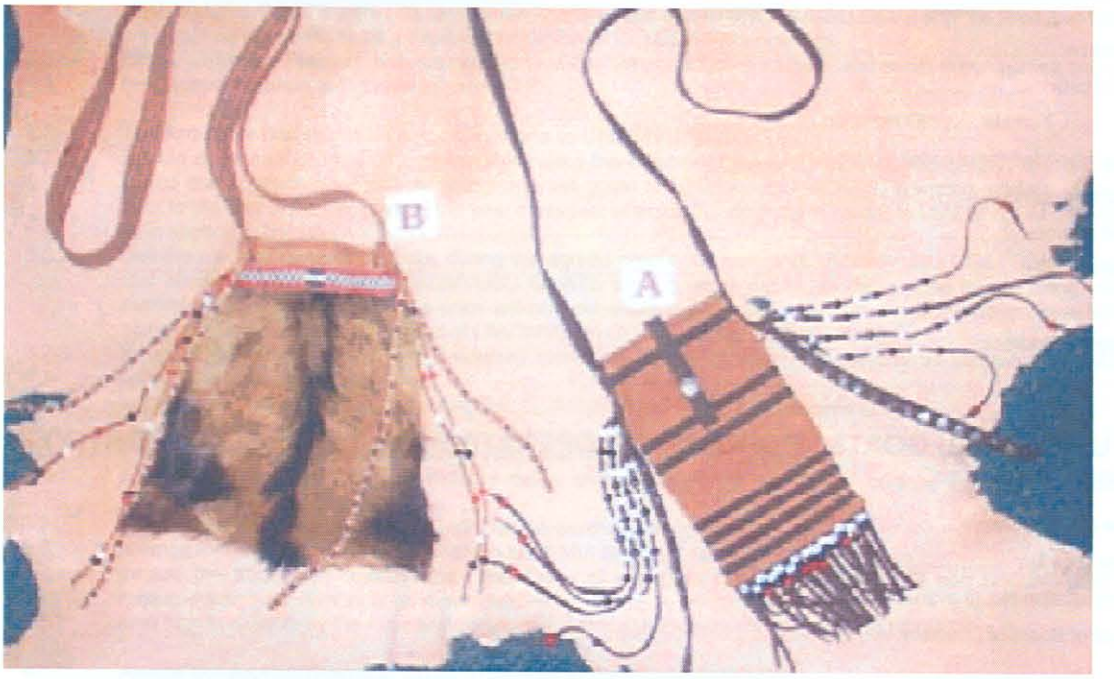
Hair-on goat (or springbok) old-man's hip bag.

This is a lined and beaded traditional bag with a strong historical background and should have good tourist appeal. It can also be made from culled antelope from the area under training. A very simple shape.

Area-specific key tag / Area-specific key pouch / Area-specific "twak sak" with beading.

These three designs are intended to give a crafting group instant income and will have motifs from the areas, such as schools, hotels, tourist attractions, geological features, local businesses, etc.

Product range developed for Eastern Cape



APPENDIX 6 : UMZIMVUBU CONTRACT GROWERS AGREEMENT

This agreement should be completed with the assistance of the Agricultural Officer of UMZIMVUBU GOATS or other designated officer of UMZIMVUBU GOATS

AGREEMENT BETWEEN UMZIMVUBU GOATS

(An Agricultural Co-operative registered in the Republic of South Africa)(Registration No: .....)
(hereinafter "UMZIMVUBU GOATS")

And

AN UMZIMVUBU GOATS PRODUCER

(hereinafter "the Producer")

Title..... Initials..... Surname.....

First name.....

Date of birth ...../...../.....

Male ..... Female ..... ID Number: .....

Home telephone (area code) + (number): (.....).....

Cell phone number: (.....) .....

E-mail address: .....

Postal address: .....

.....

Residential address: .....

.....

Or

AN UMZIMVUBU GOATS PRODUCER CO-OPERATIVE (OR OTHER LEGAL ENTITY)

(hereinafter "the Producer")

Name of Co-operative.....

Registration No: .....

Vat registration No. (if available): .....

Names of Board of Directors: ..... ID. No.....

..... ID. No .....

..... ID. No .....

..... ID. No .....

..... ID. No .....

..... ID. No .....

..... ID. No .....

..... ID. No .....

..... ID. No .....

..... ID. No .....

WHEREAS UMZIMVUBU GOATS intends to promote goat farming by carrying on business as a provider of services to Producers of goats and the purchaser thereof from the Producers in the Alfred Nzo, O.R. Tambo and others regions of the RSA;
WHEREAS UMZIMVUBU GOATS intends to ensure traceability, quality and consistency of supply of goats and goat related products to customers of UMZIMVUBU GOATS via this agreement;
WHEREAS UMZIMVUBU GOATS has held out and represented that it has the necessary skills, infrastructure and expertise to perform the services;
AND WHEREAS the parties have reached agreement in regard to the terms regulating their relationship and desire to record the same in writing prior to same becoming effective.

2. PERIOD OF AGREEMENT

This agreement shall be deemed to have commenced on the signature date and may not be terminated prior to 36 months from the signature date (or if he ceases to be a Producer of UMZIMVUBU GOATS due to failing to meet his obligations in terms of this agreement).

3. NATURE AND SCOPE OF AGREEMENT

3.1. UMZIMVUBU GOATS shall provide the following services to the Producers and Producer groups in return for a membership fee:

3.1.1. advise on an on-going basis on the management, breeding and caring of goats;
3.1.2. assist Producers in acquiring proper breeding stock in an endeavour to continually improve the quality of their stock;
3.1.3. assist Producers in producing goats of the required standard as required by UMZIMVUBU GOATS and according to the guidelines and standards as set out in the "Umzimvubu Goat Producers" manual.
3.1.4. ensure an increased, sustained, consistent, reliable and efficient market for the South African goat products;
3.1.5. hold any shares subscribed for by the Producer in UMZIMVUBU GOATS in trust and assist in the collection of any dividends or the sale of such shares;
3.1.6. establish and execute a system of training whereby Producers will be trained in the goat farming industry in an endeavour to improve the effectiveness, quality and profitability of the Producer's farming activities;
3.1.7. advise on the preferred pharmaceutical and feed products to use in the production of goats for delivery to UMZIMVUBU GOATS.
3.1.8. purchase all goats that meet the required standards as set out in UMZIMVUBU GOATS Producer's manual, and which have been pledged to UMZIMVUBU GOATS in the Producer's annual production estimate (Please fill in Section 4. below)
3.1.9. if the Producer meets his annual production estimate target, he shall be paid a bonus equal to 2% of his total sales to UMZIMVUBU GOATS within 30 days of the financial year end of UMZIMVUBU GOATS. If the Producer fails to meet his target he will cease to be a Producer of UMZIMVUBU GOATS henceforth.
3.1.10. assist "Emerging Farmers" with the establishment of "Regional Co-operatives" and assist in completing and submitting the necessary forms to the relevant authority.

3.2. The Producer has the following obligations to UMZIMVUBU GOATS;

3.2.1. Submit an annual production estimate, indicating the number of goats (of the required quality), and the production period during which the Producer pledges to sell goats to UMZIMVUBU GOATS, in writing, no later than 2 months prior to the end of the year before the year in respect of which the estimate is made, to UMZIMVUBU GOATS (Please fill in section 4. below);
3.2.2. Sell the pledged number of goats, during the agreed production period, to UMZIMVUBU GOATS at the selling price that shall be determined by UMZIMVUBU GOATS on a quarterly basis, as determined by the ruling international market price of goats (the selling price will be paid within a maximum period of 7 working days of the delivery and slaughter of the animals concerned at UMZIMVUBU GOATS facility in Mount Ayliff);
3.2.3. to apply the recommended record keeping system in his goat production operation as stipulated in UMZIMVUBU GOATS Producer's Manual
3.2.4. to produce goats of the quality as specified in UMZIMVUBU GOATS Producer's Manual

3.3 UMZIMVUBU GOATS shall establish Regional Co-operatives that shall:

3.3.1 plan and inform Producers of delivery dates and places for the collection of their livestock for marketing to UMZIMVUBU GOATS;
3.3.2 act as agents for UMZIMVUBU GOATS for the purchase of the livestock;
3.3.3 arrange for the transport of the animals to UMZIMVUBU GOATS abattoir;
3.3.4 ensure the traceability, quality and consistency of supply to UMZIMVUBU GOATS and UMZIMVUBU GOATS' customers and consumers of goat products.
3.3.5 also sign and abide by the rules and conditions of this agreement with UMZIMVUBU GOATS

4. Annual production Estimate: Goats to be sold to UMZIMVUBU GOATS

How many goats of the required quality (as set out in UMZIMVUBU GOATS Producer's Manual) will you undertake to sell to UMZIMVUBU GOATS per year?.....(in words.....)

How many times will these animals be delivered during the year? ..... (in words.....)

During which months will these animals be delivered during the year?

☐ January. Number of goats ..... ☐ February. Number of goats ..... ☐ March. Number of goats .....
☐ April. Number of goats ..... ☐ May. Number of goats ..... ☐ June. Number of goats .....
☐ July. Number of goats ..... ☐ August. Number of goats ..... ☐ September. Number of goats .....☐ October. Number of goats ..... ☐ November. Number of goats ..... ☐ December. Number of goats .....

5. Into which account should your payment be deposited within 7 working days?

Name of bank ..... Branch .....
Type of bank account: Current/cheque..... Savings .....

Account number .....How long at current bank .....
(For purposes of accuracy an original or copy of a bank statement can be attached)

6. Shareholding

As a Producer of UMZIMVUBU GOATS, I would like to exercise the option to become a shareholder in UMZIMVUBU GOATS

☐ Yes (Fill in Shareholders Application form)

☐ No

7. INTERPRETATION

7.1 In this Agreement –
7.1.1 clause headings are for convenience only and are not to be used in its interpretation;
7.1.2 an expression which denotes –
7.1.2.1 any gender includes the other genders;
7.1.2.2 a natural person includes a juristic person and vice versa;
7.1.2.3 the singular includes the plural and vice versa; and
7.2 unless the context indicates a contrary intention, the following words and expressions bear the meaning assigned to them and cognate expressions bear corresponding meaning –
7.2.1 Act – The Companies Act, 1973 (Act 61 of 1973), as amended;
7.2.2 Board - the board of directors of UMZIMVUBU GOATS;
7.2.3 Business Day - Any day other than a Saturday, Sunday or official public holiday in South Africa;
7.2.4 Documents Of Title - Share certificates or any other documents of title in respect of UMZIMVUBU GOATS shares;
7.2.5 Emerging Farmers - Those farmers, who were previously unable to operate on a commercially viable basis due to lack of financial resources and training;
7.2.6 Issued share capital - The issued shares of UMZIMVUBU GOATS;
7.2.7 UMZIMVUBU GOATS - UMZIMVUBU GOATS Agricultural Co-operative (Registration number .....) an Agricultural Co-operative registered in the RSA;
7.2.8 Parties - The current and any subsequent parties to this agreement;
7.2.9 Producers - Producers of goats;
7.2.10 RSA - The Republic of South Africa;
7.2.11 Services - The services to be supplied by UMZIMVUBU GOATS to the Producer in terms of this agreement;
7.2.12 Signature Date - The date of signature to this agreement;
7.3 Any substantive provision conferring rights or imposing obligations on any party in the interpretation clause shall be given effect as if it were a substantive provision in the body of the Agreement.
7.4 Words and expressions defined in any clause shall, unless the application of any such word or expression is specifically limited to that clause, bear the meaning assigned to such word or expression throughout this Agreement.
7.5 Reference to months or years shall be construed as calendar months or years.
7.6 No provision herein shall be construed against or interpreted to the disadvantage of any party by reason of such party having or being deemed to have structured or drafted such provision.
7.7 The *eiusdem generis* rule shall not apply and whenever the term **"including"** is used followed by specific examples, such examples shall not be construed so as to limit the meaning of that term.
7.8 Unless specifically otherwise provided, any number of days prescribed shall be determined by excluding the first and including the last day or, where the last day falls on a non-Business Day, the next succeeding Business Day.
7.9 A reference to any statutory enactment shall be construed as a reference to that enactment as at the Signature Date and as amended or re-enacted from time to time.
7.10 In this Agreement the word **"Agreement"** refers to this Agreement and the words **"clause"** or **"clauses"** refer to clauses of this Agreement.

8. PRIOR ARRANGEMENTS, AGREEMENTS, UNDERSTANDINGS

8.1 This agreement is intended to cancel any prior arrangements, agreement or understanding of any nature whatsoever that may exist between one or more or all of the parties in regard to any aspect, matter or thing referred to herein.
8.2 This agreement shall novate any prior arrangements, agreements or understanding (if any).

9. WHOLE AGREEMENT

9.1 This agreement contains the entire agreement between the parties and no warranties or representations of any nature whatever other than as set out in this agreement have been given by the parties.
9.2 There are no other terms, conditions, undertakings, promises or warranties of any nature whatsoever regulating the parties' relationship in regard to the matters referred to or contained in this agreement.
9.3 There are no collateral agreements between the parties in regard to the matters contained in or referred to in this agreement, nor any understandings or assurances, promises or inducements of any nature whatsoever, given by the parties or any other person which motivated the parties, directly, indirectly or otherwise, to sign this document, and assume the obligations and undertakings herein.

10. PROTECTION OF SPECIFIC INTERESTS

10.1 All information obtained by UMZIMVUBU GOATS and/or the Producer during the period of this agreement shall be treated in the strictest confidence.
10.2 The Producer shall not disclose or divulge to any person of the business, financial affairs, dealings, secrets, accounts or other information whatsoever having regard or reference to the business or affairs of UMZIMVUBU GOATS other than to further and extend the business and the interest of UMZIMVUBU GOATS;
10.3 The Producer shall not disclose any written instructions, drawings, notes, memoranda or records relating to any business, commercial or other dealings with UMZIMVUBU GOATS and trade secrets of UMZIMVUBU GOATS or any information (confidential or otherwise) of UMZIMVUBU GOATS, or any Company with which UMZIMVUBU GOATS may be associated, which are made, executed, devised or drawn, or which comes into the possession of the Producer

during the period of this agreement, which shall be deemed to be the property of UMZIMVUBU GOATS and shall be surrendered to UMZIMVUBU GOATS on demand.

11. INTELLECTUAL PROPERTY RIGHTS

11.1 Each party will retain its own intellectual property rights, save that it is recorded that any intellectual rights arising, either directly or indirectly, from UMZIMVUBU GOATS conducting its business in the performance of its duties in terms of this agreement will be owned by UMZIMVUBU GOATS.

12. BREACH

12.1 Should any party breach or otherwise be in default of any of its obligations under or in terms of this agreement (hereinafter "the defaulting party"), and fail to remedy such breach within 20 (twenty) days after receiving written notice from any other party (hereinafter "the aggrieved party") requiring the defaulting party to do so, then the aggrieved party shall be entitled to claim specific performance of all the defaulting parties obligations, whether or not due for performance, in either event without prejudice to the aggrieved party's right to claim damages.

13. AMENDMENT OR CANCELLATION

13.1 Any agreement to amend the terms hereof, or to cancel this agreement, or the cancellation hereof by mutual consent, shall be of no force or effect unless reduced to writing and signed by all the parties.

14.1 The parties choose *domicilium citandi et executandi* ("hereinafter *domicilium*") for all purposes arising from or pursuant to this agreement as follows:
UMZIMVUBU GOATS: C/O Alfred Nzo District Municipality, Private Bag X 511, Mount Ayliff, 4735.

The Producer: .....Fax No.....

14.2 Each of the parties shall be entitled, from time to time by written notice to the others, to vary its *domicilium* to any other address which is not a post
restate or post office box.

14.3 Any notice posted or sent by the following methods to the addressee's domicilium shall be presumed to have been received as follows:

- ❑ by prepaid registered post - on the 10th (tenth) business day after the date of posting;
- ❑ by facsimile - on the date of transmission;
- ❑ by hand - on the date of delivery.

14. APPLICABLE LAW AND JURISDICTION

This agreement and the relationship between the parties hereto shall be regulated entirely by the laws of the Republic of South Africa and, in the event of a dispute, the parties hereto consent to the jurisdiction of any Magistrates Court.

15. GENERAL

No relaxation or indulgence which any party ("the grantor") may grant to any of the others ("the grantee") shall constitute a waiver of any of the rights of the grantor, who shall not thereby be precluded from exercising any rights against the grantee which may have arisen in the past or which might arise in the future.

16. COSTS

The costs of drafting and executing this agreement shall be borne by UMZIMVUBU GOATS.

By applying to become a Producer of UMZIMVUBU GOATS I agree to abide by the Agreement with UMZIMVUBU GOATS and that this Agreement has been explained to me and understood by me. I understand that I will be obliged to pay a membership fee of R 1 200 to become an UMZIMVUBU GOATS PRODUCER (for Co-operative members) or a R200 membership fee (for individual members). An annual subscription fee of R 600 must be paid by Co-operative Members every year thereafter (or R 100 for individual members). I undertake to pay my annual subscription fee to UMZIMVUBU GOATS as and when required.

I certify that the bank details for payment to me from UMZIMVUBU GOATS as furnished by me are correct and I authorise UMZIMVUBU GOATS to make direct payment into my account for goats, cashmere or skins, as sold by me to them, within 7 working days after receipt of the stock, as indicated on the invoice of which I retain a verifiable copy. If these bank details have not been provided accurately, or if the details change at any time in the future, and I fail to notify UMZIMVUBU GOATS of such changes, then UMZIMVUBU GOATS will not be held responsible for any bank charges or other obligations to retrieve and resend the payment to the correct account.

THUS DONE AND SIGNED AT _____ ON THIS THE ___ DAY OF_____ 200__.

AS WITNESSES:

1. _____

2. _____ _____
For and on behalf of **UMZIMVUBU GOATS** (duly authorised)

THUS DONE AND SIGNED AT _____ ON THIS THE ___ DAY OF_____ 200__.

AS WITNESSES:

1. _____

2. _____ _____

For and on behalf of **PRODUCER OR CHAIRMAN OF PRODUCER GROUP**
(duly authorised)

If the signatory is an Agricultural Co-operative or other legal entity, all Members of the Board of Directors of this group must sign below (For purposes of accuracy please attach copies of all members ID documents to this agreement).

Applicants signature ..... Date .....

Applicants signature ..... Date .....

Applicants signature ..... Date .....

Applicants signature ..... Date .....

Applicants signature ..... Date .....

Applicants signature ..... Date .....

Applicants signature ..... Date .....

Applicants signature ..... Date .....

Applicants signature ..... Date .....

Applicants signature ..... Date .....

(All signatories and witnesses to this agreement must paraphrase each page of this agreement).

APPENDIX 7 : BRANDING OF LAPHUM'ILANGA GOATS AND THE KALAHARI KID CORPORATION

Logo of the Laphum'ilanga Goat Enterprise

LAPHUM 'ILANGA
GOAT ENTERPRISE

Another O.R. Tambo District Municipality
Development Initiative

Logo of the Kalahari Kid Corporation

SUPERIOR QUALITY GOAT CUTS

KALAHARI KID

CORPORATION

A PRODUCT OF SOUTH AFRICA

Alternatively Superior

Kalahari Kid's exports make the press