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# THE ECONOMICS OF WOOL AND MOHAIR PRODUCTION AND MARKETING IN LESOTHO

by

John P. Hunter

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## PREFACE and ACKNOWLEDGEMENTS

Interest in this subject began when I was teaching in the Economics Department at the National University of Lesotho. I has become interested in wool and mohair initially through study of Lesotho's distinctive handicraft industry producing wool and mohair tapestries and rugs. A cursory examination of problems confronting wool and mohair production in Lesotho revealed that they were rather like an onion: so soon as one thought a particular problem was understood, further analysis only revealed many more layers of problems beneath it. A study of these problems seemed not only intensely interesting, but, given the importance of the wool and mohair industry to Lesotho's economy, timely and important, as well. Fortunately, several people with command over the necessary resources, shared my interest and were willing to support a study of the economics of wool and mohair production and marketing in Lesotho. In this regard, Harry Hill and Abdel Moustafa, Agricultural Officer and Assistant Agricultural Officer, United States Agency for International Development, Lesotho, respectively; Barry Freeman, formerly Team Leader of the Land Conservation and Range Development Project (LCRD) (now Project Leader of the Lesotho Agricultural Production and Institutional Support Project); Donald Lee, Team Leader of the Farming Systems Research Project (FSR); and Prof. Gary Storey and Brent Swallow, Project Supervisor and Project Leader, respectively, of the Agricultural Marketing Research Project, should be identified for especial appreciation. Not only am I grateful for the support that they were able to provide but I am appreciative of the patience with which they provided it. Mr. Bore Motsamai, Director of Range Management Division; Mr. L. Chris Weaver, current Team Leader of the LCRD Project, Mr. T. Namane, Acting Director of Research Division; Mr. Winston Nts'okhe, Director of Research and Specialist Services; and Prof. K. K. Prah, Director of Research and, formerly Acting Director, Institute of Southern African Studies (ISAS), have my gratitude for the institutional support they provided.

There are many people in Lesotho with knowledge of sheep and goats and wool and mohair from whom I have learned and benefitted. I wish to express my appreciation to Mr. D. Khusu, Chief Livestock Marketing Officer, and Mr. S. R. Nkhase, Field Marketing Officer, Livestock Products Marketing Service, for sharing their knowledge and their time. I have benefitted particularly from several intense discussions on wool and mohair marketing practice and policy with Mr. Nkhase. Messrs. L. Moteane and M. Machongo, LPMS District Field Marketing Officers for Maseru and Thaba Tseka Districts, respectively, accompanied me on several visits to woolsheds and taught me about their responsibilities and the problems they confront. I would like to thank them for this and for the help they provided in arranging woolshed visits.

Dr. Ray Brokken, formerly Marketing Officer with the Farming Systems Research Project, helped conceptualize the research project and shared his extensive knowledge of Lesotho's livestock sector with me. He and Brent Swallow helped me to place Lesotho's problems in the broader context of livestock development in Africa. They and Mabaitsi Motsamai, Head of the Marketing Section of Research Division, and Liempho Sopeng, Research Assistant with the Agricultural Marketing Research Project, also shared the extremely valuable data they collected during the 1985 Livestock Holders Survey with me. This data was crucial to much of my analysis. I am extremely grateful for all of this assistance.

My research assistant, Mr. Rampoi Thabane, undertook much of the legwork associated with collecting data from government departments as well as poring over dusty colonial records in the Government Archives. He was especially helpful in all phases of the 1986 Woolshed Survey. He helped prepare and translate the questionnaire, served as one of the field enumerators, supervised the field work for the mohair phase in April and May, and oversaw the coding, checking and entry of the data on the computer. Needless to say, the Woolshed Survey would have been impossible without him. In addition to this, he help draft several portions of Chapters VI and VII on clipping and marketing. I owe an enormous debt of gratitude to him for his assistance.

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The Director of the South African Mohair Board, Mr. D. S. Uys, and his staff made data available to me which helped enormously with some of the analysis. They helped with questions of interpretation, as well.

Ray Brokken, Rampoi Thabane, S. R. Nkhase, D. Khusu, Chris Weaver, Weslie Combs, and Brent Swallow read all or part of earlier drafts and helped to prevent me from making numerous mistakes of fact or interpretation. Brent Swallow, who passed a "fine-toothed comb" through the entire manuscript, must be singled out for especial appreciation in this regard. Although

they caught many errors, any remaining ones are my responsibility alone.

A work such as this, which relies heavily on the collected knowledge and wisdom of many people with long practical experience in wool and mohair production and marketing, is justified if it synthesises the specialised knowledge of each into a coherent whole, resurrects the history of the industry so that its present can be put into perspective, and causes people with an interest in the industry to seek new answers to long-recognised problems. It is hoped that this study successfully meets these goals.

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## CHAPTER I

### INTRODUCTION

Despite a general bias towards cattle in livestock development programs, small ruminants, primarily sheep and goats, often make as important a contribution to rural incomes and welfare as bovines. This is especially so in Africa where over 15 percent of the world's sheep and 30 percent of the world's goat populations are concentrated. No other Third World region ranks so high (Devendra, 1982). In part this may be because Africa's extensive regions of woodland scrub, with mean annual rainfall between 150-750 mm, are particularly well suited to sheep and goat grazing. In part also, it may be because of Africa's low man-land ratio which permits the nomadic or transhumant societies so often associated with sheep and goat rearing (Winrock International, 1977).

Sheep and goats may provide an important source of cash incomes either through the sale of their wool or mohair, their meat, or the animals themselves. In addition, they may serve as a store of wealth that can be called upon during difficult times or when large cash sums are required. In the food system, although cereals are invariably the largest calorie source, the meat and milk from small ruminants can provide high quality nutrition supplements. This may be especially important during times of drought and crop failure. In the cropping system they can make use of some of the crop residue while returning valuable manure to the soil. Finally, they may play an important role in the social system through their function in sacrifices, feasts or in fulfillment of other social obligations.

Small ruminants have long played an important part in the economy of Lesotho, although it is difficult to say precisely how long the Basotho have been herders of sheep and goats. Early accounts of missionaries and travelers in the 1830s noted flocks of fat-tailed sheep and boer goats in what would be present-day Lesotho (Germond, 1967; Lagden, 1909). The keeping of Merino woolled sheep and Angora goats date from the 1860s, although their numbers expanded rapidly only thirty years later (Kimble, 1978).

The adoption of Merino sheep and Angora goats was a response by Basotho farmers to profitable wool and mohair market opportunities and was in keeping with the commercialization of agriculture in Lesotho at that time (Kimble, 1978). Despite over a hundred years' experience with these animals, however, a number of problems remain. Productivity, as measured by wool or mohair fleece weight per animal, is low as is the quality of the clip. Mortality and disease in both young and mature animals is high and external parasitic infestations are periodically a serious problem. Finally, overgrazing and consequent problems of soil

erosion and range degradation, while long lamented (see, Sayce, 1924; Staples and Hudson, 1938), have still to be overcome (see Combs and Hunter, 1987).

All of these problems have been addressed by livestock officials in the past. Dipping and dosing programmes have been introduced, improved breeding has been promoted, and better classing and marketing have been undertaken. From the research perspective, better breeding, soil conservation, and marketing have all been the subject of several studies. Nevertheless, the problems persist.

Although several studies of specific problems have been produced, no overall economic analysis of the wool and mohair industry has been undertaken. The purpose of this study is to attempt to fill this gap. It seeks to analyse the factors affecting the production and marketing of wool and mohair.

A fundamental premise underpins this study: no useful understanding of the present industry and its problems can be gained in the absence of an examination of its history and development. Thus, this history is developed in some detail in the appropriate places. In addition to this premise, there are two guiding themes:

(1) The insight of T. W. Schultz, confirmed by numerous studies, that rural producers in the Third World are motivated in their husbandry practices and production decisions by economic incentives and penalties just as are their brethren in industrial countries. If improved practices are not adopted, it is probably because, within the constraints of the farmer's decision-making process, it does not benefit him economically to do so (Schultz, 1964). The identification of those constraints and the understanding of their nature is the task of the analyst. Their removal is the job of the policy-maker and implementor.

(2) The systems approach to problem identification and alleviation whereby (a) the problem is defined and the existing data assessed, (b) the need for additional data is determined and collected and an analysis made, (c) the development of specific programmes or projects for the alleviation of identified problems, (d) the implementation of projects or programmes, and (e) their evaluation (Winrock International, 1977).

Obviously, only the first two stages of the above approach, with tentative forays into the third, can be fulfilled by the present study. It is hoped and intended, however, that it can provide the basis by which the third, fourth and fifth stages can be fulfilled in the future by others.

In the next chapter, the sheep and goat sector is placed in its context within the Lesotho economy so as to assess its

relative importance and its contribution to Basotho economic well-being. This is a prerequisite to any evaluation of a problem and is necessary to guide decisions about allocating scarce development expenditure to its alleviation.

In the third chapter, the historical development of the sheep and goat sector is analyzed in an attempt to understand the motivations and constraints which have affected its development. This also permits a consideration of past policy responses to identified problems and permits presently targeted problems to be placed in historical perspective.

The fourth chapter is related to the third in that it also adopts an historical perspective. In the first section, a history of policy towards sheep and goats is traced. In the second section, the changing distribution of sheep and goats in Lesotho, both social and spatial, is examined.

The fifth chapter examines present-day production practices and constraints. Who are raising sheep and goats? Why? How do they do so? What is the nature of the sheep and goat population and what constraints does this place in the way of greater productivity? Some of the data used to answer these questions have been obtained from a survey of 135 farmers at woolsheds in Thaba Tseka, Maseru, Mokhotlong, Qacha's Nek, Berea, Quthing, and Mohale's Hoek districts during wool and mohair shearing seasons in 1986. An additional data source was provided by a nation-wide random sample survey of 535 rural livestock-owning households conducted during the winter of 1985, and some from a re-examination of already-existing data collected in connection with the prototype survey of the Farming Systems Research Project.<sup>1</sup>

The sixth and seventh chapters are an analysis of the evolution of a marketing structure for wool and mohair in Lesotho and of the institutions which serve it. The sixth chapter considers the historical development of this structure and examines problems related to clipping sheep and goats. The seventh chapter analyses the currently operating marketing structure. Estimates are made of the relative efficiency of the various marketing outlets and the amount of clip going to each. In

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<sup>1</sup>A description of the woolshed survey and a copy of the survey instrument can be found in Appendix II. This survey is referred to in the remainder of the text as the 1986 Woolshed Survey. Discussion of the nationwide survey of livestock-holding households is forthcoming by Swallow, Brokken, Motsemai and Sopenq. This survey is referred to in the text as the 1985 Livestock Holders Survey. A description of the Farming Systems Research Project's prototype area survey is contained in Butler, 1982. This survey is referred to in the text as the 1981 FSR Survey.

addition, farmers perceptions of and attitudes toward these outlets are assessed.

Finally, the last chapter will attempt to draw conclusions and consider suggestions for change and improvement.

#### A NOTE ON TERMINOLOGY

It is agreed generally that an immature sheep should be called a lamb, its mother a ewe, and its father a ram. With the exception of the term kid for young goats, there seems to be no such agreement about what to call goats, however. Some sources use ewe and ram for goats as well. A few use the terms "billy" and "nanny", but this is considered colloquial and not altogether proper. More frequently one encounters females referred to as does and potent males as bucks.

There is also some confusion about what to call castrated males. Wether is a term that has been employed in Lesotho to refer to either castrated sheep or goats. The term hamel is applied generally in the literature to castrated sheep. Kapater is a term often used South African literature to refer to castrated goats.

So as to avoid confusion while at the same time make intelligent distinctions, the following conventions will be adopted in this study:

	SHEEP	GOATS
Immature	lamb	kid
Female	ewe	doe
Potent Male	ram	buck
Castrated Male	hamel	kapater

## CHAPTER II

### SHEEP AND GOATS IN THE ECONOMY OF LESOTHO

#### I. Lesotho's Recent Economic Performance

In the twenty years since Independence, Lesotho's economy has gone through three distinct stages. The first, from 1966 to 1970-71, was a continuation of the sluggish growth of the late colonial period. Indeed, in some regards, performance was even poorer as real economic growth rates were halved over those of the previous ten years and real per capita GDP stagnated. Basotho had not relied solely for their livelihood on domestic product for many years, however, and in this regard, the immediate post-Independence era saw some change. Gross National Product, which had remained constant at approximately 110 per cent of Gross Domestic Product in the late-colonial era, jumped to a new plateau of almost 130 per cent during this one. As a result, per capita GNP increased by about 6.8 percent. The feature which was to dominate the first twenty years of Independence, the increasingly important generation of national income through labour migration, had begun.<sup>2</sup> More than before, the focus of growth was beginning to shift away from the domestic economy during this period.

This process continued and accelerated in the early 1970s, and became very noticeable with the increase in mine wages after 1972-73. This marks the beginning of the second period which extends to the end of the decade. Whereas GDP and GNP had grown in tandem before, their growth rates began to diverge so that GDP usually grew less rapidly than GNP during the 1970s. The rapid expansion in mine wages and mine employment, occasioned by changes in South Africa and its relations with its neighbours, increased Lesotho's Gross National Product by an average of

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<sup>2</sup>It should not be inferred from the above that labour migration as an economic force asserted itself only at this time. As Kimble (1978, 1985) and Murray (1981) have shown, widespread labour migration began in the 1870s and, for a variety of reasons, started to undermine the viability of the domestic economy shortly thereafter. By the 1930s, Lesotho, which had once exported grain as far afield as Kimberley and Johannesburg, was forced to import grain to meet domestic needs. Ironically, the post-Independence period saw an exacerbation of this trend (Cobbe, 1982; 1986). Prior to Independence, Basotho miners as a percentage of total miners remained roughly constant at 12-14 percent. Thereafter, the number of Basotho miners increased in both absolute and relative terms. By the end of the 1970s some twenty-two percent of miners were Basotho (Eckert and Wykstra, 1979a)

eleven percent per year.<sup>3</sup> Gross Domestic Product, by contrast, averaged 8.9 percent annual growth with the result that GNP reached 167 percent of GDP by the end of the decade. It has been estimated that in the first twelve years of independence ". . . eighty-six percent of Lesotho's real economic growth . . . came from migrant remittances" (Eckert and Wykstra, 1979a: p. 3): the external focus of the economy became sharpened. Nevertheless, the decade of the 1970s saw better than 130 percent and 83 percent increases in real per capita GNP and GDP, respectively. This substantially increased the purchasing power of the population and with it, the commercial and homebuilding sectors of the economy.

Since the early 1980s, the economy has been in the third phase of its post-Independence growth experience. This has been characterized by a deceleration in growth, a retrenchment in mine employment, and pay raises sometimes inadequate to overcome the impact of rapid inflation. The result has been a decline in real per capita GDP and a further increase in the ratio of GNP to GDP. Gross National Product is now over 200 percent of Gross Domestic Product.

Part of the reason for the poor growth record in the third period was the result of the lackluster performance of the South African economy on which the Lesotho economy has become increasingly dependent (Bardill and Cobbe, 1985). Immediate future prospects will continue to depend on South African performance. In this regard, Carvalho (1987: p. 1) has written:

Change in GNP will largely depend on activities in the mines in the RSA (in 1985/86 they made up about half of GNP). At the present time the mines continue to operate as close to capacity as possible, taking advantage of favorable conditions brought about by the declining value of the rand. However mine disputes could result in a reduction in the number of Basotho going to the mines and the increase in mine wages may not be able to keep up with an inflation rate that could be 18 percent or higher.

Part of the reason for Lesotho's poorer growth record in the 1980s was the result of the relatively ineffective domestic development efforts undertaken during the first twenty years of

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<sup>3</sup>Between 1972 and 1976, annual average mine wages increased from R 239 to R 1056 (van der Wiel, 1977: p. 69). Even allowing for the 54 percent rise in consumer prices over this period, this is still a substantial increase. The number of Basotho migrants increased from an average of 63,100 between 1965-69 to an average of 88,800 between 1975-78, a rise of over 40 percent (Eckert and Wykstra, 1979a).

Independence. Although many projects were attempted, few were successful. In addition, Lesotho has not been notably successful in attracting manufacturing investment or in stimulating manufacturing employment. With the onset of South African economic difficulties, the neglect of the domestic economy could no longer be covered by dynamism in the national economy.<sup>4</sup>

Against this backdrop, one can place the performance of the individual sectors. Although Lesotho has long had a trade imbalance, with the value of imports exceeding that of exports, post-Independence economic performance worsened it. In real terms, the negative trade balance increased almost 900 percent between 1965 and 1982--an average annual increase of about 50 percent. From the early 1970s, private consumption expenditure and imports of goods and non-factor services exceeded GDP by ever-increasing amounts. The causes of these imbalances were in part their solution, however, as miners' remittances and increasing amounts of external assistance made up the shortfall.

Throughout the twenty year period in question, the agricultural sector remained the largest single sector in the Lesotho economy. One normally would expect this sector to decline in relative terms with economic development. Over most of this period this has happened, but for reasons that have had little to do with development. In the first place, the value of agricultural output remained virtually constant in real terms throughout the period. In constant, 1973 prices, agriculture contributed M 30.2 million to a 1970 GDP of M 53.4 million. Seven years later, it contributed M 31.7 million to a much larger GDP of M 95.9 million. Thus, during the period of most rapid economic expansion, the agricultural sector was virtually stagnant in absolute terms, after adjustment for price changes.

Agriculture's relative position in the economy declined also because of a more rapid expansion in other sectors. As one would expect from the nature of the growth stimuli to the Lesotho economy, these sectors have been overwhelmingly trade and services. Those sectors usually associated with economic development--manufacturing, construction (with the exception of housing construction), utilities, and communications--have grown very slowly. Such investment as has taken place has derived largely from foreign assistance.

Recent estimates by Carvalho (1987) suggest that the declining trend in agriculture's share of GDP has been reversed recently. According to him, this share increased from 23.1 percent in 1980/81 to 30.5 percent in 1985/86. He attributes this to an increase in the livestock sector. Also important are

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<sup>4</sup>Macroeconomic data is to be found in the Statistical Appendix, Table A.

relative declines in government and non-profit services and mining and quarrying sectors.

In summary, Lesotho's first twenty years of Independence were a classic case of growth without development in which the country became even more dependent than before on external economic forces over which it had little control. Bardill and Cobbe (1985) characterized this well when they wrote:

. . . although domestic production increased, the economy remains overwhelmingly and desperately dependent on migrant labor to finance consumption, on foreign aid to finance investment, and on the imports that both finance to generate government revenue (p. 71).

Should any of the factors favourable to these influences change, Lesotho's economic well-being would be threatened seriously. Of these, the migrant labour nexus is the most problematical as even the most favourable projections forecast a gradual decline in South African mine employment for Basotho migrants (Eckert and Wykstra, 1979a; Cobbe, 1986). Continued economic instability or dramatic political change in South Africa may threaten even this projection. Clearly, the need for increased income-generating opportunities are of foremost importance. There are no simple cures or ready-made solutions. A combination of activities must be found. Owing to its size and Lesotho's overwhelmingly rural nature, agriculture must bear a major burden in income and employment generation. Sheep and goats providing, through the sale of their wool and mohair, the largest sources of export revenue are prime candidates in this regard.

## II. The Position of Sheep and Goats within the Agricultural Sector

Of the various components of Lesotho's agricultural output, livestock have become, unmistakably, more important during the last twenty years. At Independence, the value of crop output was almost one-third greater than that of the livestock sector. Viewed from a different perspective, livestock contributed some forty percent of the value of agricultural output. By the early 1970s, however, the value of livestock products began to exceed that of crop production. In addition, livestock began to account for ever-greater shares of total agricultural production. By the 1983/84 season, livestock were contributing over three times what crops were, or almost three quarters of total agricultural output. (Bardill and Cobbe, 1985: Chapter 2; World Bank, National Accounts and Prices Data Run, 17/12/80). Between 1980/81 and 1985/86, the share of livestock in GDP increased from 13.2 percent to 22.9 percent. During the same period, the

contribution of major crops and fruits and vegetables declined from 9.9 percent to 7.6 percent (Carvalho, 1987: p. 3).

Numerous commentators have testified to the importance of cattle to the Basotho culture and way of life (see Gattinara, n.d.). Although cattle make a sizeable contribution to real incomes through their draught power, milk, dung, and meat, most of this contribution is not marketed. Sheep and goats, through livestock sales and sales of their wool and mohair, contribute most to cash income generation in the rural economy. According to Lawry's estimates from the Sehlabathebe Range Management Area (1986: p. 62), 75 percent of the gross cash income generated by livestock was generated by sheep and goats. Although cattle generated 57.2 of the gross non-cash livestock income, sheep and goats still contributed the majority (56.6 percent) of total (cash and non-cash) gross income. Preliminary estimates by Swallow and Brokken (1987) from the 1985 Livestock Holders Survey show a similar pattern nationally. Cattle produced 70.9 percent of the non-cash livestock income in the sample while sheep and goats produced 75.6 percent of the cash income. Of the income generated by the livestock sector, wool and mohair sales alone have accounted recently for between 14-20 percent of the total.

Owing to its mountainous character, much of Lesotho's terrain is well-suited to the grazing of sheep and goats. In recognition of this, Basotho have a long herding tradition. In the 1830s, early missionaries and travellers observed flocks of fat-tailed sheep and boer goats in present-day Lesotho (see Germond, 1967; Lagden, 1904). Their husbandry must have predated this by some time. By the 1860s, Basotho were beginning to herd Merino woolled sheep and Angora goats (Kimble, 1978) and by the turn of the century these played an important part in the rural economy. Their increasing importance was the mirror image of the decline in grain exports<sup>5</sup>.

At Independence, Basotho kept approximately .35 million cattle, 1.5 million sheep and .9 million goats. This represented a substantial increase over the numbers kept during the last years of the colonial regime (see Table II.1). Despite year to year variation, the numbers today are little changed, although there may be a slight downward trend in sheep numbers and a slight upward trend in goat numbers. There have been important changes over shorter periods within the post-Independence period, however. Generally, cattle numbers increased and sheep and goat numbers decreased between Independence and 1979-80. This was the period of rapid expansion of mine incomes and of rapid growth in the Lesotho economy. Since 1980, these trends have been reversed. As can be seen most clearly by examining the index numbers,

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<sup>5</sup>A more detailed treatment of this history is to be found in Chapter III.

the cattle population has declined steadily while the sheep and goat populations have increased.<sup>6</sup>

These trends have brought a slow, but unmistakable, change in the mix of sheep and goats in the national flock. At the time of Independence, there were approximately two sheep for every goat. Now there are more than two goats for every three sheep. This relative increase in goat numbers is the continuation of a trend that originated in the 1930s. Changes in relative wool and mohair prices appear to go far to explain this trend (see Chapter III).

The products of sheep and goat raising include wool and mohair, meat, hides and skins, milk and dung. Only wool and mohair are important presently to the Basotho economy in generat-

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<sup>6</sup>Starting with the 1970 Agricultural Census, the Bureau of Statistics adopted a sampling methodology that differed from that used for the 1960 Agricultural Census. The 1960 methodology permitted the random entry of any farm household, regardless of fields cropped or livestock held, into the sample. Between 1960 and 1970 (and prior to 1960) livestock counts were based on diptank records. The 1970 methodology excluded households without land and with less than 5 animal units (i.e., 5 cattle or 25 sheep or goats, or some combination thereof). Those excluded constituted over 10 percent of the agricultural households. From 1976, the methodology used has been similar to the earlier one in that it admits all households into the sample (see Bureau of Statistics, 1979: Appendix; reprinted in Combs and Hunter, 1987: Appendix II).

The nature of the bias this methodological change had on estimates of livestock numbers needs to be examined further, a task that cannot be undertaken here. Extrapolation from a sample that excluded small stock keepers to the entire population may have biased upwards estimates of sheep and goat numbers. Data from this period should be used with care.

Apparently unaware of the change in methodology between 1960 and 1970, as well as the potential bias in the 1970 methodology, Wyeth, Moletsane and Motsamai (1983) have argued that pre-1970 estimates (obtained from diptank records) appear to underestimate goats (and by extension, sheep as well). They suggest that earlier goat estimates be multiplied by 1.16 (the multiple by which the 1960 census figures exceed the 1960 diptank records - the only year for which the two systems overlap) to make them consistent with census methodology. A similar multiple for sheep would be 1.4. Until more is known about the nature of bias in the various livestock estimates, it seems wiser to ignore their suggestion.

ing cash income and export earnings. Despite a number of recent attempts to stimulate the production and marketing of hides and skins in the rural areas, these have had little success, although large numbers of hides and skins were exported in the past (see Swallow, 1986; Stutley, 1960).

TABLE II.1  
Cattle, Sheep and Goat Numbers

Year	Cattle	Index No.	Sheep	Index No.	Goats	Index No.	Sheep/Goats
Avg. 1960-64	353683	100	1307714	100	693653	100	1.9
1965	346079	98	1661502	127	877820	127	1.9
1966	357754	101	1457590	111	885586	128	1.6
1967	375709	106	1526442	117	890628	128	1.7
1968	NA	NA	NA	NA	679344	98	NA
1969	NA	NA	NA	NA	NA	NA	NA
1970*	551520	156	1655128	127	973767	135	1.7
1971*	NA	NA	NA	NA	NA	NA	NA
1972*	NA	NA	NA	NA	NA	NA	NA
1973*	465500	132	1556900	119	961900	139	1.6
1974*	512400	145	1577400	121	885400	128	1.8
1975*	502400	142	1519700	116	835000	120	1.8
1976	485500	137	1128000	86	615500	89	1.8
1977	526181	149	942833	72	582000	84	1.6
1978	560327	158	973996	74	618314	89	1.6
1979	593929	168	1043561	80	784346	113	1.3
1980	589976	167	1168404	89	766535	111	1.5
1981	562372	159	1337448	102	930413	134	1.4
1982	537517	152	1279449	98	872145	126	1.5
1983	529175	150	1281000	98	857000	124	1.5
1984	522125	148	1412188	108	1028265	148	1.4
1985 <sup>P</sup>	487049	138	1410762	108	988099	142	1.4

NOTE: \*The livestock census methodology for these years differs from those before and after it (see discussion in Footnote 5). The index numbers (1960-64 = 100) are based on the average number of livestock, 1960-64.

SOURCE: Bureau of Statistics, Annual Statistical Bulletins (Various).

Despite the relatively small changes in sheep and goat numbers, the income obtained from wool and mohair sales has increased dramatically since Independence (Table II.2). Wool and mohair sales have been the two major sources of export earnings on which Lesotho has been able to rely. Their increases have not been due to increases in productivity and, hence, in the amount of product sold (see Table II.4); but to substantial increases in the world market price. Even so, the improvement has been

relatively recent and has been accompanied by substantial year-to-year variation, as an examination of the series of index numbers shows. This is especially true for mohair. Cycles in wool and mohair earnings are not usually synchronized. This helps to dampen the cycles in total earnings. Nonetheless, cyclical fluctuations are a feature of these prices and continued high export earnings may not be sustainable.<sup>7</sup>

TABLE II.2  
Nominal Gross Wool and Mohair Sales Values

Year	Wool (Maloti)	Index No.	Mohair (Maloti)	Index No.	Total (Maloti)	Index No.
Avg. 1960 -64	1794149	100	802962	100	2597111	100
1965	1996861	111	1086165	135	3083026	119
1966	1719650	96	942904	117	2662554	103
1967	881000	49	686191	85	1567191	60
1968	873000	49	871673	109	1744673	67
1969	874000	49	1036891	129	1910891	74
1970	912000	51	837623	104	1749623	67
1971	774000	43	653715	81	1427715	55
1972	2040000	114	1254431	156	3294431	127
1973	2460800	137	1691014	211	4151814	160
1974	1554955	87	1589162	198	3144117	121
1975	1718744	96	2290821	285	4009565	154
1976	2595049	145	1989000	248	4584049	177
1977	2923330	163	1925362	240	4848692	187
1978	3552313	198	4879100	608	8431413	325
1979	4172254	233	4331376	539	8503630	327
1980	4252674	237	2737994	341	6990668	269
1981	5065466	282	1398684	174	6464150	249
1982	5230921	292	2443585	304	7674506	296
1983	6985530	389	6814322	849	13799852	531
1984	11160564	622	10017574	1248	21178138	815

SOURCE: South African Wool and Mohair Boards; Bureau of Statistics, Annual Statistical Bulletin (Various).

Three things need to be emphasised about the data in Table II.2. One is that only legal wool and mohair sales through official channels are included. No account is taken of the value of sales of smuggled wool and mohair. Estimates provided in

<sup>7</sup>Lesotho's marketing arrangements through the South African Boeremakelaars (Koop) Bpk., usually known as BKB, provide some cushion against erratic price fluctuation. This will be discussed in Chapters VI and VII.

Chapter VII indicate that wool smuggling may have been important in the past but probably is negligible now. Mohair smuggling also seems to have declined but may still be as high as 15-20 percent of the total (smuggled plus legal) clip. Thus, Table II.2 does not give a true picture of total income generated by wool and mohair sales.

Further, Table II.2 includes only gross sales values. Various marketing expenses must be subtracted out to arrive at the net sales values. Estimates also provided in Chapter VII suggest that farmers receive about two-thirds of the value of their wool sales and about 80 percent of the value of their mohair sales. These figures seem to have been rather stable over the period in question. Although some of the marketing expenses originate in Lesotho most derive from South Africa. Thus, the data in Table II.2 should not be interpreted either as farmers' (legal) income from wool and mohair sales or as the value of wool and mohair sales accruing to Lesotho.

Finally, as indicated, the data are nominal sales values. They do not account for the eroding effects of inflation. Inflation imported from South Africa has been a prominent feature of the Lesotho economy, particularly in recent years. To gauge the impact of inflation in wool and mohair sales on the domestic economy, it is necessary to deflate these data by a price index. Several could be chosen depending on the use to which the data are to be put. Most appropriate in this context is the Implicit GDP Deflator.

An examination of Table II.3 reveals that the situation is not so favourable once account is taken of the impact of inflation. After deflating the total value of wool and mohair sales by the Lesotho Implicit GDP Deflator, the real value was less for most of the last twenty years than it was in the period just preceding Independence. This is especially true for wool sales, as an examination of the wool index number series will reveal. In only two of the last twenty years have wool sales earned as much, in real terms, as they did in the earlier period. By contrast, mohair sales have performed much better. In all but six of the last twenty years, their value has either remained constant or exceeded inflation. Only mohair sales have prevented Lesotho's sheep and goat sector from performing poorer than it

Thus, not only has the wool and mohair sector made a declining relative contribution to GDP during most of the last twenty years, but a declining absolute contribution as well. Only the high prices of the last few years hold out much hope that this situation might change.

TABLE II.3  
Real Gross Wool and Mohair Sales Values

Year	Deflator	Wool (Real M)	Index No.	Mohair (Real M)	Index No.	Total (Real M)	Index No.
Avg. 1960-64	75.2	2395836	100	1067769	100	3463605	100
1965	80.4	2493659	104	1350952	127	3834610	111
1966	83.4	2061931	86	1130580	106	2192511	93
1967	85.4	1019676	43	794203	74	1813879	53
1968	87.8	994305	42	992794	73	1987099	58
1969	89.4	977629	41	1159833	109	2137462	52
1970	91.9	992383	42	911450	85	1903833	55
1971	95.2	813025	34	686675	64	1499700	44
1972	100.0	2040000	86	1254431	117	3294431	96
1973	112.2	2193226	92	1507143	141	3700369	107
1974	129.2	1202595	50	1229050	115	2431645	71
1975	142.0	1210383	51	1613254	151	2823637	82
1976	164.9	1573711	66	1206186	113	2779897	81
1977	184.3	1586190	66	1044689	98	2630869	76
1978	207.3	1713610	72	2353642	220	4067252	118
1979	233.3	1738364	75	1956569	174	3644933	106
1980	259.2	1640692	69	1056325	99	2697017	78
1981	291.3	1738917	73	480152	45	2219069	64
1982	335.6	1558677	65	728124	68	2286801	66
1983	375.6	1859832	78	1814250	170	3674082	107
1984	425.2	2624780	110	2355968	221	4980747	144

NOTE: The deflator is the Implicit GDP Deflator (1972=100). The index numbers are computed on the average value of sales, 1960-64.

SOURCE: South African Wool and Mohair Boards; Bureau of Statistics, Annual Statistical Bulletin (Various). Implicit GDP Deflator obtained from World Bank data files and Central Bank of Lesotho.

To be sure, changes in the data in Table II.3 are influenced only partly by price changes. Also relevant are changes in the mass of wool and mohair sold. Lesotho has little control over the rate of inflation which is largely determined by South African economic conditions. Clearly, the above situation would have been more favourable to Lesotho had the inflation rate been more moderate. Lesotho also has little control over the world market prices of either wool or mohair.<sup>8</sup> Lesotho producers do

<sup>8</sup>The South African Wool and Mohair Boards, on which Lesotho has input, do try to stimulate new uses and markets for wool and mohair, however. To the extent that they are successful this helps to bolster demand and may increase the prices received by farmers.

produced, however. Thereby, they can affect the total amount produced, the average fleece weight and quality of their clip. In all of these factors recent trends appear to have been disappointing. Continued progress in export earnings and in the contribution of the wool and mohair sector to GDP is dependent on a reversal of these trends.

Recent trends in total marketed output by weight are relatively clear. These can be seen by examining the index numbers in Table II.4. Immediately after Independence, the amount of both wool and mohair marketed increased decidedly. After 1970, however, this began to decline. Although it varies from year-to-year, throughout most of the last decade Lesotho's marketed output has been less than during the years just before and after Independence. Only in the 1980s has the pattern changed.

TABLE II.4  
Wool and Mohair Sales (kg)

Year	Wool (kg.)	Index No.	Mohair (kg.)	Index No.
Avg. 1960 -64	3797368	100	694928	100
1965	4306473	113	1009306	145
1966	4274328	113	1066651	153
1967	NA	NA	998807	144
1968	NA	NA	1142319	164
1969	NA	NA	1139296	164
1970	4736200	125	1017273	146
1971	3177000	84	867206	125
1972	3708300	98	767065	110
1973	4764200	125	566955	82
1974	4004000	105	678003	98
1975	1745408	46	616419	89
1976	2381642	63	340000	49
1977	2391921	63	396660	57
1978	2444299	64	504087	73
1979	2466529	65	497220	72
1980	2663180	70	480968	69
1981	2690105	71	244270	35
1982	2933722	77	415303	60
1983	3145281	83	668706	96
1984	3162477	83	724105	104

NOTE: Index numbers are computed on the average sales, 1960-64.

SOURCE: South African Wool and Mohair Boards.

Part of the decline in marketed output was the result of the mid-1970s decline in sheep and goat numbers. As those numbers have recovered recently, so too has output. Some of the decline may have to do with marketing changes, although these are difficult to document. It should be emphasised again that the data in Table II.4 are for wool and mohair sold through legal channels. To measure total output produced accurately it would be necessary to include the smuggled clip as well. Were this to be added in, the amounts would be somewhat larger. It is not known precisely what impact this might have, however. As indicated previously, there is evidence to suggest that smuggling may be on the decrease. If so, some of the recent increase in output may be merely statistical: illegally (and uncounted) clip moving into legal (and counted) channels.

The amount of output produced also depends on sheep and goat productivity: i.e., the average per animal wool and mohair fleece weights. Data on these are presented in Table II.5.

TABLE II.5  
Average Wool and Mohair Fleece Weights

Year	Wool/ Sheep (kg)	Index No.	Mohair/ Goat (kg)	Index No.
Avg. 1960 -64	2.53	100	0.86	100
1965	2.23	88	0.99	115
1966	2.53	100	1.04	121
1967	NA	NA	0.97	113
1968	NA	NA	1.45	169
1969	NA	NA	NA	NA
1970	2.86	113	1.04	121
1971	NA	NA	NA	NA
1972	NA	NA	NA	NA
1973	3.06	121	0.59	69
1974	2.54	100	0.77	90
1975	1.15	45	0.74	86
1976	2.11	83	0.55	64
1977	2.54	100	0.68	79
1978	2.51	99	0.82	95
1979	2.36	93	0.63	73
1980	2.28	90	0.63	73
1981	2.01	79	0.26	30
1982	2.29	90	0.48	56
1983	2.46	97	0.78	91
1984	2.24	89	0.70	81

NOTE: Index numbers are calculated on the basis of the average fleece weight, 1960-64.

SOURCE: Calculated from Tables II.1 and II.4.

An examination of the data in Table II.5 reveals two different patterns for wool and mohair. Although fleece weights for both wool and mohair are presently lower than they were in the immediate pre- and post-Independence era, the relative decline for mohair is greater and the pattern is much more variable. The average 1960-64 wool yield was 2.53 kg. per sheep. During the same period, the average mohair yield was .86 kg. per goat. Neglecting the particularly poor year of 1981 as atypical, the average yield twenty years later (1980-84) was 2.32 kg. per sheep and .65 kg. per goat. This represents an 8.3% decline in wool yield and a 24.4% decline in mohair yield over the period (see Figure II.1). During the same period, average wool fleece weights fell below 90 percent of the 1960-64 average during one-third of the years (5) for which data are available. Average mohair fleece weights dropped below this standard during more than one-half of the years (9).

Calculations of average fleece weights are highly dependent on reported sales figures and sheep and goat censuses. The problem with animal enumeration has been discussed already. Additionally, fluctuations in the proportion of sheep or goats clipped or wool and mohair marketed through official channels could account for errors in estimation and for fluctuations in fleece weights have a purely statistical origin. In chapter VI, an attempt is made to estimate clipping rates. There it is estimated that 12.4 percent of sheep and 3.7 percent of goats are not clipped. Thus, this factor appears to affect the fleece weights of wool more than mohair. Unfortunately, no data exist to evaluate clipping rates over time. Precise measurement of the unofficial marketings is, by their nature, impossible. As already suggested, however, there is evidence to suggest that they are higher for mohair than for wool. While they appear to be on the decline, this conclusion is only an educated guess and how they have changed from year-to-year is not known. If illegal mohair sales are declining, this would tend to counteract declines in fleece weight derived from other sources.

Average fleece weight, in conjunction with wool and mohair prices, determine the monetary returns earned per sheep or goat. Prices and returns are the figures of most direct concern to farmers and are detailed in Table II.6. In the case of wool and mohair prices, it will be noted that following a small decline during the 1960s there was a steady increase for both prices thereafter. Generally speaking, these price increases have exceeded declines in fleece weight and have cushioned and protected farmers' nominal per animal income.

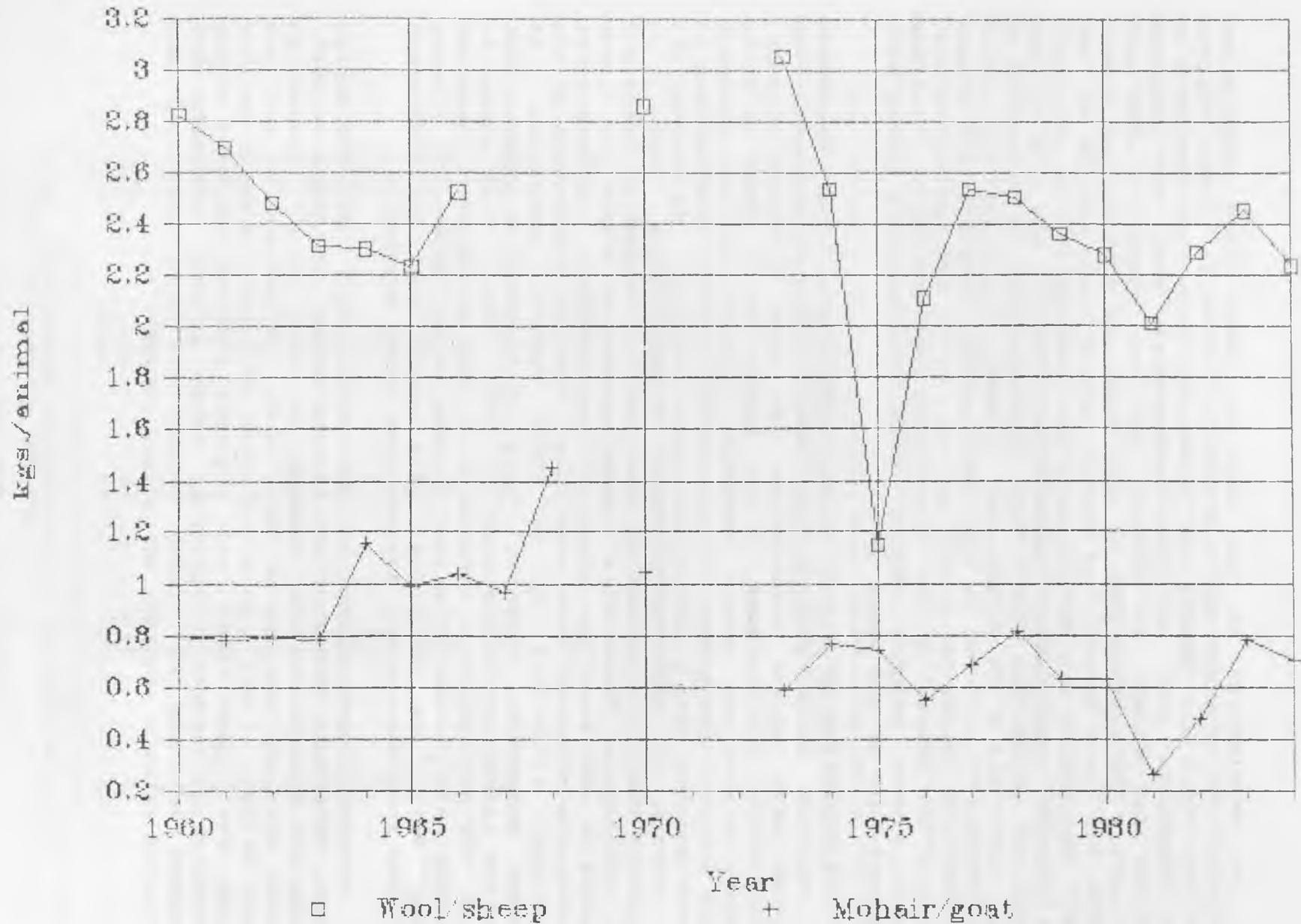


FIGURE 11.1  
Average Wool and Mohair Fleece Weights (kg)

Inflation has had a severe impact on the purchasing power of farmers' wool and mohair income. This can be gauged by the columns on real returns and the series of index numbers.<sup>9</sup> With the exception of a few years in the late 1970s and 1984, wool returns have not kept pace with inflation and farmers' sheep have bought them less than they did twenty years ago. Mohair returns have done better. Mohair price increases generally have exceeded inflation and goats usually have bought farmers more than they did twenty years ago. Nonetheless, mohair prices are highly volatile and goat farmers have fallen behind inflation on several occasions. Figure II.2 displays this data in graphic form.

The figures on income earned per animal presented in Table II.6 are gross figures. As explained earlier, the actual income received by the farmer is net of various shearing, packing, transport and marketing costs. These may reduce the gross income by as much as a third in the case of wool and by twenty percent in the case of mohair (see Chapter VII).

In recent years, particularly, increases in mohair prices have outstripped both declines in purchasing power and fleece weight so as to bring the goat farmer a higher real return per goat. It is not surprising therefore that the number of goats kept has been increasing relative to sheep, as was noted earlier. This matter is discussed further in the next chapter. It should be noted, however, that the Lesotho trend parallels a similar one for South Africa--and, for the same reason (see "Encore for the record Angora industry", The Sunday Star FINANCE, June 29, 1986, p. 9).

The price received by the farmer is a function not only of the amount of wool or mohair sold but also of its quality. It is generally agreed that the quality of Lesotho's wool and mohair clip has declined over the years. Beyond this generalization, however, there is not much agreement (see, e.g. Stutley, 1960; Uys, 1977; Wyeth, et. al., 1983; Marketing Section, Planning Division, MOA, 1983). There are a number of reasons for this lack of agreement. First is one of data. Data for early years were scarce and grading was less precise than it is now. In addition, grading standards have changed and it may be difficult to relate grades in one system to grades in another. Finally, the methodological question of how the available data is to be analyzed is a problem.

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<sup>9</sup>The South African Consumer Price Index (1975=100) was used to calculate real returns. Not only is this the best series available, but is defensible for application to Lesotho because most goods purchased by farmers will have been produced in South Africa. Lesotho's inflation invariably is imported from South Africa.

TABLE II.6  
Average Nominal and Real Wool and Mohair Returns  
Per Sheep and Goat

Year	Avg. Wool Price (c/kg)	Maloti/ Sheep	Real Maloti/ Sheep	Index No.	Avg. Mohair Price (c/kg)	Maloti/ Goat	Real Maloti/ Goat	Index No.
Avg. 1960-64	47.1	1.18	2.35	100	117.3	1.00	1.99	100
1965	46.4	1.04	1.92	82	107.6	1.07	1.97	99
1966	40.2	1.02	1.82	77	88.4	0.92	1.64	82
1967	38.8	NA	NA	NA	68.7	0.66	1.15	58
1968	37.3	NA	NA	NA	76.3	1.11	1.88	94
1969	39.7	NA	NA	NA	91.0	NA	NA	NA
1970	19.3	0.55	0.86	37	82.3	0.86	1.35	68
1971	24.4	NA	NA	NA	75.4	NA	NA	NA
1972	55.0	NA	NA	NA	163.5	NA	NA	NA
1973	51.7	1.58	2.00	85	298.3	1.76	2.23	112
1974	38.8	0.99	1.12	48	234.4	1.79	2.04	103
1975	98.5	1.13	1.13	48	371.6	2.74	2.74	138
1976	109.0	2.30	2.07	88	550.0	3.03	2.72	137
1977	122.2	3.10	2.45	104	485.4	3.31	2.61	131
1978	145.3	3.65	2.59	110	967.9	7.89	5.60	281
1979	169.2	4.00	2.47	105	871.1	5.52	3.41	171
1980	159.7	3.64	1.87	80	569.3	3.57	1.83	92
1981	188.3	3.73	1.71	73	572.6	1.50	0.68	34
1982	178.3	4.09	1.61	69	588.4	2.80	1.10	55
1983	222.1	5.45	1.90	81	1019.0	7.95	2.77	139
1984	352.9	7.91	2.49	106	1383.4	9.68	3.05	153

NOTE: Real returns calculated from the South African consumer price index (1975 = 100) give only an approximation of the purchasing power of a Basotho farmer's wool or mohair revenue.

SOURCE: Calculated from Tables II.1 and II.2. South African Consumer Price Index from Department of Statistics, South African Statistics 1980, Pretoria, RSA, 1980. Average Lesotho wool and mohair prices obtained from South African Wool and Mohair Boards.

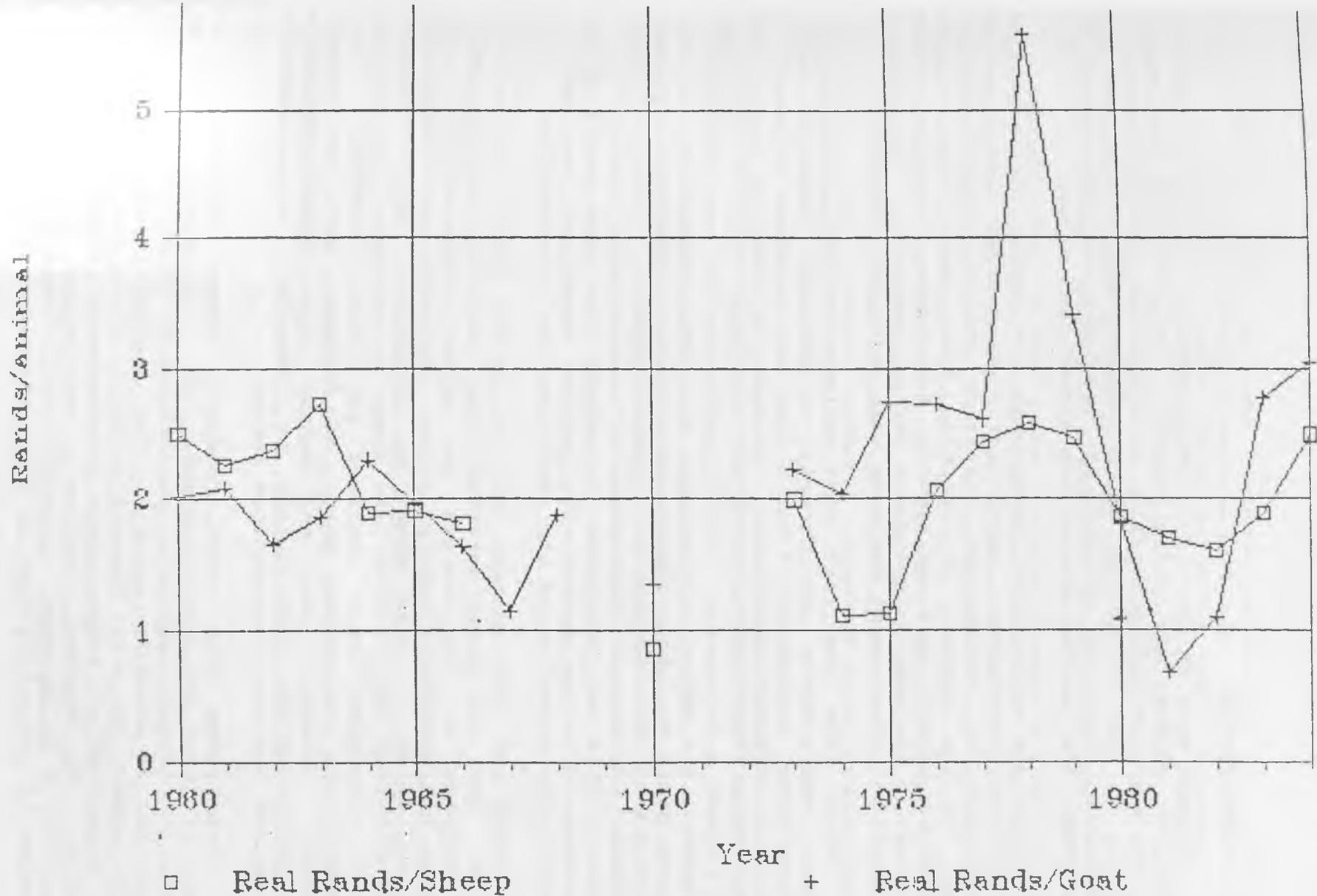


FIGURE II.2  
Real Wool and Mohair Return per Animal

### III. Conclusions

Through much of the first twenty years of Lesotho's Independence its economy has grown rapidly. The source of this growth has not been domestic generation of income but the employment of Basotho in the mines of South Africa and foreign economic assistance. With the downturn of the South African economy in the 1980s, the Lesotho economy has slowed down as well.

Rapid non-agricultural development can assist the process of agricultural development, particularly as it draws people out of agriculture and reduces the stress on scarce resources such as land. In the context of Lesotho, this could make a range destocking policy more politically acceptable. Little of this occurred in the post-Independence period, however. The task of agricultural development was made more difficult, thereby.

Aside from the fact that reliance on another economy may subject unduly one's own economy to external vagaries, South African mine employment is not a long-term solution to Lesotho's quest for economic development. Sources of domestic growth and income generation must be found and developed. One of the oldest and largest such sources is the production of wool and mohair. Throughout the period in question, with the exception of the late 70s and early 80s when diamonds were briefly important, wool and mohair have remained Lesotho's largest exports. Sheep and goats are also the largest generators of domestically produced rural income. This has been more by default than as a result of any improvements in the productivity of the sheep and goat sector, itself. The potential of the sector was far from realized.

Sheep and goat numbers did not change greatly during this period. Wool and mohair marketed output declined, however, owing to declines in the average per animal fleece weights. Wool prices, but especially mohair prices, increased sufficiently in nominal terms to stay ahead of inflation. Declining fleece weights caused real returns per sheep to stagnate and substantially moderated their increase for goats, however. This lessened the purchasing power of farmers' wool and mohair incomes. Overall, wool and mohair sales barely provided a constant absolute contribution to Lesotho's Gross Domestic Product in the post-Independence period.

Comparisons with other producing areas may sometimes be useful if they are not overdrawn. In this regard, it may be useful to compare Lesotho's performance to South Africa's. The comparison is somewhat mixed. The average fleece weight of Merino sheep for white farmers in South Africa has averaged 3.96 kg, while that of Angora goats has averaged almost as high at 3.86 kg. By contrast, Lesotho's average has been 2.4 kg. per sheep and .8 kg per goat. Lesotho's wool fleece weight/sheep has averaged 61 percent of that of South Africa's white sheep farmers

and does not appear to have changed markedly over the recent past. Lesotho's mohair fleece weight/goat has averaged a much lower 21 percent of South Africa's white goat farmers over a similar period. In contrast to wool, this is an average over a declining trend. Accounting for smuggled mohair would raise the the average fleece weight somewhat--perhaps to one kilogram. This is still only a little more than one-fourth of the South African figure. Table II.7 summarizes this comparison.

In addition to its lower average fleece weight, Lesotho's production has a much higher variance as well. The coefficient of variation for Lesotho's wool fleece weight is over twice that of South Africa's while that for the mohair fleece weight is over four times as great. Lesotho's highly variable weather undoubtedly accounts for some of this. Herding and husbandry practices must also be responsible. This greater variation in fleece weight adds a further element of uncertainty to the variation in price to the Basotho farmer's expectation of income from his sheep or goat flock.

TABLE II.7  
Wool and Mohair Fleece Weights Compared

		SOUTH AFRICA	LESOTHO	L as % of SA
WOOL	Mean	3.96 kg.	2.40 kg.	61%
	S.D.	.32 kg.	.40 kg.	-
	C.V.	.08	.17	213%
MOHAIR	Mean	3.86 kg.	.80 kg.	21%
	S.D.	.31 kg.	.26 kg.	-
	C.V.	.08	.33	413%

SOURCE: Table II.4, above and R.S.A., Abstract of Agricultural Statistics, 1985.

NOTES: S.D. is standard deviation and C.V. is coefficient of variation = S.D./Mean.

Given Lesotho's relatively harsh climate and the overgrazed condition of the range, its average wool fleece weight/sheep probably does not compare too unfavourably with the South African average. The much greater disparity in mohair fleece weight probably cannot be explained by reference to range quality and climate alone, however. It would seem that the governments' policies during both the colonial and Independence eras towards

improving the sheep breed (see Chapter IV) may have had some success, at least in terms of wool mass. Similar efforts have not been directed towards goats.

An issue separate from the quantity of the clip is its quality. A rough impression of the disparity between the Lesotho and South African clip can be gained by comparing the average price received for each.<sup>10</sup> In this regard, the price received for Lesotho wool has averaged 56 percent of the price received by South Africa's white wool growers during the past thirty years. Part of this differential is due to the much higher grease, vegetable matter and dirt content of Lesotho wool (Oxtoby and Iredale, 1976: p. 42). While the average for the four South African provinces is approximately 57 percent clean wool yield, that for Lesotho is more like 44 percent (see, South African Wool Board, Statistical Analysis of Wool Produced in Southern Africa Production Areas, annual). Basotho herding practices could be partly responsible for the higher dirt content but the higher grease content is a function of Lesotho's harsher winters (Stutley, 1960: p. 358). Nevertheless, by one estimate, once allowance is made for the difference in grease content, South African scoured wool still sold for a 16.5% higher price than the Basotho variety in 1982/83 (Industrial Development Unit, CFTC, 1984: pp. 20-22).

Data for a similar comparison for mohair is not readily available. However, the mean ratio of Lesotho's average mohair price to the average price received for all mohair produced in South Africa (mostly by white farmers) is 79 percent over the past twenty years. Although this is better than wool, there is still room for improvement. Since Lesotho produces a finer,

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<sup>10</sup>One problem with using average price as an index of quality is that during periods of slack demand the prices of lower quality grades will fall disproportionately to the rest and vice versa during periods of buoyant demand. Thus, the average price of the clip with the higher percentage of lower quality grades will fall (rise) relative to the other during periods of slack (buoyant) demand regardless of any change in the mix of grades. Not much stock should be put in an analysis of trends in the ratio of average prices, therefore. The mean ratio may give a rough idea of the disparity in quality, however. A further difficulty arises with Lesotho's wool and mohair. Because Lesotho's animals are generally malnourished, Lesotho wool and mohair are particularly fine and command a higher price thereby. As a result, a ratio of Lesotho or South African prices would tend to underestimate differences in quality. To some extent a comparison of Lesotho and South African wool and mohair is a comparison of incomparables.

potentially higher priced mohair, Lesotho could conceivably receive a higher price for its mohair.<sup>11</sup>

Suppose Lesotho sheep farmers were able to halve the disparity between them and their white South African counterparts in fleece weight and price. What impact would this have on their earnings and on Lesotho's export receipts. A fifty percent reduction of the disparity in fleece weight would increase the wool produced per sheep by .78 kg to 3.18 kg. The average disparity in price in recent years has been slightly over one maloti per kilogram. Half of this would bring in an extra fifty lisente per kilogram. With these increases over the average for 1981-83, the average sheep would return M 7.88 rather than the actual average return of M 4.70--a 68 percent increase. This would lead to a sixty-eight percent increase in wool export revenues as well.

The very low mohair fleece weight would make it proportionately much more difficult for Basotho farmers to halve the disparity with their South African counterparts. Rather, suppose they were to increase their fleece weight by 50 percent while halving the disparity in price. This would bring an average mohair fleece weight per goat of 1.2 kg. Halving the average 1981-83 price disparity would return an extra M 1.27 per kilogram. As a result, the average goat would return an income of M 10.24 as opposed to the 1981-83 average of M 5.81--an increase of 76 percent. Lesotho could expect a 76 percent increase in mohair export revenues as a result.

These increases in fleece weight and average price are within the realm of possibility. They have been achieved in the past (see Chapter III) and are being achieved presently for individual farmers. To make them more general will require changes in herding and husbandry practices involving animal

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<sup>11</sup>For two reasons, at least, price differentials between South African and Lesotho wool and mohair may distort the true differential in quality between them. In the first place, the price spread over grades may not be great. Thus, even if a majority of Lesotho clip fell into the lower grades while a like proportion of the South African clip fell into the higher grades, the price differential might still be small. The true quality differential would be underestimated. Wyeth, et. al., (1983), echoing a long-standing complaint (see, Uys, 1977: p. 32), suggest that this may be so. In the second place, Basotho wool and mohair may be undervalued, per se, in the marketplace. The report produced by the Industrial Development Unit, CFTC (1984), suspects there may be some element of this with wool. If so, this would cause the price ratio to overestimate the true quality differential. The two effects would work at cross-purposes and might cancel each other out.

nutrition, age and sex compositions of the flock, winter care, breeding, and veterinary care. A redistribution of the national sheep and goat flocks between the lowlands and mountainous areas may also be necessary. Most importantly, a viable destocking programme to permit recovery of rangelands and improved forage production will be required (see Combs and Hunter, 1987). Whether these changes are economically and politically feasible under Lesotho conditions can only be determined by further research and the give and take of the political process. Much of the rest of this study attempts to provide some answers to the question of economic viability. It is hoped that this will be a prelude to a process of political give and take over policy since changes in the sheep and goat sector are necessary if Lesotho is to take greater advantage of its resources and the skills of its people so as to achieve its oft-stated goal of reducing its dependence on mine labour and migrant remittances.

To understand the current position of the sheep and goat sector, one must first understand its historical development. In the next chapter, this historical development is presented as a prelude to a more thorough analysis of the sector's present condition.

## CHAPTER III

### Change and Evolution in the Sheep and Goat Sector

It was a commonplace premise--usually disguised as a conclusion--of colonial reports and contemporary studies of African economies that African agriculturalists and herders were only minimally motivated by the economic incentives thought to be important to their counterparts in more technologically advanced market economies. As a result, economic planners and policy-makers felt justified in neglecting economic incentives when seeking to encourage changed husbandry behaviour on the part of their colonial subjects and emphasized instead compulsion and coercion. Despite a number of studies throughout Africa over more than thirty years that have shown this premise to be incorrect, the belief dies hard. Part of the problem may be the inability of foreign advisors and their foreign-trained local counterparts to fully understand the constraints within which local farmers must make decisions. Part of the problem may stem also from a conflict of interest between the expenditure and revenue constraints of etatist economies and their managers and the need to pay higher prices to farmers. Finally, part of the problem may derive from the need to accumulate a sheer mass of evidence to counterbalance popular misconceptions since "he who is convinced against his will is of the same opinion still".

The history of sheep and goats in Lesotho is an early and clear example of the rapid and sustained response of an African people to innovation and new economic opportunities. It directly challenges not only the assertion of the inherent subsistence basis of the livestock sector but of the whole agricultural sector as well. In addition to its inherent interest, it provides one more nail in the coffin of the belief in the traditionally-motivated, non-economic African producer. It may help to define also some of the constraints around producers' decision-making options and, thereby, improve policy formulation and execution.

#### I. The Early History of Sheep and Goats in Lesotho<sup>12</sup>

The area presently known as Lesotho was settled extensively only beginning in the 1820s. In response to the disruption created by the Zulu king Shaka's wars of conquest and expansion

<sup>12</sup>For much of this section I have relied extensively on J. Kimble's MA (1978) and Ph.D. (1985) theses. Her work is as yet the only major attempt to interpret the economic transformation of the early period of Lesotho's history.

known as the lifigane, the Basotho chief Moshoeshoe succeeded in creating an island of relative peace and prosperity in the rugged and not altogether hospitable mountains of the Southern African interior. To a core of Basotho he welded together displaced persons and refugees to form a new and increasingly powerful nation (see, e.g. Omer-Cooper, 1966).

The area around Thaba Bosiu, the heartland of present-day Lesotho, was only settled in 1824. From a few hundred subjects then, Moshoeshoe's kingdom increased to some 25,000 people ten years later (Bardill and Cobbe, 1935: p. 10). At this time, in the early 1830s, the written historical record began with the arrival of French Protestant missionaries to the kingdom.

Although agriculturalists primarily, the extensive grasslands of the Southern African highveld provided the Basotho with a sound base for a herding economy. The herds of cattle and flocks of fat-tailed sheep and boer goats observed by the first missionaries surely must have had a long history amongst the Basotho. Acquisition of livestock by raiding neighbours' herds and flocks must have had a long history as well. Moshoeshoe's name, onomatopoeic for shaving, was bestowed on him after he led a particularly successful cattle raid in which he was said to have "shaved" away the enemy's animals.

The pre-lifigane distribution of livestock between chiefs and commoners is not known. It is known, however, that the lifigane-turmoil provided Moshoeshoe, through raids and conquest, with a means of acquiring large herds of cattle and flocks of sheep and goats. This, plus the destitution created by the turmoil itself, concentrated most of the livestock in the hands of the chieftaincy when peace arrived.

While protection from turmoil was the initial means by which Moshoeshoe attracted followers, their fealty was ensured through the mafisa system. This system, whereby Moshoeshoe loaned animals from his herds and flocks to subjects who could then claim their milk or draught power, was akin to the feudal bargain of medieval Europe. As in that system, Moshoeshoe provided protection and a means of livelihood to otherwise destitute people and in turn acquired a claim on their loyalty and labour (see Kimble, 1978). Although the mafisa system still persists today, its function is much modified (see Duncan, 1960).

From the very beginning of the kingdom, therefore, livestock played a role which was both political and economic. In addition, they fulfilled a social function as the means of payment of bohali, or brideprice.

With the cessation in the 1830s of the lifigane unrest, the expanding kingdom had to confront new opportunities and challenges. Relative peace favoured the settlement of the Caledon River

valley and the northern and southern lowlands were rapidly occupied by the Basotho. Already, the missionary Lemue described the central lowlands area in 1848 as having too concentrated a population for sheep rearing (quoted in Kimble, 1978: p. 11).

Nonetheless, with an expanding population came increasing herds of cattle and small stock. So as to limit the pressure on the range, people were scattered about the countryside in small villages. Although the management of individual herds and flocks was the responsibility of each household, the management of the range was the responsibility of village heads and chiefs. Two institutions helped to preserve the range. One, mafisa, which has already been mentioned in another context, ensured that large flocks and herds were broken up and scattered about amongst many households. This limited spatial concentration. The other, maboella, sought to limit the temporal concentration on the range. By this system, portions of range were held in reserve during certain parts of the year so as to be grazed later. This was particularly helpful in preserving the sweetveld grass of the lower altitudes by encouraging the grazing of the sourveld grass of the higher altitudes during its palatable phase in the spring and summer. Kimble notes (1978: p. 304), however, that sheep were not permitted to graze on the reserve. Goats, although unmentioned specifically, were probably treated in like manner.

This system of range management required for its success an expanding pasture, especially in the face of rapid population growth. With a larger population came larger flocks and herds and greater demand for cultivable land. Pasture expansion faced severe constraints, however. One was the rugged terrain of the kingdom, itself. Of greater impact, however, was the kingdom's shrinking area. This shrinkage resulted from a series of disadvantageous settlements of boundary disputes with adjacent Boer settlers. In the event, pressure on the range began to build quickly. By the 1860s competition between cultivation and pasture became evident and by the 1870s this began to exercise a degenerative impact on the range (Kimble, 1978: p. 19).

In addition to the increased population and settlement of Lesotho, relative peace and stability brought new opportunities for economic contacts. Principal of these were the increasing Boer settlements on the borders of Lesotho and the expanding economy of the Cape Colony to the South and West.

Boer influence on Lesotho dates from the Great Trek of the 1840s and began just as the lifigane was ending. Pursuing a largely pastoral economy initially, the Boers were dependent on outside sources for grain supplies and for manufactured goods. The Basotho, who had been exporting grain to some African neighbours for some time, helped supply the grain demand as early as the 1830s. By the 1840s regular grain trade with the Boers had become an established feature and would remain one until the

1850s when the Orange River Sovereignty (as the present Orange Free State was then known) became more or less self-sufficient in grain (Kimble, 1978: pp. 91-96). In addition, itinerant traders followed the Boers from the Cape, trading manufactured goods for their surplus agricultural produce. They were the vanguard for traders in Lesotho.

By 1854, two newly-established resident traders at Morija brought additional economic stimuli to Lesotho. Their number expanded by three four years later and their imported merchandise further encouraged the Basotho to produce for the market. In this, they were supported by the newly-established mission stations. As Kimble writes (1978: pp. 113-114):

Overall, the ideology of the 'three C's' [Christianity, Civilization, and Commerce] played a major role in facilitating the penetration of mercantile capital, and in laying the foundation for the extensive exchange relations which developed between Basotho and white settlers in the 1850s and 60s.

Missionary promotion of industry, private property and wage labour (in opposition to performance of traditional, unpaid labour obligations to chiefs) facilitated this penetration. As a result, production for the market seems to have been concentrated on mission stations and, ironically, at the residences of senior chiefs who could mobilize commoner labour.

Initially Basotho had traded grain and traditional products such as skins and feathers. As exchange progressed, however, commoners gradually acquired livestock with which they could establish their own herds and flocks. This was particularly the case around mission stations which, Kimble reports (1978: p. 158), rather came to resemble sub-chieftaincies. The stations offered a degree of independence from traditional authority as did the independent source of income derived from production for the market. This, in addition to the desire for manufactured goods, provided a powerful impetus for many commercially-oriented Basotho producers.

By the 1860s a few Basotho were beginning to acquire, variously through trade or theft, Merino woolled sheep and mohair producing Angora goats. Expansion of their numbers began a decade later.

There is some disagreement about the origin of the Merino sheep breed in Southern Africa. According to Michaelson (1924), the first Merino rams were imported in 1758, supposedly from the King of Spain's flock. Wallace (1896), by contrast, marks the first importation as 1793. McKee's account (1913: pp. 1-4) agrees closely with this latter date. Despite this early introduction, little attempt was made at breeding Merinos until

the second decade of the Nineteenth Century. From 1812 to 1830, they spread slowly in the Western Cape amongst the Boer settlers. With the Boers' replacement by English-speaking farmers after the Great Trek in 1834, the adoption of the Merino variety spread rapidly. This was particularly so in the Eastern Cape Colony (Wallace, 1896: pp. 332-333).

The first importation of Angora goats was contemporaneous with the time. In 1838, 12 bucks and one doe were brought from Turkey. As the Turkish authorities had emasculated the rams before shipment, however, the Southern African mohair industry would have been stillborn had not the doe (unknown to her exporters) been pregnant. The male kid born en route and his mother became the progenitors of the Southern African breed through crosses with indigenous boer goats. The initial locus of the industry appears to have been the Caledon region of the Cape Colony. From there the goat population spread rapidly inland (Schreiner, 1898: p. 175; Rose, 1924). Schreiner argues (pp. 178-179) that the desire to produce mohair was only one reason for the rapid adoption of the Angora breed. Also important was the resistance to scab and increased meat palatability that it produced when crossed with the local boer goat. The breed was strengthened in 1857 with a further importation of thirty Angora goats. By 1868, however, fewer than one hundred had been imported. The early industry was entirely based on judicious crosses between these imports, local goats and their crossbred offspring. It is interesting that the beginning of the mohair industry in Southern Africa was only twelve years after Turkey began to export mohair and only three years after England began to spin it (van der Westhuisen, et. al., 1985).

Basotho familiarity with these new breeds was acquired early. While some Basotho had sought refuge with Moshoeshoe during the lifigane, others had fled to the Cape. There they found work as shepherds or servants for which the pay was often cattle or sheep. According to Kimble (1978: p. 172), the missionary Maeder reported that one would earn one cow or six sheep or goats per year, in addition to food and clothing. Several years' work would permit the accumulation of a small flock. With the end of the lifigane, many of these migrant Basotho returned home with their newly-accumulated wealth.

Further familiarity was gained as a result of the boom in commercial wool farming in the Cape that took place between 1848-68. The resultant strong demand for herders and shearers attracted many Basotho migrant workers. High prices for wool also attracted the attention of Basotho stock keepers to the woolled, Merino variety.

By 1855, Basotho in the vicinity of the Carmel mission were beginning to replace traditional varieties of sheep with the Merino. Expansion of this variety, and of the Angora goat, were

apparently slow until the last two decades of the century, however. Kimble reports (1978: p. 131) that Merino sheep were "rarely kept" until Lesotho was annexed by the Cape Colony in 1872.

At the time of annexation, a number of still-prominent features of the Lesotho economy were becoming evident. In the first place, it was becoming increasingly integrated into the market cash nexus. Aside from the inherent demand for the manufactured goods obtainable from trade, two rather contradictory features of Basotho society stimulated this integration. One was the desire by members of the chiefly families to parlay their traditional command over commoners' labour services into accumulated wealth; the other was the desire of commoners, particularly those converts who fell under the sway of the missions, to establish independence from traditional obligations. In addition to this trend, some Basotho, perhaps those less able to participate in commodity production initially, were migrating abroad in search of wage-paying jobs.

The discovery of diamonds in Kimberley in 1870 accelerated both of these trends. The mining boom increased the demand for labour enormously and with it, the demand for food. Basotho responded to both demands and production for the market became even more widespread. In 1873, 100,000 bags of grain and 2000 bags of wool were exported and some #150,000 worth of manufactured goods were imported with the proceeds (Murray, 1981: p. 11). In 1878, #400,000 worth of grain and some #75,000 worth of wool and other products were exported from Lesotho (Tylden, 1950: p. 118). The actual amount probably was somewhat higher as the reported figures do not include purchases of hawkers or unlicensed traders. Kimble (1978: p. 201) estimates that the earnings from migrant labour at this time were about one fifth the value of exports. This would have made them just a little less than #100,000.

The relative magnitude of these figures is brought out when one recalls that Lesotho had a population of only 130,000 people then and the pound had yet to suffer the depredations of inflation and devaluation. These export earnings would have provided an average household income of some #25 per annum--although their distribution was probably quite unequal--and by the end of the decade, seventy fixed trading stations had been established to handle the commerce resulting from this income generation (Kimble, 1978: p. 200).

Of this period, Colin Murray has written (1981: p. 11):

The Basotho bought ploughs, planted assiduously and sold the grain to meet the needs of the distant mining camps. They responded to the incentives of the market with such zeal and success that, on the one hand, the

missionaries expressed anxiety lest their material prosperity endanger their spiritual progress. . .and, on the other hand, the Friend of the Free State was moved to remark, 'Nowhere else in South Africa is there a more naturally industrious nation, as honest and as peaceable (sic) as the Basuto'.

The Basotho were actively and enthusiastically entering the market economy--not just as consumers but as producers as well.

Although most energy at this time was put into expanding grain production, a significant change was beginning to take place in the small stock sector, as well. As has been observed, there had been a wool boom in the Cape and wool was already being exported from Lesotho by this time. Basotho were beginning to respond to the income-making opportunities available from wool by changing the varietal composition of their flocks.

By 1875, according to Kimble (1978: p. 228), the population of Merino sheep "vastly exceeded" that of other breeds. Her later research revealed that stock enumerations at that time counted 290,000 sheep and 161,000 goats (1985: p. 487). It is not clear how "vastly exceeded" is to be interpreted. If it should mean that only three-fourths of the sheep were Merinos then almost 220,000 sheep were of the new breed. This constitutes a large increase over the negligible numbers of Merinos recorded twenty years before. If the missionary Rolland's estimates for 1879 were correct--that one half of export earnings were spent on the accumulation of cattle and sheep, particularly Merinos--this increase should not seem surprising (see Kimble, 1978: p. 218).

Records of the Angora goat are sketchy during this period. Kimble reports that in 1875 they were in the minority amongst goats (1978: p. 228). Although they had arrived only recently in the region, Rose (1924) estimates that there were approximately half a million Angoras in South Africa by 1868. He specifies these as being "pure bred". The tight export restrictions on breeding stock imposed by Turkey (the major world producer), the necessity of cross breeding, and simple mathematics make this unlikely, however. Nonetheless, given the locus of the South African flocks in the Cape Colony as far as the frontier and the rapid increase in their numbers, opportunities were present for their rapid increase in Lesotho as well.

By the end of the 1870s, the Basotho had, over a relatively brief period of forty years, not only established a nation but had founded an agricultural and pastoral economy that was in active trade with economies around it and was providing a relatively high level of prosperity for many Basotho. It is significant, perhaps, that Basotho entered into these new

economic relations, at this time at least, largely voluntarily and, to a large extent, on terms favourable to themselves.

Of particular concern here is the change in the pastoral economy. The composition of the sheep flock had been almost completely transformed from a non-wooled variety to the Merino breed in response to a buoyant demand for wool in the Cape. Although the goat flock was still largely an indigenous breed, the Angora had been introduced and was being acquired gradually.

In addition to changes in flock composition, there apparently were changes in their social distribution, as well. From being largely a prerogative of chiefly families, livestock ownership became more common, especially as these new breeds seem to have been more readily acquired by commoners than by the chiefly class. It is often the case that people on the margins of traditional economic activities will be the most ready adopters of new activities if favourable opportunities arise. The relative independence of mission stations may have provided the necessary favourable conditions. Kimble (1985) observed that control over cattle-rearing stayed in the hands of the "tributary [i.e., ruling] class", largely because of their control over grazing and mafisa and the use of cattle for bohali (a practice to which the missions were at that time opposed). However, she wrote (pp. 289-90),

The best opportunity for independent agricultural commodity production lay in those newer products for which the market was fairly steady and which were not so vulnerable to the vagaries of the climate, namely wheat, wool and mohair. The ecological variations between districts meant that Mafeteng, Maseru and Qacha's Nek were the natural home of the petty bourgeoisie with its roots in these branches of agricultural production. . . Goat and sheep keeping did not offer any fundamental challenge to the organization of cattle-rearing, except insofar as small stock had to be kept out of the pastures of the latter. Thus the higher mountain pastures were favoured by sheep owners.

That Christian converts, usually commoners, readily entered the new market economy and adopted the new breeds suggests that the new breeds and the new environment may have helped disperse ownership more widely than before.<sup>13</sup> The ground was laid for the subsequent rapid expansion of the sheep and goat industry in Lesotho.

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<sup>13</sup>This is only an educated guess, of course. Further research in missionary records, colonial reports and travellers' accounts may supply a more definitive answer.

## II. The Period of Rapid Expansion

The strong demand for agricultural produce during the diamond boom of the 1870s stimulated the development of Lesotho's agricultural sector. Basotho farmers met this demand more vigorously than their Boer neighbours in the Orange Free State who were constrained in part by a farm labour shortage. Their successful efforts to end this shortage combined with the completion of the railroad to Johannesburg and competition with cheap Australian grain spelled an end to this boom by the 1880s, however.<sup>14</sup> To these retarding effects were added drought, economic recession and the Gun War of 1880-81. The result was a depressed agriculture which never recovered fully, even after the gold boom on the Witwatersrand after 1886 (see Kimble, 1985 and Murray, 1981). Although Basotho farmers continued to export grain, migration to the gold mines of the Rand, to railroad work or to Boer farms became increasingly attractive.

At home, the increase in population and livestock numbers put increased pressure on the lowland areas. This was alleviated in the 1890s by settlement and by the establishment of cattle posts in the mountain areas (Staples and Hudson, 1936). This necessitated a more labour-intensive type of herding, however, as lowland animals were trekked between the cattle posts and lowland villages with the seasons. Occasionally poor adults were paid to tend the flocks but more commonly this was the task of adolescent boys (Sayce, 1924).

In the forty year period between 1890 and 1930 Lesotho experienced an extremely rapid increase in its small stock population. This is summarised in Table III.1.

Between 1875 and the mid-1890s, there was an apparent decline in Merino sheep numbers. Thereafter, however, their increase was rapid--averaging a compound annual rate of growth between 1894 and 1931 of 7.3 per cent. Angora goat increases were even more rapid. Over the same period, their numbers averaged a compound annual rate of growth of 10.5 per cent.

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<sup>14</sup>To acquire more farm labour Boer farmers had to attract or compel Africans to enter the wage labour market. With easy access to land and high prices for their produce, few Africans were anxious to work for the relatively low farm wages paid by the Boers. This was particularly true of the Basotho. To help reverse the balance in their favour, the Orange Free State made it increasingly difficult and expensive for Basotho producers to export their produce across OFS territory. See Kimble (1985) for a detailed discussion of the mechanisms developed to stimulate and perpetuate labour migration.

During the initial sub-period, 1894 to 1911, rates of increase were more rapid still, being 12.8 per cent for sheep and 19.1 per cent for goats, compounded annually. Owing to the approximate nature of the initial figures, these rates must not be interpreted precisely. Their relative size, both between species and between periods is probably valid, however. From 1911 to 1931, both sheep and goats grew at the much slower, but still respectable, compound annual average rate of 3.7 per cent.

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 TABLE III.1  
 Merino Sheep & Angora Goat Populations:  
 1890 - 1931  
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Year	Sheep	Goats
1893/94	176,000 <sup>#</sup>	25,000 <sup>*</sup>
1896/97	155,000 <sup>#</sup>	25,000 <sup>*</sup>
1899/00	298,000 <sup>#</sup>	80,000 <sup>*</sup>
1904	517,000 <sup>#</sup>	130,000 <sup>*</sup>
1911	1,368,994	488,863
1921	1,859,712	895,358
1931	2,828,700	1,005,822

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 SOURCE: Non-superscripted numbers are from official censuses. Superscripted numbers are estimates derived from assumptions about average yield and data on wool and mohair sales.<sup>15</sup>  
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<sup>15</sup>Figures superscripted with \* are derived from D. S. Uys' calculations (1975). The exception is the estimated goat population for 1893/94. Uys estimated 10,000 Angora goats. This, however, would imply an average mohair fleece weight per goat of 3.1 kg, an amount far in excess of any recorded in Lesotho since. As the recorded mohair sales for this year are similar to those for 1896/97, it seems reasonable to suppose that the two figures were supplied by similar numbers of goats. This supposition is strengthened by the fact that the assumed underlying fleece weight of 1.3 kg per goat, while high relative to current averages, is within historical experience and is achieved occasionally even today. Figures superscripted with # are estimated from recorded wool sales (Pim Commission, 1935), assuming an average fleece weight of 2.5 kg of wool per sheep. This is consistent with later data for Lesotho and is only slightly lower than that recorded contemporaneously for the Caledon region of South Africa (Wallace, 1896).

Such rapid increase compels the question, Why? One reason is clear: prices for both wool and mohair increased substantially over much of the period. During the 1890s, the average price of mohair increased by 75 per cent while that of wool increased by almost 50 per cent (see Figure III.1 and Statistical Appendix, Table A). Wool prices continued to rise for the next decade. Although mohair prices fell after 1900, they were still 28 per cent higher in 1910 than they had been sixteen years before. After World War I, there was another rapid rise in wool and mohair prices followed by a decline in the post-war depression and then a slow, upward trend until the late 1920s.

More difficult to assess, but probably equally as important, were changes in the income-making opportunities facing Basotho. As has been shown, Lesotho had actively entered the monetary economy by this time. This implied not only that people purchased many of the necessities of life, but also and conversely, that the handicraft industries that had previously provided these goods domestically declined. Thus, Basotho had real needs for monetary income. Because of discriminatory legislation and the competition from cheap foreign grain, however, these needs increasingly could not be met through the sale of grain, as they had before. Basotho had to exploit alternate income-generating activities. Labour migration and wool and mohair sales, which had been subsidiary activities previously, came to the fore during this period. According to data supplied by the Pim Commission (1935: Appendix IV) although the value of grain exports fluctuated wildly from year, that of wool and mohair sales increased steadily until the post First World War depression and then increased again until the late 1920s. Further, by 1904, wool and mohair sales surpassed grain exports in value and remained greater thereafter. Thus, the export focus of Lesotho's economy began to change during this period from one based on the export of crops to one based on the sale of labour-power through labour migration and the sale of animal products.

Labour migration and herding could be complementary pursuits. Commercial grain cultivation, being a labour intensive activity, was competitive with labour migration for a man's time. No such competition was necessary with herding, however, especially if done primarily by young boys. Men could migrate, accumulate capital, invest it in sheep and goats and continue to migrate. Then, on retirement, the sheep and goat flocks could continue to provide income either through wool and mohair sales or through sale or consumption of the animals.

This period was not without its difficulties, however. Sheep scab and intestinal diseases, especially amongst lambs, became severe problems by the 1920s. Thirty-nine dip tanks had been built by this time and a levy of one farthing per pound on all exported wool and mohair was set in 1923, the proceeds of which were to be devoted to scab eradication. An additional

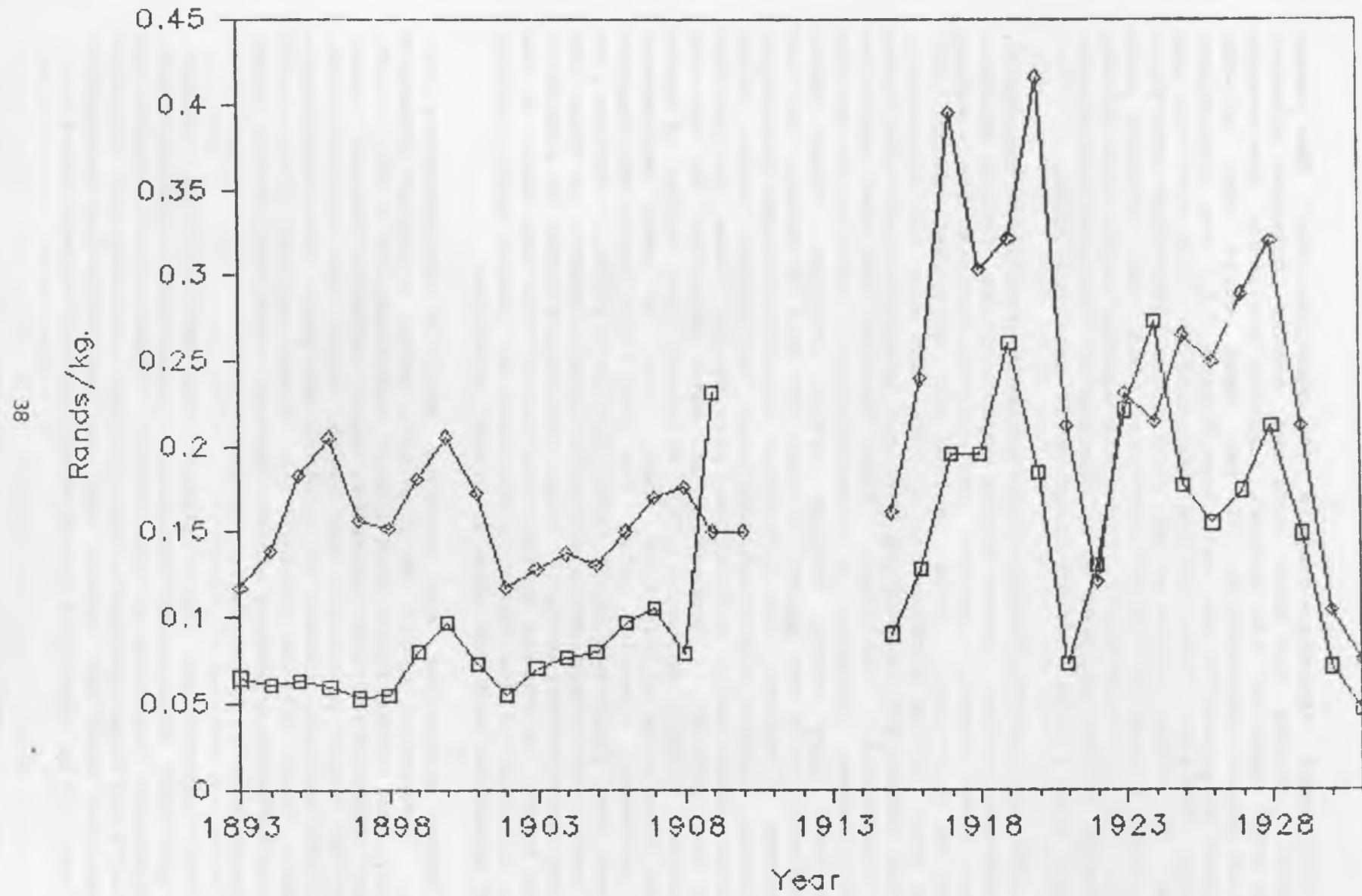


FIGURE III.1  
Wool and Mohair Prices: 1893 - 1931

twenty dip tanks were built in 1923/24 and dipping was made compulsory. Twenty-eight more dip tanks were built in 1925, bringing the total in the country to eighty-seven. That same year, a particularly resistant mite infestation on goats was discovered. By 1930, however, efforts at eradication proved successful and scab was largely eliminated (Uys, 1977: p. 26-36; Tylden, 1950: p. 218).

Stock theft was alleged also to be a serious problem during this period and after. Sayce (1924) noted that methods were employed to mark stock which could not be modified easily. A decade later, Staples and Hudson (1938) observed a "very general fear of stock theft" which, they claimed, deterred attempts to improve breeds and encouraged the keeping of stock near villages where it could be more closely watched. This, they noted, promoted deterioration of the village pasture. Part of the problem, they claimed, was the practice of employing young herdboys, who were an ineffective deterrent to thieves. The Pim Commission Report (1935) also noted an "enormous increase" in stock theft. In addition to discouraging attempts at acquiring improved animals and improving the breed, stock theft was also considered to encourage twice-yearly shearing as owners attempted to retain the wool or mohair if not the animal. Thus, stock theft was alleged to have contributed to a perceived decline in the quality of the wool and mohair clip (Pim Commission, 1935: p. 150).

In seeking to explain the prevalence of stock theft, Tylden (1950: p. 220) wrote,

Though not considered as expert or as addicted to this crime as some of the tribes in the Cape, the Basuto are much too inclined to regard it as rather venal (sic). Moshesh owed his early rise to power largely to his success as a raider, and his name meant one who made a clean sweep and left nothing behind, a memory which remains strong among his people.

Whether the Basotho had (or have) a special cultural predilection or tolerance for stock theft, as Tylden (no doubt reflecting a commonly-held attitude of colonial officials) claimed, is difficult to establish. In the absence of firm evidence as to its incidence, it may be irrelevant anyway. Certainly, stock theft, if widely prevalent, could be an impediment to breed improvement. But, aside from the relative magnitude of the loss, it makes a big difference to a farmer's behaviour whether he stands to lose one or two sheep every couple of years or half of his flock annually. The reports from this period are largely impressionistic and, hence, not very useful in this regard. An attempt is made in Chapter V to estimate the incidence of contemporary stock theft and assess its significance.

Reports also register much concern over a perceived decline in the quality of mohair. As with stock theft, much of the evidence for this decline is of an impressionistic nature. According to a letter, dated 25th July, 1929, from the Principal Veterinary Officer (PVO) to the Government Secretary in Maseru,

. . . there was a unanimous opinion [in a discussion amongst principal buyers of Basutoland mohair] that our mohair had undergone very considerable deterioration during the last five years. Buyers pointed out that five years ago they could rely upon bales containing 50 percent of the desirable long blue Mohair, that has been responsible for creating a good reputation for Basutoland and the type of product the Trade requires . . . after purchasing last year's Basutoland clip, [however,] the Bradford Manufacturers, on opening up the bales, found a large proportion of them that did not contain more than five per cent to ten per cent of the long and good quality mohair . . . (Quoted in Uys, 1977: p. 31).

This decline in long, fine blue mohair was matched by an increase in the proportion of short, kempy hair. This reportedly resulted in large quantities of unsold mohair piling up in coastal ports and the threat of loss of markets.

While the proximate cause of this quality decline was seen to be the poor breed of goats, the PVO recognized, remarkably for this period, that the ultimate cause was an inadequate economic incentive for Basotho growers to produce good quality mohair. Buyers, according to him, were largely responsible in this regard because they failed to discriminate adequately by price against poorer quality mohair. His observations are worth quoting at length:

. . . in my opinion [buyers] had in the past been largely responsible for the present regrettable deterioration of our Mohair, inasmuch that through the lack of discrimination in the prices given for Mohair, good, bad and indifferent fetching the same price, and certainly during the last few years owing to the very remunerative prices paid to our Native Growers for their short clips, they had received every inducement to clip their goats biannually.<sup>16</sup>

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<sup>16</sup>This issue of frequency of clip is confusing. A government report for 1920/21 noted that "goats are shorn only once a year in the spring" (Uys, 1977: p. 26). Sayce (1924) also observed a once-yearly shearing for goats, although sheep were shorn twice. Either practices have changed in the intervening nine years or one of the observations is wrong. As shall be seen, this contro

... in carrying out propaganda work throughout the Territory, it was useless for me and my staff to preach the doctrine of 12 months shearing and Mohair improvement as long as Growers received such comparative high prices for short and inferior mohair compared to that of long and good quality. (Quoted in Uys, 1977: p. 32).

Better sorting and classing by traders was required as well as wider price differentials, he recommended. With these actions Basotho would more easily be induced to improve their breeds and the quality of their wool and mohair. To facilitate this, the importation of bastard bucks was prohibited in 1927.

At this time, buyers reportedly listed no complaints about wool. The PVO attributed this to the success of past campaigns to castrate and eliminate bastard and "Persian" rams (Uys, 1977: p. 35).

A final problem addressed by the literature of the time was that of overgrazing and deterioration of the range. As was noted earlier, Basotho grazing practices were land extensive. So long as additional land was available range deterioration did not pose a problem. By the 1880s, however, the mountain areas were beginning to be settled and, by the 1890s, mountain cattle posts were being established. Although sheep and goats were not stationed in the cattle posts initially, by 1902 this had changed and sheep came increasingly to be resident there permanently (Staples and Hudson, 1938).

The question of overgrazing is a complicated one since it involves estimates of the carrying capacity of the range. The traditional method in Lesotho has been to calculate either Small Stock Units (SSUs), by which cattle, horses and donkeys are represented as sheep-goat equivalents, or Large Animal Units (LAUs), by which sheep, goats and donkeys are represented as cattle-horse equivalents. The conversion factors most commonly adopted are: 5 sheep = 5 goats = 1.5 donkeys = 1 unit of cattle = 1 horse = 1 LAU. Thus, 1 LAU = 5 SSUs.<sup>17</sup> Attempts are then

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versy persists to the present time.

<sup>17</sup>There are a number of problems with this aggregate calculation. Most serious is its linearity and the assumed substitutability amongst species. The diet of each species is assumed to be essentially qualitatively the same as that of each other. It differs principally only in its quantity. Further, the quantity consumed is assumed to vary in proportion to each species' relative weight. If, however, species are complementary in their diets, such a simple linear aggregate calculation is not possible and the task of estimating the sustainable carrying capacity is

made to estimate the sustainable carrying capacity in terms of either aggregate measure. Accordingly, Staples and Hudson (1938) estimated that the 7,762,000 SSUs on the range in 1931 (the high point) was in excess of the sustainable carrying capacity by some 2,440,000 SSUs. Their estimate assumed contemporary range management techniques but more optimal distribution of animals.

According to their observations, overgrazing had resulted in the invasion and spread of the sehalahala bush (*Chrysocome tenuifolia*). This inedible bush had appeared first around 1900 and had spread rapidly during the heavy grazing of the 1920s. By their estimates, it may have reduced the grazing area and carrying capacity by as much as fifty per cent.

Between 1890 and 1930, Lesotho's small stock industry was firmly established and grew rapidly. In this expansion, Basotho had responded to new economic opportunities so as to compensate for the closure of older ones. By the end of the period, Basotho herded a total of more sheep and goats than they had ever herded before or would do subsequently. In the process, several problems arose. One, the infestation of scab was successfully overcome and would not be a serious problem again for several decades. The problems of wool and mohair quality and overgrazing were more intractable, however, as they were caused by a variety of factors. The solution to these problems would elude policy-makers to the present day.

### III. The Period of Consolidation and Stabilization

Between 1931 and 1937, the small stock population in Lesotho declined by almost fifty-six per cent from 3.8 to 1.7 million animals (see Figure III.2). This represented a fifty-nine per cent decline in goats and a fifty-five per cent decline in sheep. Numbers have never since approached the 1931 high point. Instead they have fluctuated around an average of about two million animals.

A variety of factors help to explain the decline. As can be observed from Figure III.1, wool and mohair prices declined precipitously after 1928. Wool prices in 1932 were less than one fifth as much as they were in 1928. Mohair prices declined even more. In 1932 they were about an eighth of what they had been five years earlier. These price declines paralleled and

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made considerably more difficult (see, e.g., Nelson, 1985). Experimental data from Texas indicates that the diet of Angora goats consists of a lower percentage of grass and forbs and a higher percentage of browse than does that of sheep (Bryant, Kothmann and Merrill, 1979).

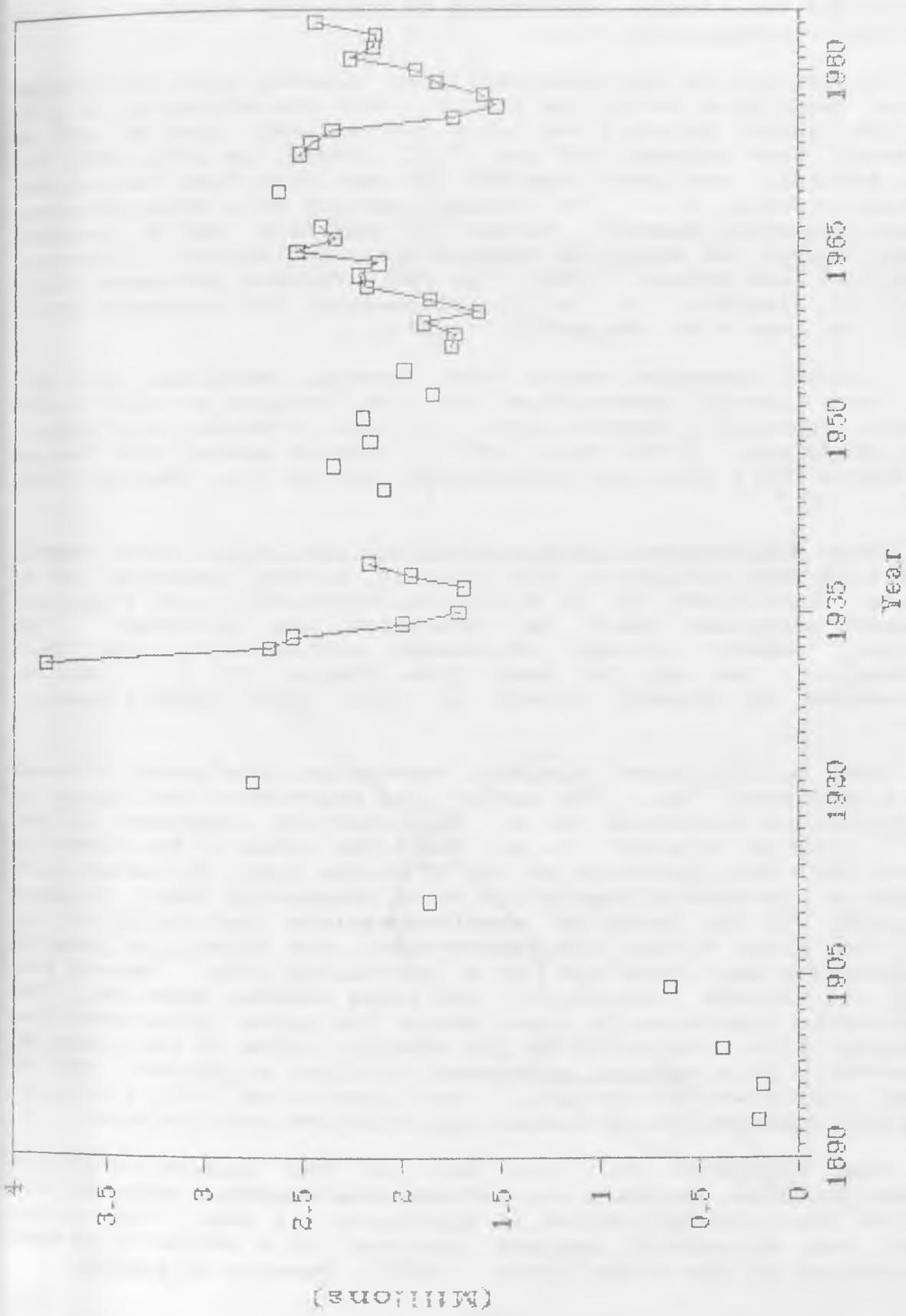


FIGURE III.2  
Total Small Stock Numbers: 1890-1985

accompanied the massive contraction of the world economy known as the Great Depression or Slump.

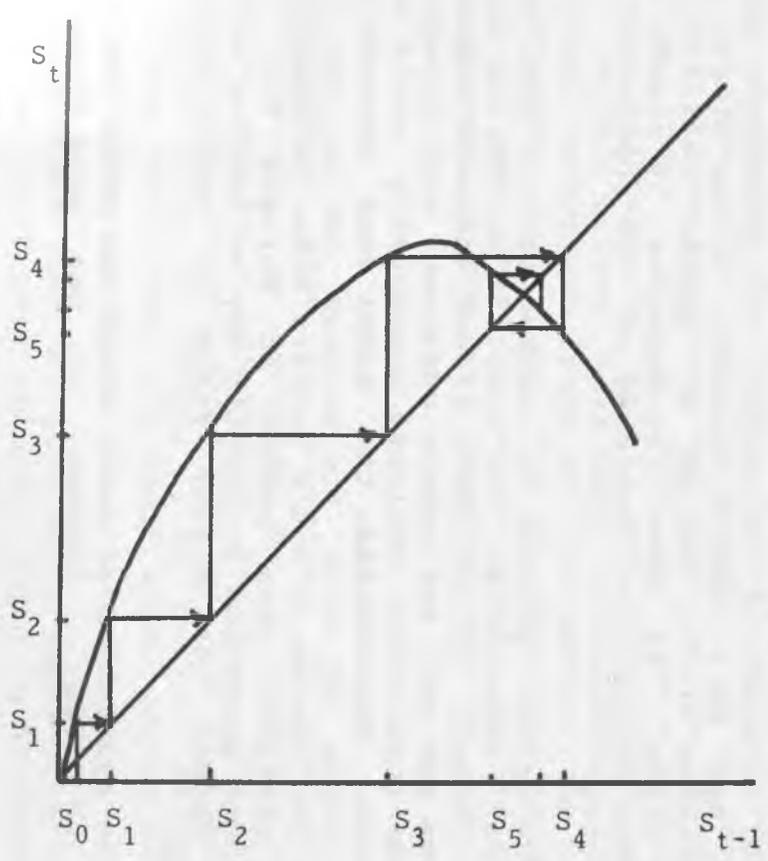
In addition to the price declines, Lesotho also experienced drought conditions during the period. With the exception of 1931 and 1934, annual rainfall was below the national mean of 690 mm for every year between 1930 and 1937. Indeed, in 1930, 1932 and 1933, rainfall was less than 600 mm per year (see Statistical Appendix, Table D). The drought may not have affected stock numbers directly, however. Rather, it may have had an indirect effect through its impact on reduced grain production. According to Staples and Hudson (1938: p. 23), farmers increased their rates of slaughter so as to compensate for decreased grain production (see also, Henderson, c1938).

Finally, increased deaths from internal parasites also may have been partly responsible for the decline in small stock numbers, especially amongst lambs and kids (Staples and Hudson, 1938; Henderson, c1938; Uys, 1977). Amongst goats, Blue Tongue and Quarter Evil were also experienced during this period (Uys, 1977).

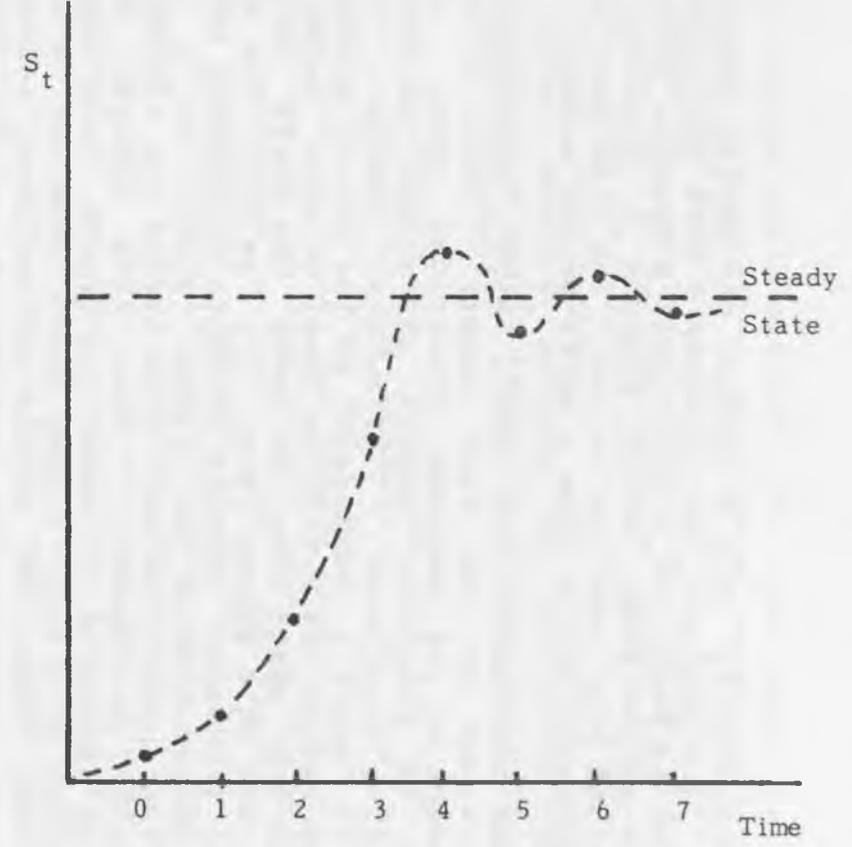
These explanations notwithstanding, the small stock growth profile is very similar to the classic growth response of an organism confronted by a biological constraint with a delayed feedback mechanism known as "overshoot and collapse". The familiar "cobweb" dynamic adjustment mechanism can model this response well, as can be seen from Figure III.3. (For an explanation of dynamic models of this type, consult Baumol, 1970).

Panel A, the phase diagram, represents the growth process with a one year lag. The curved line represents the impact of the biological constraint (e. g. the carrying capacity of the range). Up to a point (i. e. where the slope of the curve is greater than one, the slope of the 45 degree line) the constraint permits an increasing population at an increasing rate. Between this point and the point of absolute maximum population (i. e. where the slope of the line equals zero), the constraint permits an increasing population but at a decreasing rate. Beyond the point of maximum population, the slope becomes negative. The steady state population is found where the curve intersects the 45 degree line. Depending on the absolute value of the slope of the curve in this segment, subsequent cyclical adjustment may be damped, explosive or constant. Non-linearities in this portion can yield combinations of damped and explosive oscillations.

Panel B depicts the time path of the population growth process modelled in Panel A. There, the absolute value of the slope of the negative portion of the curve is less than unity. Hence, the adjustment process consists of a series of damped oscillations to the steady state. (NOTE: Because of limits



PANEL A



PANEL B

FIGURE III.3  
A simple Cobweb Growth Model

of dimensionality, only a simple, one-period phase diagram can be drawn. This usefully approximates a more realistic, but complex multi-period model for expositional purposes, however. Strictly this one-period model would produce a discrete time path alternating high and low values. The time path drawn in Panel would actually derive from a multi-period model).

Less abstractly, the small stock population is initially unconstrained by its food supply. Thus, it expands into its environment at its maximum biological rate. If import from outside is possible, growth may exceed the maximum biological rate during this phase. Ultimately, however, the food supply begins to exert a constraint on the growth process. Initially this may reduce the nutrition level of each animal and gradually increase the death rate or lower the birth rate. Growth continues, but at a slower rate. If, as with the case of grazing animals, increased grazing pressure ultimately makes itself felt in the destruction of the range, albeit at a lag of several years, the population may grow beyond its biologically sustainable limit (overshoot). When this occurs, malnutrition may become so acute as to make the growth rate negative through a combination of a much higher death rate and a much lower live birth rate. Then, the population declines, perhaps dramatically (collapse). Depending on the nature of the feedback mechanism (i. e. the rapidity by which birth and death rates adjust and the speed of recovery of the range), the subsequent adjustment (if it exists) may be a smooth movement to the steady state or may be accomplished via a series of damped oscillations around the steady state. In some circumstances, a steady state may exist but never actually be achieved as the population cycles wildly around it.

The actual process in Lesotho is, and was, more complicated than that modelled by the simple, one-period-lag cobweb model. In particular, in the 1930s global economic depression and price declines for wool and mohair combined with drought to intensify whatever population collapse undoubtedly would have taken place otherwise. Nonetheless, the model does provide a useful heuristic device by which the problem can be put in context. Although two cycles do not a pattern make, an examination of Figure III.2 provides some reason to believe that the small stock adjustment mechanism in Lesotho may be causing explosive oscillations around the steady state of approximately two million animals.

The population of small stock has never reattained the high point of 1931. Instead, it has gone through two cycles of

approximately twenty years each.<sup>18 19</sup> Of more interest than this, however, is the relative position of sheep and goats within the small stock population. From Figure III.4 and Table C, Statistical Appendix, it can be seen that whereas the population of sheep has been declining continuously since 1931 (making due allowance for cyclical activity), that of goats has been increasing just as continuously. The downward trend in the former is almost exactly matched by the upward trend in the latter, resulting in a nearly constant steady state population of two million small ruminants.

Figure III.5 graphs the trends in average wool and mohair fleece weights. Following the destocking of the early 1930s, these increased for both wool and mohair. This is not surprising, given the fact that wool and mohair production are, in part at least, functions of the nutritional level of the animals (see, e. g. van der Westhuysen, et. al., 1985; and Tiedeman, et. al., 1983). The substantial decline in animal numbers reduced the stocking rate and improved the nutritional level of the remaining animals, thereby. Fleece weights continued to improve for species until the late 1960s. The average wool fleece weight for 1960-67 was almost 43 per cent higher than that for 1931-39. The average for mohair was almost 29 per cent higher over the same period. Only in the last 15-20 years have fleece weights declined unmistakably.

Figure III.6 graphs the trends in the real prices of wool and mohair between 1931 and the present. As in the previous chapter, nominal prices have been deflated by the South African consumer price index (1975 = 100) to give a measure of the purchasing power afforded by wool- and mohair-derived income. Although real mohair prices have been consistently higher than real wool prices, throughout most of the period the two prices have tended to move in tandem. The one long-term exception has been the last fifteen years in which mohair prices have risen generally while wool prices have remained more or less constant.

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<sup>18</sup>Extreme caution must be exercised in evaluating these cycles. Nonetheless, in addition to a possibly increasing amplitude, there may be a decreasing period. The first cycle (whether peak-to-peak or valley-to-valley) was 23 years whereas the second appears to be 18 years. If future evidence bears these suppositions out, then the small stock sector is becoming increasingly unstable.

<sup>19</sup>Some researchers (see, e. g. Eckert, 1980) have claimed to have discovered an 18-20 year rainfall cycle in Southern Africa. If these two 20 year cycles are correlated, it is at an approximate 10 year lag.

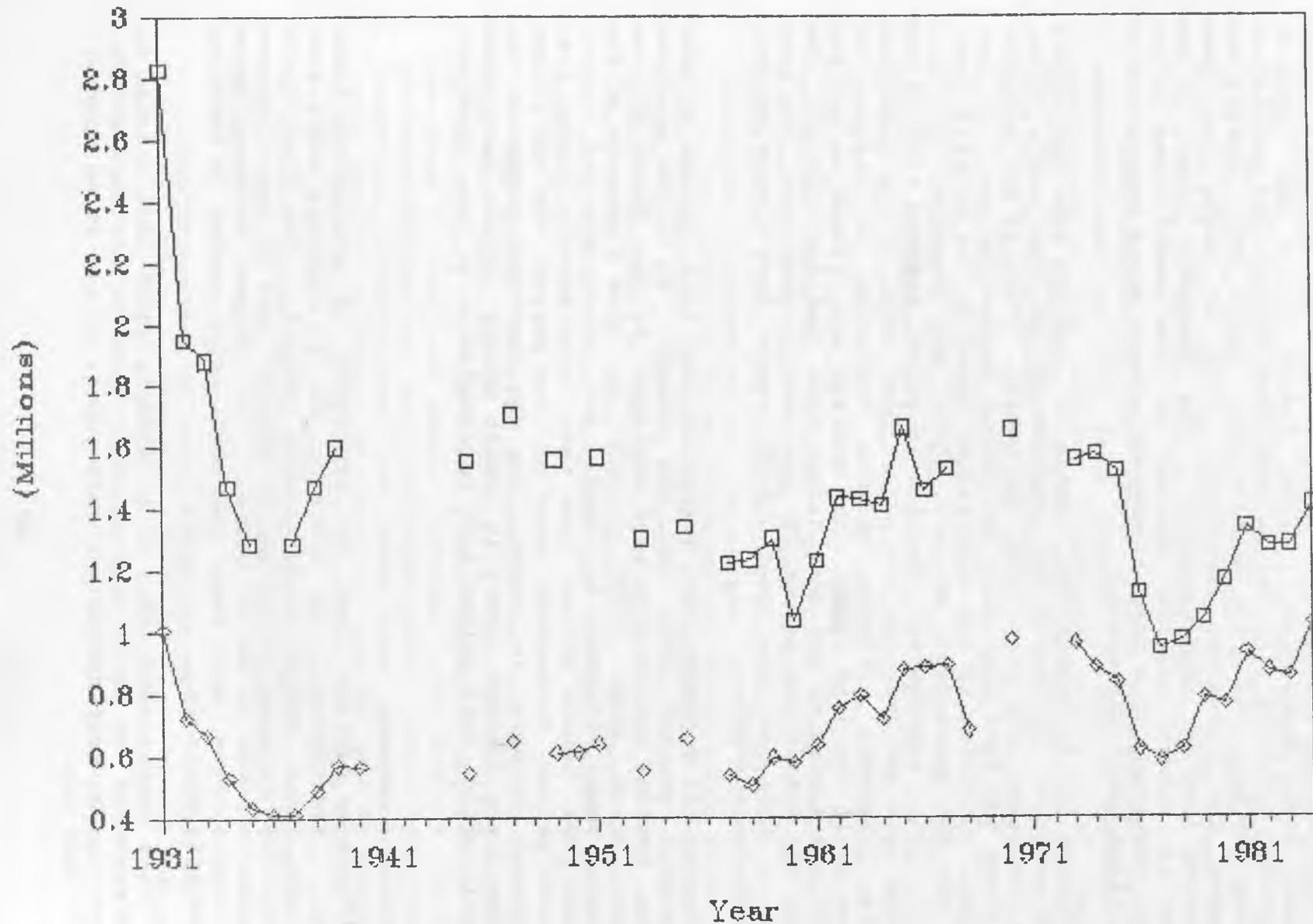


FIGURE III.4  
Sheep and Goat Numbers: 1931 - 1984

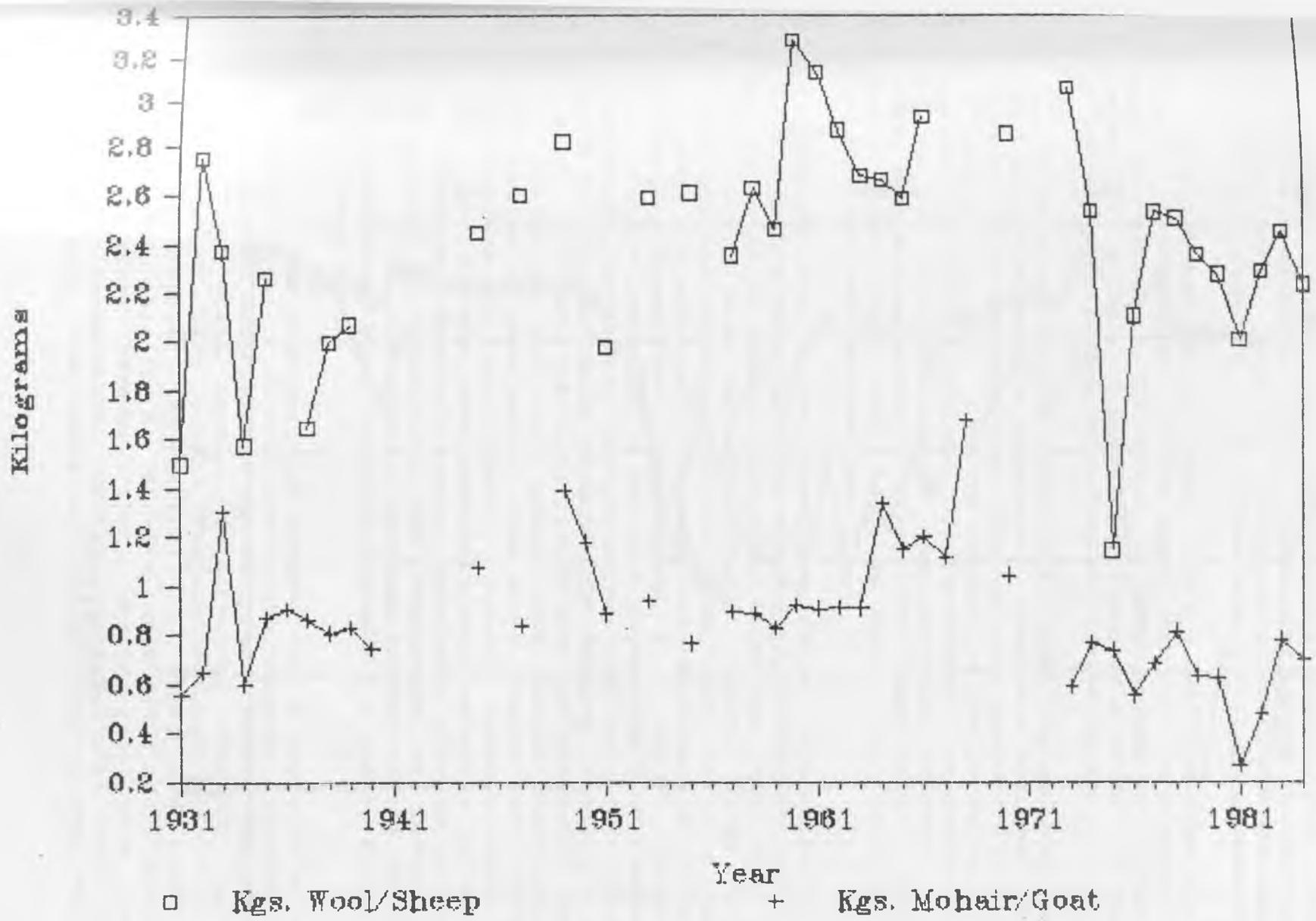
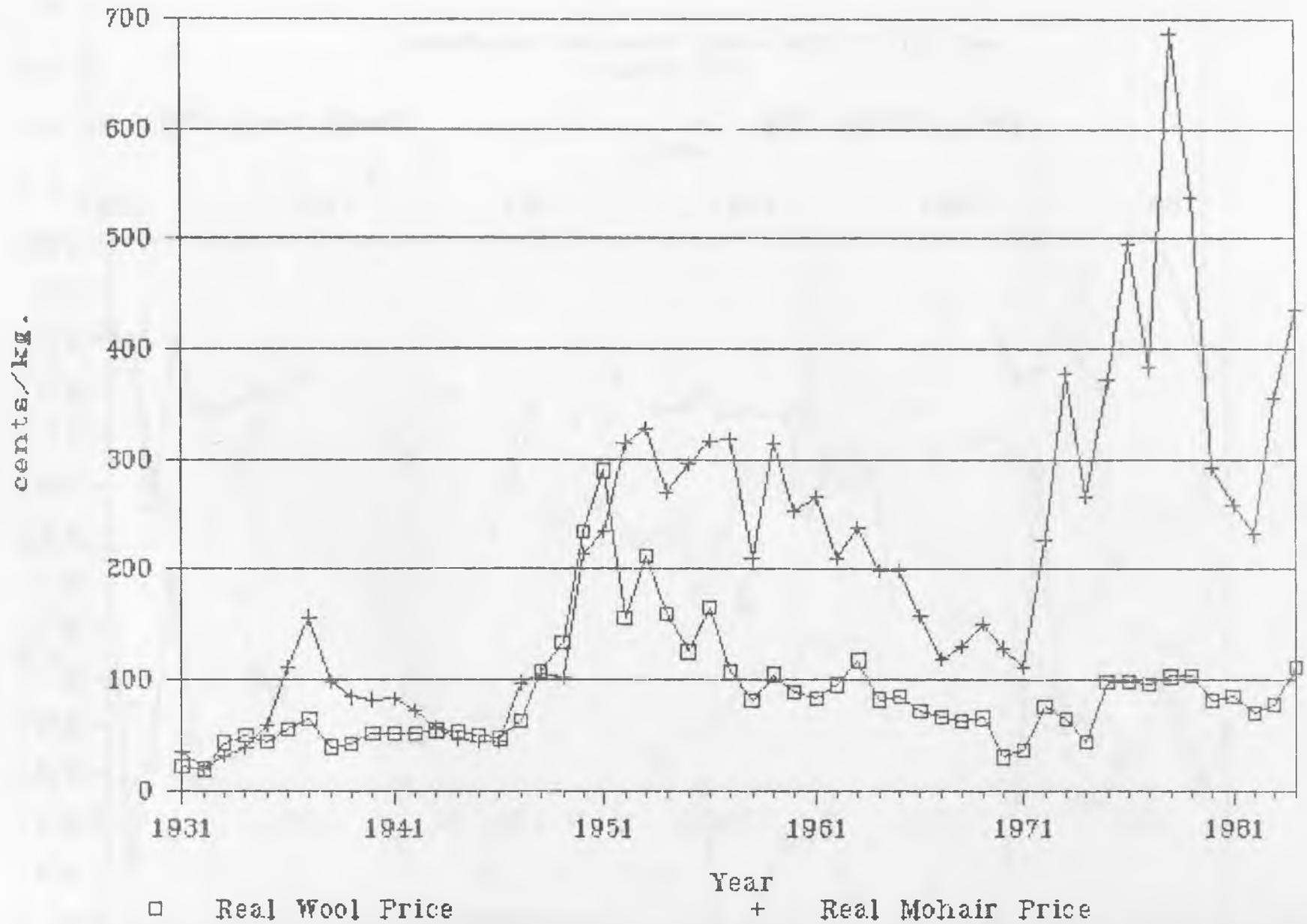


FIGURE III.5  
Average Wool and Mohair Fleece Weights: 1931-1984



Mohair prices have consistently been higher than wool prices. In addition, mohair prices have tended to increase over the long term. With the exception of the immediate post-World War II boom, however, wool prices have not risen generally.

The interaction of these trends is summarised in Figure III.7. Here changes in the sheep-goat ratio are graphed alongside the changes in the ratio of wool income to mohair income earned per animal. This latter ratio is a product of the price of wool or mohair and the per animal fleece weight.

It is apparent from Figure III.7 that the ratio of sheep to goats has experienced a consistent, long-term decline. The ratio exceeded 2.5 throughout the 1930s and even reached 3.0, or above, in several years. Decline began in the 1940s and, by 1960, dropped the ratio to below 2.0. Thereafter, the decline was more modest, but still noticeable (see previous chapter). In 1930, there were approximately 3 sheep for every goat. Fifty-five years later there were half as many. This is a substantial change which begs explanation.

The decline in the sheep-goat ratio is paralleled fairly closely by the decline in the wool-mohair income ratio. It would be simplistic to suppose that small stock are kept only for the income their wool or mohair might fetch. Given the Basotho preference for mutton, sheep are also kept for the meat they produce. In addition, sheep and goats provide a store of value, as does any investment (see Chapter V). All of these factors will play a part in a decision concerning flock composition. Nonetheless, under most circumstances, wool and mohair production appear to be the major reasons for keeping sheep and goats in Lesotho. The fact that wool prices have not generally kept pace with inflation and that sheep have become relatively less remunerative in this regard than goats cannot have escaped the consciousness of their owners. Indeed, because mohair prices, while more volatile, have generally kept up with, or even ahead of, inflation, Basotho farmers have been able to maintain real incomes only by increasing the proportion of goats in their flocks. Thus, the relative increase in the returns to goats has been accompanied by a relative increase in their proportion of the national flock.

While this discussion is suggestive, it needs to be examined in further detail. In addition to the ratio of returns, several other factors could affect the sheep-goat ratio. In particular, if sheep and goats have a differential response to drought, rainfall could be a factor. Temperature might also be a factor, particularly winter temperatures, if sheep and goats have a differential ability to survive especially cold weather. It should be noted, however, that, barring long-term changes in rainfall or temperature, neither weather factor could influence trend. At best, they could help explain year-to-year variation.

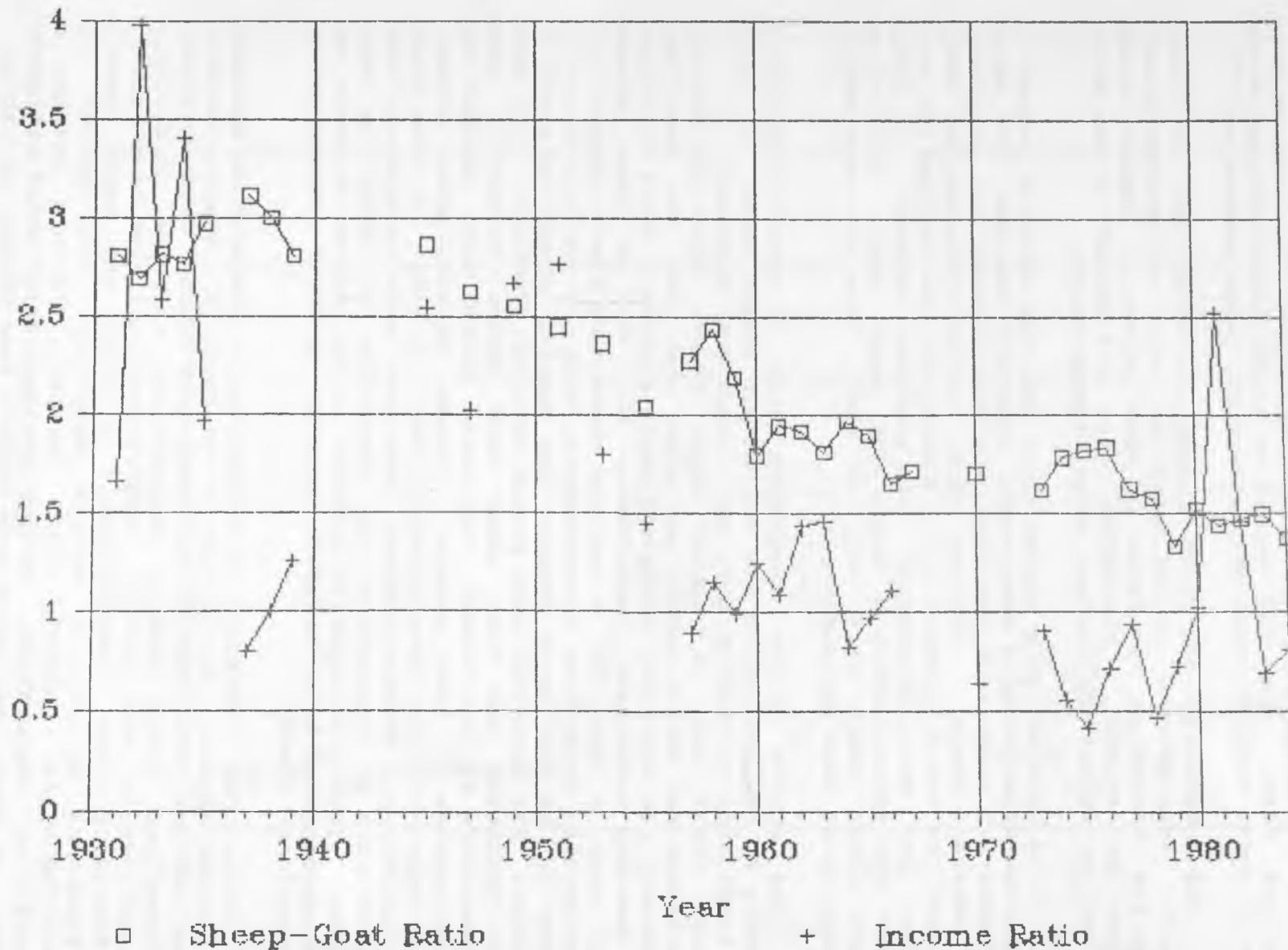


FIGURE III.7  
Changes in Flock Composition and  
the Ratio of Income Earned from Wool and Mohair Sales:  
1931-1984

Several multiple linear regression models incorporating these factors were tested. The first estimated the sheep-goat ratio (S/G) against itself (lagged one year), against the annual average rainfall deviation (in mm) from the mean (RD) (lagged one year), and the ratio of wool to mohair returns per animal (IR) (lagged both one year and two years).<sup>20</sup> This resulted in the following estimated equation:

$$(S/G)_t = .0143 + .8615(S/G)_{t-1} + .0004RD_{t-1} + .1146IR_{t-1} \\ (.115) \quad (12.110) \quad (1.590) \quad (2.864) \\ + .0292IR_{t-2} \\ (.660)$$

$$R^2 = .949 \quad F = 73.963 \quad DW = 2.452 \quad n = 21$$

The autoregressive factor,  $(S/G)_{t-1}$ , is both strong, positive and highly significant. Since additions to or subtractions from the national sheep and goat flocks normally are made at the margin, this is not too surprising. In fact, regression of the sheep-goat ratio on this factor alone yields an  $R^2$  of .903.

The coefficient of the Rainfall Deviation factor is positive and significant at the 90 per cent level. Thus, average annual rainfall in excess of the annual mean favours an increase in the sheep-goat ratio in the next period. This is evidence of the well-known better ability of goats to withstand dry conditions and reduced forage than sheep (see, e. g. Devendra, 1982).

The above-two factors are affected primarily by environmental or natural conditions. The last two are affected by economic conditions, however. The first, the ratio of the average returns per sheep from the sale of wool to those per goat from the sale of mohair, lagged one period, is positive and highly significant at the 99.5 percent level. The second, the same ratio lagged two periods, is also positive but significant at only the 50 per cent level. While less confidence can be placed in this coefficient, one is still justified in concluding that, on a national basis at least, livestock owners are significantly influenced by the relative returns from sheep and goats in determining the species mix in their flocks. How this adjustment is made is not certain. Basotho are notably fond of mutton and disdain goat meat. Part of the adjustment may be via variation in the rate of sheep slaughter.

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<sup>20</sup>Raw data and data sources can be found in the Statistical Appendix, Table E.

The impact of relative returns can also be viewed from the perspective of the coefficient of determination,  $R^2$ . The autoregressive model alone explains over 90 per cent of the variation in the sheep-goat ratio. The remaining unexplained variation is 9.66 per cent. The two Income Ratio terms (of which the one period lag is much the most important) explain almost 40 per cent of the remainder. The Rainfall Deviation term explains a little more than a fifth as much (8.4 per cent) of the remainder.

The above equation is highly significant as a whole, having a value for its F-statistic of 73.96. It also explains almost ninety-five per cent of the variation in the sheep-goat ratio. Thus, it is potentially useful for forecasting or planning purposes. The value of its Durbin-Watson statistic places it in the "uncertain" range with regard to negative autocorrelation.

A somewhat higher  $R^2$ , and rather greater levels of significance for the coefficients of several of the variables is obtained by including a trend variable in the analysis. Either time, in the guise of the year, or the population of Lesotho would be possible candidates. Population (P) enters the equation with a negative coefficient at the 75 per cent level of significance. Its inclusion also raises the significance level of the two year lagged Income Ratio to 75 per cent and that of the one-year lagged Rainfall Deviation to 95 per cent.

In a separate test, Year (Y) also was used as a trend variable. This also enters the equation with a negative coefficient, but at the 99.5 per cent level of significance and provides the estimated equation with the highest  $R^2$  at .956. In contrast to Population, inclusion of this variable diminishes the impact of the Income Ratio terms while enhancing that of the Rainfall Deviation factor. The Income Ratio lagged two years becomes insignificant while that with a one year lag drops just below the 95 per cent level of significance. The one year lagged Rainfall Deviation term increases to a 97.5 per cent level of significance. Both equations have highly significant F-ratios and Durbin-Watson statistics that place them in the same uncertain range as the equation, above.<sup>21</sup>

<sup>21</sup>Because of its high coefficient of determination, as well as the high levels of significance of the variable coefficients, the equation containing the Year variable may be useful for planning purposes:

$$\begin{aligned}
 (S/G)_t &= 32.769 + .171(S/G)_{t-1} + .0005RD_{t-1} + .065IR_{t-1} \\
 &\quad (2.849) \quad (2.216) \quad (2.121) \quad (1.706) \\
 &\quad -1.613Y_t \\
 &\quad (-2.839)
 \end{aligned}$$

It must be emphasized that regression establishes patterns of correlation--not causation. That is, the fact that two factors, e.g., rainfall deviations and the sheep-goat ratio, are significantly correlated does not necessarily mean that one caused the other. Indeed, they may both be caused by some third factor not considered in the model. Since correlation cannot determine causation it cannot determine its direction either. One must rely on theoretical or empirical knowledge derived from other sources to determine probable causative relations. In this regard, the causative impact of the income ratio and rainfall deviation factors have some theoretical support. The time trend factor (year) has none and is, thus, merely a correlation. The population trend factor may have theoretical support, although it is not obvious what this might be. It is best, at this point, to consider it only a correlation, as well.

Inclusion of temperature data in the regressions would have been desirable. Unfortunately, lack of congruence amongst missing data in the various time series results in so many lost observations as to compromise the reliability of the results. Instead, correlations were calculated between the sheep-goat ratio and several temperature series lagged one year. Sheep and goats are located disproportionately in the mountain areas. Cold winters in these areas may affect the ratio since goats are more susceptible to cold than sheep (personal communication, Dr. Weslie Combs, Livestock Development Consultant). Accordingly, mean daily temperature deviations were calculated for the months of June, July and August for Mokhotlong and Qacha's Nek as prototypical of the mountain areas. Alternatively, the average low winter temperature deviations were calculated also for the same two stations. In both cases, low temperatures are negatively correlated with the sheep-goat ratio. That is, lower temperatures one year tend to result in a higher proportion of sheep to goats the next, as expected.

As can be seen from Table III.2, however, the impact of this factor varies for Mokhotlong and Qacha's Nek. Low daily temperatures in Mokhotlong and low (in effect, morning) temperatures in Qacha's Nek are more strongly correlated with a higher sheep-goat ratio. Since, however, low morning temperatures are much more strongly correlated with low daily temperatures in Qacha's Nek than in Mokhotlong, the differences are probably not as great as they appear.

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$$R^2 = .956$$

$$F = 97.478$$

$$D-W = 2.386$$

$$n = 23$$

TABLE III.2  
Correlation between Sheep-Goat Ratio and Temperature

		Mokhotlong	Qacha's Nek
Mean Daily	Corr.	-.3965	-.2824
Winter	Cov.	-.1775	-.2133
Temp Dev	t-stat.	-2.3262*	-1.5299
Mean Daily	Corr.	-.2468	-.4658
Low Winter	Cov.	-.1610	-.4404
Temp Dev	t-stat.	-1.3714	-2.7351*

† F: With 30 degrees of freedom, all correlations are significant at the 90 per cent level. Those marked with an \* are significant at the 97.5 per cent level or better.

In summary, the ratio of sheep to goats has been in long-term decline since the late 1930s. The ratio has declined by about fifty per cent from a little more than 3:1 to slightly less than 3:2 today. Over the long-term, the relative increase in the real price of mohair appears to have been one of the most important factors. This has made itself felt in the ratio of wool- to mohair-derived income per animals. This variable was shown to be highly significant in explaining long-term trends in the sheep-goat ratio. Also important, however, are several climatic variables. Increased rainfall favours sheep while higher winter temperatures favour goats. These appear to be highly significant in explaining year-to-year variation in the sheep-goat ratio. Despite these changes, the total population of small ruminants has tended to cycle around a steady state of some 2 million animals since the massive destocking of the 1930s.

Livestock authorities have responded to problems and changes in the small stock sector with a variety of policies and remedial programmes. In the next chapter, these programmes and a history of sheep and goat policy are discussed. In addition, changes in the social and geographic distribution of sheep and goats are detailed and analyzed.

## CHAPTER IV

### CHANGE AND EVOLUTION OF THE SHEEP AND GOAT SECTOR, continued

#### v. Sheep and Goat Policy: 1930 to the Present

In the fifty-six years between 1930 and the present, two broad periods can be identified in the Government's attitude to sheep and goat policy and in the method of its implementation. These policy approaches were not mutually exclusive and coexisted in time. What distinguishes the periods, however, is a difference in emphasis. Until the mid-1950s, the policy focus was on the promulgation of legal restrictions and regulations and on their enforcement. The policy of summary castration of bastard rams by livestock officials is representative of this approach. After the mid-1950s, with the increase in Basotho participation in Government and, later, Independence, the focus has been more on persuasion and education. First, the Progressive Farmer Scheme and, later, the promotion of Wool Growers' Associations are representative of this approach.

By the 1930s, the overriding problems of the previous decade, sheep scab and other external parasites, had been overcome by a vigorous dip tank building programme and compulsory dipping campaign. These problems would not reoccur seriously for another thirty years. Accordingly, attention was turned to other problems. Erosion and range degradation, both of which were interlinked via overstocking of the range and were viewed as having reached very serious levels, received especially great attention during the 1930s.

#### A. Overstocking and Range Degradation

Observers voiced concern about the increased pressure on the range from increased animal numbers as early as the 1850s and 1860s (see Chapter III). The highland areas of the country were largely unpopulated at this time, however, and could absorb some of the strain on the lower range. By the latter part of the 19th Century, these areas began to be settled also. Simultaneous with this a rapid and sustained increase in small stock numbers began. This was paralleled by a similar increase in cattle numbers (see, Swallow, Mokitimi and Brokken, 1986). This increase, as detailed in the previous chapter, was a response to the decline of alternative domestic agricultural opportunities.

Two studies of the problems of soil erosion and range degradation were initiated by the government. The first major study of the era was that undertaken by the Pim Commission (1935) and, as indicated by the title of its report had a wider terms of reference than the problem of soil erosion alone. The commis-

sion's purview was the economic and financial condition of Basutoland. Given the importance of the livestock sector in Lesotho's economy, overstocking and its impact on the livestock industry could not be neglected. With regard to the problem of overstocking, the commission's report voiced a concern which has been heard in varying forms ever since; i.e. that Basotho stock keepers are more interested in the size of their flocks than in their quality. In partial contradiction, however, the commission noted that there were few options available should stock keepers wish to more selectively breed. Few markets for culls and "crocks" existed and undesirable lambs were difficult to dispose of until they reached maturity (pp. 150-151). In addition, flocks were too inbred--a factor which magnified undesirable characteristics. According to the commission, this was a problem to which ". . . the people are entirely indifferent . . ." (p. 152).

The Pim Commission's report was particularly harsh in its judgement of goats. Reflecting a commonly held prejudice against goats, it noted,

The goat is a well known destroyer of herbage and it is to be sincerely hoped that the relative income per head of sheep as compared with goats will remain high enough to discourage any increase in the numbers of the latter. No encouragement on the part of the government should be given to goat keeping--the fewer the better for the good of the country.

In the event, as discussed in the previous chapter, the relative sheep-goat income ratio did not remain favourable to sheep and sheep numbers declined while goat numbers increased. The commission's advice must have been taken to heart, however, as little effort was put into goat breeding until the 1950s. This advice may have had a lasting adverse impact on the goat and mohair industry since, as noted in Chapter II, the fleece weight of Lesotho goats is relatively much lower than sheep when compared to their South African counterparts.

The second major study of the era was recommended by the Pim Commission as a follow-up to its work. This study, by R. R. Staples and W. K. Hudson (1938), focussed on soil erosion and range degradation, particularly in the mountain areas, almost exclusively. As reported in the previous chapter, Staples and Hudson estimated that the range had undergone substantial deterioration as evidenced by the invasion of the sehalahala bush. By 1931, the range was carrying approximately 45 percent more Small Stock Units (SSUs) than it could sustain under management methods prevailing at the time. With the destocking of the early 1930s (see previous chapter), however, some increase in SSUs was permissible following a period of range recovery. According to their estimates, a 25 percent sustainable increase

was possible if animals were better distributed over the range. A 50 percent sustainable increase was possible with better distribution and improved grazing methods and allowance for recovery of particularly hard-hit areas.

An earlier study of drought conditions in South Africa (South African Drought Investigation Commission, 1922) had observed that simple destocking was not an adequate solution to the problem of range degradation. Veld management practices were also important. In particular, the practice of kraaling sheep and goats, then popular in South Africa and still popular in Lesotho, was singled out for particular blame. By concentrating animals in a small area, kraaling served to put very high pressure on portions of the range and caused trampling of the veld. It also increased the food demand of animals as they had to travel greater distances in search of food. Reduced movement of individual animals and dispersal over the range would not only lessen the pressure on the range but would increase the return from grazing through improved wool and mohair production as well, concluded the commission. Further, experience had shown in South Africa that fencing and private ownership of land were not sufficient (or necessary?) to promote destocking. In fact, an over-stocked range can be associated with many tenure types. The commission recommended dividing farms into camps and instituting rotational grazing programmes.

## B. Breeding and Stock Improvement

In addition to efforts at improving range management, officials were also concerned to improve the quality of the stock. To this end the revenue from the levy on the export of wool and mohair, which had been allocated to the successful eradication of scab, was redirected to general sheep and goat improvement. This included the import of improved rams, the construction of woolsheds, increased dosing, and the employment of additional livestock personnel. In recognition of the dramatic fall in wool and mohair prices between 1928 and 1932, however, the levy was reduced by more than a third to two pence for every twelve and a half pounds (or part thereof) exported. With the improvement of prices after 1933, the duty was restored to a farthing a pound in 1934 (Uys, 1977). Thereafter, the levy changed more or less in step with changes in wool and mohair prices. With the post World War II increase in prices, the wool levy reached a high of four pence per pound in 1951, falling back to a penny and a half by the end of the 1950s. In 1954, the levy on mohair was separated from that on wool in recognition of the relative increase in mohair prices. This levy reached a high of six pence per pound in 1955/56. At three pence for wool and four pence for mohair in 1955, a not atypical year, the levy would have generated the equivalent of R192,000 from wool sales and R37,000 from mohair sales. According to Morse (1960: p. 350), these were "reasonably adequate funds" for small stock improve-

ment. Either there were limited uses for this money or there were more pressing budgetary priorities elsewhere, however, for Stutley (1960: p. 325) observed that a "considerable proportion" of the levy was going into general revenues. This bred considerable resentment amongst stock owners and livestock officials (see, for instance, the testimony of A. L. Makoa, Livestock Officer, Basutoland National Council, 1964).

Importation of bastard sheep rams and goat bucks had already been prohibited in 1927. During the 1930s, attempts were made at emasculating poor quality male sheep and goats. An order of the Paramount Chief making this compulsory was promulgated in 1935. Uys (1977: pp. 48-49) reports that 51,000 males were castrated between 1935 and 1938 but no breakdown between sheep and goats is indicated. Until the early-to-mid-1950s, summary castration on sight of bastard rams and bucks by livestock officers was Agriculture Department policy. In partial compensation, improved sheep rams were made available at cost by the Department. Almost 2000 were imported between 1938 and 1940 and imports averaged almost 700 per annum during the subsequent decade. Not until 1948, however, were purebred Angora bucks systematically imported, although, according to Brossard (1955: p. 26), over 1300 well-bred Angora bucks had been imported since the 1930s. Not until bastard bucks were actively discouraged did there develop a strong demand for purebred bucks, however. Between then and Independence in 1966, imports of Angora buck studs averaged almost 250 per annum (Basutoland, Agricultural Statistics, 1961). This compares with an average 600 Merino ram imports per annum during the same period. Stutley reports (1960: p. 327) that this was not a complete about-face in goat policy as improved breeding was intended to be accompanied by a policy of reducing goat numbers by twenty-five percent (see also, Uys, 1977: p. 52).

Not surprisingly, the policy of summary castration was not popular with farmers, according to the 1961 Annual Report of the Department of Agriculture. By the late 1950s, this policy was abandoned. This move was undoubtedly the result of the increased participation by Basotho in governmental decision-making that began during this period. In its place was substituted legislation against the keeping of bastard rams and bucks and traditional authorities were encouraged to advocate the elimination of them. Enforcement power seems to have been weak or lacking altogether because Annual Reports complained of an increase in the number of bastard and crossbred sheep and goats with a consequent decline in the quality of the wool and mohair clip. One reason for this, it was argued (1961 Annual Report), was that farmers were breeding dual-purpose, wool-and-meat sheep.

There are some apparent contradictions in the Annual Reports. For example, the 1960 Annual Report states:

SOME of the present day Mosotho farmers seem determined to undermine the only paying industry we have by disregarding the Laws of Lerotholi, advice by the Department and plain economic facts; and persisting in breeding cross-bred sheep which produce inferior wool . . . ." (p. 32)

Yet, two pages later the report notes the high demand for imported, good quality rams and claims that ". . . enquiries for more are pouring in." What was probably happening was a differentiation amongst sheep farmers with some opting for a more commercial orientation while others were less commercially motivated. It may be, although the literature sheds no light on this, that the differentiation was based on size of flock. Smaller sheep-holders may have been more concerned to have dual-purpose sheep by necessity and, hence, less concerned to improve wool or mohair quality. In any event, an improved ram or buck would have been less cost-effective in a small flock. Finally, if smaller flock owners were also poorer, as is likely, they may have been less able to afford improved rams despite the fact that the Agriculture Department sold them at a fifty percent subsidy (reduced to 25 percent in 1963).

In the early years, most improved rams were acquired from the Karoo. These proved difficult to acclimatize to Lesotho conditions, however. After 1960, rams were acquired principally from the Zastron and Barkley East areas, adjacent to Lesotho. In addition, and in order also to meet the increased demand for improved sheep rams, a sheep stud farm in Quthing was established in the mid-1960s. In 1969, an additional farm was established in Mokhotlong with the assistance of the South African Wool Board. A small flock at the Maseru Agricultural School (MAS) (later the Lesotho Agricultural College), originally established for demonstration and experimental purposes, also provided a few acclimatized, improved rams. With the exception of the MAS goat flock, no similar efforts were expended on goats, however. A goat stud farm has yet to be established.

Hope was expressed also that some progressive farmers might be persuaded to raise stud rams commercially and the reports indicated that a few did. However, as the 1962 Annual Report noted, with the communal grazing land tenure in Lesotho ". . . it is almost impossible to maintain a closed flock." (p. 40)

Complaints about cross breeding and the resultant decline in clip quality became a common feature of Annual Reports of the Department of Agriculture (later the Ministry of Agriculture) from the early 1960s on.

Despite initial problems in acclimatizing sheep rams to the harsher conditions of Lesotho, the import and breeding policy apparently was a successful one. Brossard (1955: p. 25) cites

the Chief Wool and Mohair Officer (a post established only in 1952), G. R. Chalmers, as claiming that eighty percent of the sheep in Basutoland could be considered pure Merino with a further fifteen percent crossbreeds and the remainder bastards. In a similar vein, Morse (1960) notes that more improvement should be undertaken but quotes the assessment of J. G. S. Bennie, the Wool and Mohair Officer:

Brokers and buyers are agreed that Basutoland's woolclip has improved beyond recognition since the start of the improvement scheme in 1936. Improvement in the mohair is less marked as it was only in 1953 that the necessary steps were first taken. (p. 374)

Whether as a result of backsliding or because the early estimates were incorrect, a 1963 sheep survey showed a marked overall decline in the percentage of Merinos (Annual Report, 1966). Seventy-five percent of lowland sheep were judged to be Merino, twelve percent were adjudged crossbred and thirteen percent were counted as bastards. In the mountains, however, the percentages were substantially lower. There, forty-seven percent were judged to be Merino, thirty-one percent were counted as mixed and twenty-two percent were bastards. Percentages for the foothills were in between these extremes. Overall, fifty-five percent were Merino, twenty-five percent were mixed and twenty percent were bastards. Despite this, the percentage of kemp and hair in the wool clip had declined from approximately 30 percent in the 1930s to 5-10 percent by the early 1960s (Annual Report, 1959).

Allied to the problem of breeding was the problem of culling poorer animals and destocking the range to improve nutritional conditions for the animals that remained. Although discussions were held with representative goat owners and plans were discussed to increase marketings of goats so as to promote destocking, plans were never implemented. Additional discussions by the Basutoland National Council in 1953 sought again to promote a policy of destocking by stimulating sales of goat meat amongst Indians in Durban. Nothing appears to have come of these plans either.<sup>22</sup> In fact, rather than decline, goat numbers increased.

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<sup>22</sup>Although these destocking plans were never implemented, it is useful to speculate on their potential viability and success since similar plans are mooted from time to time. Initially, it appears intuitively obvious that better markets for goats and increased income-making opportunities for goat owners would stimulate increased goat sales and reduce goat numbers. The premise is correct, but not likely so the conclusion. It has already been observed that goat and sheep owners have responded historically to higher wool and mohair prices by increasing their flock size. Higher meat prices should encourage goat owners to increase their flocks as well so as to benefit from the greater

### C. Other Problems

Other problems that attracted the attention of the agricultural officials were internal parasites and diseases such as Blue Tongue and Quarter Evil. In 1936, a compulsory dosing campaign was begun. Farmers were supposed to dose their animals monthly and pay for the medicine themselves (see Uys, 1977: p 47; Stutley, 1960). This programme met with a "varying degree of success", according to Uys (p. 51), owing to "negligence from many a farmer". It was largely abandoned by the war years of the 1940s and was not resumed until 1958 (Morse, 1960).

The war years themselves imposed constraints on sheep and goat policy. These constraints were perhaps most particularly felt with regard to personnel as a number of livestock officials were away from their posts in the service of the war effort. The war also made mohair a low priority and this, combined with generally restricted finances, prejudiced the mohair industry even further.

### D. The Focus on Extension and Farmers' Organizations

By the 1960s, although various regulations, such as the prohibition against import of bastard animals except for slaughter, continued to be enforced, the focus of policy shifted more towards extension and persuasion. The initial vehicle for this was an extension of the Progressive Farmer Scheme to sheep and goat raisers in 1960. The stated purpose of this programme was

. . . to build up a class of sheep 'farmers' as opposed to sheep 'owners'. These farmers are regularly visited and advised on all aspects of improvement and they are encouraged to keep records of work done. (Annual Report, 1966)

Six years after the initiation of the programme, the Livestock Division claimed that amongst participants, "The production per animal, the lambing and survival percentages and the quality of wool and mohair is far superior to the national average" (Annual Report, 1966). Unfortunately, it is impossible to know how much

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income-making opportunities. Indeed, the short-run impact of higher meat prices (if they are expected to remain high) and improved marketing facilities may be to lower the goat offtake as stock owners withhold animals so as to build up their flocks. Thus, on further examination, what appears intuitive initially is counter-rational (see Jarvis, 1974). This is not an argument against a policy of higher meat prices or improved marketing facilities for its own sake--only a warning about its efficacy as a means of destocking. See Swallow, Mokitimi and Brokken, 1986; Combs and Hunter, 1987; and Swallow and Brokken, 1987.

of this to attribute to the Progressive Farmer scheme. These claims assume that Progressive Farmers performed initially like average farmers. No attempts were made to estimate participants' performance before the start of the programme, however. Thus, there were no benchmarks by which their initial performance could be differentiated from that of the average farmer nor their progress gauged.

Contemporaneous to the Progressive Farmer Scheme was the beginning of the Livestock Improvement Centre programme. Thirty-five centres, each the headquarters of a small veterinary area and with 4-5 diptanks under its control, were envisaged. Each was to be staffed by a Livestock/Veterinary Assistant and, in addition to disease and parasite control, they were to make Merino ram and Angora buck studs available to farmers who wanted them. To make their work more effective, they were to be sited near a woolshed, if possible.

Within the first year of the programme (1962), 18 centres had been built. The next year two more were added, after which the extension of the programme slowed down. This was partly from a shortage of funds and partly because of the need to retrench staff. This latter was a problem that was to persist throughout the 1960s. In 1969, the Annual Report declared that "A position has now been reached where no further staff retrenchment can occur without seriously reducing the efficiency of the services being provided" (p. 22).

By the late 1960s, the Progressive Farmer Scheme evolved into a focus on Wool and Mohair Growers' Associations (WGAs). This programme is still in existence today. WGAs were planned to be organizations of sheep or goat farmers who were willing to submit to certain recommended practices in their flock management. Amongst these were: no black or coloured animals were permitted, no more than 10 percent coarse wool was allowed in their clip, a minimum of 30 breeding ewes per flock must be maintained and no more than 2 percent of the flock should be rams. According to Lawry (1983),

The main reward for undertaking these improvements was automatic classing of wool and mohair with higher-graded association fibers. Thus higher prices within a highly organized market structure provided the main incentive for joining an association. (p. 13)

WGA members are drawn from marketing groups (MGs), the residual organizations made up of all farmers using a shearing shed. The marketing groups organize shearing and transport of their clip to the transshipment point in Maseru and several other places. In practice, it seems that WGA members get precedence in shearing. This may have additional financial rewards since prices are often higher at the beginning of the season than at

the end (personal communication from M. Machongo, LPMS Field Marketing Officer, Thaba Tseka, February, 1986; see also, Kross, et. al., 1984).

In addition to membership qualifications and financial rewards, the Wool Growers Associations are viewed as convenient vehicles for disseminating extension advice and training by livestock staff and Field Marketing Officers of the Livestock Products Marketing Service (LPMS), the government-sponsored corporation responsible for marketing wool and mohair clipped at the government woolsheds (see Chapters VI and VII).

In 1969, the first year of operation, 685 members in all districts were enlisted into WGAs. They had an average clip per sheep of 2.77 kg. (Annual Report, 1969), approximately the national average. By 1970/71, 36 associations with 778 members had been registered. This increased to 43 associations with 1427 members the next year. In 1973/74, there were 64 associations of wool growers, with 10484 members, and 51 associations of mohair growers, with 4064 members, were registered (Annual Report, 1973). Although average fleece weight remained more or less constant, the Livestock Division reported improved lambing and survival rates amongst WGA members (Annual Report, 1971).

Since the early 1970s, there has been an apparent retrenchment in WGA membership. By 1985, according to LPMS data, there were 4551 sheep raisers organized into 69 groups and 2504 goat raisers organized into 25 groups. WGA members represented 28 percent of sheep raisers, but only a little over 13 percent of goat raisers, marketing through LPMS channels. The effectiveness of these Wool Growers' Associations will be discussed in greater detail in Chapters V and VII. At this point, however, it should be noted that membership conditions necessarily limit WGAs to those farmers with thirty or more females. In fact, members have much larger flocks than average.

This period also saw a number of attempts to regularize the marketing of wool and mohair and impose systems of classification on the clip. These matters will be discussed in Chapter VI. An attempt to evaluate policy will be left to Chapter VIII.

## VI. Changes in Patterns of Social Distribution

### A. Early Patterns

For social and historical reasons discussed in the previous chapter, Angora goats and Merino sheep seem initially to have been disproportionately acquired by those commoners in a somewhat marginal position vis-a-vis the traditional social structures. Most had been migrants or were associated with the emerging mission stations. Although members of the chieftaincy do not

seem to have been initially involved with these new breeds, enterprising individuals must have soon recognised the opportunities open to them from their command over commoner's tribute labour to acquire and expand their flocks.<sup>23</sup> This must especially be so as the ruling Bakoena lineage were attempting to expand their political and economic strength, as well as their numbers, as Kimble's analysis (1981) emphasises. With the onset of the colonial era in 1880, the strength of the chieftainship was bolstered and co-opted by the colonial authorities. According to Kimble, this rigidified traditional authority institutions and led a number of chiefs to abuse their prerogatives, e. g. by imposing heavy taxes and increased labour services. These acted as disincentives to continued commercialization of agriculture or expansion of entrepreneurship amongst commoners.

Little is known precisely about the social distribution of flocks during the period of rapid expansion of sheep and goat numbers. Sayce (1924: p. 276), whose observations were based on a three-month journey around Basutoland from late 1921 to early 1922, estimated that wealthy individuals might have flocks as large as 3000 animals but that the "average owner in good circumstances will probably possess from three hundred to five hundred . . ." Ashton (1952) noted that flocks were highly unequally distributed but that not all of the large flocks were confined to members of the chieftaincy. Some wealthy commoners had very large flocks. The implication seems clear that chiefs had become important owners of small stock.

Proliferation of chiefs and increases in chiefly abuses caused the colonial administration to respond to calls for reductions in chiefly numbers and powers. Between 1938 and 1946, the number of chiefs entitled to hold court was reduced from 1,340 to 122. At the same time, chiefs lost rights to court fines, proceeds from the sale of stray stock and the rights to tribute labour (see Bardill and Cobbe, 1985: pp. 23-24; also, Lye and Murray, 1980: pp. 91-93). The result was a decline in the socio-economic position of the chieftaincy.

## B. Recent Patterns

The first instance for which there is firm quantitative evidence of the distribution of livestock is Sheddick's 1954 study of Basotho land tenure. In a study of 480 randomly

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<sup>23</sup>Mafisa, which in the context of cattle enabled members of the chieftaincy to maintain large herds by utilizing the herding services of commoners, probably did not play so important a parallel role for sheep and goats. Since mafisa confers on the loanee all rights to wool and mohair, the only advantage to the loaner would be the ability to maintain and increase his stock (see, Duncan, 1960: pp. 81-82).

selected families. Sheddick (p. 100) noted that 216, or 45 percent of the families had fewer than five small stock. (No separate enumeration of non-small stock holding families was made). Fifty percent of the small stock were held by 6.5 percent of the families.<sup>24</sup> Although the two largest flocks were not held by chiefly families, the next six largest were. The top twenty percent of families held eighty percent of the small stock. Of those families, thirty-five percent, or thirty-five families were classified as "administrative" meaning they were headed by chiefs or headmen. The total number of "administrative" families in the sample was not reported and representatives of such families were found in all flock size classes. Nonetheless, the implication is that "administrative" families are concentrated amongst the larger stock holders. Sheddick (p. 100) summarized the issue thus:

In the case of both cattle and small stock . . . the commoners appear to be permitted scope for accumulating stock and, in many cases, have holdings in excess of those of their chiefs.

#### 1. Non-Holders of Small Stock

The next available data on livestock ownership are those provided by the 1960 Agricultural Census (Agricultural Department, 1965).<sup>25</sup> These data are both more comprehensive and more amenable to analysis than those provided by Sheddick. Since sheep holders and goat holders are intersecting (but not coincident) sets, comparison of the two sets of data is somewhat

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<sup>24</sup>Sheddick reported the distribution for flock size classes: less than 5, 5-9, 10-14, etc. To calculate a cumulative distribution one must know the number of sheep in each class--a statistic that Sheddick did not report. To estimate this, I took the mid-point of each class and multiplied this by the corresponding number of households in this class. The total number of animals implied by this method of calculation was then compared with the actual number of animals (33,600) as a rough check on accuracy. The error was an overestimate of less than three percent.

<sup>25</sup>The Livestock section of the 1960 Agricultural Census was never published in final form because of the relatively large difference in its enumeration of large stock units (LSUs) from those provided by dip-tank enumerations, the method used previously. Methodologically, the 1960 census was superior and consistent with the 1970 census and utilized a stratified, random national sample (see, Eckert et. al., 1982: p. 152). Dip tank counts enumerated 1,037,372 sheep and 579,166 goats. This contrasts with 1,466,084 sheep and 671,749 goats enumerated in the 1960 census and represents a 41 percent increase in sheep numbers and a 16 percent increase in goat numbers.

difficult. According to this latter set of data, however, 68.1 percent of all farm households held no sheep and 72.2 percent of all farm households held no goats. A further 15.6 percent had ten or fewer sheep and 15.4 percent had ten or fewer goats. In Sheddick's sample, approximately 50 percent of households held 9 or fewer small stock. By 1960, 83.7 percent of farm households held 10 or fewer sheep, while 88.3 percent held 10 or fewer goats. (Precise comparison between Sheddick's data and the 1960 census is not possible because of different reporting categories). Viewed from another perspective, slightly over sixty percent of the sheep and goats were held by 4.9 percent and 6.0 percent of the sheep and goat holding households, respectively.

As discussed in Chapter II, the methodology of the 1970 agricultural census differed from that of the 1960 census. Because small flock keepers (those with fewer than 25 sheep or goats) were excluded from the sample, it appears that it may provide an upward bias to sheep and goat numbers. It may bias the distributions towards the larger flocks, as well. Thus, until further analysis can be undertaken, the census must be used tentatively with caution.

According to the 1970 census, 74.4 percent of all households held no sheep and 71.0 percent of all households held no goats. An additional 12.7 percent of farm households had 1-10 goats and 16.5 percent of farm households had 1-10 sheep (goat flocks tend to be smaller than sheep flocks). This would imply that approximately eighty-seven percent of farm households had either ten or fewer sheep and goats.

The 1970 census indicates that slightly less than 50 percent of goats (47 percent) were held by 3.4 percent of total households and 11.7 percent of goat holding households. This represented a total of 6338 households. Forty-nine percent of sheep were held by 1.7 percent of total households and 7 percent of sheep-holding households. This constituted a total of 3476 households. Thus, according to the estimates, well under 10,000 households (since many households have both sheep and goats) held approximately fifty percent of the national sheep and goat flock.

Two rural development projects that surveyed households in the project areas in the mid-1970s provide some useful comparative data. The Khomokhoana Rural Development Project, in the Leribe area, found that 83 percent of households in the lowland areas and 74 percent in the foothills areas had no sheep. For goats, the figures were 82 percent and 65 percent, respectively (Khomokhoana RDP, 1976). The report of the survey for the Thaba Bosiu Rural Development Project did not distinguish between sheep and goats. This project, in the Maseru District, reported that 75.4 percent of households in the lowlands areas and 78 percent in the foothills had neither sheep nor goats (Thaba Bosiu RDP, 1975).

The 1980 Agricultural Census has not yet been published. Although distributional data are not available, it is possible to estimate the number of households without either sheep or goats. Accordingly, 76.5 percent of all farm households had no sheep and 77.2 percent had no goats. For sheep, this varied from a high of 83.1 percent in the Foothills to a low of 67.7 percent in the Mountains. The percentage of non-goat holding households varied from a high of 80.7 in the Lowlands to a low 70.0 in the Senqu River Valley.

The 1980 baseline survey of the Farming System Research project's three prototype areas provides additional data on ownership patterns. According to this survey, which was not strictly a random sample but a selection of farmers roughly comparable to average conditions as per the 1970 Agricultural Census, approximately 64 percent of households in the three prototype areas had no sheep or goats. In the Lowland prototype area of Siloe, 71.7 percent of households reported managing no sheep and 66.7 percent reported managing no goats. In Nyakosoba, the Foothill prototype area, 75 percent of households reported managing neither sheep nor goats: while in Molumong, the Mountain prototype area 37.9 percent of households had no sheep and 48.2 had no goats (Plath, 1982).

The 1985 national Livestock Holders Survey of 535 randomly selected livestock holding households does not, by its nature, permit a proper analysis of households holding neither sheep nor goats. A sense of the degree to which sheep and goat holding is concentrated amongst livestock holders can be gained, however. According to this survey, 53.3 percent of livestock holders did not manage sheep and 56.2 percent did not manage goats. There was considerable variation by geo-climatic zone. Households with no sheep ranged from a high of 73.3 percent in the Southern Lowlands to a low of 33.7 percent in the less remote Mountain areas. Those with no goats ranged from 78.1 percent of livestock holding households in the Northern Lowlands to 40 percent in the remoter Mountain areas.

These data suggest several patterns. Overall there appears to be a long-term trend of concentration of both the national sheep and goat flocks in the hands of fewer farm households. This trend is not uniform across geo-climatic zones, however. It is most marked in the Mountains. Concentration is also taking place in the Foothills. In Lowlands and Senqu River Valley, however, the process of concentration is either very mild or non-existent. In fact, ownership may be becoming marginally more widespread in these areas. These data are summarized in Table IV.1. For the commonly accepted delineations of the geo-climatic zones, see Figure IV.1.

TABLE IV.1  
Households With No Sheep or Goats

Source	Lesotho	Lowlands	Foothills	Mountains	Senqu RV
SHEEP					
1960 Census	68.1	76.3	77.9	48.5	73.2
1970 Census	74.4	75.9	79.6	62.5	77.2
1980 Census <sup>P</sup>	76.5	78.2	83.1	67.7	72.8
GOATS					
1960 Census	72.2	81.3	73.4	58.0	71.6
1970 Census	71.0	74.2	73.5	63.3	67.7
1980 Census <sup>P</sup>	77.2	80.7	80.5	70.8	70.0

NOTE: <sup>P</sup> is preliminary.

SOURCE: 1960 Census is the 1960 Agricultural Census (see, Morqele, 1965); 1970 Census is the 1970 Census of Agriculture (see, Bureau of Statistics, 1972); 1980 Census is unpublished and results are still preliminary.

The pattern of concentration is somewhat different for sheep than it is for goats. If the problematic 1970 data is ignored, it is apparent from Table IV.1 that there was a general increase in the percentage of households with no sheep between 1960 and 1980 across all geo-climatic zones, with the exception of the Lowlands zone. This was most marked in the Mountain zone where most of the sheep are to be found (see Part VII, below). This increase in the percentage of households without sheep was accompanied by a 5.6 percent increase in the number of sheep-holding households. This was considerably less than the 16.2

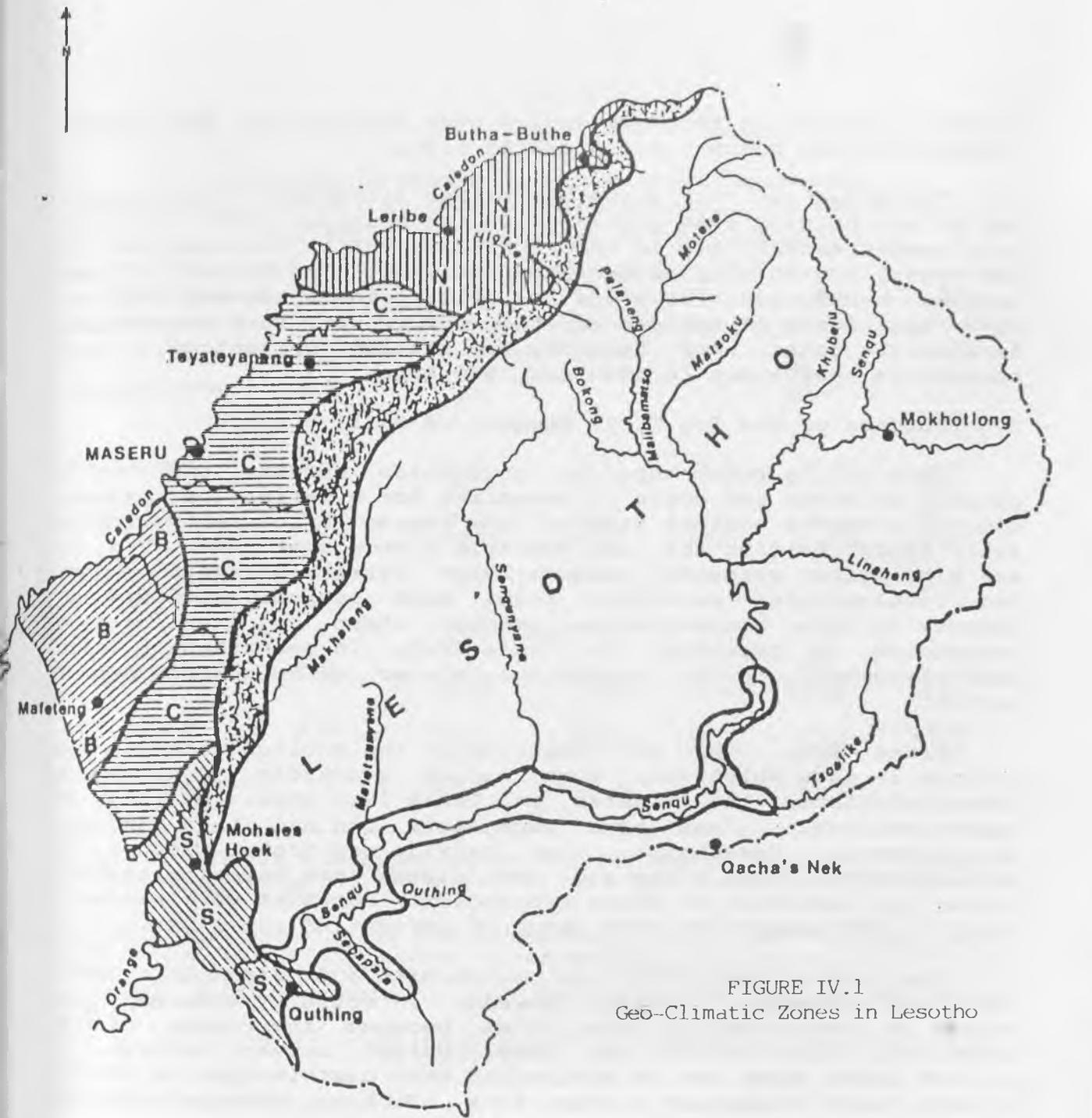


FIGURE IV.1  
Geo-Climatic Zones in Lesotho

**LEGEND**

- Northern Lowlands
- Central Lowlands
- Border Lowlands
- Southern Lowlands
- Mountains
- Foothills
- Senqu Valley



percent increase in farm households over this period and further underscores the concentration taking place.

The situation for goats was rather different. The percentage of non-holding also increased in the Mountain zone (although by a lesser amount) and in the Foothills, but in the remainder of the zones, non-holding percentages declined. The number of goat holding households increased by 21.3 percent between 1960 and 1970--half again as rapidly as the number of farm households. Generally, goats were held by a smaller percentage of farm households than sheep in 1960 and 1980 also.

## 2. Holders of the Top Fifty Percent of Small Stock

Data on the percentage of households holding the top 50 percent of sheep and goats is revealing for a variety of reasons. One, it presents another view of the degree of concentration in small stock holding and its possible change over time. Two, it may give policy guidance towards which farmers scarce extension and developmental resources might most usefully be focussed. Changes in this concentration amongst sheep and goat holding households is presented in Table IV.2. In parentheses, below each percentage, is the approximate number of households represented.

Since data were not reported in the earlier censuses and surveys in ways which make them easily adaptable to different interpretations, the figures in Table IV.2 should be taken as approximations. They have much more ordinal than cardinal significance. Nonetheless, they provide additional support for the thesis that the sheep and goat flocks are becoming concentrated in the hands of fewer households. For both species, well under 10,000 households hold about 50 percent of the flock.

The data in Table IV.2 are suggestive and have their uses. They are somewhat limited, however, in actually assessing the change in concentration over time because the shape of the underlying distribution may have changed between surveys. A uniform index which can be applied to each distribution is needed to facilitate comparison amongst them. Such an index is provided by the Gini coefficient.

TABLE IV.2  
Percentage of Households Holding 50% of Sheep/Goats

Source	All HHs	Sheep/Goat Holding Households Only				
	LES	LES	LL	FH	MTN	SRV
SMALL STOCK						
Sheddick 1954	6.5	-	-	-	-	-
SHEEP						
1960 Census	3.0	9.0 (5000)	12.0 (1700)	8.0 (660)	10.0 (2400)	9.0 (360)
1970 Census	2.0	7.0 (5000)	9.0 (1800)	10.0 (1300)	9.0 (1400)	12.0 (560)
1985 Livestock Holders Survey	-	5.2*	5.0	12.0	8.0	5.0
GOATS						
1960 Census	5.0	15.0 (7000)	16.0 (1900)	13.0 (1200)	17.0 (3300)	15.0 (640)
1970 Census	4.0	13.0 (7300)	12.0 (2200)	13.0 (2000)	15.0 (2100)	15.0 (1000)
1985 Livestock Holders Survey	-	12.6*	12.0	13.0	14.0	11.0

NOTE: \* indicates a weighted average (see Footnote No. 26); LES, refers to Lesotho; LL, refers to Lowlands; FH, refers to Foothills; MTN, refers to Mountains; SRV, refers to Senqu River Valley.

SOURCE: 1960 Census is the 1960 Agricultural Census (see Morojele, 1965); 1970 Census is the 1970 Census of Agriculture (see Bureau of Statistics, 1972); 1985 Livestock Holders Survey is the national sample survey of livestock holding households (see Swallow, Brokken, Motsamai and Soping, 1986).

### 3. Gini Coefficients

The Gini coefficient, which is calculated from the cumulative distribution of some attribute of a population, e.g. income, wealth, sheep and goats, etc., can vary between a value of zero and one. The lower its value, the greater the equality of the underlying distribution, and vice versa. By way of reference, relatively equal national income distributions typically vary between 0.20 and 0.35 while relatively unequal ones typically vary between 0.50 and 0.70 (see Todaro, 1981: pp. 124-129 for a fuller explanation of this measure). This coefficient has been calculated for a number of surveys and is presented in Table IV.3.

TABLE IV.3  
Gini Coefficients for Selected Sheep and Goat Distributions

Source	All HHs	Sheep/Goat Holding Households Only				
	LES	LES	LL	FH	MTN	SRV
SMALL STOCK						
Sheddick 1954	.76	-	-	-	-	-
SHEEP						
1960 Census	.89	.64	.53	.60	.63	.62
1970 Census	.92	.67	.59	.56	.65	.56
1985 Livestock Holders Survey	-	.80*	.74	.78	.85	.89
GOATS						
1960 Census	.86	.47	.48	.51	.46	.56
1970 Census	.87	.55	.52	.51	.57	.52
1985 Livestock Holders Survey	-	.79*	.79	.80	.79	.82

NOTE: \* indicates weighted average (see Footnote No. 26); LES, refers to Lesotho; LL, refers to Lowlands; FH, refers to Foothills; MTN, refers to Mountains; SRV, refers to Senqu River Valley.

SOURCE: 1960 Census is the 1960 Agricultural Census (see Morojele, 1965); 1970 Census is the 1970 Census of Agriculture (see, Bureau of Statistics, 1972); 1985 Livestock Holders Survey is the national sample survey of livestock holding households (see Swallow, Brokken, Motsamai, and Sopenq, 1986).

Although Sheddick's data is not strictly comparable with the rest, as has already been explained, it appears that there has been a trend towards increased concentration of sheep and goats amongst all farm households. Indeed, relatively speaking, small stock are very highly concentrated. Amongst small stock holding households, however, the degree of concentration is less, although often still high. Amongst these households, goats appear to be rather less concentrated than sheep. Interestingly, for sheep the degree of concentration appears to have declined in the Foothills and Senqu River Valley and to have increased in the Lowlands and Mountains. A roughly similar pattern is evident for goats.

Data collected for several development projects permit calculation of Gini coefficients. The data collected by Kross,

et. al. (1984), in Tonamela Village in the Semongkong area yields a Gini coefficient of .85 for all households and a relatively egalitarian one of .33 for sheep holding households only. This is probably affected by the small sample size of 11 sheep holding households, however. Lawry's data (1986) for the Schlabathebe Range Management Area reveals the same .85 value for all households with regard to both the sheep and goat distributions. Amongst sheep holding households, the Gini coefficient was .85, while amongst goat holding households it was .50. Both of these areas are in the Mountain zone.

### C. Conclusions

All of these data yield the same general conclusion: sheep and goats are highly unequally distributed in Lesotho and becoming more so. The degree of inequality varies by geoclimatic zone. Generally speaking, small stock tend to be more unevenly distributed in the lowlands and foothills and more evenly distributed in the mountain areas. Amongst small stock holders, sheep tend to be more unevenly distributed than goats. For both, however, the distribution is becoming more concentrated. Finally, for both sheep and goats, a very small percentage of households--well under 10 percent--hold the vast majority of animals. Those with egalitarian values will regret these trends. They may permit, however, a finer and more efficient targeting of extension advice and livestock services. They may signal a greater commercial orientation amongst small stock holders, as well.

Since Sheddick, there has been little attempt to determine what impact, if any, political influence or traditional authority have on small stock ownership. The 1986 Woolshed survey of 135 sheep and goat holders (see Appendix II) counted 34 village office-holders. These were 25 percent of the respondents. Two-thirds of these were associated with tree planting committees. Only nine listed "party" or "chief" as their offices. Three of the five chiefs had sheep flocks smaller than the sample average, as did three of the four party officials. The situation was approximately the same with goat flocks. Thirteen of the tree planting officials also had sheep and goat flocks below the sample average size. Although the sample average flock of 75 sheep and 45 goats is larger than the national average of 43 sheep and 25 goats, as revealed by the 1985 Livestock Holders Survey, it does not appear that political office and traditional authority are important in explaining flock size. This matter should be looked at more systematically, however.

Patterns of social distribution may be relevant to wool and sheep production for a variety of reasons. Firstly, they may be related with the livestock holders' control over economic resources other than livestock, for example, educational attainment, monetary wealth or cultivable land. Larger, more wealthy

livestock holders may be more willing or more able to undertake improved management practices. In particular, they may be more willing to practice improved breeding and disease control. Secondly, they permit identification of small stock holders requiring special assistance in the improved management of their flocks.

## VII. Changes in Patterns of Geographical Distribution

### A. Early Patterns

When the area of present-day Lesotho was being settled in large numbers in the 1820s and 1830s, little settlement occurred in the mountain areas as ample grazing lands were available in the more hospitable lowlands. By the 1870s, this condition was changing and human habitation and then grazing at cattle posts began moving into the mountain ranges. By 1902, according to Staples and Hudson (1938), many sheep were being left more or less permanently at the cattle posts for lack of village grazing land. Between 1911 and 1921, small stock increases were most marked in Qacha's Nek and Leribe districts (which included at that time the present-day districts of Mokhotlong and Butha-Buthe, respectively), followed by Berea and Mohale's Hoek. According to Census returns, the number of sheep more than doubled in Qacha's Nek district and increased by almost 100 percent in Leribe district over this period. These two districts also registered the only increases in goat numbers (reported in Kimble, 1985). Mafeteng and Quthing districts registered the greatest relative declines in sheep and goats (Sayce, 1924). Thus, by 1921, according to Sayce, sheep and goats were relatively more concentrated in the mountain districts.

Although the data are not reported for geo-climatic zone, a rough idea of distribution can be had from district totals. Qacha's Nek district (largely mountainous) held 21.5 percent of the sheep and 22 percent of the goats in 1911. This was followed, for sheep, by Maseru, Mafeteng, Mohale's Hoek and Quthing districts with approximately 17 percent each. Maseru and Mohale's Hoek had a like percentage of goats, while Mafeteng and Quthing had about 13 percent each. The northern district of Leribe (also heavily mountainous) had 7.5 percent of the sheep and 13.2 percent of the goats. Berea district had less than five percent of each. By 1921, the percentage of sheep in all of the southern districts declined by between one-third and one-half. Leribe district contained 10 percent and Maseru (which included large mountain areas) contained almost 20 percent. Qacha's Nek held 34.5 percent of the sheep. The shift was even more marked for goats. Leribe (with 15.4 percent) and Qacha's Nek (with 30.0 percent) districts were the only ones that registered a relative and absolute increase in numbers. All the other districts declined on both counts (census data reported in Kimble, 1985).

Not surprisingly, these changes correspond to the most rapid changes in human population, as well. Between 1911 and 1921, the population of Qacha's Nek district increased by 90 percent, while that of Leribe increased by almost 38 percent (Kimble, 1985). By the time of their writing in the 1930s, Staples and Hudson report that there were some people settled in mountain areas unable to support cultivation. These people were dependent on wool and mohair sales (and migrant labour?) for their livelihood.

### 8. Recent Patterns

The 1949 Agricultural Census does not contain data on livestock. The 1960 Agricultural Census does, however, and reported that 68.5 percent of the sheep and 45.8 percent of the goats were to be found in the mountain regions. Since then, this century-long movement towards the mountains has been reversed. There has been an unmistakable trend away from the mountain regions to the lower elevations, particularly the lowlands. This is evident from Table IV.4.

The terms in parentheses are ratios of relative sheep/goat numbers to household distribution. Thus, if sheep and goats are distributed amongst zones in the same proportion as households, the ratio would equal one. If the ratio is less than one, the distribution of sheep/goats is less than proportional to the distribution of households, and vice versa if the ratio is greater than unity.

Between 1960 and 1980, there was a marked redistribution of sheep from the Mountains to the Senqu River Valley and, to a lesser extent, the Lowlands and Foothills. Approximately 25 percent of the sheep were involved in this redistribution. The percentages of sheep located in the Lowlands and Foothills appears to have increased between 1960 and 1970 and then to have held constant, or even declined, thereafter. This conclusion must be advanced tentatively, however, until more is known about the possible bias introduced by 1970 Census methodology.

The redistribution of goats is less dramatic but still plainly evident. In the Mountains there was a drop of approximately 10 percent between 1960 and 1980. Most of the increase took place in the Lowlands, although the Senqu River Valley experienced an increase as well. The percentage of goats in the Foothill zone appears to have remained constant.

As can be seen from Table IV.4, the distribution of sheep and goats has been less than proportional to that of households in all zones but the mountain zone (with the exception of goats in the Senqu River Valley) until recently. With the 1980 Census, the concentration of sheep has become more than proportional in the Senqu River Valley also.

The pattern for sheep differs somewhat from that for goats. With sheep the index has increased for all zones except the Mountain zone but its most dramatic rise has been in the Senqu River Valley. An increasing index means that the population of small stock is increasing more rapidly than the number of households. With goats there has been a dramatic rise in the Senqu River Valley also, and a lesser rise in the Lowlands. The fall in the proportionality index has been moderate in both the Foothills and the Mountains.

TABLE IV.4  
Geographical Distribution of Sheep and Goats  
(Percent)

Source	LESOTHO	LL	FH	MTN	SRV
SHEEP					
1960 Census	100.0	14.8 (.39)	8.9 (.38)	68.5 (2.31)	7.9 (.85)
1970 Census	100.0	20.9 (.54)	13.1 (.43)	58.0 (2.75)	8.0 (.83)
BOS 1979/80	100.0	21.3	14.9	50.6	13.2
1980 Census <sup>P</sup>	100.0	19.3 (.46)	11.9 (.48)	43.7 (1.92)	23.2 (2.09)
GOATS					
1960 Census	100.0	21.3 (.56)	18.9 (.81)	45.8 (1.55)	14.1 (1.52)
1970 Census	100.0	24.8 (.64)	25.4 (.82)	37.6 (1.78)	13.1 (1.36)
BOS 1979/80	100.0	26.2	19.8	36.0	18.0
1980 Census <sup>P</sup>	100.0	27.6 (.66)	18.9 (.77)	34.4 (1.52)	19.1 (1.72)

NOTE: <sup>P</sup> refers to preliminary results; LL, refers to Lowlands; FH, refers to Foothills; MTN, refers to Mountains; SRV, refers to Senqu River Valley.

SOURCE: 1960 Census is the 1960 Agricultural Census (see Morojele, 1965); 1970 Census is the 1970 Census of Agriculture (see, Bureau of Statistics, 1972); BOS 1979/80, refers to Bureau of Statistics, 1982; 1980 Census is the 1980 Census of Agriculture (unpublished).

TABLE IV.5  
Average Number of Small Stock Per  
Small Stock Holding Household

Source	LESOTHO	LL	FH	MTN	SRV
SHEEP					
1960 Census	28.5	15.0	15.7	40.7	28.6
1970 Census	30.5	16.9	16.6	59.6	28.1
1980 Census <sup>P</sup>	27.9	14.0	19.2	38.9	50.2
FSR 1981	28.9	16.0	24.1	41.9	-
1985 Livestock Holders Survey	36.3*	22.3	28.8	53.0	47.8
GOATS					
1960 Census	15.0	13.6	12.7	15.3	21.9
1970 Census	17.9	13.0	15.4	25.2	22.0
1980 Census <sup>P</sup>	18.3	14.3	16.5	21.7	23.9
FSR 1981	16.4	9.5	13.9	26.2	-
1985 Livestock Holders Survey	23.9*	18.7	27.9	23.4	31.5

NOTE: <sup>P</sup> refers to preliminary data; \* indicates a weighted average (see Footnote 26); LL, refers to Lowlands; FH, refers to Foothills; MTN, refers to Mountains; SRV, refers to Senqu River Valley.

SOURCE: 1960 Census is the 1960 Agricultural Census (see Morojele, 1965); 1970 Census is the 1970 Census of Agriculture (see, Bureau of Statistics, 1972); 1980 Census is the 1980 Census of Agriculture (unpublished); FSR 1981 is the Farming Systems Research Project Prototype Area Survey (see, Butler, 1981). For the 1985 Livestock Holders Survey (see Swallow, Brokken, Motsamai, and Sopeng, 1986).

Table IV.5 portrays changes in the average flock size by small stock holding household. With the exception of sheep flocks in the Senqu River Valley, average flock size does not seem to have changed much between 1960 and 1980. Between 1980 and 1985, however, average flock sizes seem to have increased substantially in several of the geo-climatic zones. This is particularly so for the Lowlands, Foothills and Mountains for sheep and for all zones for goats. The weighted Lesotho averages provided by 1985 Livestock Holders Survey suggest substantially larger flocks than the earlier data and, hence, much more rapid

increases in average flock size than previously.<sup>26</sup> This is not surprising considering the recent increases in sheep and goat numbers.

Data provided by LPMS from wool and mohair clips provides some confirmation of the validity of these estimates. According to LPMS, the average goat flock of farmers clipping at government woolsheds consisted of 30.5 goats while the average sheep flock consisted of 46.0 sheep. The 744,413 sheep and 565,013 goats clipped there represented 52.8 percent and 57.2 percent of the national sheep and goat flocks, respectively. The remaining sheep and goats were either clipped at home, at private traders, or (in the case of young animals, primarily) not at all and are typically in smaller flocks (see Chapter VI). Thus, inclusion of these flocks should lower the somewhat higher LPMS averages.

### C. The Impact of Geographic Distribution on Wool and Mohair Production

In the previous section it was observed that there has been a shift of sheep and goats away from the Mountain areas and to the Lowlands and Senqu River Valley. This has been accompanied by generally larger flock sizes. Geographic distribution may be relevant to the issue of wool and mohair production for several reasons. In the first place, it may affect the level of sheep and goat management. People in different regions typically have different income-generating opportunities available to them. In the Lowlands, for example, there is a greater abundance of cultivable land and wage labour is more readily available. These activities may compete with herding for land and labour resources with the result that herding may be undertaken only as a subsidiary activity. It may not get the management attention that it receives in regions with fewer available alternative activities. In addition, geographic distribution may be relevant to the quality of the resources available. Climatic differences and population pressure may affect the quality of the range. Not only are the Lowland areas of Lesotho more densely populated, but they receive generally lower rainfall than the more mountainous

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<sup>26</sup>The 1985 Livestock Holders Survey did not sample households in proportion to their distribution nationwide. In particular, households in the Mountains were relatively more heavily represented in the sample (see Swallow, Brokken, Motsamai, and Sopeng, 1986). In an attempt to correct for this, the percentages of sheep or goat holding households in each region were calculated from the 1980 Agricultural Census (preliminary data, unpublished) for use as weights for calculating weighted averages. These weights are the best available but they are not ideal since population movements between 1980 and 1985 could compromise their validity. The unweighted, Lesotho average sheep flock is 42.7. The unweighted average goat flock is 25.2.

areas (see de Baulny, n.d. Map No. 3) Finally, animals in the Lowland areas may have to be trekked to pasture in the Mountain areas to obtain adequate nutrition during parts of the year. The trek, itself, consumes energy and may lower the animals' condition.

These issues will be explored more fully in the next chapter. Here data are presented to establish the existence of a geo-climatic differential to several measures of wool and mohair production. Data on the 1985/86 wool and mohair clip processed by the LPMS woolsheds were tabulated according to whether the seller was a member of a Wool Growers' Association or Marketing Group. These stockholders' associations were then allocated, on the basis of the prevailing altitude or rainfall in their area to one of five geo-climatic zones: (1) Lowlands receiving less than 600 millimetres of rain per year, (2) Lowlands receiving more than 600 millimetres of rain, (3) Foothills, (4) Mountains, and (5) Senqu River Valley. There were 110 mohair groups (24 WGAs and 86 MGs), encompassing 18,551 members, and 152 wool groups (69 WGAs and 83 MGs) with 16,168 members. These groups encompass almost all of the approximately 35-38 percent of small stock holders who market through the LPMS. Bivariate dummy variables were assigned to the geo-climatic zones and to the type of stockholders' organization and these were then regressed, using ordinary least squares (OLS), against average fleece weight, price received, flock size, returns per animal, and returns per flock.

The 18,551 goat holders selling mohair through LPMS clipped 565,013 goats amongst them and produced 421,422 kg. of mohair for a total value of 6,528,325 maloti. The following production averages resulted:

Average Fleece Weight/Goat	0.746 kg.
Average Price/kg.	15.491 maloti
Average Flock Size	30.457 goats
Average Return/Goat	11.554 maloti
Average Return/Flock	351.900 maloti.

The 16,168 sheep holders clipped 744,413 sheep, produced 1,824,329 kg. of wool and received a total of M 4,902,486 for it. They averaged:

Average Fleece Weight/Sheep	2.451 kg.
Average Price/kg.	2.687 maloti
Average Flock Size	46.042 sheep
Average Return/Sheep	6.586 maloti
Average Return/Flock	303.233 maloti.

The estimated linear regression equations are reported in Table IV.6.

TABLE IV.6  
Wool and Mohair Production Responses  
to Geo-Climatic Variation

	R <sup>2</sup>	X <sub>0</sub>	X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>	X <sub>4</sub>	X <sub>5</sub>
Wool Fleece Weight	.22	2.515 (8.72)	-0.195 (-4.25)	-0.230 (-3.35)	0.274 (4.35)	-0.267 (-2.82)	0.144 (1.51)
Mohair Fleece Weight	.45	0.688 (21.14)	-0.071 (-2.84)	-0.147 (-4.63)	0.150 (5.36)	0.054 (1.29)	0.039 (0.88)
Wool Price	.59	2.319 (8.47)	-0.264 (-6.05)	-0.427 (-6.55)	0.491 (8.19)	0.039 (0.44)	0.211 (2.33)
Mohair Price	.30	14.928 (30.54)	-1.261 (-3.34)	-1.535 (-3.22)	1.229 (2.92)	0.549 (0.87)	0.728 (1.10)
Flock Size (Sheep)	.57	60.259 (2.40)	-42.103 (-10.53)	-28.007 (-4.68)	27.514 (5.00)	15.706 (1.90)	2.089 (0.25)
Flock Size (Goats)	.41	39.098 (11.08)	-16.992 (-6.22)	-2.130 (-0.62)	-4.576 (-1.50)	14.501 (3.16)	1.518 (0.32)
Returns/Sheep	.51	5.864 (5.38)	-1.118 (-6.44)	-1.659 (-6.39)	1.928 (8.07)	-0.539 (1.50)	0.854 (2.37)
Returns/Goat	.52	10.499 (15.35)	-2.161 (-4.08)	-3.580 (-5.37)	3.427 (5.81)	1.224 (1.38)	1.025 (1.11)
Returns/Flock (Sheep)	.61	402.75 (1.96)	-346.97 (-10.59)	-303.86 (-6.20)	315.88 (7.01)	74.86 (1.10)	34.97 (0.51)
Returns/Flock (Goats)	.49	475.39 (8.64)	-298.76 (-7.02)	-161.13 (-3.00)	49.80 (1.05)	224.61 (3.14)	29.64 (0.40)

NOTE: X<sub>0</sub> is the intercept (the estimated value of the dependent variable if all of the dependent variables have a value of zero), X<sub>1</sub>=0 if WGA and 1 if otherwise. X<sub>2</sub>, X<sub>3</sub>, X<sub>4</sub>, and X<sub>5</sub> jointly take the following values: 0000, if Lowlands with less than 600 mm of rain; 0001, if Lowlands with more than 600 mm of rain; 0011, if Foothills; 0111, if Mountains; and 1111, if the Senou River Valley. The number of observations for the wool equations is 161, while that for the mohair equations is 110.

SOURCE: Raw data from LPMS

The upper statistic in each cell is the estimated linear coefficient for the vertical intercept (X<sub>0</sub>, which estimates the value of the dependent variable if all of the independent variables have a value of zero) and the dummy variables (X<sub>1</sub> to X<sub>5</sub>--see note at bottom of Table IV.6 for further explanation). The t-statistics, which measure the reliability of each estimate, are reported in parentheses below their corresponding coefficients. The correlation coefficient, R<sup>2</sup>, is reported to the left of each equation.

The F-statistics for all equations are highly significant, indicating that the dummy variables, in concert, are useful in explaining variation in the dependent variables. In addition, most of the coefficients on the dummy variables are significant at at least the 90% level. Many are significant at the 99% level as well. The exceptions in the wool equations are the coefficients on X<sub>4</sub> (Foothills) in the wool price equation and X<sub>5</sub> (Lowland, >600mm) in the sheep flock size and returns per sheep flock equations. None of these are significant. In the mohair equations, the exceptions are the coefficients on X<sub>5</sub> and X<sub>4</sub> in the average mohair fleece weight and mohair price equations, X<sub>5</sub> in the average returns/goat equation, and X<sub>3</sub> (Mountains) in the average returns/goat flock equation, which are significant at the 75% level. In addition, the coefficient on X<sub>5</sub> is not significant in the average returns per goat flock equation, nor is the coefficient on X<sub>2</sub> (Senqu River Valley) significant in the equation on average goat flock size. Where a variable is not significant, the impact of the corresponding geo-climatic zone (if it exists) is not statistically measurable. Most of the variables are highly significant, however.

With regard to wool and mohair production, therefore, geo-climatic zone is seen to be a highly significant factor explaining variations in fleece weight, price, flock size and returns. The positive influence of the Mountain zone and the negative influence of the Senqu River Valley (in comparison with the Mountain zone) on these variables are, with few exceptions, especially important. Lowland rainfall and the Foothill zone also positively affect these variables, albeit in a less consistently significant manner.

It should be noted that the WGA coefficient (X<sub>1</sub>) is highly, and positively, significant in all of the equations<sup>27</sup>. The conclusion is tentatively advanced that membership in a Wool Growers' Association contributes positively to fleece weight, wool or mohair quality (as measured by average price of clip), flock size, and returns per animal and per flock. However, the matter of causality may be confused if better or larger farmers are naturally attracted to WGAs anyway. That is, WGAs may simply be a forum for farmers who are otherwise attracted to better stock raising techniques and practices. This matter will be examined with additional data in more detail in subsequent chapters.

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<sup>27</sup>The coefficients have a negative sign. Since, however, the dummy variable is coded zero if a WGA and one if a MG, the negative sign means that MGs have a negative impact on the dependent variables. By implication, WGAs have a positive impact.

The quantitative impact of these factors is summarized in Table IV.7.

TABLE IV.7  
Quantitative Response to Geo-climatic Factors  
by Wool and Mohair Production Measures

	LL1	LL2	FH	MTN	SRV	WGA
WOOL						
Fleece Wt (kg)	2.320	2.464	2.197	2.471	2.241	.195
Price (M)	2.05	2.27	2.31	2.80	2.37	.264
Flock Size (Sheep)	18.16	20.25	35.95	63.47	35.46	42.10
Returns/Sheep (M)	4.75	5.60	5.06	7.04	5.38	1.12
Returns/Flock (M)	55.78	90.75	165.61	481.49	177.63	346.97
MOHAIR						
Fleece Wt (kg)	.617	.656	.710	.860	.713	.071
Price (M)	13.68	14.40	14.94	16.17	14.64	1.26
Flock Size (Goats)	22.11	23.62	38.13	33.55	31.42	16.99
Returns/Goat (M)	8.34	9.36	10.59	14.01	10.43	2.16
Returns/Flock (M)	176.64	206.28	430.90	480.70	319.57	298.76

NOTE: Calculated from Table IV.6. LL1 refers to lowland areas receiving less than 600 mm average annual rainfall. LL2 refers to lowland areas receiving more than 600 mm average annual rainfall. FH refers to foothills, MTN refers to mountains, and SRV refers to the Senqu River Valley. WGA refers to the average increment in the calculated value of the dependent variable associated with WGA membership.

From this table, it will be observed that Mountain goat keepers have a 39.4 percent higher productivity, as measured by average fleece weight, and an 18.2 percent higher quality of clip, as measured by average price, than their drier Lowland counterparts. These differentials translate into a 68 percent increase in average returns per goat. Once account is taken of the larger flocks prevalent in the Mountain areas, the highland stock keeper can expect an 172 percent larger income from his goat flock. Smaller, but still substantial increments over their

Lowland counterparts are obtainable for Foothill and Senqu River Valley goat keepers.

The situation varies somewhat for sheep keepers. Again, those in the Mountains experience the highest average fleece weights and receive the highest prices. Comparison with other zones is not as consistent as it is with goats, however. With regard to wool yield, the two Lowland zones do rather well while the Foothills and the Senqu River Valley do poorly. Average fleece weights in the Mountains are 12.5 percent higher than in the foothills and 10.3 percent higher than in the Senqu River Valley. With regard to price, however, the Lowland zones do poorly. Average wool price in the Mountain zone is 36 percent higher than in the drier Lowlands and 23.4 percent higher than in the wetter Lowlands. By contrast, the remaining two zones, particularly the Senqu River Valley, perform better.

These variations in performance affect the monetary return per animal. For both sheep and goats, the Mountain zone is where the highest returns can be expected. For both, as well, the Senqu River Valley is the third best performing zone. The second best performing zone for sheep is the Lowland zone with more than 600 mm average annual rainfall. For goats, the Foothill zone is the second best performing zone. These rankings are summarized in Table IV.8.

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TABLE IV.8  
Regions of Highest Return/Animal

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Sheep	Goats
1. Mountains (25.8% over No. 2)	1. Mountains (32.3% over No. 2)
2. Lowlands above 600mm rainfall	2. Foothills
3. Senqu River Valley	3. Senqu River Valley

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Although there are a number of factors which must be taken into account in the allocation of scarce resources to production, surely efficiency is a factor of major importance. If efficiency were the only criterion considered in the allocation of range land to small stock, Table IV.8 would provide a guide to that allocation.

In the previous chapter it was noted that wool and mohair fleece weights began to decline in the late 1960s, after thirty years of increase. Over the last twenty years there have been consistent, but less easily quantifiable, claims of a decline in the quality of the wool and mohair clip. It has been observed

previously that the last twenty years have seen a reversal of the 100 year trend of increasing concentration of sheep and goats in the Mountain areas. They are moving back towards the Lowland areas. Could these trends be related? Perhaps.

Calculations were made of fleece weight and average price using the estimated zonal values in Table IV.7, but the proportional weights of Table IV.4. An approximate 2.6 percent drop in fleece weight and 1.4 percent drop in average price resulted. While this is a relatively small change over a twenty year period, it assumes that the coefficients appropriate today were appropriate then. If they were not, the decline owing to geographic shift may be larger than indicated here.

There are good reasons to believe that the underlying coefficients have, indeed, changed. Between the late 1960s and late 1970s there was a steady increase in the number of Animal Units grazed on the Lesotho range. There are now at least 15 percent more Animal Units on the range than there were in the early 1960s. This resulted, not from an increase in sheep and goats, but from an increase in cattle and much higher pressure has been put on the range thereby. Thus, the coefficients were probably larger in the past.

#### VIII. Conclusions

Basotho familiarity with sheep and goats pre-dates the origin of the modern Basotho nation under Moshoeshoe. Oral accounts mention flocks of fat-tailed sheep and boer goats kept by Basotho herders, in addition to their herds of cattle. Aside from this, little more is known about this early period.

Following the cessation of the lifigane in the 1830s, the Basotho nation expanded rapidly. Initially this was merely an expansion into virgin lands along the Caledon River Valley. As herds and flocks increased, however, this included tentative forays into the interior mountain areas as well. Contemporaneous to this activity was the arrival of the Boers in the area adjacent to Lesotho. Trade, which had long existed between the Basotho and neighbouring tribes, was given a new fillip by the demand of the Boers for grains and other agricultural products. At the same time, new trading contacts were established with the Cape Colony through itinerant hawkers and settled traders. The Basotho responded to these stimuli by increasing their production of agricultural products for the market.

Merino sheep production expanded rapidly in the Cape Colony after the 1820s. In the 1830s, Angora goats were introduced in the same area and by the 1850s had become an important source of agricultural income. The rapid expansion of the wool trade at this time attracted a number of Basotho migrant workers. Upon

completion of their contracts, they often returned home with Merino sheep and Angora goats.

Within about two decades, from the 1860s to 1880s, the original fat-tailed sheep were almost completely replaced by the new Merino variety. Transformation of goat flocks from boer goats to Angoras lagged this by a decade but was almost as rapid. By the turn of the century, most of the sheep and goats (making allowance for crossbreds) were of the new varieties.

Between 1890 and 1930, the numbers of sheep and goats grazed on the Lesotho range increased very rapidly. From a few hundred thousand at the beginning of the period, small stock totalled almost four million at the end. This increase followed the settling of the mountain areas and the foreclosure of good grain export opportunities. It paralleled generally rising prices for wool and mohair.

From 1931 to about 1935 the number of small stock declined drastically. Both sheep and goat numbers were cut approximately in half. A number of factors accounted for this among which were dramatic declines in wool and mohair prices, drought, and disease. Excessive overstocking and greatly reduced animal condition and health were also partly responsible.

Since 1931, small stock numbers have fluctuated around an apparent steady state of about two million animals. Despite this apparent constancy, there has been a long-term decline in sheep numbers which has been compensated for by an increase in goat numbers. The relative increase in the income derived from goats over that derived from sheep is the most likely explanation for this change.

The small stock sector has been confronted with a number of serious problems over the years. Some, such as scab infestations, have been successfully dealt with on several occasions by compulsory dipping campaigns. Improved breeding and culling of sheep also appear to have had some success, although there is still room for improvement of the breed. Goats might have responded as well had they not been neglected until the 1950s.

In other areas, success has eluded officials. Most conspicuous are the problems of rangeland degradation and overgrazing. Warnings of potential overgrazing problems date from the 1850s. Serious concern dates from the 1930s. With the exception of the unplanned destocking mentioned above, no serious progress has yet been made in this direction, however.

Reliable data on the social distribution of sheep and goats is not available before Sheddick's 1954 study of land tenure. Historical evidence suggests that the new Merino and Angora breeds were initially adopted by commoners often associated with

mission stations as these people were relatively free from traditional obligations. Members of the chieftaincy must have quickly adopted these new breeds because accounts from the early part of the present century frequently mention large flocks belonging to chiefs. Nonetheless, commoners continued to be well-represented amongst small stock owners.

Between Sheddick's study in 1954 and the latest Agricultural Census in 1980, the percentage of agricultural households without sheep or goats has steadily increased. At the same time, the number of households holding 50 percent of the small stock has decreased. Both trends point to a similar conclusion: increasing concentration of sheep and goat ownership. This has been accompanied in recent years by increases in average flock size.

Initially, the expansion of the sheep and goat sector was accompanied by their redistribution from the lowland areas to the mountains. Within the last two decades, this process appears to have reversed. The proportion of sheep and goats kept in the mountains has declined while those in the lowlands and Senqu River Valley have increased. Mountain sheep and goats have significantly higher fleece weights and wool and mohair quality than animals kept elsewhere. As a result, the average monetary return per animal is higher. This redistribution may adversely affect Lesotho's overall small stock productivity and may be deserving of the attention of policy-makers.

The perspective on wool and mohair production has been an economy-wide one so far. In the next chapter, the focus is changed to that of the individual farmer in an attempt to gain insight into his motivations and responses towards sheep and goat raising.

## CHAPTER V

### THE MANAGEMENT OF SHEEP AND GOATS FOR WOOL AND MOHAIR PRODUCTION

In the previous four chapters, the wool and mohair industry has been situated within the overall Lesotho economy, its history has been traced, and its long-term problems have been isolated. It was observed that sheep and goats are the single largest domestic contributor to income in the rural areas and have been for some time. Despite this, the industry is plagued by low productivity and poor quality and, consequently, low gross returns per animal.<sup>28</sup> As a result, the industry is not living up to its potential as a contributor to Basotho economic well-being.

The review of sheep and goat policy initiatives revealed that most of the problems plaguing the industry have a long history. These problems have been met with a variety of policy responses. Some have been highly successful, as with the anti-scab campaign of the 1920s; others have been less so, as with the attempts to promote dosing or improved breeding of goats. The broad historical outline of the industry suggests, however, that wool and mohair production is a consciously chosen economic response by Basotho to available income-producing options, and has been from the beginning. Not all rural Basotho have responded equally, however, as sheep and goat management and ownership distributions are highly skewed. This varies markedly amongst geo-climatic zones and reflects different motivations of farmers. With this background in mind, an examination of the farmer's motivations and constraints to sheep and goat management can be undertaken.

#### I. Motivations for Raising Sheep and Goats

While broadly agreeing that Basotho sheep and goat farmers raise their animals for the income their wool and mohair fetches, some analysts have suggested that this is only one of several competing goals. Also important, they argue, may be meat production and ritual/ceremonial slaughter (the two are not mutually exclusive). One analyst has proposed that small stock should be properly viewed as a producer of a joint product:

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<sup>28</sup>Estimates by Swallow and Brokken (1987) indicate that net returns may be high. Principally because the cost of keeping animals is relatively low (owing in part to grazing on the communal range), the spread between gross income received per animal and the cost of keeping it is wide. Swallow and Brokken estimate that the net rate of return on investment in small stock may be as high as ten percent.

mohair-meat or wool-meat. If meat production competes with wool or mohair production, the farmer may be less motivated to produce a high quality clip (Anon., 1983).

Some circumstantial support for this view is provided by the baseline survey conducted for the Basic Agricultural Services Programme (BASP) (see Winch, 1981). This surveyed 1700 randomly selected farm families in purposefully selected villages in the Northern and Southern Lowlands and Foothills of Lesotho. Farmers were asked why they raised sheep and goats. In the Northern zone, 39.7 percent of sheep raisers in the Lowlands and 30.5 percent in the Foothills listed "meat" as their purpose. This contrasts with 34.6 percent and 23.7 percent, respectively, who listed "wool". Another 15.2 percent in the Lowlands and 40.8 percent in the Foothills listed "general" or "multiple" as motivations. In the Southern zone, the percentage listing "wool" was higher than that listing "meat", although not by much: 15.4 to 12.3 percent in the Southern Lowlands and 15.9 to 13.6 percent in the Southern Foothills. In this zone, "multiple" was listed by well over half of all respondents. The purposes for raising goats were a little different, but not by much. There was a small plurality for "mohair" in the Northern Lowlands and respondents in the Southern Lowlands were evenly split between "meat" and "mohair". In the Foothills of both zones, however, more respondents listed "meat" than "mohair" and large percentages listed "multiple" as their purpose for raising goats.

These results give the impression that wool and mohair are not particularly high on the list of priorities of Basotho sheep and goat raisers. To some extent, this may be owing to the ambiguity of the question, however. Anyone, even one whose major priority was wool or mohair, could legitimately respond "multiple" if they gave an old ewe in bohali or slaughtered a coloured cull animal for meat or ritual. To more accurately assess motivation, the respondent should be asked to rank his motivations. Questions in the 1985 national Livestock Holders Survey were phrased in this fashion. The top five primary and secondary motivations by geo-climatic zone are given for sheep in Table V.1 and for goats in Table V.2.

For wool growers, there appears to be some degree of ambiguity as to motivation only in the Lowland zones. Only a little more than a third in the Northern Lowland zone and slightly more than a half in the Southern Lowland zone list wool production as a primary motivation for raising sheep. In the Northern zone, several other motivations get high response percentages; while in the Southern zone, meat production is almost as popular a primary motivation as wool production. Secondary motivations are also ambiguous. Although a plurality in both areas list meat production as the most important secondary motivation, wool production and sale of animals also get high percentages of response.

At the higher elevations, wool production for the generation of a cash income is unambiguously the primary motivation. This motivation increases the higher and more remote one goes into the mountains. This probably reflects the fewer alternative agricultural activities in these more remote areas. Meat production is equally unambiguously the secondary motivation for raising sheep. Of the other secondary motivations, sale of animals gets a large number of responses only in the mountains. Traditional rites are an insignificant primary or secondary motivation for raising sheep in any of the zones, with the exception of the Northern Lowlands. The third most important motivation for raising sheep, in all zones but the Remote Mountains, is the sale of animals.

TABLE V.1  
Primary and Secondary Motivations for Keeping Sheep  
(Percentage of Respondents)

Reason	NLL	SLL	FH	SRV	LRMTN	RMTN
Primary						
Wool	34.3%	52.9%	61.1%	69.8%	71.4%	85.0%
Meat	11.8%	41.2%	13.9%	13.2%	12.7%	12.5%
Sale	17.6%	-	8.3%	7.5%	6.3%	-
Increase Flock	17.6%	5.9%	2.8%	5.7%	6.3%	-
Trad. Rites	17.6%	-	5.6%	3.8%	1.6%	2.5%
Secondary						
Meat	36.0%	43.8%	58.8%	56.0%	48.4%	55.3%
Wool	28.0%	31.3%	14.7%	26.0%	12.9%	10.5%
Sale	20.0%	18.8%	8.8%	12.0%	32.3%	28.9%
Increase Flock	8.0%	-	5.9%	2.0%	1.6%	-
Trad. Rites	8.0%	6.3%	8.8%	4.0%	1.6%	5.3%

NOTE: Sheep owners only. NLL refers to Northern Lowlands, SLL refers to Southern Lowlands, FH refers to Foothills, SRV refers to Senqu River Valley, LRMTN refers to Less Remote Mountains, RMTN refers to Remote Mountains.

SOURCE: 1985 Livestock Holders Survey (see Swallow, Brokken, Motsamai, and Sopeng, 1986).

The motivations of goat owners are broadly similar to those for sheep owners. The one exception is in the Lowland zones. Only in the Northern Lowlands is there ambiguity. Although mohair production attracts two-fifths of the respondents, almost one third list meat production and almost sixteen percent cite sale of animals. In all of the other zones, mohair production is unambiguously the primary motivation.

Amongst secondary motivations, however, the situation is not quite as clear as it is amongst sheep. Although meat production gets the highest percentage of responses in all zones but the Northern Lowlands (where mohair production and sale of animals are tied at one third each), it does not achieve a majority of responses in either the Foothills or Remote Mountains. Amongst tertiary motivations, sale of animals gets the most responses in all zones but the Remote Mountains. This is the same as for sheep.

TABLE V.2  
Primary and Secondary Motivations for Keeping Goats  
(Percentage of Respondents)

Reason	NLL	SLL	FH	SRV	LRMTN	RMTN
Primary						
Mohair	42.1%	79.2%	63.0%	72.7%	75.0%	71.1%
Meat	31.6%	12.5%	19.6%	14.5%	12.5%	24.4%
Sale	15.8%	4.2%	8.7%	5.5%	2.5%	2.2%
Increase Flock	5.3%	-	-	1.8%	2.5%	2.2%
Trad. Rites	5.3%	-	7.0%	5.5%	2.5%	-
Secondary						
Meat	22.2%	54.5%	45.2%	54.9%	59.4%	39.5%
Mohair	33.3%	4.5%	21.4%	24.5%	15.6%	23.3%
Sale	33.3%	31.8%	16.7%	17.6%	34.4%	34.9%
Increase Flock	5.6%	-	7.1%	2.0%	3.1%	-
Trad. Rites	5.6%	4.5%	4.8%	-	-	2.3%

NOTE: Goat owners only. NLL refers to Northern Lowlands, SLL refers to Southern Lowlands, FH refers to Foothills, SRV refers to Senqu River Valley, LRMTN refers to Less Remote Mountains, RMTN refers to Remote Mountains.

SOURCE: 1985 Livestock Holders Survey (see Swallow, Brokken, Motsamai, and Sopeng, 1986).

These results are broadly similar to Lawry's findings in his study of the Sehlabathebe Range Management Area (RMA) (1986: pp. 33-34). He also found that sheep holders' most frequently mentioned primary motivation for keeping sheep was wool production. Meat and sale of animals followed in that order. The percentage of respondents listing wool production was much smaller than in the 1985 Livestock Holders Survey (with the exception of respondents in the Northern Lowlands), however.

Primary motivations were cross-tabulated by flock size for the 1985 Livestock Holders Survey. If, as one might expect, larger flock owners are more commercially motivated, wool production should be mentioned more frequently by keepers of larger flocks. The analysis bears this out. Large flock owners do mention wool production as a primary motivation more frequently than do smaller one. This is true in all of the geo-climatic zones. Since the sample of large flock owners was much smaller than that of smaller owners, however, this result may not be very significant statistically.

## II. Motivations and Household Income Sources

Motivations were also cross-tabulated by sources of household income. Households with differing sources of income might be expected to have different motivations for raising sheep and goats. This is true to a limited degree.

In all of the six geo-climatic zones remittances from migrants in the Republic of South Africa are listed as the principal source of cash income by the largest number of sheep and goat holding households. The percentage of households mentioning this source varies considerably amongst zones (from a high of some 48 percent in the Southern Lowlands to a low of 27 percent in the Remote Mountains), however. In the Lowland zones, no other source of cash income ranks close to migrant remittances. In all of the other zones, however, various agricultural activities take on much greater importance as sources of cash income. Indeed, in the Senqu River Valley and the two Mountain zones, households listing livestock and livestock products as their principal sources of cash income outnumber those deriving it from migrant remittances. In this, there is no appreciable difference between households owning sheep and those owning goats.

Regardless of zone, households mentioning migrant remittances as their principal source of cash income listed wool and mohair production as their principal motivation for raising sheep and goats by a wide margin. Only in the Lowland areas did meat production attract many adherents. Amongst sheep and goat holding households relying on livestock or livestock products for cash income, wool and mohair production is also the primary aim

in both cases. The one exception is in the Foothills zone where meat production is listed as important a motivation as wool and mohair by those households deriving most of their cash income from livestock products. Meat production is also considered important for keepers of both species in the Less Remote Mountains who derive most of their cash income from sale of crops or fodder.

A similar question about motivation was asked of respondents in the 1986 Woolshed Survey. The profile of this sample differs from the 1985 Livestock Holders sample in several important regards. In the first place, flocks are larger. The average sheep flock consists of 76 sheep and the average goat flock consists of 47 goats. This contrasts with average sheep and goat flocks of 36 and 24, respectively, in the Livestock Holders Survey. In the second place, since respondents were interviewed mostly at government woolsheds in the course of selling wool and mohair, their motivations for sheep and goat rearing may be more commercial than those of a random village sample of livestock holders. Thus, results from this sample should not be taken as representative of the nation's small stock keepers. They may be representative of a potentially important subset of them, however: larger flock keepers with a greater reliance on and commitment to commercial production.

Sales of wool and mohair figure much more prominently as a principal income source amongst this group than do migrant remittances. Sixty-one percent mention them as opposed to ten percent each who list income from male migrants in South Africa or in Lesotho.

Nevertheless, the importance of wool and mohair sales as an income source varies with the size of flock. Amongst sheep owners, wool is the largest source of income for all but achieves majority status only for those holding flocks above ten sheep in number. Nevertheless, stockholders holding flocks below seventy-six sheep rely on several alternative income sources, with migrant remittances from South Africa or from work elsewhere in Lesotho being most important. The thirty-eight holders of flocks of 76 sheep or above list wool and mohair sales, almost exclusively, as primary sources of income. The exceptions are one for whom profits from a shop are most important, two for whom income from sheep and goats in general are primary, and three for whom income from other livestock are most significant.

With goat owners, alternative sources of income are relatively more important with small flock owners than is the case with sheep owners. (It should be remembered, however, that goat flocks tend to be smaller than sheep flocks. Further, despite the higher unit value of mohair over wool, goats are less productive. As a result, the return per animal is approximately the same.) Not until flocks are larger than sixteen goats does

mohair production become the principal income source. As is the case with sheep holders, small flock owners rely heavily on migrant remittances. Also similar, is the emphasis on wool and mohair sales as an income source by large flock holders.

An interesting, and not altogether expected, pattern emerges when income source is cross-tabulated by age categories of small stock holders in the Woolshed Survey. Although a majority of all age groups rely on wool and mohair as their principal income source, the strength of this response tends to decline with age. Seventy-three percent of young flock owners (between the ages of 20 and 29) rely on wool and mohair sales. This percentage declines with age while the percentage relying on remittances increases. Above the age of sixty, only fifty-four percent of flock owners rely on wool and mohair sales.

### III. Characteristics of Households and Household Heads

The level of sheep and goat management is the responsibility of the head of the household. Within a variety of constraints, he or she determines the size of the flock, the level of care to which it is subjected; its breeding and culling, and the manner by which its wool and mohair are clipped and marketed. To what extent might differences in household composition or characteristics of household heads help to explain relative disparities in wool-mohair productivity through their impact on the performance of the management function? Sheep and goat managing households in the Livestock Holders Survey were examined with the aim of answering this question.

No discussion of farm management in Lesotho can begin without a discussion of the impact of labour migration on the farm household. As Colin Murray (1981) has shown, labour migration is an integral part of the economic process in rural areas. In this regard, he has established two propositions (p. 89):

The first is that migrant wage-earning capacity, rather than farm income, must be viewed as the independent variable in assessing the manner in which individual households dispose [of] their resources. The second is that the developmental cycle of the household--the way in which its size and composition change through time--must be built into any explanation of observed differences in wealth and income between rural households.

#### A. The Sex and Age of the Household Head

Partly as a result of the migratory labour system and partly because of the well-known tendency of women to outlive men, Lesotho has a high proportion of widows and female-headed

households (Murray, 1981: p. 98 and Chapter 7). A disproportionate percentage of them, especially if there are no wage-earning migrants in the household, are also poor (*Ibid.*, pp. 94-97; also Eckert, et. al. pp. 70-72). Further, although women are often the de facto household head, they are often restricted in their decision-making authority. Thus, differences in the proportion of households headed by women might explain some of the differences in productivity if women were unable to make productivity-enhancing decisions or if they were restricted by poverty in the resources that they could direct to small stock management. Table V.3 presents data from the 1985 Livestock Holders Survey on the sex of sheep managing and goat managing household heads.<sup>29</sup>

Amongst sheep-managing households, women were the household heads in 13.2 percent of the cases. The only geo-climatic zone for which they had a higher than average representation amongst household heads was the highly productive Less Remote Mountain zone. Overall, female-headed households were more likely to have smaller flocks of sheep than male-headed households. Almost 58 percent had flocks of ten or fewer sheep while only 35 percent of male-headed households had such flocks. A total of 20.2 percent of these flocks were managed by women. This tendency for women to have smaller flocks, although present, was less prevalent in the Less Remote Mountain zone.

TABLE V.3  
Sex of Household Heads  
(Percent)

	Total	Female	Male
Sheep (N)	100.0 (250)	13.2 (33)	86.8 (217)
Goats (N)	100.0 (243)	12.8 (31)	87.2 (212)

NOTE: N is the number of observations.

SOURCE: 1985 Livestock Holders Survey (see Swallow, Brokken, Motsamai, and Sopeng, 1986).

<sup>29</sup>There were only 33 female-headed sheep managing households and 31 female-headed goat managing households. Because of this small sample size, sex of household head and flock size or age are necessarily tentative. For this reason, these data have not been presented in tabular form.

If women were more likely than men to have smaller flocks, they were not much less likely to have larger ones. Fifteen percent of the flocks of more than seventy-five sheep were managed by women. This contrasts with eighteen percent managed by men. The small sample size (five women) may compromise this conclusion, however. In addition to managing smaller flocks, women managers were also older than their male counterparts and this was particularly so for the smaller flock managers. Only 6.3 percent of women managers were between the ages of 20 and 40 years as opposed to 17.5 percent of their male counterparts. If the response "age unknown" implies a more elderly age, then fewer than 45 percent of female small flock managers are 60 or younger, as opposed to 57 percent of male small stock managers.

The percentage of female-headed goat managing households was very similar to that of female-headed sheep managing households: 12.8 percent as opposed to 13.2 percent. They were broadly similar to their sheep managing counterparts in other ways as well. In addition to being more than proportionately represented amongst goat managers in the Less Remote Mountains, however, they were also more than proportional amongst managers in both of the Lowland zones.

Forty-five percent had flocks of five or fewer goats and fifty-eight percent had flocks of ten or fewer.<sup>30</sup> This contrasts with seventeen percent and thirty-seven percent, respectively, for male-headed households. Overall, twenty-eight percent of all households with 5 or fewer goats and nineteen percent with 10 or fewer goats were headed by women.

Unlike large sheep flocks, however, women had a disproportionately smaller number of large goat flocks. Only 9.7 percent of the flocks of more than thirty goats were managed by women while 30 percent of these flocks were managed by men. There were only three female-headed households in this category, however, and the limited size of the sample undoubtedly affects the significance of this estimate.

As with sheep managers, female goat managers also tend to be older than their male counterparts. Only 6.5 percent were 40 years or younger whereas 21.2 percent of male goat managers were in this age category. At the other end of the spectrum, almost 23 percent of the women managers were explicitly over the age of 60 (as opposed to those whose age was unknown) in contrast to only 13 percent of the male managers. This pattern was also true for managers of small goat flocks. Almost fifty-three percent of female managers of flocks of ten or fewer goats were 60 years or

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<sup>30</sup>Given the higher mohair price but lower productivity per animal, this would yield an income per flock similar to that yielded by a 10-or-fewer flock of sheep.

younger while seventy-two percent of male small flock managers fell into this category.

With regard to male flock managers, goat managers appear to be slightly younger than sheep managers. Although the same percentage of managers were sixty or younger (65 percent), a slightly higher percentage of goat managers were between the ages of 20 and 40 years (21.2 to 17.5 percent). This was especially true for small flocks. Twenty-four percent of the small goat flocks were managed by men between the ages of 20 and 40 whereas only 16 percent of the small sheep flocks were. The opposite was the case with large flocks, however. Twenty-three percent of large sheep flocks (more than 75 animals) were managed by men in this younger age category, whereas only thirteen percent of large goat flocks (more than 30 animals) were managed by this group.

Thus, female small stock managers tend to be older than male managers and to manage smaller flocks. For both sheep and goats, the smaller flocks were disproportionately managed by women. By contrast, male managers tend to be younger and to manage larger flocks. Amongst male managers, goat managers tend to be younger than sheep managers, except for the larger flocks where the opposite is the case.

Overall data on the age of sheep and goat managing household heads are contained in Table V.4. It will be noted that goat managing household heads have roughly the same age profile as the sample of all livestock holding households. Sheep managing household heads, by contrast, have a somewhat older age profile.

TABLE V.4  
Age of Household Heads  
(Percent)

Age	Total Sample	Sheep Managers	Goat Managers
20-40	19.1	16.3	20.2
41-60	44.2	48.4	45.9
61-80	14.2	14.6	13.3
81-100	0.6	0.8	0.9
Unknown	21.9	19.9	19.7

SOURCE: 1985 Livestock Holders Survey (see Swallow, Brokken, Motaamal, and Sopeng, 1986).

B. The Education of the Household Head

The level of education of the household head may affect the management of flocks for a number of reasons. In the first place, basic literacy may give an individual access to information on improved management practices that would be unavailable or more difficult to obtain for his illiterate counterpart. In addition, it may improve one's ability to understand the information received. In the second place, exposure to education may expand one's horizons and make one more receptive to new ideas, practices and extension advice.

The level of education of sheep and goat managing farmers interviewed in the 1985 Livestock Holders Survey differed markedly by geo-climatic zone. What is more, there was a marked difference in the level of education between sheep and goat managers. These data are summarized in Table V.5.

TABLE V.5  
Education of Household Head  
(Percentage)

Education	LES	NLL	SLL	FH	SRV	LRMTN	RMTN
Sheep							
None	33.0	23.5	25.0	40.0	37.7	27.5	42.4
Std. 1-6	56.5	55.9	62.5	48.6	54.7	62.7	54.5
> Std. 6	6.0	11.7	12.5	2.9	5.7	6.0	0.0
Unknown	4.3	8.8	0.0	8.6	1.9	3.9	3.0
Goats							
None	42.7	33.3	15.4	50.0	42.6	41.5	56.5
Std. 1-6	49.6	57.1	69.2	41.3	50.0	51.2	41.3
> Std. 6	4.7	9.6	11.5	4.3	5.6	2.4	0.0
Unknown	3.0	0.0	3.8	4.3	1.9	4.9	2.2

NOTE: LES refers to Lesotho, NLL refers to Northern Lowlands, SLL refers to Southern Lowlands, FH refers to Foothills, SRV refers to Senqu River Valley, LRMTN refers to Less Remote Mountains, RMTN refers to Remote Mountains.

SOURCE: 1985 Livestock Holders Survey (see Swallow, Brokken, Motsamai, and Sopeng, 1986).

Although sheep keepers are generally better educated than their goat-keeping counterparts, the pattern by geo-climatic zone for both is similar. Not surprisingly, the highest incidence of having attended school is registered in the Lowland areas, while the lowest incidence is found in the Remote Mountains. It is interesting to note that the incidence of school attendance is much higher for goat farmers in the Southern Lowlands, however. Why this should be is not clear. Interesting, as well, is the low level of education attained by both sheep and goat farmers in the Foothills.

Sheep farmers are better educated than the average of all households (regardless of type of livestock kept) in the 1985 Livestock Holders Survey sample. Goat farmers are less well-educated. With the exception of the Southern Lowlands, they are much less educated, on average, than are sheep farmers. Why this should be deserves further investigation. This lower educational attainment may act as a constraint to future extension efforts aimed at improving the level of goat husbandry.

### C. The Residence of the Household Head

Women may manage flocks, not just in the de\_jure sense considered above, but de\_facto, as well, if the male head is absent while working elsewhere or on a migratory contract. Respondents to the Livestock Holders Survey were asked the residence of the household head. Overall, approximately 87 percent of both sheep and goat holders were resident at home. This varied somewhat by geo-climatic zone, but not by much. The greatest home residency was in the Northern Lowlands (94.4 percent for sheep and 90.5 for goat keeping household heads) and the least in the Southern Lowlands (75.0 to 76.9). The remaining zones were at, or near, the national average. This can be seen from Table V.6.

Home residency of the household head is more common amongst sheep and goat farmers than it is in the Livestock Holders Survey as a whole. In the larger sample, 81 percent of household heads are resident as opposed to about 86 percent amongst small stock keepers only. Lesotho-wide data is difficult to obtain for comparison.

While there is little distinction to be made with regard to residency and geo-climatic zone, there is a distinction to be made with regard to flock size. Holders of smaller flocks do not seem to differ significantly from the national average. Holders of larger flocks do, however. Only 4.5 percent of the holders of large sheep flocks and 9.2 percent of the holders of large goat flocks (as defined, above) were absent from home. Dobb's (1985) examination of the livestock holders in the Molumong area, near Mokhotlong, detected a similar pattern. That is, currently migrant household heads tend to have smaller numbers of Livestock

Units than those who were not. Lawry's results are similar (1986: pp. 17-18). He found that a higher percentage of resident male headed households owned sheep and goats and that they had larger holdings than their absent counterparts.

TABLE V.6  
Residence of Household Head  
(Percentage)

Residence	LES	NLL	SLL	FH	SRV	LRMTN	RMTN
Sheep							
Home	86.8	94.1	75.0	91.2	88.7	85.2	86.0
Outside Lesotho	11.6	5.9	20.8	11.8	7.5	14.8	11.6
Other	1.6	0.0	4.2	0.0	3.8	0.0	2.2
Goats							
Home	86.3	90.5	76.9	84.8	88.9	87.8	87.0
Outside Lesotho	12.4	9.5	23.1	13.0	7.4	12.2	13.0
Other	1.2	0.0	0.0	2.2	3.8	0.0	0.0

NOTE: LES refers to Lesotho, NLL refers to Northern Lowlands, SLL refers to Southern Lowlands, FH refers to Foothills, SRV refers to Senqu River Valley, LRMTN refers to Less Remote Mountains, RMTN refers to Remote Mountains.

SOURCE: 1985 Livestock Holders Survey (see Swallow, Brokken, Motsamai, and Soping, 1986).

There may be a number of reasons for this. One, the large flock manager may be more committed to the management function. Correlation analysis of the the LPMS woolshed data referred to in the previous chapter found positive, and highly significant, correlation between and amongst average flock size, average fleece weight and average price. It is unlikely that this is merely accidental but, rather, reflects a higher and more careful level of management. In addition, higher fleece weight and higher wool and mohair price, combined with larger flocks, may make the large flock manager less dependent on an outside source of income than the small flock manager. In the Woolshed Survey, for example, 80-100 percent of those with sheep flocks of 75 animals or more listed wool and mohair sales as their principal source of household income. The response was similar for goat farmers. Smaller flock owners relied (and could rely) much less frequently on this source of income.

Closely related to the issue of residency is that of the household head's status as a migrant or former migrant. As observed, above, approximately eighty-seven percent of household heads presently are resident at home. Conversely, some thirteen percent currently are absent from home and, according to the data, all but a few are resident in the Republic of South Africa, presumably on a migrant labour contract. The vast majority of these are men since proportionally very few women migrate to South Africa to find employment.

### C. The Impact of Labour Migration

Although small stock holding household heads (and, especially those managing larger flocks) currently are not migrants to any great extent, migration could affect management in several ways. Migrant labour could permit a man to accumulate wealth which could be invested in sheep and goats. If so, small stock holders who were formerly migrants should have larger flocks than those who were not. Additionally, having members of a household who are migrants may also permit the household to accumulate larger flocks.

With regard to the first point, Lawry (1986: Chapter 2) implies that former migrants indeed have larger flocks than non-migrants. The Woolshed Survey also sheds some light on this issue. There is a positive, although not strong, correlation between having been a migrant and the number of goats managed. The correlation is significant at the 93.7 percent level. The relationship is weakly negative (at a lower 86.8 percent level of significance) for sheep. That is men who were formerly migrants tend to have fewer sheep than those who were not. The reason for this is not certain, but it may be related to the general decline in the number of sheep held throughout the country.

A survey (BOS, 1982) conducted in the late 1970s sheds some light on the second point: whether the number of migrants in a family has an affect on the size of flocks. This was a nationwide, 20 percent sample of households in 1044 enumeration areas designed to assess the impact of labour migration on the provision of manpower in Lesotho. It found that the average number of small stock (no distinction was made between sheep and goats) was greater the greater the number of currently working migrants in the household. The one exception, which is consistent with the discussion, above, was the household with only one migrant. These households had a smaller average number of small stock. Also positively related to the number of migrants in the household was the percentage of households with more than fifty animals. Again, the exception was the one-migrant household.

Households were also less likely to be without small stock the more migrants they had. Seventy-five percent of households with no migrants were without small stock, according to the

survey. This declined with increases in the number of migrants until only 45 percent of households with four migrants were without small stock. Thus, the more migrants there are, the more animals per flock, the higher the probability of having a large flock and the lower the probability of having no flock.

Lawry (1986: pp. 19-23) arrives at a different conclusion. His data show that households with no migrants have larger small stock holdings than households with one or more migrants. Since he makes no distinction between households with one migrant and households with more than one migrant (of which there were 39 out of a total of 207 households with migrants), this may not contradict the BOS conclusions, however. It is worthwhile quoting his conclusion on this matter:

. . . the relationship between migration and livestock ownership is a complex one, and it is difficult to separate the relative effects of the age of the head, the implied shortage of livestock management capability among households with migrants, and income trade-offs in explaining this relationship. (p. 23)

The final household characteristic that could affect small stock management is the holding of a village office, although causation could run in either direction. Village office-holders may have access to resources which could permit them to accumulate larger flocks. Alternatively, people with larger flocks may be seen as worthy of respect and made village officeholders. The data in the Woolshed Survey does not permit discrimination either way. Suffice it to say, however, that a weakly positive correlation is found between the holding of village office and the management of both sheep and goats. The significance of the correlation is higher for goats (at 91 percent) than for sheep (at 78 percent).

#### IV. Small Stock Keepers' Perception of Management Problems

Not only are farmers themselves often in the best position to recognize problems facing their industry, but their perception of the importance of problems may affect the enthusiasm with which they approach solutions advocated by others. In an attempt to gain insight into the problems of wool and mohair growers, they were asked during the Woolshed Survey to rank those problems that most affected them. They were also asked to suggest solutions to the problems they identified. Their primary problems and solutions are listed in Table V.7. Because of the nature of the sample, these responses reflect, in particular, the concerns of the more commercially oriented farmers.

TABLE V.7  
Farmers' Perceived Primary Problems

Problems	Solutions
1. Diseases, parasites and inadequate medicine 38.5% (52)	a. Medicine 63.5% (33) b. Better trained livestock assistants 17.3% (9) c. Vague, Don't Know or No Solution 17.3% (9)
2. Stock theft or loss 13.3% (18)	a. Vague, Don't Know or No Solution 50.0% (9) b. Better herding 16.7% (3) c. Firearms 11.1% (2) Better law enforcement 11.1% (2)
3. Inadequate food 12.6% (17)	a. Plant or buy fodder 35.3% (6) b. Vague, Don't Know or No Solution 29.4% (5) c. Improved range management 23.5% (4)
4. Drought 4.4% (6)	a. Vague, Don't Know or No Solution 50.0% (3) b. Improved range management 33.3% (2) c. WGA hire herdboys 16.7% (1)

Other Problems Mentioned

5. Lack labour or herdboys 3.7% (5)
6. Death of animals (reason unspecified) 3.0% (4)
7. Cold weather 3.0% (4)
8. Predators 1.5% (2)
9. Unintended breeding 1.5% (2)
10. Vague, Don't Know 6.7% (9)
11. No Problems 8.1% (11)

NOTE: The sample size is 135. Percentages associated with problems are based on the entire sample. Percentages associated with solutions are based on the number mentioning the related problem. Numbers in parentheses are the number of responses.

SOURCE: 1986 Woolshed Survey.

Problems that farmers considered of secondary importance are listed in Table V.8.

TABLE V.8  
Farmers' Perceived Secondary Problems

Problems	Solutions
1. Stock theft or loss 12.6% (17)	a. Vague, Don't Know or No Solution 35.3% (6) b. Firearms 29.4% (5) c. Better law enforcement 17.6% (3)
2. Diseases, parasites and inadequate medicine 11.9% (16)	a. Medicine 62.5% (10) b. Better trained livestock assistants 18.8% (3) c. Vague, Don't Know or No Solution 18.8% (3)
3. Inadequate food 10.4% (14)	a. Improved range management 42.9% (6) b. Plant or buy fodder 35.7% (5) c. Vague, Don't Know or No Solution 21.4% (3)

Other Problems Mentioned

- 5. Cold weather 2.2% (3)
- 6. Dipping Methods 2.2% (3)
- 7. Predators 2.2% (3)
- 8. Predators 1.5% (3)
- 9. Drought 2.2% (3)
- 10. Death of animals (reason unspecified) 1.5% (2)
- 11. Vague, Don't Know 10.4% (14)
- 12. No Problems 41.5% (56)

NOTE: The sample size is 135. Percentages associated with problems are based on the entire sample. Percentages associated with solutions are based on the number mentioning the related problem. Numbers in parentheses are the number of responses.

SOURCE: 1986 Woolshed Survey.

One is struck by the consistency of the responses and rankings between Tables V.7 and V.8. It is apparent that animal health is of major concern to the farmers surveyed. Sixty-eight farmers, or 50.4 percent, listed "diseases, parasites or inadequate medicine" as either a primary or secondary problem. Stock theft is viewed also as a serious problem by many. Thirty-five farmers listed it as either of primary or secondary importance. This was over one fourth of the people surveyed.

Inadequate food and drought were of primary or secondary concern to many in the sample. These problems, the first chronic, the second acute, may not be viewed as interlinked by farmers (we do not know) but they may be interlinked in reality. As the South African Drought Commission (1922) observed over sixty years ago, the manner by which the veld is managed affects its ability to utilize what precipitation falls. The adverse impact of drought is as much caused by poor range management as it is by low rainfall. Almost 30 percent of the farmers interviewed mentioned inadequate food or drought as either primary or secondary problems.

Although a number of other problems were mentioned, their incidence was not high. Significantly, perhaps, 8.1 percent of the farmers mentioned no primary problems and 41.5 percent mentioned no secondary problems.

Generally speaking, farmers proposed sensible solutions to the problems they identified. Medicine and better trained livestock assistants (presumably to better identify illness and administer medicine) were mentioned as solutions to disease, parasites and inadequate medicine by a majority of respondents. Only about seventeen percent did not know of a solution or did not think there was one. This is encouraging because many of these problems are preventable or curable.

The problem of stock theft was seen by farmers as more intractable. Fifty percent of those who mentioned it as a primary problem and thirty-five percent of those who mentioned it as a secondary problem gave either vague solutions, did not know of a solution, or felt there was no solution to the problem. This may reflect frustration with law enforcement officials or, perhaps, simply resignation over a decades-old problem. Those who did propose solutions suggested better herding, firearms and better law enforcement. All of these could be of some benefit although more widespread ownership of firearms could make the problem worse.

About one third of those who mentioned inadequate food or drought as primary problems could not propose solutions. These are big problems and this response should not be surprising. Significantly, however, two thirds could propose solutions. Planting or buying fodder and improved range management, both effective solutions, were most frequently suggested.

An examination of farmers' perceptions of their problems shows, not surprisingly, that most of them are most concerned with problems, such as disease and stock theft, which have an immediate impact on them. Encouragingly, however, many of them are also concerned about longer-term problems such as range condition and drought. There also appears to be a high level of awareness of effective solutions to the problems identified.

## V. Management Practices and Problems

Characteristics of a household and motivations and perceptions of its head help to delimit the potential for improved management. Whether improved management practices are actually adopted is another matter again. Over the years, livestock officials have recommended a number of measures to improve the management of sheep and goats. Dipping and dosing have been encouraged to eliminate external and internal parasites and fight disease. Culling and more selective breeding have been promoted to improve the genetic potential of the stock. Better range management and improved nutrition have been encouraged to increase the health and productivity of the existing flock. To what extent have these recommendations been adopted? Data from the Livestock Holders Survey, the Woolshed Survey and the Farming Systems Research (FSR) Prototype Survey help to answer this question.

### A. Mafisa

The institution of mafisa imposes a potential constraint on adoption of improved practices because it separates the ownership of an animal from its management. An animal's stock value (sale value, slaughter value, and progeny) accrues to the owner while its flow value (wool or mohair, milk, and dung) accrues to the manager (see Duncan, 1960: pp. 81-82). Since wool and mohair are a flow value, sheep and goat owners with animals loaned out on mafisa may not be strongly motivated to undertake investments whose returns accrue to someone else. By the same token, since the mafisa'd animal's progeny belong to the owner, the recipient of mafisa, the manager, may be reluctant to practice improved breeding or culling as he will not receive the returns. Also reducing the manager's motivation is the fact that the owner can recall his loan at any time. Even investments made in the flow value may be lost to the manager. How great a constraint does mafisa play in practice?

To begin to answer this question, it is necessary to determine the incidence of mafisa. All studies have noted a lower incidence of mafisa amongst sheep and goat owners than amongst cattle owners. One of the earliest estimates of the incidence of mafisa is provided by the 1960 Agricultural Census. Because of its value in historical comparisons, this data is summarized in Table V.9.

More recently, the Thaba-Bosiu Rural Development Project (TBRDP) extensively examined the incidence of mafisa within the project area (parts of Maseru District) in 1973/74. Farm households (TBRDP, 1975) were distinguished from non-farm households (TBRDP, 1976). Amongst farm households, 12.8 percent of Lowland households and 16.8 percent of Foothill households had small stock on loan ("mafisa-in"). This contrasts with the

rather higher 18.3 percent and 17.9 percent, respectively, of households that had cattle on loan. There was an even greater difference in the proportion of animals on loan. Only 4.2 percent of the Lowland flock and 1.9 percent of the Foothill flock was on loan as opposed to 14.1 percent and 15.6 percent, respectively, of the cattle herd.

TABLE V.9  
Incidence of Mafisa-ing In: 1960

Region	Sheep		Goats	
	% of HHs Managing	% of Flock Managed	% of HHs Managing	% of Flock Managed
Lesotho	23.3	9.1	22.0	14.1
LL	32.8	22.0	33.7	29.1
FH	14.8	4.4	16.6	8.3
MTN	21.6	7.6	21.0	12.7
SRV	16.9	3.4	10.2	3.4

NOTE: LL refers to Lowlands, FH refers to Foothills, MTN refers to Mountains, SRV refers to Senqu River Valley.

SOURCE: 1960 Agricultural Census (Morojele, 1965).

Amongst non-farm households, the percentages were higher in the Lowlands and, generally, lower in the Foothills. Twenty-two percent of Lowland households were managing small stock on loan but only 14.6 percent of Foothill households were. A greater 45.3 percent of Lowland households had cattle loaned in, but a lesser 11.3 percent of Foothill households did. This also represented a higher proportion of the flock loaned in than was the case for farm households: 5.7 percent of the non-farm household flock in the Lowlands and 3.7 percent in the Foothills.

The incidence of loaning stock out ("mafisa-out") was rather higher than the incidence of loaning in. Twenty-seven percent of farm households in the Lowlands and nine percent of those in the Foothills had sheep or goats out on loan in contrast to twenty-six and thirteen percent, respectively, who had cattle out on loan. Amongst non-farm households, 43.4 percent had small stock out on loan as opposed to 14.8 percent with cattle out on loan

(no distinction was made between zones). Unfortunately, the proportion of the flock or herd out on loan was not reported.<sup>31</sup>

The 1981 Farming Systems Research Prototype Survey found lesser incidences of mafisa (see Klosterman, n.d.). The proportion of sheep managing households receiving sheep on mafisa was 2.3 percent in Siloe, 2.6 percent in Nyakosoba, and 5.2 percent in Molumong. For goats the incidence was lower still: 1.7, 1.3, and 3.5 percent, respectively. The proportion of households having sheep or goats out on loan was rather greater. The proportion "mafisa-ing" out was 6.9 percent in Siloe, 11.1 percent in Nyakosoba, and 7.8 percent in Molumong. With the exception of Siloe, the percentages were lower for goat owners than for sheep owners: 10.4 percent for Siloe, 9.2 percent for Nyakosoba, and 4.3 percent for Molumong.

As with the Thaba-Bosiu data, the proportion of the flock involved in the mafisa relation in the three prototype areas tends to decline as one moves away from the Lowlands. It also appears that a slightly larger proportion of the goat flock is involved in mafisa in the Siloe (Lowlands) and Nyakosoba (Foot-hills), but a smaller proportion in Molumong (Mountains). (The actual data is unambiguous in this regard. It is difficult to generalize to the population, however, for the reason explained in Chapter I.)

The 1985 Livestock Holders Survey permits a rather more comprehensive look at mafisa. This data is summarized for sheep in Table V.10 and for goats in Table V.11.

The data in Tables V.10 and V.11 are in rough agreement with the earlier data. They are also similar to those obtained in a survey conducted in 1984 in the Rapoleboea area, in the mountain zone of Maseru district, in connection with the District Level Planning and Rural Development (DLPRD) research project in the Institute for Southern African Studies at the National University of Lesotho (see Duizger, 1984). The DLPRD survey found that 22 percent of households had received sheep or goats on loan and 26 percent had loaned them out. Approximately 4 percent of the sheep and between 7-10 percent of the goats were involved in mafisa. All of these data are in excess of the incidence reported by the Farming Systems Research Prototype Survey, however. Its sample of only three villages in three different geo-climatic zones probably makes it unrepresentative in this regard.

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<sup>31</sup>In a population census, the proportion of animals mafisa'd-in would have to equal the proportion of animals mafisa'd-out. In a sample, this would be so only by chance. The true proportion is probably somewhere between the two sample proportions.

TABLE V.10  
Sheep and Mafisa

Region	Mafisa-in			Mafisa-Out		
	% of HHs Managing	N	% of Flock Managed	% of HHs Owning	N	% of Flock Owned
Lesotho	18.8	47	6.0	21.3	53	4.7
NLL	23.5	8	4.3	16.7	6	15.6
SLL	29.0	7	2.7	28.6	6	7.0
FH	8.3	3	6.5	8.3	3	1.1
SRV	22.6	12	6.1	22.2	12	4.4
LRMTN	16.4	10	8.7	24.2	15	6.1
RMTN	18.6	8	5.6	26.8	11	2.1

NOTE: NLL refers to Northern Lowlands, SLL refers to Southern Lowlands, FH refers to Foothills, SRV refers to Senqu River Valley, LRMTN refers to Less Remote Mountains, RMTN refers to Remote Mountains. N is the number of observations.

SOURCE: 1985 Livestock Holders Survey (see Swallow, Brokken, Motsamai, and Sopeng, 1986).

TABLE V.11  
Goats and Mafisa

Region	Mafisa-in			Mafisa-Out		
	% of HHs Managing	N	% of Flock Managed	% of HHs Owning	N	% of Flock Owned
Lesotho	21.3	51	9.5	26.7	63	8.3
NLL	28.6	6	6.8	21.7	5	9.1
SLL	37.0	10	26.9	26.9	7	23.0
FH	15.2	7	4.4	34.0	16	9.6
SRV	22.2	12	10.4	30.9	17	7.6
LRMTN	17.1	7	10.6	17.5	7	6.2
RMTN	19.6	9	7.4	23.9	11	4.5

NOTE: NLL refers to Northern Lowlands, SLL refers to Southern Lowlands, FH refers to Foothills, SRV refers to Senqu River Valley, LRMTN refers to Less Remote Mountains, RMTN refers to Remote Mountains. N is the number of observations.

SOURCE: 1985 Livestock Holders Survey (see Swallow, Brokken, Motsamai, and Sopeng, 1986).

In summarizing this evidence, it is probably safe to say that approximately 20 percent of sheep holding households are involved in each side of the mafisa arrangement. For goat holding households, somewhere between 20 and 25 percent are involved in the arrangement. As a proportion of the flock, perhaps as much as 10 percent of the goats and about 5 to 6 percent of the sheep are involved in mafisa.

The reasons for engaging in mafisa are no doubt many. Duizger (1984) found that a household labour shortage implying the inability to properly herd animals was the most frequently cited reason for loaning animals out. Next in importance was to "help others" and because the "recipient asked for it". A few listed the desire to spread risk and avoid theft.

Dobb (1985) came to similar conclusions. He found that households might mafisa-out to gain herding labour; they might mafisa-in to gain access to a cattle post. Interestingly, however, he found little relation between migration and having animals mafisa'd out. The mafisa arrangement was not significant in solving labour constraints caused by migration, he concluded.

One might be tempted to think that mafisa might have an equalizing effect on the livestock distribution since those with animals could loan them out to those without. In practice, this does not seem to be the case. Dobb wrote (p. 122):

There is evidence that having animals out on mafisa is primarily a management strategy rather than one to share the benefits of owning animals with those that do not have them. Every household that was managing animals on loan already owns some livestock. In fact, they own significantly more livestock than anyone else.

On average, in Dobb's sample, recipients of mafisa'd animals had flocks three times as large as non-recipients. The Livestock Holders Survey supports a similar conclusion. In that sample, 68 percent of households with sheep out on loan had 10 or fewer out. These households had 31 percent of the sheep mafisa'd-out. By contrast, 15 percent of the households with sheep in on loan had 50 or more in. This constituted almost 50 percent of the sheep mafisa'd-in. The bottom 50 percent of households with sheep in on loan had only about 12 percent of all such sheep. The pattern is similar, although less dramatic for goats. Thus, a relatively large number of households are loaning animals out (and forgoing their flow value) to a relatively small number of households (who are gaining that flow value, thereby).

While the percentage of animals involved is not large, because of the large size of the national flock, some 180,000 small stock are involved in a mafisa arrangement. These are divided about equally between sheep and goats. If these animals

are, in fact, receiving a lower level of management attention than owned animals, common range grazing could make their influence on the health and breeding of other animals much greater than their numbers alone would suggest.

## B. Dipping

Both dipping and dosing have been promoted for years as an effective means of controlling animal parasites and disease. External parasites, which can lower an animal's health and the quality of its clip, can be controlled by dipping. Past dipping campaigns were conducted in the 1920s and 1950s. The current campaign was initiated in 1976 after an outbreak of sheep scab in Maseru District in 1975. Double dipping is compulsory and the second dipping should take place eleven to fourteen days after the first. According to Livestock Division personnel, dipping only once does little good.

Despite the element of compulsion, double dipping is less than universal. According to data supplied by the Livestock Division, the following numbers of animals have been dipped recently (the data do not distinguish between sheep and goats). Dipping was much restricted in 1983/84 owing to the drought and the difficulty of obtaining water to fill the dips.

TABLE V.12  
Sheep and Goat Dipping

Year	No. Dipped Once	No. Dipped Twice	% Dipped Twice of Dipped Once	% Dipped Twice of all S & G
1981/82	1,563,623	1,475,896	94.4	65.1
1982/83	1,996,994	1,502,120	75.2	69.8

SOURCE: Livestock Division.

The Livestock Holders Survey asked respondents about dipping. Sixty-five percent of sheep managers and sixty-one percent of goat managers dipped once, invariably in January, February or March. More significantly for animal health, a relatively high percentage, fifty-five percent for sheep managers and fifty-four percent for goat managers, dipped twice. The second dip tended to occur in February and March and, to a lesser extent, April. Although only somewhat less than two-thirds of small stock managing households dip at all, the Livestock Division's advice regarding two dips seems to have been adopted

by those who do: more than eighty-five percent (85 percent for sheep managers and 88 percent for goat managers) of households that dip once also dip a second time. This data is not inconsistent with the Livestock Division data in Table V.12

Small flock keepers tend to dip less frequently than do larger ones. Only thirty-seven percent of the very small goat flock keepers--those with five or fewer animals--dip twice. Keepers of sheep and goat flocks of ten or fewer animals dip twice just under fifty percent of the time (43 percent for sheep flocks and 48 percent for goat flocks).

Large flock keepers--those with over 100 animals--tend to double dip much more frequently. Although the sample of large flock keepers is small, it appears that about 80 percent of them dip twice.

Keepers of intermediate sized flocks dip twice at rates midway between the extremes. Clearly for goat keepers, but somewhat less so for sheep keepers, the larger is the flock, the more likely is it to be dipped twice. On average, about sixty percent of intermediate sized flock keepers double dip.

Larger flock keepers are not only more likely to dip twice than not at all, but they also are less likely to dip only once. Of the very small flocks, 25-30 percent that dip once never return for the second dip. The percentage of non-returnees drops to about 10 percent for the intermediate size flock keepers and to nearly zero for the large ones. Whether because of higher motivation or because extension advice has been better targeted to them, the double-dipping message has got through to the larger flock keepers.

To cover the cost of dipping, a fee is levied on the sale of wool and mohair. Although this fee may vary from year to year, for the past several years it has been 21 lisente per kilogram sold. The same fee is levied regardless of whether the product is sold through LPMS woolsheds or private traders. Those farmers selling wool or mohair, having paid for dipping thereby, have a strong incentive to dip. As if to lend strength to this statement, 98 percent of sheep keepers and 95 percent of goat keepers interviewed in the process of selling their wool or mohair in the Woolshed Survey reported dipping their flocks at least twice. With sheep keepers, there was no discernible difference in inadequate dipping amongst flock size classes. Amongst goat keepers, however, all of the seven farmers who did not dip or who dipped only once had flocks of 30 or fewer animals.

Farmers who do not market wool and mohair (primarily the smaller ones and those in the lowlands--see Chapters VI and VII) have much less incentive to dip as they have made no payments against the cost of dipping. Grazing on the common range with

the others, however, their undipped animals may infect those managed by the more market-oriented farmers.

### 3. Vaccination and Dosing

In the Livestock Holders Survey, approximately six percent of both sheep and goat keepers reported having lost animals to disease in the previous year. An additional 5 to 6 percent reported losses due to unknown causes, many of which, in fact, may have been from disease. Of the sheep managed, 151, or one percent, died of disease or unknown cause. Amongst managed goats, 130, or two percent, so died.

Vaccination against small stock diseases is not required but Livestock officials recommend that it be done at annual intervals, especially at shearing time. The cost of the vaccine is borne by the farmer and presently costs about 10 lisente per animal.

According to the Livestock Holders Survey, the reported incidence of vaccination for sheep or goat diseases was not high. Only 6.4 percent of sheep holders and 7.1 percent of goat holders reported vaccinating against Blue Tongue, Black Quarter or Interoxaemis. It is not known whether these low percentages were owing to the relatively low incidence of fatal disease and, hence risk, or to a general ignorance on the part of farmers of the benefits of vaccination. Since farmers must pay for the vaccines, they simply may deem the benefits not worth the costs.

Internal parasites can result in reduced food intake and lower wool and mohair production. According to South African research, relatively heavy internal parasite infestations in goats can reduce food intake by 50 percent over six weeks and light infestations can reduce mohair production by 16.7 percent in three months (van Tonder, 1983: p. 49).

The Livestock Division has long recommended that animals be dosed for effective control of internal parasites. Currently the recommendation is for dosing at quarterly intervals during periods of normal weather and every two months during periods of heavy rains. Thus, ideally, farmers should be dosing 4-6 times a year. Dosing of lambs and kids is especially encouraged. Like vaccinations, the cost of dosing, between 12-25 lisente per animal, must also be borne by the farmer.

No questions were asked in the Livestock Holders Survey about dosing for internal parasites. The Woolshed Survey did ask about dosing, however. Only about 18 percent of both sheep and goat holders surveyed dosed their animals four or more times during the survey year (1985/85). Twenty-five to twenty-seven percent did not dose at all. The remainder did dose but not at the recommended frequency.

As will be observed from Tables V.13 and V.14, the frequency of dosing varies with a number of factors. Owners of large sheep flocks are twice as likely to dose the recommended number of times than are owners of small flocks. With large goat holders, the probability is almost four times as high. In addition, age of the household head may be important. While younger heads are less likely to neglect dosing altogether, older heads are more likely to dose the recommended number of times.

TABLE V.13  
Incidence of Dosing Sheep

Times Dosed	0	1	2	3	4	>=5	N
Size of Flock							
<= 20	41.7	11.1	27.8	8.3	5.6	5.6	36
21 - 50	24.3	3.4	13.8	34.5	10.3	13.8	29
51 - 100	17.4	0.0	34.8	30.4	13.0	4.3	23
> 100	11.1	14.8	37.0	14.8	11.1	11.1	27
AVERAGE	25.2	7.8	27.8	20.9	9.6	8.7	115
Age of Household Head							
< 40	9.5	9.5	28.6	38.1	14.3	0.0	21
40 - 59	36.7	3.3	33.3	10.0	6.7	10.0	30
>= 60	40.9	0.0	27.3	4.5	9.1	18.2	22
Education of Household Head							
none	33.3	5.6	33.3	13.9	8.3	5.6	36
std 1 - 5	21.7	10.0	26.7	23.3	8.3	10.0	60
> std 6	25.0	0.0	31.3	18.8	6.3	18.8	16

NOTE: N is the number of observations.

SOURCE: 1986 Woolshed Survey.

The education of the household head also seems to have an impact on the frequency of dosing. Better educated heads not only seemed less likely, in general, to neglect dosing but were also more like to dose the recommended number of times.

TABLE V.14  
Incidence of Dosing Goats

Times Dosed	0	1	2	3	4	>=5	N
Size of Flock							
<= 10	52.9	11.8	5.9	23.5	0.0	5.9	17
11 - 30	24.4	8.9	35.6	15.6	8.9	6.7	58
31 - 75	21.9	6.3	21.9	28.1	9.4	12.5	32
> 75	19.2	7.7	38.5	11.5	11.5	11.5	26
AVERAGE	26.9	8.3	28.3	19.2	8.3	9.2	120
Age of Household Head							
< 40	9.5	9.5	28.6	33.3	19.0	0.0	21
40 - 59	34.4	6.3	34.4	12.5	6.3	6.3	34
>= 60	36.4	0.0	31.8	4.5	9.1	18.2	24
Education of Household Head							
none	33.3	5.6	36.1	13.9	8.3	2.8	36
std 1 - 5	22.0	11.9	23.7	22.0	10.2	10.2	59
> std 6	17.6	0.0	41.2	17.6	5.9	17.6	17

NOTE: N is the number of observations.

SOURCE: 1986 Woolshed Survey.

It would appear that a foundation of acceptance for dosing has been established. Approximately 75 percent of both sheep and goat keepers interviewed in the Woolshed Survey dosed at least once during 1985/86. This varied from a low of 47 percent amongst small goat flock keepers to a high of 90 percent amongst sheep and goat keepers under forty years old. A little additional effort, well targeted to those managers most in need of advice, may pay off handsomely in an increased incidence and frequency of dosing. These conclusions must be tempered somewhat, however, by the distinctive nature of the sample from which they were derived. As stated before, those farmers interviewed in the Woolshed Survey were larger stock keepers and, most likely, more commercially oriented than average. It is probable that the survey exaggerated the acceptance of dosing. Nonetheless, it does show a high acceptance of the concept of dosing

amongst the more commercially-oriented wool and mohair producers. This is encouraging.

#### D. Stock Theft

The historical literature frequently mentions stock theft as an impediment to better management. Farmers, it was alleged, were discouraged from acquiring better quality animals for fear that they would serve merely as bait for the thief. In addition, a large number of farmers interviewed at woolsheds in 1986 listed stock theft as a problem of either primary or secondary importance to them. Do long-standing perceptions of a serious problem match reality?

Both the Livestock Holders Survey and the Woolshed Survey asked farmers about stock theft. Their responses are summarized in Table V.15.

TABLE V.15  
Stock Theft

Source	Sheep	Goats
Percent of Flock		
1985 Livestock Holders Survey	3.0 (447)	1.1 (78)
1986 Woolshed Survey	2.1 (200)	1.5 (85)
Percent of Households Affected		
1985 Livestock Holders Survey	13.9 (35)	7.2 (17)
1986 Woolshed Survey	22.6 (28)	9.3 (12)

NOTE: In the 1985 Livestock Holders Survey, 251 households managed sheep and 235 managed goats. In the 1986 Woolshed Survey, 124 households managed sheep and 129 managed goats. Numbers in parentheses are the numbers of animals stolen or households affected.

From the data in Table V.15, it appears that sheep theft is approximately twice as prevalent as goat theft. This is true whether considered as a percentage of the flock or as a percentage of households affected. In fact, anywhere from one-eighth

to one-fifth of sheep-holding households may be affected by theft in any one year. This may be a high enough frequency to deter some sheep owners from acquiring better animals. Although as many as one in ten goat-holders may be subject to thieves, the actual numbers of goats lost appear small as a proportion of the flock.

Theft affects farmers very unequally. One hears stories of some farmers losing almost their entire flocks while other farmers lose few if any. Theft many also vary from year to year or place to place. Thus, the relatively low incidence of stolen animals may mask some very severe losses for some farmers. One also hears stories about animals being stolen only to be shorn. How frequently this happens is unknown.

Law enforcement can affect the severity of the impact of stock theft on stock-holders. According to the Livestock Holders Survey estimates, there should have been 42,323 sheep and 10,869 goats stolen in 1985. During that same year, 9277 sheep and 4495 goats were reported stolen to the Stock Theft Unit of the Lesotho Mounted Police. If the theft estimates are correct, only 22 percent of the sheep stolen and 41 percent of the goats stolen were actually reported to the authorities.

Once thefts are reported, it is the task of the Stock Theft Unit to attempt recovery. Over the past six years, they have averaged a recovery rate of 34.5 percent for sheep and 39.9 percent for goats reported stolen. Multiplication of the recovery rate by the reporting rate indicates that only about 7.6 percent of sheep stolen and 16.4 percent of goats stolen are actually recovered. Of course, farmers may recover some animals on their own.<sup>32</sup>

Farmers interviewed in the Woolshed Survey were asked how many of the animals stolen in the previous year had been recovered. Although 64 of the 200 sheep stolen were recovered, these sheep were owned by only 2 of the 28 household that had been subject to theft. None of the goats stolen were reported to have been recovered.

In most cases it would appear that the number of animals lost to theft is relatively small. There is a relatively high probability that a household, particularly a sheep-holding household, will experience a theft, however. Although the Stock Theft Unit recovers between 1/3 and 2/5 of the animals reported to it, the majority of stolen animals are never reported. Thus the overall recovery rate is very low.

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<sup>32</sup>One may speculate as to why the recovery rate is so much lower for sheep than for goats. It may be because stolen sheep are more likely to be slaughtered and eaten. Thus, they disappear.

## VI. Conclusions

The quantity and quality of the wool and mohair clip, considered on an aggregate or on a per animal basis, is closely related to the quality of management. The amount of labour and the amount and quality of decision-making authority are important in this regard. Sex, age, education and residence of the household head may all affect the quality of the management function.

In most of the geo-climatic zones, wool and mohair production for the generation of cash income appear to be the major motivation for raising sheep and goats. This is especially true for larger flock owners. The only exceptions are the Lowland zones for sheep and the Northern Lowlands and Foothills for goats. In these zones, meat production takes on much greater significance, although it attracts neither a majority nor a plurality of adherents.

Reliance on wool and mohair sales as income sources is allied to the matter of motivation. A plurality of sheep and goat raising households in all zones rely on migrant remittances as their principal cash income source. This is especially true in the Lowlands. In other areas, livestock and livestock products as a source of income become very important. Farmers interviewed during the Woolshed Survey, who constitute a special subset of sheep and goat farmers--those with larger flocks and a greater commitment to commercial production--relied much more heavily on wool and mohair sales than on migrant remittances. Although some people may be motivated to produce wool and mohair out of necessity because they have no other options available, those who do it by choice and rely on the income so generated may be more willing to listen to the merits of improved management practices from extension advisers.

The raising of livestock (with the exception of pigs and chickens) has traditionally been a male function in Lesotho. Nevertheless, about 13 percent of small stock keepers are women. They tend to be older and have smaller flocks than their male counterparts. Many may have acquired their flocks through being widowed and may not have a strong commitment to sheep and goat management. Although it needs to be studied in greater detail, they may simply be depleting their inheritance so as to obtain additional support for their old age. This group may require special targeting of extension assistance and advice, particularly in the areas of disease and parasite prevention and control.

The level of education of small stock managers may affect both their receptivity to new management practices and their ability to understand and put them into effect. The majority of sheep keepers have some education. This varies by geo-climatic

zone but the proportion with education is higher in the Lowlands and lower in the Foothills, Remote Mountains and Senqu River Valley. Goat keepers tend to be less well-educated than sheep keepers. This also varies by zone and the pattern is very similar to that for sheep.

Another factor that may affect the management function is the residency of the household head. Residency may imply a greater amount of attention paid to management as well as a greater labour availability. Although residency varied by zone, being lowest in the Southern Lowlands, the vast majority of sheep and goat keepers surveyed in the 1985 Livestock Holders Survey were resident at home. Residency was higher in the Northern Lowlands and lower in the Southern Lowlands than elsewhere.

Residency and labour migration are interlinked. Some studies have suggested that there is a correlation between having been a migrant in the past and size of flock today. Labour migration would provide one with the means of accumulating capital with which small stock could be purchased. Small stock could serve as an investment by which one's capital could be maintained. There also seems to be a correlation between size of flock and having more than one migrant in the household.

The characteristics of the household establish basic personal constraints within which the management function must be performed. How do managers perceive their problems? By a wide plurality, farmers think disease and parasites are their major problems. A sizeable number also list stock theft or loss and problems of inadequate food (relating to the condition of the range). Although the first problem is somewhat amenable to individual solution (provided managers have adequate knowledge about appropriate preventions and cures), the remaining problems require social action to deter stock theft or better control and use of the range. Farmers generally have a realistic sense of what is necessary to solve their perceived problems. What they seem to lack is a means of effecting the solution, especially to the problems requiring social or co-operative solutions.

How are sheep and goat keepers managing to overcome their constraints and identified problems? One solution to labour shortages and management constraints is to loan out (mafisa) one's animals to someone better able to look after them. Although the flow values of the animals are lost, their stock value is retained. Estimates are that perhaps as many as 20 percent of sheep keeping households and between 20 and 25 percent of goat keeping households are involved in a mafisa arrangement. Animals tend to be mafisa'd out by households with smaller flocks to households with larger ones. Thus, the percentage of animals involved in the mafisa arrangement is much smaller than the number of households involved. Approximately 10 percent of goats and 5-6 percent of sheep are involved in mafisa.

Disease and parasites are perceived to be important management problems by many farmers. Dipping, dosing and vaccination can be effective remedies for these problems and have been promoted by the Livestock officials for years. In fact, dipping is compulsory and is financed by a levy on wool and mohair sales.

Despite being compulsory, not all small stock are dipped. Estimates are that about 70 percent of small stock receive the recommended two dippings. Survey data indicate that large flock keepers are more inclined to dip than small flock keepers. Since common range grazing may result in parasites being rapidly transmitted amongst animals, the 30 percent of small stock that are not dipped may pose a potential problem. Special targeting of small flock keepers in Lowland areas (where small flocks are more common) with extension advice may pay off handsomely.

Dosing against internal parasites is considerably less common than dipping. Only approximately 20 percent of the rather special Woolshed Survey sample dosed 4 or more times, as recommended. Approximately 25 percent did not dose at all. Because of the special nature of the sample, this should be taken only as representative of the larger, more commercially-oriented farmers. Dosing by the "average" farmers is likely to be much less common.

Animal nutrition may affect both the quantity and quality of the clip. Internal parasites rob the animals of much of the small food intake they get from the overgrazed range. More widespread dosing may pay off in larger fleece weights and higher average prices. Although this needs to be looked at more carefully, there may be a justification for instituting a programme of compulsory dosing financed by an enlarged "animal health" levy as is done currently for dipping.

Improved management of sheep and goats may be brought to naught if the animals are stolen. The historical literature mentions the problem often. Survey data suggest that a relatively small proportion of sheep and goats are stolen (approximately 3 percent of sheep and 1.5 percent of goats) in any one year. Nonetheless, a relatively large number of stock keepers are affected by theft. Perhaps as many as 20 percent of sheep keeping households and 10 percent of goat keeping households may have an animal stolen during a year. Of those animals reported stolen, about one third are recovered. Much less than half of the animals stolen are reported, however.

Anecdotal evidence suggests that the incidence of stock theft is not uniform amongst small stock keepers. Some are hit badly while others are not affected at all. Thus, it may be a severe problem for some farmers in certain areas and only a minor one for others.

The marketing structure may affect the motivations of farmers to raise wool and mohair by the quality of service it provides, the amount of the payment, and the promptness by which it is made. In the next two chapters the clipping and marketing of wool and mohair are described and analysed.

## CHAPTER VI

### THE CLIPPING AND MARKETING OF LESOTHO'S WOOL AND MOHAIR

with Rampoi Thabane

#### I. Introduction

As Merino sheep and Angora goats were adopted originally by Basotho for the income their wool and mohair would bring and are still raised primarily for this reason, the nature and efficiency of the marketing structure may have profound implications for farmer's attitudes towards their industry and may thereby significantly affect their management practices. In this regard, D. R. Phororo (1979: p. 130) has observed that ". . . erratic and unplanned marketing changes will definitely have long-term adverse effects on animal production."

Lesotho's present marketing structure is the result of a long process of continuing evolution and experimentation which has sought to reform perceived abuses in the system inherited from the colonial period while increasing the returns to Basotho sheep and goat raisers. In this, reform has not always been successful. When it has proven unsuccessful, whole structures have been replaced by new ones in hopes that a new formula for success may have been found. Today, there exist two parallel, official marketing networks--the government Livestock Products Marketing Service (LPMS) and the remaining private traders--and one relatively unimportant and illegal group of wool and mohair smugglers. The evolution of this institutional structure illuminates many of the problems that the industry has had to respond to over the years and places in perspective many of the problems that it continues to face today. After outlining that evolution, some of these contemporary problems will be analyzed.

#### II. Early History of Wool and Mohair Marketing<sup>32</sup>

Trade between Basotho and neighbouring African nations predates European penetration of the area. This trade was in grains, animal products, handicrafts and the natural resources of

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<sup>32</sup>For much of this section, I have relied heavily on P. W. Stutley's 1960 Master's thesis on the marketing of Basutoland's agricultural produce. This is one of the few scholarly analyses of the history of Lesotho's agricultural marketing experience to have been attempted from this period and provides a broad perspective on the evolution of marketing structures. Unless otherwise noted, citations are from this work and will only be referenced by page number.

the area (Kimble, 1978: pp. 127-128). Trade in manufactured goods, however, does not seem to have been a regular occurrence before the French missionaries' arrival in Lesotho and the arrival of the Boers on the Great Trek from the Cape, both in the 1830s. Within thirty or forty years of these events, however, the Basotho were incorporated, and had incorporated themselves, into the expanding Southern African market nexus.

As previously noted (Chapter III), two permanent trading stations had been established in Lesotho by 1854. Within the next twenty-five years, on the strength of the expanding Basotho cash economy, their number increased to seventy. Their expansion was slow initially and their numbers waxed and waned according to the fortunes of wars between the Basotho and Boers. Following the agricultural boom of the 1870s and the establishment of British rule after the Gun War of 1880-81, however, traders' numbers increased rapidly (Walton, 1958).

These trading stations were, as the term "trader" would imply, loci for the sale of agricultural implements and consumer goods to the Basotho in exchange for the purchase of their agricultural produce. As such, they facilitated the export and import of goods. They also served as middlemen in domestic trade, provided credit to farmers, and provided something of a social centre where news and information could be exchanged (p. 224). Although grain products were the first important agricultural exports, for most of the 20th Century, the principal commodity exports by value have been wool and mohair.

According to Moshoeshoe's Law of Trade of 1859, traders were allocated land for their premises but were forbidden to own it. In addition, they had to obtain the king's permission to transfer sites amongst themselves. Although the colonial authority did not explicitly recognize this law, implicitly it was adhered to (p. 209). This, plus the necessity of obtaining trading licenses from, first, the Cape administration and, then, the colonial government meant that traders were, in theory if not always in practice, regulated by political authority.

#### A. Evolution of the Trading Structure

Initially, it seems, the trading structure was a highly competitive one. This structure changed somewhat, however, with the Gun War of 1880-81. Many traders were seen by the Basotho, often correctly, as outposts of colonial authority and were attacked accordingly. As a result, many trading stations were either abandoned or sold during the hostilities.

Into the breach stepped the Fraser brothers who had established their first trading station in Mafeteng just prior to the war. They bought up the stations of owners anxious to leave and acquired the licenses of abandoned stations. By the end of the

war, many of the stations, especially in the Southern part of the country, were under the Frasers' umbrella (Walton, 1958). Most of the rest of the traders were small, single station operations, although several had a small number of locations.

To increase their access to the agricultural produce of the rural areas, traders undertook the construction and maintenance of much of the system of tertiary roads in Lesotho. In an attempt to direct farmers' business towards them, traders frequently employed touts to travel around the rural areas and try to persuade flock owners to patronise their employer. In the process, they would advertise the prices their trader was prepared to pay (eventually, with the aid of regulated touting slips which listed prices, grades and the time period for which they were applicable), would often help with the shearing and collection of the clip, and would provide market intelligence to the trader and would, thereby, help to set prices (see Biggs, 1965(?): pp. 10, 59).

Frasers was undoubtedly the dominant force in the private trading structure. Either through its own stores or through its wholly-owned subsidiary, K. Nolan, it controlled a sizeable percentage of the trading locations. Very early on the trading structure adopted the features which continue to characterize it today: one dominant firm with a sizeable percentage of the trade and numerous smaller firms controlling the rest. In 1958, 45 of the 215 trading locations were Frasers'. At the same time, 61 licensees had only one trading location each. Today, Frasers has over one-third of the licensed private wool and mohair trading locations in Lesotho.

An additional element in the early trading structure was the hawker. These were itinerant traders who travelled about the countryside, mostly in the remoter areas which were distant from a trading station. Because of transport constraints, they typically bought and sold in small lots. Neither the 1884 nor the 1928 trading regulations restricted them as to what they could trade. They could not establish a permanent trading location, however. By the turn of the century, there were 655 hawkers operating in Lesotho. With the 165 traders operating at this time, this was a ratio of better than four hawkers to one trader (p. 197). Despite their numeric superiority, the inherent physical limitations to hawking probably ensured that general traders had the bulk of the trade.

Between that time and the 1960s, the role of the hawker in agricultural trade gradually declined. The principal reason for this was the desire to improve grading and classing of wool and mohair (see below), activities for which the hawker was considered ill-equipped. By the 1950s, hawkers' activities became increasingly restricted and in 1953 they were forbidden to export

wool and mohair. By the 1960s, their position had been reduced largely to that of peddler and their numbers shrank (p. 199).

After the Second World War, the colonial government attempted to introduce a further measure of competition into the market for agricultural produce by encouraging the formation of co-operative societies. These initially dealt mostly in wool and mohair and arranged to have members' produce auctioned directly by BKB in East London. At first, the promise of higher prices caused co-op wool and mohair sales to expand rapidly. By 1951/52, 8 percent of the clip was being sold through this channel. Because co-ops paid farmers only after the clip was sold, however, payments were delayed and by 1957/58, co-op sales had declined to about 3 percent of the total (p. 296). According to Stutley (p. 296), the farmer

. . . would much prefer to sell his wool for spot cash, even though the amount he received was less. There was no argument, no suspicion, and no delay.

In an attempt to overcome the problem of payment delays, the Basutoland Co-operative Banking Union was established to provide credit. By borrowing from the banking union, co-ops could advance payment to farmers in anticipation of the coastal auction (see Biggs, 1965(?) and the testimony of Mr. P. T. Molai, Secretary to the Quthing United Co-operative Society, BNC, 1964: p. 203). How widespread this practice was is not known, however. It is also not known how ultimately damaging payment delays were to the co-op system. It should be noted that the problem of delayed payment is one which persists today for the LPMS marketing channel (see Chapter VII).

To guide co-op societies in setting prices, the Department of Agriculture provided tables of previous-year prices along with suggested deductions and current-year prices. These were regularly updated as new information became available. The co-ops were free to establish their own prices, however. According to the testimony of Mr. A. Bisschoff, Senior Agriculture and Livestock Officer (BNC, 1964: p. 45):

. . . we have found that provided societies keep to these lists they are competitive enough to hold their own against the traders. In fact we have also found that where societies get these advices (sic) they are aware of a price rise in the product long before the traders would even talk about it. The trader would be inclined not to make it known too quickly when the market moves upwards. This is of tremendous value to the farmers in that they have this thing the moment the price moves upwards or the other way and they are able to make propaganda of it themselves. It becomes known

to members what the movement in the market is as early as possible.

Traders, who had had little competition previously, responded to the co-ops in two ways. On the one hand, they were forced to pay higher prices for their purchases. On the other hand, some attempted to undermine or sabotage the co-ops. Some, for example, would refuse to sell maize to a farmer unless they were allowed to purchase his wool. Some others would attempt to turn chiefs against the co-ops and, hence, undermine their legitimacy amongst farmers (p. 288). One, it was alleged by Mr. Lechesa Mofiqoi, progressive farmer, raised prices against a competing co-op and then lowered them again after it had been driven out of business (BNC, 1964: p. 296).

These problems notwithstanding, many co-ops apparently experienced financial and managerial problems that were wholly avoidable and of their own making. These included untrained personnel, misallocation and misappropriation of funds, overpayment of staff and farmers, and inadequate control over credit (see Biggs, 1965(?): pp. 108-109). Several organizations were established to try to overcome these problems but were unsuccessful. To quote Biggs (p. 106):

. . . by October 1961 insurmountable difficulties had been encountered, mainly it seems because the co-operative movement had by then become involved in considerations which were not only unrelated to the principles and operation of marketing co-operatives but also actually prejudicial to their well-being.

Government attempted to intervene in the internal affairs of societies in difficulty but was prevented from doing so by its inability to get enabling amendments to the Co-operative Proclamation passed. The system continued to deteriorate financially until late 1963 when it was, effectively, placed under government control (Biggs: pp. 106-107).

The competition provided by the co-op movement was probably more potential than real. Although marketings of wool and mohair through this channel increased rapidly at first, within a few years they declined. They recovered again after credit was available but never reached more than about 10 percent of the total clip (Biggs: p. 106).

Competitive agricultural produce markets are typically marked by unstable prices. Between the time a product is purchased from the farmer and the time it is sold on the world market the price can change, sometimes markedly. If it rises, the trader gains; if it falls, he loses because he is unable to recover his initial outlays. Thus, there is an element of speculation involved in purchasing agricultural products.

Because traders paid cash for wool and mohair, they bore much of the speculative risk. This they would attempt to pass on to the farmer by paying lower than risk-free prices, however. Initially, the co-op paid the farmer only after the wool or mohair was sold. Thus, although prices were often higher, the farmer bore the speculative risk directly. This burden was eliminated after co-ops advanced payment to farmers but by doing this the co-ops took on the speculative risk themselves.

#### B. Allegations of Restrictive Practices in the Private Trading System

A number of allegations were levelled against the system of private traders, particularly in the years leading up to Independence. Most of these fall into the category of using restrictive business practices to take advantage of farmers. Limits to competition are necessary if such practices are to be effective. What evidence is there for limited competition amongst traders?

Limits to competition may be of two types. One is a natural limit and is imposed by the nature of the business itself. Such a limit existed for traders in the form of the initial capital outlay required for successful operation. The capital required for trading, as opposed to retailing, was large and the market for agricultural produce was often erratic. One had to have enough on hand to pay the farmer often well in advance of final marketing. In the absence of government-supplied credit, this effectively limited the access to a general trader's license to those with access to large amounts of capital or private credit (p. 212). Stutley estimated that 50 percent of the capital required for setting up a trading operation was required for wool and mohair storage and classing sheds. A fund for financing the purchase of produce required a further 5 percent of the capital. In 1958, these two items alone amounted to #55,000 (p. 233).

To overcome this problem, a restricted traders license was ultimately established. This license entitled its holder to trade in all commodities except wool and mohair. In 1960, 600 of these licenses were held by Basotho (p.204). The restricted license did not address the problem of limited competition in the wool and mohair trade, however.

Co-operative societies were seen as a means of overcoming this problem. As has been observed, they were not very successful and probably provided little real competition to traders, except at first.

To this natural entry barrier to trade was added the barrier of racial identification. White traders formed a community of, at least partial, interest with the colonial authority. The two formed a social community, as well. White traders seem to have been able to successfully prevail on the colonial authorities to

restrict the number of licenses issued in any particular area or community so as to limit competition. Maseru, Leribe and Butha Buthe had only four, while Teyateyaneng, Mafeteng and Mohale's Hoek had five (see map in Biggs, 1965(?)).

In addition to general restrictions, license applications by non-Europeans (usually Indians) were vigorously opposed by established white traders for fear that the resultant competition would be "unfair". What this seems to have meant is that non-Europeans were accustomed to a lower material standard of living and, hence, required lower gross margins of their business (see Stutley, 1960 and Selwyn, 1980). Thus, they could afford to pay higher prices for produce and/or charge lower prices for merchandise than European traders and still earn adequate profit. As a result of discrimination in awarding licenses, Indians and Afro-Indians were concentrated amongst hawkers.

Only in the Butha-Buthe area, where Chief Jonathan Molapo reasoned that the widest possible competition would ultimately benefit Basotho customers, were Indian traders permitted much of a foothold. Even here they tended to be concentrated in retail trade, however. Because of the intense competition, Basotho traders found it difficult to get started in this area (p. 210).

Initially, few Basotho obtained the general traders license. In 1932, Basotho held 3 of the 193 general traders licenses. Of the remaining 190 licenses, 174 were held by Europeans and 16 were held by Asians or people of mixed race. By the 1950s, the colonial government began to encourage Basotho to enter trading. After 1953, no new licenses were issued to non-Basotho, although existing licenses could be transferred to anyone. After this, the number of Basotho licensees increased rapidly. In 1958, Basotho had 14 of the 215 general traders licenses held at that time. The number of European licenses, at 173, was almost the same as twenty-five years earlier and Asian or mixed race licenses almost doubled to 28 (p. 223). After 1958, this regulation was relaxed when it was found that more new stores were required to serve the expanding population in the mountains than there were potentially available Basotho traders (p. 238).

These limits to competition meant potentially higher profits and larger operations than would otherwise be the case. It is not altogether clear how this should be evaluated. Larger, more financially stable trading firms could provide some advantages to farmers. The concentration of resources that larger trading companies implied permitted traders to ride out downturns in the market and, perhaps, offer higher prices to wool growers as a result. According to Walton (1958: pp. 39-40), the wool price collapse of the mid-1920s caused the ruin of many traders who were caught with large stocks on hand. However, he wrote, ". . . Frasers had built up reserves against such an emergency and their various stores throughout Basutoland retained their wool until

the following year when prices reached a level at which it was possible to trade." Conversely, however, the larger the capital invested, the larger might be the potential threat of loss.

Against the benefits of concentration must be weighed the costs. Principal amongst these were the potentials for setting monopsonistic purchase prices and monopolistic sales prices or adopting other restrictive business practices. The potential for this was made more real by the fact that traders were licensed and limited numbers of licenses were issued for each area (see below). Because of transport and alternative trading opportunities, however, Stutley (pp. 228, 239) did not think this constituted an effective monopsony/monopoly over trade: farmers could take their trade elsewhere if Frasers' or their local trader's prices were not to their liking. The ability to transport produce elsewhere provided effective competition, he thought. Biggs (1965?) thought this was an important factor as well since, according to him, farmers did not value their time highly. Three decades earlier, Sayce (1924) noted that farmers were often willing to transport their produce long distances. Those with ready access to transport would often sell their produce closer to the source of supply of goods to be bought because they could get lower prices thereby. Only those farmers for whom transport was scarce had to sell locally.

The strategy of shopping around, often over difficult terrain, in search of better prices is a viable evasion of restrictive practices only under certain conditions. First, if the cost of doing so is less than the price differential between the local trader and an alternative. Where the opportunity cost of the farmer's time and transport is low, this is likely to be the case. Where it is not, the farmer may be forced to accept the monopsonistic price offered by his local trader. Second, if traders form a community, they may agree to certain supra-competitive practices which, in effect, make shopping around ineffective. That they formed a community is undoubted (see below); that they agreed, therefore, on certain supra-competitive practices is not known. Additional research on this matter is necessary.

Frasers continues to play a dominant role in trade in Lesotho. About 40 retail outlets are controlled by the firm as are 16 of the 43 private trading locations licensed to deal in wool or mohair (or almost 40 percent) (Combs and Hunter, 1987: pp. 41-43 and 98). With the active competition from government woolsheds in wool and mohair sales, however, this dominance no longer constitutes even a potential threat of monopoly.

Probably more important than concentration were various practices adopted by traders to limit farmers' freedom to contract and, thereby, to extract a higher margin from their trade. Some methods were merely picturesque; others were more

pernicious. Amongst the former, Mr. Roger Tully, a long-established Teyateyaneng trader recalled a Mr. Mervyn Bosworth Smith who used to challenge wool sellers to a stick fight. If he won the fight, the seller would receive five pence per pound. If the seller won, he would pay ten pence per pound. This reportedly gained him great respect amongst the Basotho who were anxious to challenge him. Amongst the latter, were somewhat less charming methods. Another trader, Mr. Bob Morrison of Marakabei, reportedly would never again buy a farmer's wool if he should sell his wool to any other trader (reported in Selwyn, 1980).

Credit was another method by which private traders could gain advantage over their clients. Clearly, the provision of credit can be a beneficial, indeed necessary, function in an agricultural community. Prices may often fluctuate greatly, savings may be hard to amass, and outlays may not coincide with incomes. Walton (1958) probably exaggerates when he writes:

When crops have failed and famine threatens, in sickness and the sorrows of death, or when assistance is needed to educate their children, the local trader is frequently the person to whom the Mosotho appeals for help, and, when the case is deserving, this help is often given without any hope of return. (p. 45)

Whether this account is an exaggeration or not, the provision of credit has been widely observed (see Stutley, 1960: p. 224). The reason is not far to seek since credit can be used to create a condition of "debt serfdom" whereby farmers are obligated to deal with a particular trader. In a paper submitted to a hearing before the Basutoland National Council in 1963, Mr. L. A. 'Makoa, Livestock Officer, noted this aspect of the provision of credit. He wrote (BNC, 1964: p. 326):

His [the farmer's] freedom to choose between competing local and Exal Markets is limited in practice, by his obligations to the local traders arising out of the past and current indebtedness. This provision of credit is very frequently made conditional upon the growers willingness to sell his produces to the trader who is the lender, and sometimes as a general mercantile supplier for his other interests.

The problem arose, he thought, because farmers had no alternative sources of credit. Traders had a monopoly in this area. Thus, according to Mr. 'Makoa (p. 326), 6), the farmer was forced

. . . to seek direct, from the local trader, whatever credit he needs to purchase nearly the whole range of his requirements. In return for this accommodation, at least an informal pressure is, or can be, exerted on

the wool farmers to direct to that wool merchant the whole or part of his clip.

The receipt of interest notwithstanding, the encouragement of a loyal, or sometimes captive, clientele is a useful strategy for any businessman; and the provision of credit can go far towards ensuring the return of customers year after year.

Another complaint levelled at traders was that they did not adequately reward differences in the quality of the produce they bought. Price differentials were not wide enough to encourage farmers to produce high quality produce (see, e.g., the testimony of E. Mojaki, Secretary of the Butha-Buthe Co-operative Society, BNC, 1964: p. 271). This complaint persists today; now, in a marketing system in which private traders have only limited control over price (see Wyeth, Moletsane and Motsamai, 1983).

### C. Agitation for Change in the Marketing Structure

How widespread these restrictive practices were is still not fully known. In an attempt to find out, two examinations of the marketing structure were undertaken in 1963 and 1964, just prior to Independence. One, by H. C. Biggs (1965(?)), was undertaken at the behest of the Basutoland Government. In addition, the Basutoland National Council (BNC), representing Basotho traditional, political and business interests, held hearings and conducted an examination of the marketing of agricultural produce (BNC, 1964). The mandates for both were wide.

Biggs thought there was little convincing evidence that traders' practices operated consistently to the disadvantage of farmers, although he pointed out that there was often little evidence available to decide the matter one way or the other. It is worthwhile to quote him with regard to some of the principal charges laid against traders.

#### 1. Inadequate competition:

General traders claim that the licensing system has been and is necessary to prevent "over-trading" and that competition between general traders for the purchase of primary products is very keen. Nevertheless there is reason to believe that prices offered by traders in certain areas did, in fact, increase when marketing co-operatives were established in those areas. There is, however, no evidence to show whether increased prices were paid as the result of ability to reduce an over-generous profit margin or whether it was a move to counter or eliminate competition by the newly-formed marketing co-operatives. It is my view that no generalisation can be made in this matter. (p. 58).

Licenses did confer a position of privilege on some traders but it would be unreasonable to expect them not to take advantage of this, thought Biggs. Some traders were operating on very small margins, however, while a few might even be operating at a loss. Nonetheless,

. . . the trading and marketing pattern might have been substantially less satisfactory than it is, and . . . producers interests might have been prejudiced by periods of overtrading, (or lack of sales opportunity) had the licensing system not operated. (p. 58).

Biggs concludes:

Any outstanding privilege which may have been conferred may well be less the effect of a licensing system itself than the manner in which it has been applied . . . (p. 58).

2. Traders' margins:

Data on marketing costs and margins in Basutoland are, in general, conspicuous by their absence. . . . The traders, in general, provide good services for the primary producers; but it cannot be said that the true cost of these services to the producer is by any means clear. Because of the absence of data and indeed, at present, the means of obtaining it, it is not possible to say to what extent prices paid to the producer do represent the maximum possible share of ultimate realisation which it would be reasonable for him to expect. . . . Despite the absence of data, however, I am bound to say that the general impression which I gained as the result of my discussions is that trading profits are ample but probably not excessive. (pp. 58-59).

3. Credit:

The extent to which credit is being given to producers by traders at the present time is not known . . . The indications are that it may be less wide-spread than is normally supposed, and that traders have become increasingly selective in the provision of credit, restricting this to those upon whom they feel able to rely for repayment. (pp. 60-61).

With regard to indebtedness and debt serfdom, Biggs wrote:

However unfortunate it may seem that the traders are at present the normal, perhaps the only, source to which producers would look for credit, it seems clear that it has to be regarded as part of the special relationship which appears to have grown up between producers and traders, a relationship which has rested mainly upon the services which the trader has been able to render to the primary producer. (p. 61).

4. Inadequate price differentiation for quality:

The extent to which the existing marketing pattern rewards flock owners and producers for the production of good quality or the employment of honest and efficient classing varies from one commodity to another; but it is open to a certain amount of doubt in respect of all of them. . . . Certainly, apart from wool and mohair - and even in respect of these to some extent - consideration of quality as a factor in the purchase of produce by the trader has been lacking and it is not surprising that this is now regarded as having militated against the producer obtaining the best possible overall value for his produce. (p. 59).

However,

It is not, nor has it been, basically the responsibility of the traders to introduce schemes of classing and grading and in any case it is normally not to be expected that a trading community would be more strict in its application of classing and grading than appropriate Government regulations required it to be. (p. 60).

Essentially, Biggs concluded that there was some merit to the criticisms levelled against traders. In most instances, however, critics were much too harsh or failed to understand the true nature of a private trading operation. As a result, he did not counsel widespread tampering with the existing system. In particular, he was not keen on undue reliance on co-operatives (because of their evident lack of reliability and commercial success) or on direct government marketing of agricultural products. Rather, he thought a regulatory board with statutory powers was better able to correct the deficiencies of the present system (pp. 118-129).

The hearings of the Basutoland National Council did not present such a mild criticism of private trading as Biggs did. Most of the charges have been reproduced above. From the nature of the testimony and the questions by council members, the

charges appear to have been widely believed and the alleged practices widely resented. Many undoubtedly would have agreed with the progressive farmer, Mr. Lechesa Mofoqoi, who stated (BNC, 1964: p. 296) that

"Europeans are very clever people. They do what they please with us in their trading with us."

Mr. A. Bisschoff felt that farmers were being exploited and that marketing controls were necessary (BNC, 1964). A third-generation member of a prominent trading family has admitted (personal communication, 8/1/86) that traders were probably guilty of sometimes unscrupulous behaviour.

For reasons that Biggs identified, the facts are difficult to establish. More important, perhaps, than the facts, especially in this immediate pre-Independence period, were the perceptions of the Basotho. From the evidence of the Basutoland National Council hearings, their perceptions were less than accommodating to private traders. Mr. E. Mojaki, not surprisingly considering his position as Secretary of the Butha-Buthe Co-operative Society, thought private traders should be prevented altogether from buying wool and mohair. All purchases should be channelled through the co-op societies. These sentiments were echoed by Mr. P. T. Molai, Secretary of the Quthing United Co-operative Society and by Mr. A. L. Makoa, Livestock Officer.

What accounts for the seemingly wide disparity between Biggs' cautious conclusions and the harsh advice given to the BNC? How representative of Basotho sentiment was the latter? It is difficult to know the answer to either of these questions but the following factors may have been influential:

1. Basotho nationalist agitation. During this period there was intense nationalistic political activity in preparation for Independence in 1966. Traders would have been seen as a component of the old, colonial order and their position would have been attacked as such.

2. Racial distinctiveness. Although some general traders were Basotho, most were not. Hostility to "foreigners" profiting from "poor Basotho" may have been a factor in Basotho attitudes to the trading system and it is interesting to speculate whether attitudes would have been different had Basotho been better represented amongst the traders' ranks.

3. Bias of the educated against private enterprise. As evidenced by their ability to communicate in English, both the members of the BNC and the witnesses before it would have represented a relatively small, educated elite. Distrust in private enterprise (because of the Great Slump of the 1930s or

because of theories of neo-colonialism and imperialism) and faith in the ability of government to solve economic problems were widespread amongst educated classes of this period. Educated Basotho were certainly in touch with these ideas.

Regardless of the reasons, political changes were taking place which would necessarily bring Basotho perceptions of unfair private trading practices to the fore. As a result, substantial changes were made in the trading structure which gave government a much larger role than it had ever had before. These post-Independence changes are detailed in Chapter VII.

#### D. Changes in Marketing Wool and Mohair

Initially most of the sheep and goats were clipped at home or in the kraal and their wool and mohair were sold ungraded and unclassified to traders or hawkers. Prior to 1929, this was not a problem as demand was strong and the unclassified clip commanded a high price. With the collapse of the market after 1929, however, it became very difficult to sell the unclassified clip. In response, South Africa adopted compulsory standards for classing, packing and marking wool. Basutoland was unwilling to make these practices compulsory but required traders to bear the cost of reclassing and repacking the clip if they did not adopt them (Stutley, 1958: pp 333-334).

In 1935 and 1936, the Basutoland Department of Agriculture conducted experiments to determine if wool shorn and classed in Lesotho and then sold directly on the coast would fetch a higher price than if it were sold locally unclassified (see Henderson, c1938). In some cases, the wool was clearly labelled "Basutoland"; in one case, because it was believed that there was a bias against "Basuto" wool, an inferior wool was labelled "Orange Free State". In all cases, there was a substantial price differential between the classed and the unclassified wool, even allowing for differences in marketing expenses. In one case in 1935, the coast price for the classed wool was 36 percent greater than the local price for unclassified wool. This amounted to a one shilling differential in returns per sheep: 3 shillings, 8 pence vs. 2 shillings, 8 pence. In another instance, there was a 33 percent price differential. In 1936, a 22 percent differential was realised. According to Henderson (p. 12): "These experiments prove conclusively that the classing of wool off the sheep's back pays and pays handsomely."

In 1936, a policy to pay farmers a 1/2 d. premium for properly classed wool was adopted by joint agreement between the Department of Agriculture and the Chamber of Commerce (representing the private traders). Brochures were prepared in Sesotho to explain this policy to farmers. To facilitate this, portable wool sheds--folding tents--were provided where classing could be undertaken under official supervision. Apparently this met with

a measure of success because the number of sheep shorn under official supervision increased from about 41,000 to 245,000 between 1937 and 1943 (Stutley, 1958: p. 337; Biggs, 1965(?): p. 64; and Henderson, c1938). This latter figure represented approximately one-sixth of the sheep in Lesotho.

During World War II, pressure was put on Lesotho by the British Wool Buying Commission, which agreed to buy all of the Southern African clip at guaranteed, stable prices, to undertake more regularised and comprehensive classing. After 1941, simple, easily understandable classes were established and attempts were made to discourage double clipping of sheep. Veterinary officials and others were trained in simple classing so as to assist farmers and traders. In 1944, simple classing by the producer was made compulsory. Two years later, however, the Wool Buying Commission complained that classing was inadequate. Inadequate care by traders and too few government wool inspectors were blamed for this. In an attempt to deal with this problem, in 1945, the onus for complying with classing regulations was placed on the buyer (Stutley, 1958: pp. 340-345; and Biggs, 1965(?): 64-66).

Proclamation 1 of 1952 ("Wool and Mohair Marketing and Export") made classing comprehensive and compulsory. It stated that:

No person shall export any wool or mohair from Basutoland unless such wool or mohair has been classed, inspected and packed, and the container thereof has been marked, in the manner prescribed by regulations made under this Proclamation." (Quoted in Biggs, 1965(?): p. 66).

Subsequent regulations spelt out how this proclamation was to be interpreted and administered, and what penalties were to apply for its contravention. A more detailed system of classes was established in 1953. This has been subsequently refined for both wool and mohair but has changed little since 1965. In addition, the 1953 regulations also provided that all wool and mohair classers, wherever employed, be trained and licensed. Despite periodic changes in the defining regulations, Proclamation 1 of 1952 is still operative today.

The effect of Proclamation 1 on hawkers was profound. Because it was thought that they would find it difficult to classify wool and mohair properly, they were forbidden to trade in these commodities after 1952 (Stutley, 1958: p. 350). Wool and mohair could only be sold legally to licensed general traders and registered co-operative societies. The needs that hawkers once met still exist, however. Essentially, smugglers presently fulfill illegally many of the functions that hawkers were once sanctioned to perform legally (see Chapter VII).

## E. Conclusions

Throughout the period under review, most of the wool and mohair clip was handled by private traders. These consisted of two types: traders with general licenses who operated from a fixed location and hawkers who travelled throughout the countryside and were forbidden to establish a fixed trading location. Over time, the position of the former group advanced relative to that of the latter. After 1952, hawkers were not permitted to deal in wool and mohair legally and their position gradually degenerated to that of a peddler of retail goods.

Because of real or alleged abuses, the private traders came under increasing criticism from Basotho politicians and officials, particularly in the years just preceding Independence. Two measures were taken to meet this criticism. One, co-operative societies were encouraged after 1948 in the hopes of introducing greater competition into the market and securing higher returns for farmers. Despite initial enthusiasm, co-ops never dealt with more than 10 percent of the wool and mohair clip. They had difficulty establishing sound financial and managerial foundations and largely ceased to play an important role in wool and mohair marketing after the mid-1960s. The second method adopted was to provide government competition to and regulation of private traders. This is the system which exists today and is detailed in the next chapter.

Procedures of wool and mohair marketing evolved during this period, as well. Most particularly, classing was introduced and gradually systematised. Initially this was undertaken in response to the poor market for animal fibres of the 1930s. A fillip was provided by the need for better-classed wool by the World War II British Wool Buying Commission.

After 1952, it was illegal for any wool or mohair to be exported from Lesotho unclassified. In subsequent years classes have been refined. Today, with the exception of a relatively small amount of clip which is smuggled out of the country, all wool and mohair is classed either by private traders or at government woolsheds. The remainder of this chapter describes how and where animals are clipped. Chapter VII describes and analyses the present marketing system.

## III. The Clipping of Sheep and Goats

How animals are clipped and how the wool or mohair is handled after clipping can affect the value of the fleece. Experience has shown that ungraded or poorly graded wool and mohair fetches lower prices than properly graded fleeces. Because most of the clipping takes place at woolsheds where much

of the clip is sold, clipping and marketing are closely intertwined.

In Lesotho, sheep are clipped mostly in the Spring. The sheep shearing season starts in late August and extends into January or February. Most sheep are shorn in October and November, however. Principally to prevent contamination of the wool by mohair, goats are clipped separately. Therefore, the mohair season is in the Autumn, beginning in March and extending into June or July. The heaviest clipping months are April and May.

Farmers may clip in a variety of locations, but where they clip largely determines where they sell. As recently as 1964, perhaps as many as 50 percent of farmers clipped at home (see Biggs, 1965(?)). Farmers who clip at home face some constraints to the sale of their clip. Most government woolsheds do not encourage home-clipped wool or mohair. There are exceptions to this in areas where natural barriers make trekking animals to woolsheds difficult, however. Alternatively, farmers can sell to private woolsheds or smugglers. If the former, they must transport their clip to the woolshed themselves. Once there, they may have to wait, sometimes for several days, before a sorter is free to handle their clip. Farmers who clip at the private woolshed are given preference (personal communication, farmers and woolshed supervisors, Mantsonyane: 8/1/86 and Tlokoeng: 19/2/86). Farmers clipping at private woolsheds will sell to the trader, while those clipping at government woolsheds will sell through LPMS.<sup>33</sup>

Farmers bear the cost of clipping animals at government or private woolsheds. (They presumably do so for home-clipped animals as well, although in this case unpaid, home labour may be used). Although the cost of shearing may vary somewhat from place to place, farmers typically paid shearers 20 lisente per ewe, doe or castrate and 30 lisente per ram or buck during the 1985/86 wool-mohair season. If an animal is excessively nicked during shearing the farmer can refuse to pay the shearer for it. Because of the much smaller average fleece weight of goats, shearing costs make up a much higher percentage of costs/kg for mohair than for wool (see below). In terms of value per animal the difference is much narrower, however.

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<sup>33</sup>In the 1986 Woolshed Survey a few farmers reported clipping at a private woolshed and selling through the government woolshed, or vice versa. Whether this actually happened, was the result of a lapse of memory on the farmer's part, or resulted from confusion over one year's clip and another year's sales is not known.

Wool and mohair shearers are self-employed. During the height of the season, a busy government woolshed may use as many as twelve shearers. Because each processes proportionately more sheep than the government woolsheds, individual private woolsheds also provide employment for proportionately more shearers. Perhaps as many as 1200 to 1400 men may find employment as shearers during the 6 to 7 months of wool and mohair shearing in the 88 government woolsheds and 30-odd private woolsheds. A good shearer, it is reported by knowledgeable woolshed officials, can shear as many as 60 animals a day and earn as much as M 12. Most probably make considerably less.

#### A. Location of Clipping

The 1985 Livestock Holders Survey asked sheep and goat keepers where they clipped. Their responses are presented in Table VI.1.

TABLE VI.1  
Clipping Locations

Location	Sheep	Goats
Percent of Households		
Home	30.2	27.8
Private Trader	29.8	31.7
Government Woolshed	34.9	37.8
Other	5.1	2.6
Percent of Animals		
Home	14.2	13.9
Private Trader	22.3	30.3
Government Woolshed	63.4	55.8

NOTE: "Other" may include some farmers who clip in more than one location. Each time a household clipped or an animal was clipped it was treated as a separate observation.

SOURCE: 1985 Livestock Holders Survey (see Swallow, Brokken, Motsamai, and Sopeng, 1986).

Since government woolsheds presently will not clip coloured animals, they must be clipped either at home or at private woolsheds. Nothing is to prevent the stock keeper from clipping the rest of his animals elsewhere, however. Thus, some farmers may clip in several locations.

No data exist by which the accuracy of the estimates of home and private woolshed clipping can be checked. LPMS data for the 1985/1986 wool clip and the 1985 mohair clip do provide a means for cross-checking the accuracy of the government woolshed estimates, however. According to these data, 52.8 percent of the sheep and 57.2 percent of the goats were clipped at the government woolsheds. The figure for goats agrees very closely with the above estimates. The ten percent sheep discrepancy may be owing to the fact that the 1985 Livestock Holders Survey followed the 1984/1985 wool clipping season and there may be large year-to-year variation as to where farmers clip. Despite this, the conclusion is unavoidable that the majority of sheep and goats are clipped at government woolsheds. Somewhere between one-quarter and one-third of sheep and goats appear to be clipped at private woolsheds. Home-clipped sheep appear to be least common.

This pattern is not matched by sheep and goat holders, however. It is somewhat more difficult to verify these data because of the infrequent agricultural censuses, but comparison of LPMS statistics and data from the 1980 Agricultural Census (unpublished) suggests that approximately one-third of sheep and goat holders clip at government woolsheds. Allowing for changes in the number of stock-holders between 1980 and 1985, these estimates seem to agree fairly closely with the above survey estimates. Thus, it would appear that roughly one-third of sheep holders use each of the shearing locations. Goat holders are rather more inclined to shear at the government woolshed and rather less inclined to shear at home.

The above estimates suggest that there are marked differences in the sizes of flocks being clipped at each of the locations. Government woolsheds are processing a greater proportion of sheep and goats than sheep and goat holders. The opposite is the case with home shearing. Thus, larger than average flocks are being processed at government woolsheds and smaller than average flocks are being clipped at home. Flocks clipped at private woolsheds appear to be about average in size.

Farmers differ in clipping location not only with regard to the size of flock but also with regard to their geo-climatic zone.<sup>34</sup> According to the 1985 Livestock Holders Survey, Lowland sheep and goat holding households are both more likely to shear at home than elsewhere. This is even more so in the Northern than in the Southern Lowlands. Farmers in the Northern Lowlands are twice as likely to shear at home as their representation in the sample would indicate. Stock holders in the Less Remote Mountains, by contrast, are more likely to use private woolsheds while those in the Remote Mountains are more inclined to shear at

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<sup>34</sup>It should be recalled from Chapter V that flock size and geo-climatic zone are correlated, however.

government woolsheds. Those in the Foothills and Senqu River Valley appear to be largely indifferent between the three locations. These data are summarized in Table VI.2.

TABLE VI.2  
Sheep and Goat Clipping by Geo-climatic Zone

Location	NLL	SLL	FH	SRV	LRM	RM
Sheep-Managing Households (Percent of Sample)						
Home	27.9 (2.1)	11.5 (1.2)	11.5 (0.8)	16.4 (0.8)	18.0 (0.7)	14.8 (0.9)
Private Woolshed	1.7 (0.1)	8.3 (0.9)	11.7 (0.8)	18.3 (0.9)	46.7 (1.9)	13.3 (0.8)
Government Woolshed	12.5 (0.9)	4.2 (0.4)	15.3 (1.1)	25.0 (1.2)	13.9 (0.6)	29.2 (1.7)
Sample	13.6	9.6	14.0	21.2	24.4	17.2
Goat-Managing Households (Percent of Sample)						
Home	17.3 (1.9)	19.2 (1.7)	11.5 (0.6)	30.8 (1.3)	5.8 (0.3)	15.4 (0.8)
Private Woolshed	4.7 (0.5)	12.5 (1.1)	20.3 (1.0)	18.8 (0.8)	32.8 (1.9)	10.9 (0.6)
Government Woolshed	6.5 (0.7)	2.6 (0.2)	20.8 (1.1)	22.1 (1.0)	14.3 (0.8)	33.8 (1.7)
Sample	8.9	11.5	19.6	23.0	17.4	19.6

NOTE: NLL refers to Northern Lowlands, SLL refers to Southern Lowlands, FH refers to Foothills, SRV refers to Senqu River Valley, LRM refers to Less Remote Mountains, and RM refers to Remote Mountains. The numbers in parentheses are the percentages above them divided by the appropriate sample percentage.

SOURCE: 1985 Livestock Holders Survey (see Swallow, Brokken, Motsamai, and Soping, 1986).

The percentages in Table VI.2 are less important than the ratios in parentheses below them. As is explained in the note to the table, these are the percentages of households clipping at a particular location in a particular geo-climatic zone divided by the percentage of sample households in that zone. If households clipped at a location in the same proportion as their proportion in the sample, the ratio would equal one. Thus, if the ratio is greater than one, households are disproportionately likely to

clip at the corresponding location. Conversely, if the ratio is less than one, they are disproportionately unlikely to clip at that location.

The proximity of facilities obviously plays a role in determining where one can clip. It does so in combination with flock size, however. Reference to the smaller flock sizes in the lowlands is the only way to explain the relatively low usage of private woolsheds in the Northern Lowlands and of government woolsheds in the Southern Lowlands. Both areas are rather well-served by these facilities, as reference to the maps of government and private woolshed locations (Figures VII.1 and VII.2) show. LPMS data on the number of sheep and goats shorn at each government woolshed (Table VI.3) confirms that Lowland woolsheds are relatively lightly used. This is further illustrated by Figures VI.1 and VI.2 which portray the government woolsheds according to size classes of sheep and goats shorn.

TABLE VI.3  
Government Woolsheds and Animals Shorn at Each, 1985/1986

Locale	Sheep	Size Code	Goats	Size Code
<b>BUTHA-BUTHE DISTRICT</b>				
(1) Libono	10261	C	6925	D
(2) Qholaqhoe	2089	F	4882	E
(3) Butha-Buthe	3914	E	9330	C
(4) Tsime	1598	F	3400	E
(5) 'Moteng	5306	E	6282	D
(6) Kao	5673	E	7865	C
(7) Rampai	9189	C	4732	E
<b>LERIBE DISTRICT</b>				
(8) Hlotse	1655	F	3796	E
(9) Peka	2810	F	3691	E
(10) Pitseng	1607	F	5249	D
(11) Koasa	571	F	4929	E
(12) Pelaneng	5736	E	7317	D
(13) Lejoemotho	16406	A	4578	E
(14) Thibeli	10329	C	6116	D
(15) Khafung			4871	E
(16) Pelatsoeu	1831	F	3312	E
<b>BEREA DISTRICT</b>				
(17) Teyatyaneng	5814	E	7270	D
(18) Moletsane	8997	D	12683	A
(19) Mateka	9903	C	13148	A
(20) Nokong	2184	F	4154	E
(21) Bela-Bela	5392	E	8357	C
(22) Maqhaka	3652	E	2217	F
(23) Sebelia	2413	F		

TABLE VI.3, cont.

Locale	Sheep	Size Code	Goats	Size Code
<b>THABA-TSEKA DISTRICT</b>				
(24) Chaena	13733	B	9073	C
(25) Mantsonyane	14290	B	7744	C
(26) Letuka	10480	C	4007	E
(27) Thaba-Tseka	17247	A	8020	C
(28) Sehonghong	10966	C	5395	D
(29) Mohlanapeng	11323	C	7862	C
<b>MASERU DISTRICT</b>				
(30) Goaling	1748	F	1259	F
(31) Machache	3200	E	4708	F
(32) Bushman's Nek	6714	D	4920	E
(33) Likalaneng	9980	C	5466	D
(34) Marakabei	10839	C	5711	D
(35) Qeme	4393	E	5757	D
(36) Mokema	3191	E	6869	D
(37) Simione	7115	D	6085	D
(38) Masite	2938	F	3922	E
(39) Matsieng	3444	E	4814	E
(40) Tlali	5144	E	2605	E
(41) Ramabanta	8868	D	5278	D
(42) Semongkong	23918	A	9732	C
<b>MAFETENG DISTRICT</b>				
(43) Mafeteng	10877	C	4178	E
(44) Hermone	1933	F	1796	F
(45) Tsakholo	5979	E	3758	E
(46) Kolo	4760	E	2957	E
(47) Makhakhe	3885	E	2342	F
(48) Thabana-Morena	4004	E	3156	E
(49) Ribaneng	9429	C	3992	E
(50) Qaba	2812	F	5751	D
(51) Mathebe	3007	E	1337	F
<b>MOHALE'S HOEK DISTRICT</b>				
(52) Mohale's Hoek	8942	D	12013	B
(53) Mpharane	22327	A	12324	B
(54) Mekaling	7319	D	15272	A
(55) Tsoloane	11145	C	9392	C
(56) Phamong	6984	D	10567	B
(57) Lithipeng	4072	E	11514	B
(58) Ketane	8197	D	8999	C
<b>QUTHING DISTRICT</b>				
(59) Moyeni	19308	A	23456	A
(60) Dilli-Dilli	7346	D	13494	A
(61) Tosing	21127	A	15007	A
(62) Koali	18401	A	11092	B
(63) Mapheelle	10967	C	5755	D
(64) Peete	20224	A	7076	D
(65) Ntsie	14329	B	7648	C
(66) Tsepo	13139	E	11262	B
(67) Lebelonyane	6662	D		
(68) Quthing Sheep Stud	(Used for stud animals only)			

TABLE VI.3, cont.

Locale	Sheep	Size Code	Goats	Size Code
<b>QACHA'S NEK DISTRICT</b>				
(69) Qacha's Nek	8555	D	4307	E
(70) Ramatseliso	10660	C	3011	E
(71) Sehlabathebe	6870	D	5532	D
(72) Sehlabathebe (LCRD Project)	7827	D		
(73) Sehapa	2589	F	6275	D
(74) Tsoelike	8643	D	15203	A
(75) Qabane	13016	B	15952	A
(76) Sekakes	5799	E	2671	E
(77) Mapote	6523	D	4966	E
(78) Hloahloeng	6261	D	5190	D
<b>MOKHOTLONG DISTRICT</b>				
(79) Thabang	14156	B	7266	D
(80) Semenanyane	13265	B	4030	E
(81) Malefiloane	14403	B	9166	C
(82) Sani Top	11755	C	6813	D
(83) Masoleng	15587	A	5150	D
(84) Masenkeng	11835	C	6898	D
(85) Tlokoeng	8308	D	4045	E
(86) Linakaneng	16330	A	7635	C
(87) Nts'upe	10576	C	3310	F
(88) Bafali	16936	A	8902	C
(89) Mokhotlong Sheep Stud	(Used for stud animals only)			

NOTE: Number identifies site of woolshed on map, Figure VII.1. Size Codes refer to the number of animals shorn in a woolshed and are as follows:

SHEEP	CODE	GOATS
0-3000	F	0-2500
3001-6000	E	2501-5000
6001-9000	D	5001-7500
9001-12000	C	7501-10000
12001-15000	B	10001-12500
> 15000	A	> 12500

These coded woolsheds are depicted on Figures VI.1 (for sheep) and VI.2 (for goats). Sheep were shorn in 1986; goats were shorn in 1985/86.

SOURCE: Combs and Hunter, 1987; from data supplied by LPMS.

Lack of private woolsheds in the Southern lowlands and lower Senqu Valley appears to be responsible for the very heavy usage of government woolsheds in these areas. Where government and private woolsheds are in competition with each other, as in Ha Sekake, for example, government woolsheds are more lightly used.



FIGURE VI.1  
SHEEP SHEARED AT GOVERNMENT WOOLSHEDS  
(By Size Class)

KEY

- A gt 15000
- B 12001-15000
- C 9001-12000
- D 6001- 9000
- E 3001- 6000
- F 0- 3000

SOURCE: LPMS

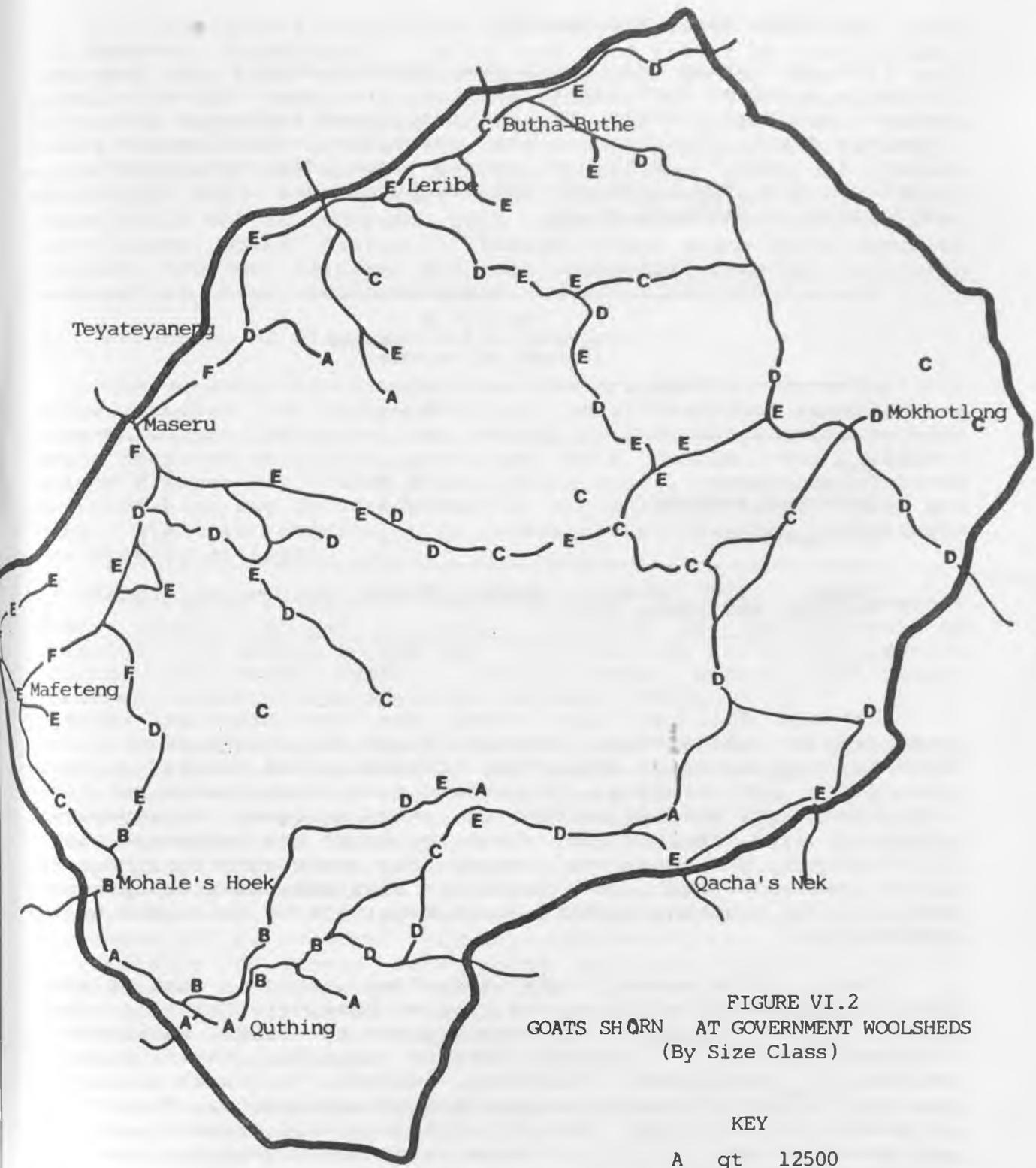


FIGURE VI.2  
GOATS SHORN AT GOVERNMENT WOOLSHEDS  
(By Size Class)

KEY

- A gt 12500
- B 10001-12500
- C 7501-10000
- D 5001- 7500
- E 2501- 5000
- F 0- 2500

SOURCE: LPMS

## B. Unclipped Sheep and Goats

Not all sheep and goats are clipped during any one year. There is a marked difference in the frequency of non-clipping between species: sheep are left unclipped much more frequently than are goats. Differences are associated with where a farmer clips as well. Although census data does not address this question, the 1985 Livestock Holders Survey did. Its results are summarized in Table VI.4.

TABLE VI.4  
Frequency of Non-Clipping  
(Percent of Animals)

Farmers Who Clip At . . .	Sheep	Goats
Home	20.9	2.1
Private Trader	11.9	3.7
Government Woolshed	11.4	3.9
All Locations	12.4	3.7

SOURCE: 1985 Livestock Holders Survey (see Swallow, Brokken, Motsamai, and Soping, 1986).

Farmers fail to clip sheep for two principal reasons. According to the survey, between 55 and 60 percent of all sheep holders, regardless of where they clipped, cited "lambs" as their reason for not clipping. The second most cited reason for those shearing at private (40 percent of sheep holders) or government woolsheds (30 percent of sheep holders) was "coloured wool". This was not an important reason for home-shearers, however. Other reasons, such as "recently acquired animal", "pregnant ewe", or "at the cattle post", were mentioned by only one or two farmers each.

There is somewhat more variation amongst goat holders. Eighty-six percent of those who clip at home cite "kids" as their reason for not clipping. In second place is "cold", mentioned by fourteen percent. Amongst farmers shearing their goats at private or government woolsheds, however, "coloured mohair" is the most important reason for failing to clip goats. This reason is cited by fifty-four percent of those using private woolsheds and seventy-three percent of those using government woolsheds. Almost forty percent of the former and twenty percent of the latter cite "kids" as their reason for not clipping. The weather is unimportant to either of these groups.

To some extent, the large difference between sheep and goats is somewhat surprising. It is true that mohair production is a somewhat more important reason for keeping goats than is wool production for keeping sheep (see Chapter V). The production of mutton is important for many sheep holders. Nonetheless, random field observation of the flocks (no more precise data is available) suggests that short-, straight-hair boer goats are proportionately much more common than are non-wooled sheep. Since these could not be clipped, this should make the percentage of non-clipped goats higher. Because these goats would never be clipped, however, farmers may not consider them at all when enumerating their unclipped goats.

### C. Frequency of Clipping

How animals are clipped, and how frequently, may affect the price received for their wool and mohair and the total annual fleece weight obtained per animal. The relationship between price received and fibre length may be a complex one. Longer-haired fleeces may, other things being equal, fetch higher prices but they also may be more prone to accumulating dirt, seeds and dung. This is especially so where, as in Lesotho, the animals are kraaled at night.

The matter is further complicated by the fact that average fibre length is not a simple function of the frequency of clipping. An animal's age and nutrition may also play a role (Thomas and Rook, 1983). In particular, mohair fibre length declines linearly with age (see Landman, 1984).

A frequently-heard complaint of South African Mohair Board officials is that too much of the Lesotho hair is short and that it is short because too many of the goats are clipped twice. The first claim is difficult to verify because of the scarcity of data on comparative fibre lengths. The second claim is vexing. It is known that both government and private woolsheds in the Buthe Buthe area sometimes clip twice. How much they clip is not known, however. It is also not known how widespread this is elsewhere in the country. Although double-clipping can be tested by reference to survey data, since double-clipping is actively discouraged by livestock officials the results may not be accurate. The Livestock Holders Survey and the Woolshed Survey both asked about the frequency of clipping. Results are presented in Table VI.5.

The data from the two surveys appear to be in fairly close agreement. Although the probability for goats is about 2-3 times that of sheep, the surveys suggest that only about 10 percent of goats are clipped twice.

When clipping data from the Livestock Holders Survey is examined by flock size, a very clear pattern emerges. All of the sheep that are shorn twice (with one exception) were from intermediate-sized flocks of from 11 to 200 sheep. None of the sheep in flocks of more than 200 animals were shorn twice. Only one sheep in flocks of 10 or fewer animals was shorn twice. This pattern is similar for goats, with the exception that goats in the smallest flocks are clipped twice, but at about one-half the incidence of the others. No goats in flocks over 100 animals were clipped twice.

TABLE VI.5  
Incidence of Clipping Twice

Survey	Sheep	Goats
Livestock Holders Survey		
(1) % of Households	3.9	8.0
(2) % of Animals Clipped	3.8	10.1
Woolshed Survey		
(1) % of Households	2.4	9.3

SOURCE: 1985 Livestock Holders Survey (see Swallow, Brokken, Motsamai, and Sopeng, 1986) and 1986 Woolshed Survey.

Anecdotal accounts give a much higher incidence of double clipping, however. One can hear accounts from people who are knowledgeable about the industry of anywhere from one-half to virtually all of the goats being clipped twice. If this is so, the mohair in question would almost certainly have to be clipped at home during the off-season since the woolsheds do not clip goats in the Autumn. Some traders have admitted privately to purchasing off-season mohair. This is probably not the normal practise of most, however. Thus, most of the off-season mohair would have to be smuggled to market. This matter will be dealt with in the section on smuggling in the next chapter. It is probably fair to conclude, however, that double-clipping probably is not as common as the anecdotes claim nor as rare as the survey data would suggest. For reasons to be explained in the section on smuggling, perhaps somewhere between 15-20 percent of the goats are clipped twice. Because of a low profit margin on wool, smuggling of wool is not common. Survey data on sheep suggesting a very low incidence of double-clipping is probably much more accurate, therefore.

#### D. The Problem of Short Mohair

It appears, therefore, that the problem of short mohair (if, indeed, a problem exists) cannot be traced solely to the frequency of clipping. A number of other factors may also be important. One is the large number of short, straight-haired boer goats in the Lesotho flock. As a result, there are a large number of cross-bred goats, often with shorter, poorer quality hair than better bred Angoras. Given the historically low priority given to the breeding of Angora goats, the role of genetics must not be overlooked. Also candidates for blame may be the older age profiles of the animals and, perhaps, their low levels of nutrition. A high proportion of the goats are old, eight-toothed does.

Another factor which may be responsible for short mohair is the invasion of Xanthium spinosum L. and Xanthium strumarium L., commonly known as the cocklebur, burweed, riverweed, or sehlaba-hlabane into Lesotho. These weeds have recently caused concern amongst researchers at the Agricultural Research Division in Maseru. Both of these weeds have been in Southern Africa and have contaminated the wool clip, particularly that from Transkei, for some time (Golden Fleece, December 1983: p. 18).

Both plants favour a moist environment along streams, ponds or in floodplains and marshes. Xanthium strumarium, in particular, favours poorly managed or over-grazed pastures (see Holm, et. al., 1977; and Watt and Breyer-Brandwijk, 1962). Wool and mohair gets contaminated by the burr-covered seedpods as the animals graze or as they go to water sources to drink. The burrs can be removed by carbonizing, but this results in a lower price being paid for the contaminated fleece (Golden Fleece, December 1983: p. 18).

According to G. Pitchard (personal communication, 1/1/87), a mohair trader, many Basotho attempt to remove the burrs before selling their contaminated mohair. Some beat it with sticks; others comb saws or similar instruments through it. Regardless, the result is that fibres become weakened and broken. Pitchard thinks much of the blame for short hair must be borne by these practices.

In a plant survey (February 1987) of the northern Mountain areas of Lesotho for the Drakensberg/Maluti Mountain Catchment Project, Dr. B. J. Hargreaves, Head of the National University of Lesotho Herbarium, observed no xanthium between Oxbow and Sani Pass (personal communication, 19/2/87). None was observed in disturbed fields, overgrazed rangelands, damp marshy areas, or along the Senqu River near Mokhotlong. He has noted that it is prevalent in the Lowlands, particularly in disturbed fields, however.

If these observations should prove to be generally true, two possibilities exist: (1) either xanthium has not yet reached the highland areas, or (2) it cannot thrive at the high altitudes and in the colder temperatures prevalent there. More needs to be known about this. If the latter explanation is correct, one more reason may be provided for the Mountain areas' comparative advantage in wool and mohair production.

Although it is not usually recommended that Merino sheep be clipped twice a year, clipping Angora goats twice is not uncommon in other parts of the world. In fact, a book endorsed by the South African Mohair Growers Association and co-authored by the assistant manager of the South African Mohair Board (Angora Goats and Mohair in South Africa) recommends twice-annual shearing for South African farmers since, "An inter-shearing period of more than six months tends to reduce the efficiency of production . . ." (van der Westhuysen, et. al., 1985: p. 38). Twice-annual shearing seems to be largely responsible for South Africa's average annual fleece weight of almost 4 kg. per goat. One East Griqualand farmer, Mr. Derick Cloete, reports that he clips his goats twice a year and obtains an average of 2 kg. per clip (Byford-Jones, 1986).

Given South African experience, twice-yearly clipping of goats seems to be a potential means by which the productivity of goats and mohair fleece weight can be substantially increased. Indeed, depending on the true incidence of double-clipping, Lesotho's measured average fleece weights of .7 kg per goat may currently underestimate the true weight. The true weight may be closer to .8 or .9 kg. per goat. Before twice-yearly clipping can be undertaken, however, measures must be taken to improve range management, weed control, animal nutrition, culling and breeding since care must be taken to ensure that fibres are of a saleable length.

Experimental data do not exist for Lesotho on the relationship between an animal's nutrition, its age, the length of its mohair fibres and the feasibility of clipping twice. Such data are necessary for planning future policy to raise goat productivity. In addition, the impact of poor breeding on mohair length, which seems important from impressionistic evidence, needs to be examined more carefully. Also requiring more scrutiny is the impact of Xanthium. How prevalent is it? How are Basotho responding to it? Like any invader, it appears to prosper from poor, over-grazed range conditions, at least in the Lowlands. Reductions in animal numbers and improvements in range management may help to control it.

## CHAPTER VII

### THE CLIPPING AND MARKETING OF LESOTHO'S WOOL AND MOHAIR, continued

with Rampoi Thabane

#### IV. The Present Marketing Structure

Presently, Basotho wool and mohair is, with a few exceptions, marketed through the South African Wool and Mohair Boards and auctioned by the farmers' marketing co-operative, Boere-makelaars (Koop) Bpk, usually known by its initials, BKB. The few exceptions are a small amount of mohair sold to Lesotho handicraft producers and a somewhat uncertain quantity marketed through unofficial channels by smugglers (see Section IV.2, below).

Lesotho wool is shipped to Durban, East London and Port Elizabeth. Mohair is shipped to Port Elizabeth. Wool and mohair are marketed in Port Elizabeth only. Since 1972 both wool and mohair have gone through a so-called "one-channel" marketing scheme which allows for an advance payment (voorskot) before the fleece is sold and a post-payment (agterskot) after final marketing. All wool or mohair produced in South Africa (including Lesotho) is delivered to the respective wool or mohair boards where it is pooled by class. This permits all growers to share equally in high and low prices, regardless of when their fleece was sold. The advance payment is based on last season's market performance and projections of the current season's price. After marketing, any surplus in revenues after deduction of advance payments is paid out to growers as a post-payment in the same proportion as the different classes they marketed. If there is a shortfall in revenues after marketing, the difference is made up by a Stabilization Fund financed by a levy on wool or mohair sales. The Stabilization Fund also allows the Wool and Mohair Boards to buy up produce that is unable to command a pre-determined reserve price. This can then be held off the market until prices improve (see van der Westhuysen, et. al., 1985: pp. 232-234; Engelbrecht, 1973; S. A. Wool Board, 1976).

Lesotho has long contemplated the possibility of undertaking some of the processing of its clip itself. A number of plans for scouring plants have been proposed (see Oxtoby and Iredale, 1976; IDU, 1984; Musiyambiri, 1986). Most of these proposals envisage terminating Lesotho's relationship with the South African Wool and Mohair Boards. Lesotho or the company undertaking the scouring would then be responsible for purchasing the raw clip and marketing the scoured wool and mohair. If not properly planned and executed, this could have the potential for drastically changing the operation of the wool and mohair sector. As

these proposals are still in the planning stage, they will not be analyzed explicitly here. At the end of this chapter, however, some precautions will be discussed with regard to changes in wool and mohair marketing policy.

Basotho producers have the option of selling their fleece through three different channels: the government-sponsored Livestock Products Marketing Service (LPMS), private licensed traders or, occasionally, smugglers. The latter are illegal, of course. Each of these outlets has its own special marketing advantages or disadvantages for the farmer.

#### A. The Livestock Products Marketing Service

The Livestock Products Marketing Service was established within the Ministry of Agriculture and Marketing in 1978. It was an attempt to overcome some of the problems, particularly the lack of farmers' confidence, that had been associated with its predecessor, the Livestock Marketing Corporation (see Swallow, Mokitimi and Brokken, 1986: pp. 30-31). According to the 1983/84 Annual Report of the Ministry of Agriculture and Marketing (p. 24), its mandate is as follows:

In the sale of livestock products the LPMS seeks to (1) secure for the producer the most favourable marketing arrangements for livestock and livestock products, (2) regulate and control the marketing of livestock and livestock products and (3) promote market stability.

Although it does not purchase wool and mohair itself, it acts as an agent for farmers in their dealings with the South African Wool and Mohair Boards and Boeremakelaars (Koop) Bpk, BKB. In this regard, one of its most important activities is to serve as a conduit for the payment cheques to farmers.

In addition to acting as a sales agent, LPMS also regulates the classing of wool and mohair by all of the legal marketing outlets (licensed private traders and government woolsheds) and checks to ensure that their scales give a true measure of weight. The backbone of these activities is the district LPMS Field Marketing Officer. Not only does he check the scales and repair them if they are found defective, but he also inspects classing and periodically holds refresher courses for classers. Farmers are encouraged to attend these courses, as well, so that they might be familiar with classing (and assist with it, if they like). Finally, Field Marketing Officers work with the Wool Growers Associations and traders to assist them with their organization of the woolsheds and to try to ensure that their record-keeping is accurate and timely. To this end, they may hold courses on record-keeping, as well (personal communication, Messrs. L. Moteane and M. Machongo, LPMS Field Marketing Officers, 6-8/1/86).

In their role as farmers' agent for marketing wool and mohair, LPMS operates through the government-owned woolsheds and Wool Grower Associations. Presently there are about ninety of these in operation. LPMS also operates collecting stores in Leribe, Tlokoeng, Qacha's Nek and Mahale's Hoek and a bulking store in Maseru. For the location of these, see the map of government woolsheds, Figure VII.1 and Table VII.1.

#### 1. Wool Growers' Associations

As discussed in Chapter IV, Wool Growers Associations are organizations of sheep and goat farmers who are committed to certain improved practices in the husbandry of their animals. Of relevance here: they are formally responsible, in conjunction with woolshed officials, for the organization of the woolshed. In this context, they set the shearing schedules, arrange transport of the clip to collecting stores or to Maseru, and keep records of payment owed farmers. In this, they are assisted by government-hired woolshed supervisors and, sometimes, assistants. To defray any costs incurred, they may levy a small fee on woolshed users. Officially, the WGAs are in competition with the traders; LPMS is an umbrella group over both.

According to 1985/86 LPMS data, 16,168 wool growers and 18,551 mohair growers sheared their sheep or goats at government woolsheds and sold their clip through LPMS. According to preliminary data from the 1980 Agricultural Census, 47,790 sheep-holders and 46,406 goat-holders were enumerated in the count. Assuming these numbers have not changed much since, about 34 percent of sheep-holders and 40 percent of goat-holders are marketing their clip through LPMS. It will be recalled from the previous chapter that this was approximately the number in the 1985 Livestock Holders Survey who said they clipped at government woolsheds.

Members of WGAs make up a distinct minority of farmers using the government woolsheds. LPMS data register only 4329 sheep-holding WGA members marketing through LPMS in 1986. These WGA members constituted 26.8 percent of farmers selling their wool through this channel and represented only about 9 percent of all sheep holders. The number of mohair-growing WGA members was even smaller. In 1985/86, according to LPMS records, 2504 WGA members sold mohair through LPMS. They were only 13.5 percent of the farmers marketing mohair through this channel and represented only about 5 percent of all mohair growers. The remainder of the farmers marketing through LPMS are members of the Marketing Groups. The performance of WGA members relative to the residual Marketing Group members, is detailed in Table VII.2.



FIGURE VII.1  
Location of Government Woolsheds, 1986

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**TABLE VII.1**  
**Government Woolsheds and Associated WGAs and MGs, 1986**  
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Locale	WGAs and MGs
<b>BUTHA-BUTHE DISTRICT</b>	
(1) Libono	Libono WGA, Matsoaing FA and MG
(2) Qholaghoie	Qholaghoie WGA and MG
(3) Buthe-Buthe	Likhutlong WGA and MG, Buthe-Buthe Co-op
(4) Tsime	Tsime WGA and MG
(5) 'Moteng	'Moteng WGA, Muela FA
(6) Kao	Kao MG, Motete WGA
(7) Rampai	Rampai WGA, MG and FA
<b>LERIBE DISTRICT</b>	
(8) Hlotse	Hlotse MG
(9) Peka	Peka MG
(10) Pitseng	Pitseng MG
(11) Koasa	Koasa MG
(12) Pelaneng	Pelaneng WGA and MG
(13) Lejoemotho	Lejoemotho WGA and MG
(14) Thibeli	Thibeli WGA and MG
(15) Khafung	Khafung MG
(16) Pelatsoeu	Pelatsoeu MG
<b>BEREA DISTRICT</b>	
(17) Teyatyaneng	Teyatyaneng WGA and MG
(18) Moletsane	Moletsane WGA and MG
(19) Mateka	Mateka MG
(20) Nokong	Nokong WGA and MG
(21) Bela-Bela	Bela-Bela MG
(22) Maghaka	Maghaka WGA and MG
(23) Sebelia	Sebelia WGA
<b>THABA-TSEKA DISTRICT</b>	
(24) Chaena	Chaena WGA and MG
(25) Mantsonyane	Mantsonyane WGA and MG
(26) Letuka	Letuka WGA and MG
(27) Thaba-Tseka	Thaba-Tseka WGA and MG, Lesobeng WGA and MG
(28) Sehonghong	Sehonghong WGA and MG
(29) Mohlanapeng	Mohlanapeng WGA and MG
<b>MASERU DISTRICT</b>	
(30) Goaling	Goaling WGA and MG
(31) Machache	Machache WGA and MG
(32) Bushman's Nek	Bushman's Nek WGA and MG, Sosa WGA
(33) Likalaneng	Likalaneng WGA and MG
(34) Marakabei	Marakabei WGA and MG
(35) Qene	Qene WGA and MG
(36) Mokema	Mokema WGA and MG
(37) Simione	Simione WGA and MG
(38) Masite	Masite WGA and MG
(39) Matsieng	Matsieng WGA and MG
(40) Tlali	Tlali WGA and MG
(41) Ramabanta	Ramabanta WGA and MG
(42) Semongkong	Semongkong WGA and MG

TABLE VII.1, cont.

Locale	WGAs and MGs
<b>MAFETENG DISTRICT</b>	
(43) Mafeteng	Duma WGA and MG, Mafeteng United Co-op
(44) Hermone	Hermone WGA and MG
(45) Tsakholo	Tsakholo WGA and MG
(46) Kolo	Kolo WGA and MG
(47) Makhakhe	Makhakhe WGA and MG
(48) Thabana-Morena	Thabana-Morena WGA and MG
(49) Ribaneng	Masemouse MG
(50) Qaba	Matelile WGA and MG
(51) Mathebe	Mathebe WGA, MG and United Co-op Soc.
<b>MOHALE'S HOEK DISTRICT</b>	
(52) Mohale's Hoek	Dicks WGA and MG, Qaqatu WGA and MG Kotlejoeng MG
(53) Mpharane	Mpharane WGA, Qobong WGA and MG, Phala MG, Ntjapeleng WGA, Makoana MG
(54) Mekaling	Mekaling MG, Maphutseng MG
(55) Tsoloane	Tsoloane Co-op Soc., Taung WGA and MG
(56) Phamong	Phamong WGA and MG
(57) Lithipeng	Mabilikoe WGA and MG
(58) Ketane	Ketane WGA and MG
<b>QUTHING DISTRICT</b>	
(59) Moyeni	Moyeni WGA and MG
(60) Dilli-Dilli	Dilli-Dilli WGA and MG
(61) Tosing	Tosing MG
(62) Koali	Koali WGA and MG
(63) Mapehelle	Mapehelle MG
(64) Peete	Peete MG, Mphaki MG
(65) Ntsie	Ntsie MG
(66) Tsepo	Tsepo MG
(67) Lebelonyane	Lebelonyane MG
(68) Quthing Sheep Stud	and animals only)
<b>QACHA'S NEK DISTRICT</b>	
(69) Qacha's Nek	Qacha's Nek WGA and MG
(70) Ramatseliso	Ramatseliso WGA and MG
(71) Sehlabathebe	Sehlabathebe WGA
(72) Sehlabathebe (LCRD Project)	Sehlabathebe Grazing Association
(73) Sehapa	Sehapa WGA
(74) Tsoelike	Tsoelike MG
(75) Qabane	Qabane WGA and MG
(76) Sekakes	Sekakes MG
(77) Mapote	Mapote WGA and MG
(78) Hloahloeng	Hloahloeng WGA and MG
<b>MOKHOTLONG DISTRICT</b>	
(79) Thabang	Mokhotlong Co-op, Thabang WGA and MG
(80) Semenanyana	Semenanyana WGA and MG, Bobete WGA and MG
(81) Malefiloane	Mateanong WGA and MG
(82) Sani Top	Sani WGA and MG
(83) Masoleng	Mapholaneng WGA and MG
(84) Masenkeng	Makhapung MG, Libibing WGA

TABLE VII.1, cont.

Locale	WGAs and MGs
(85) Tlokoeng	Matlekeng WGA and MG
(86) Linakaneng	Bobatsi WGA and MG
(87) Nta'upe	Meno WGA and MG
(88) Bafali	Moremoholo WGA and MG
(89) Mokhotlong Sheep Stud	(Stud animals only)

NOTE: Number identifies site of woolshed on map, Figure VII.1. WGAs (Wool Growers Associations) are groups of sheep and goat holders who have agreed to follow specified husbandry practices. MGs (Marketing Groups) are the residual farmers using a woolshed. See Chapter IV and below for more details about these groups.

SOURCE: LPMS

In Chapter IV it was observed that membership in a WGA was associated significantly with higher fleece weights, average prices, and higher returns per animal. It was also associated with larger flocks and, consequently, larger returns per flock. Table VII.2 illustrates this by another method. Here it will be observed that WGA members have markedly larger flocks than their marketing group (MG) counterparts: sheep flocks are over twice as big and goat flocks are a third again as large. With regard to performance criteria such as average fleece weight and average price (an index of quality), there is also a difference, but it is not large. Less than 10 percent separates the performance of WGA and MG members on all of these measures.

Interpretation of these data is somewhat difficult. On the one hand, it could permit one to argue that WGAs are relatively ineffective in promoting objectively measured improvements in performance. On the other, however, the relatively unimpressive differentials may simply reflect the inherent constraint on improved performance imposed by an overgrazed, communal range. Regardless, the small differential in average performance is surely evident to non-WGA members and may help to explain why so few small stockholders have joined Wool Growers' Associations after a decade of extension work to encourage them to do so. It is too early to conclude that WGAs are ineffective in improving management performance. They probably should not be over-emphasised in extension work, however. Research should be directed to understanding the constraints on their operation. At this point they appear to be largely a potential--not a proven--means of improving stock-holders' performance.

TABLE VII.2  
Relative Performance: WGAs vs. MGs

Performance Measures	WGA Members	MG Members	MG as % of WGA
Wool			
Av Flk Size	73.2	36.1	49.3
Av Fleece Wt	2.538 kg	2.386 kg	94.0
Av Price/kg	M 2.832	M 2.573	90.9
Mohair			
Av Flk Size	39.7	29.0	73.1
Av Fleece Wt	.805 kg	.733 kg	91.1
Av Price/kg	M 16.438	M 15.270	92.9

NOTE: Strictly, these data refer only to white animals since government woolsheds will not shear coloured animals. Attempts to interpret these data as representing the overall performance of WGA vs MG flocks may encounter bias if the proportion of coloured animals differs between the two groups. Thus, if MG members have a higher proportion of coloured animals than WGA members, the differential in average flock size will narrow while that in average price per kg. will widen. What little data exists indicates that very small flock-keepers (less than ten animals) indeed have a higher proportion of coloured animals than others. Generally, this proportion falls as flocks get larger, although this fall is not great for intermediate and large flocks (see Combs and Hunter, 1987: p. 123).

SOURCE: Calculated from LPMS data.

Although a clear minority of farmers market through LPMS, they have a disproportionately large number of animals. Farmers sheared 744,413 sheep (for an average flock of 46 sheep) and clipped 565,013 goats (for an average flock of 30 goats) at government woolsheds last year. These are rather larger average flocks than the national averages estimated by the 1985 Livestock Holders Survey of 43 sheep and 25 goats (see Chapter IV). When the flocks of the WGA members are subtracted out, however, sheep flocks processed through the government woolsheds are somewhat smaller and goat flocks somewhat larger than the estimated national average.

The animals processed through the government woolsheds represent 52.7 percent of the nation's sheep and 57.2 percent of its goats. Thus, when allowance is made for those animals not clipped for various reasons (see Chapter VI), a clear majority of those sheep and goats that are clipped are clipped at government woolsheds.

## 2. Payment Delays

All farmers who sell through legal channels must ordinarily wait nine or more months for their second payment. This is because the clip must be sold first before the aqterakot, or post-payment, can be calculated. Because LPMS pays by cheque, farmers who sell through this outlet must wait for their first payment, as well. There has long been dissatisfaction amongst farmers over LPMS' delayed first payments. Although it has been LPMS policy to delay payment by no more than a month, some farmers have claimed that their payments have been delayed by over three months. A study by Musiyambiri (1987: p. VII.2) of a sample of 35 batches of wool documents found an average delay between shearing and issuing of cheques of about 4 months. These delays discourage farmers from marketing their clip through LPMS.

In response to this, LPMS has been attempting to improve its bookkeeping and payment procedures. Apparently it has had some success. When farmers were asked during the Woolshed Survey if they had noticed any change in LPMS payments over the past year, almost sixty percent said they had. Thirty-four percent of these said they had experienced more rapid payment. (Fifty-seven percent, not surprisingly considering mohair price rises, said they had received higher payments). Only four farmers, or five percent, said they had experienced slower payment.

### B. Private Licensed Traders

A substantial portion of the original wool and mohair marketing system still exists. In 1983/84, thirteen private traders, operating out of 31 trading stations, were licensed to purchase wool and mohair. Sixteen were licensed in 1985 and twenty, operating out of 42 trading stations, were licensed in 1986. Sixteen of these forty-two trading stations, or thirty-eight percent, were operated by Frasers. In addition to Frasers, several other licensees operated more than one trading station. Pitchers had four and A. M. Lesoli had three. M. G. Lake, Collier and Yeats, G. Yeats, Mckrafs, and Ridgeway and de la Harpe each had two. For the locations of these trading stations, see Figure VII.2 and Table VII.3.

As a condition of their license, private traders must pay gazetted prices and must submit their premises, equipment and purchasing practices to inspection by LPMS District Field Marketing Officers. Although their payments must follow the two-payment system, they may pay cash for the first payment upon purchase. Indeed, this gives private traders their principal competitive advantage over LPMS. Cash second payments are the norm, as well.



FIGURE VII.2  
 LOCATIONS OF LICENSED PRIVATE DEALERS  
 IN WOOL AND MOHAIR

TABLE VII.3  
Licensed Private Traders in Wool and Mohair, 1986

**BUTHA-BUTHE DISTRICT**

- (a) Tilsley (Taine)
- (b) J. Wildenhurst (Monontsa)

**LERIBE DISTRICT**

- (c) P. Khoarai (Pelaneng)
- (d) Frasers (Seetsa's)
- (e) Frasers (Khabo's)
- (f) Frasers (Ramapepe)
- (g) Frasers (Malefane)

**BEREA DISTRICT**

- (h) Frasers (Nokong)

**THABA-TSEKA DISTRICT**

- (i) D.S. Rakuoane (Senqunyane)
- (j) Collier & Yeats (Mantsonyane)

**MASERU DISTRICT**

- (k) Pitchers (Matela)
- (l) Pitchers (Marakabei)
- (m) Pitchers (Masianokeng)
- (n) Frasers (Mofoka)
- (o) Frasers (Moitsupeli)
- (p) Frasers (Marakabei)
- (q) Frasers (Semongkong)
- (r) Frasers (Raleqheka)
- (s) Trekkers (Pty) Ltd. (Mahloenyeng)
- (t) Collier & Yeats (Maseru)

**MAFETENG DISTRICT**

- (u) Frasers (Mosala)
- (v) Frasers (Kolo)
- (w) Frasers (Matelile)
- (x) Frasers (Qaba)
- (y) Frasers (Taitsa's Nek)

**MOHALE'S HOEK DISTRICT**

- (z) Pitchers (Maphutseng)

**QACHA'S NEK DISTRICT**

- (A) G.Yeats (Sekakes)
- (B) Southern Mountain Water Project (Sekakes)
- (C) Boea (Pty) Ltd. (Sekakes)
- (D) A.M. Lesoli (Sekakes)
- (E) A.M. Lesoli (Qhoalinyane)
- (F) A.M. Lesoli (Nkau)
- (G) Mokhachane (Sehlabathebe)
- (H) Nakeli (Sehlabathebe)
- (I) M.G. Lake (Sehlabathebe)
- (J) M.G. Lake (Matebeng)

**MOKHOTLONG DISTRICT**

- (K) Piet Kotzie (Linakaneng)
- (L) Frasers (Tlokoeng)
- (M) Mokrafs (Mokhotlong)
- (N) Mokrafs (Sani Top)
- (O) G. Yeats (Molumong)
- (P) Ridgeway and de la Harpe (Sani Top)
- (Q) E. Morojeli (Mokhotlong)

**OUTSIDE LESOTHO**

- (R) Gray Brothers (Witsieshoek)
- (S) Ridgeway and de la Harpe (Sani Pass)

NOTE: Letter identifies site of trading station on map, Figure VII.2.

SOURCE: Combs and Hunter, 1987, and LPMS.

**1. Allowable Grades and Prices**

Semi-annual meetings are held between government officials and private traders where allowable charges are set. Although this could easily be an adversary and somewhat antagonistic exercise (and may have been so in times past) a reasonably harmonious relationship seems to have developed between the two parties, according to Angus Yeats, of Collier and Yeats (personal communication, 8/1/86). In order to ease administration, uniform

charges are set for all traders, regardless of their individual expenses.

Unlike LPMS, which merely acts as a sales agent for farmers, private traders actually take possession of the wool or mohair. As a result, they are responsible for all transport charges from their place of operation to the market in South Africa.

Whereas Wool Growers Associations could grade wool into some sixty-five gazetted classes in 1985/86, private traders were restricted to only 23 classes (see "Wool and Mohair (Prices) Regulations 1985"). They are not required to grade in terms of fineness (see Musiyambiri, 1987: p. IX.10). In practice, the difference is not so great, however, since most WGAs use less than half of their allowed classes. Nevertheless, WGAs have the option of grading wool fleeces more finely than private traders. For example, the government woolshed at Marakabei graded wool into five A-classes (AF, AM, A, A2, and AH) in 1985/86. Five similar B- and C-classes were also used. Frasers' woolshed in Marakabei, however, could class wool into only two A- (A and A2), B- (B and B2) and C-classes (C and C2).

Not only do traders have fewer wool classes available, but they must pay lower prices than are paid at government woolsheds for identical classes. For example, during the 1985/1986 wool season, government woolsheds paid a first payment of 321 lisente for a kilogram of A-grade wool while private traders were limited to 220 lisente for the same grade. Similarly, for B-grade wool, government woolsheds paid 309 lisente/kg while private traders paid 206 lisente/kg. An average of the ratio of prices paid at each for A-, B-, C-, D-, and E-grade wool reveals that traders' prices were 62.5 percent of those paid by LPMS.

This comparison is misleading, however. From the price paid by LPMS a number of deductions for handling, transport to market, levies of various sorts, and marketing expenses are made. Thus, the LPMS price does not reflect accurately what the farmer actually receives. The price paid by the trader, however, is a net price. All of the expenses, including the expenses of the trader and his profit, have been subtracted out before the price is set. A truer comparison must account for the net return received at each marketing outlet.

For mohair, traders use the same classes as the government woolsheds. The two outlets differ only in price. For example, in 1986, the first payment price for the high-grade kid mohair, BKL, at government woolsheds was 965 lisente/kg while traders paid 822 lisente/kg. Overall, traders' prices for the top nine grades averaged 80 percent of the prices paid by LPMS. The narrower mohair price differential reflects mohair's higher unit value but similar unit costs.

2. Net Price Differentials: LPMS vs. Private Traders

A 1984 analysis of wool and mohair marketing done in conjunction with a wool scouring plant feasibility study (IDU, 1984) sought to compare growers' marketing costs during the 1982/83 wool season and the 1983 mohair season for those selling through LPMS against those selling to traders. Attempts were made to account for all charges paid by the grower, whether directly or indirectly. These are summarized in Table VII.4, below.

TABLE VII.4  
Comparative Marketing Costs:  
Private Traders vs. Government Woolsheds

	Wool 1982/83	Mohair 1983
<b>PRIVATE TRADERS</b>		
Total Charges Adjusted for in Growers' Returns From Traders	58.79c/kg	215.77c/kg
Direct Grower's Expenses	4.02c/kg	10.10c/kg
Total Expenses from Marketing to Traders	62.81c/kg	225.87c/kg
Net Price Received as % of Average Price (Gross)	64.8%	77.8%
<b>GOVERNMENT WOOLSHEDS</b>		
Total Charges Deduct- able from Sale Price in RSA	50.67c/kg	180.27c/kg
Direct Growers' Expenses	9.48c/kg	15.56c/kg
Total Expenses from Marketing via LPMS	60.15c/kg	195.83c/kg
Net Price Received as % of Average Price (Gross)	66.3%	80.8%

NOTE: Direct Growers' Expenses include internal transport, shearing costs and stationery costs. Only the shearing cost is borne directly by the grower selling to a trader. This cost was overlooked in the IDU report's calculation of expenses associated with marketing to traders. The average 1982/83 wool price was M 1.786/kg. The average 1983 mohair price was M 10.192/kg.

SOURCE: IDU, 1984: p. 51; and LPMS.

From the above calculations, it would appear that wool growers bore 4.4 percent higher expenses if they sold to private traders than if they sold through the government woolsheds and LPMS. By contrast, mohair growers selling to traders had 15.3 percent higher expenses. When these expenses are compared to the average selling prices, the differential between marketing outlets is much smaller for both wool and mohair. Wool growers, who received a net price that was approximately two-thirds of the average RSA selling price, experienced only a 1.5 percent difference in net price between the two outlets. Mohair growers, who received almost four-fifths of the average RSA selling price, experience a net price differential that was twice as large. Still, it was only three percent.

Although many of the charges are the same regardless of where the fleece is sold (e.g. clipping costs, internal transport, dipping levy, woolpacks), some are unique to each outlet. According to the IDU study, LPMS appears to have somewhat higher RSA-originating expenses than do private traders. On the other hand, private traders are allocated charges to cover shed depreciation, shed employees' wages, a commission and provision of finance for cash payment to farmers. Operation of the government woolsheds is paid out of general government revenues. Thus, their cost is a government subsidy to farmers marketing through LPMS. If these farmers had to bear the costs of woolshed operation, the net price differential would narrow further between the two outlets.

A comparison of present wool and mohair marketing costs with costs in the mid-1960s is illuminating. According to Biggs (1965(?): pp. 17), the average handling and selling charge on a pound of wool (based on average 250 pound packs railed from Wepener to Durban) was 6.8 cents. This translates into 15.0 cents per kilogram. Certain other costs were not included, in particular handling at the rail-head, accounting costs and supervisory costs. It appears that an allowance for the traders profit is not included also<sup>35</sup>. Biggs does not state to which year this applies but it is probably either 1963 or 1964, and would not change much in any event. In 1963, wool growers received a gross price of 59.9 cents/kg; in 1964, they received 42.9 cents/kg. This leaves a net price (before deductions for traders' profit) of 44.9 cents/kg, or 75 percent of the gross

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<sup>35</sup>As was observed in the last chapter, it is not clear how much this profit mark-up may have been. Traders have claimed (personal communication) that they did not take much of a mark-up on the clip--rather, they made their profit from sales of consumer goods (and interest on loans?) to wool and mohair producers. Biggs conclusion that "trading profits are ample but probably not excessive" does not help with the determination of profit mark-up.

price, in 1963 and 27.9 cents/kg, or 65 percent of the gross price, in 1964. Allowance for traders' profit mark-ups would reduce this price somewhat. It appears, however, that farmers may have received about as much, or perhaps a little more, proportional net return in the mid-1960s, when virtually all of the wool clip was handled by largely unregulated private traders, as they do now.

The similarity between the mid-1960s and now is even greater in the case of mohair. According to Biggs (p. 21), the average handling and selling charge for a pound of mohair (based on an average 300 pound pack railed from Maseru to Port Elizabeth) was 9.834 cents. This is 21.7 cents/kg. Subtracting this from the 1963 gross price of 121.3 cents/kg leaves a net price of 99.6 cents/kg, or 82 percent of the gross price. In 1964, the gross price was 104 cents/kg and the net price was 82.3 cents/kg. This was 79 percent of the gross price. Deductions of traders' mark-ups would lower this somewhat. It is probably fair to conclude, however, that the average proportional net return to the grower may have increased a little but has not changed much despite the change in marketing structure.

A major reason for involving government in the marketing of wool and mohair was to improve farmers' returns. The above evidence provides little evidence that this goal has been achieved. In the case of wool the proportional net return may have remained constant or, perhaps, declined somewhat; in the case of mohair it may have increased a little. To some extent, this is not too surprising since most of the marketing charges are incurred in South Africa. It does suggest two things, however. One, private traders, even when they were operating in a relatively unregulated environment, do not seem to have taken advantage of farmers to the extent that contemporary critics alleged. Two, the LPMS channel appears to be operating more efficiently than critics of government-sponsored enterprises usually allege, although accounting for hidden government subsidies might alter this judgement somewhat.

Despite the very narrow net price differential between selling to private traders or via LPMS, most farmers surveyed in the 1986 Woolshed Survey and in the 1985 Livestock Holders Survey were of the opinion that LPMS paid higher prices. Indeed, this was cited as an advantage of marketing through LPMS (see below, Section D). This perception is common amongst others, as well. Several factors may account for it. One, farmers with larger flocks tend to market through LPMS. Thus, their larger cheques may obscure the small price differential. Two, the receipt received by farmers from LPMS lists the gross payment, the deductions, and the net payment. The receipt received from the trader lists only the net payment. There may be a temptation to focus more on the gross price than on the net payment when reckoning the price received. Despite these perceptions, there

should be little objective difference in the income received from marketing via the one outlet over the other, other things being equal.

The provision of credit to farmers by private traders was once a common practice. This was particularly so if farmers sold their agricultural produce to the trader for he had a reasonable assurance that he would be paid back. It also may have helped to ensure that payments would be "recycled" in purchases from the retail side of the business. The practice of credit appears to be largely a thing of the past, however. Conversations with traders in Marakabei, Mantsonyane, Sani Top, Tlokoeng and Mokhotlong revealed that credit was rarely or never given now. Farmers had too many sales options and credit had become too risky. As alternative credit sources have not grown up to fully replace traders, this decline in credit must be reckoned one of the costs of the new, more diverse, marketing structure.

As was observed in Chapter VI, private licensed traders have long been operating under the popularly held (amongst the educated classes, at least) prejudice that they were cheating their customers. Whatever may have been the grounds for this presumption in the past, they assuredly are not strong today. The private trader's business in wool or mohair is heavily regulated by government and he is operating under too many restrictions to be able to get away for long with shady practices.

### C. Smugglers<sup>36</sup>

Smuggling, by its nature, is an activity about which it is difficult to gather much reliable information. Often, data must be gathered by chance or inferred from other data. Difficult as this may be, it is necessary to put smuggling in proper perspective. Only then can its relative importance be gauged and policies devised to combat it, if necessary.

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<sup>36</sup>The following information on smuggling comes from a variety of sources. Farmers were asked during the 1986 Woolshed Survey what might motivate them to sell to "traders who came to the village" (the word "smuggler" was not used in the questionnaire because of its possible negative connotations) and what disadvantages there might be from such sales. In addition, interviews were conducted with Messrs. M. Machongo and L. Moteane, Field Marketing Officers for LPMS for the Thaba Tseka and Maseru Districts, respectively, about their knowledge of smuggling in their district. Finally, an interview was conducted with a smuggler's former middleman. Each source provides only a partial view of smuggling. Together, they provide a much more complete picture, however.

## 1. Motivations for Selling to Smugglers

In the past, smuggling seems to have been undertaken primarily to avoid payment of the wool and mohair levy (see, e.g., Uys, 1977: p. 71; Stutley, 1958: p. 351). Today, smuggling seems to take place for a much wider variety of reasons.

Selling to smugglers offers the following advantages to flock keepers:

(1) Smugglers purchase from farmers in their villages. Smugglers announce in advance when they will be in an area and make appointments to buy wool and mohair. Farmers may then shear in preparation for the smuggler. For farmers who live far from a woolshed or trader this may offer a distinct cost advantage. Their only other options may be to drive their sheep to the woolshed or trader for shearing or shear at home and transport the wool or mohair to the trader where they may then have to wait several days before selling (as discussed above, the government woolsheds often discourage the purchase of home-shorn wool or mohair). For some, these options may be both expensive and inconvenient. The smuggler may appear to be an especially desirable sales outlet for those farmers with small flocks who live in very remote areas. In this sense, the smuggler fulfills the functions once performed by the hawker.

(2) Smugglers provide an immediate cash payment upon sale. Smugglers make one payment only. Although private licensed traders also pay the first payment immediately in cash, farmers must wait 6-9 months for their second payment. Some farmers, it seems, would prefer to have the entire payment, albeit smaller, at once. This may be especially true for those farmers with immediate cash needs for school fees or medical bills. In this sense, smugglers help to make wool and mohair more liquid.

(3) Smugglers purchase coloured wool or mohair. Although this is true of private traders, as well, the smuggler may be important to owners of coloured animals in remote areas or those in need of quick payment.

(4) Smugglers purchase wool and mohair from stolen animals. Farmers must have a certificate of ownership before they can sell their wool or mohair at the government woolshed or to a private trader. Although a thief might be able to acquire a forged ownership certificate ("It does happen," according to Mr. Moteane), they could use it only with the private trader. At the government woolshed, all Wool Growers Association or Marketing Group members are known to the WGA committee, which have control over the shed. For that reason, use of a forged certificate would be difficult there. Sale to the smuggler avoids all difficulties.

The principal disadvantages of selling to a smuggler are two: engaging in an illegal activity and receiving a lower than gazetted price for one's clip. For some wool and mohair producers, these may be small costs to pay.

For the smuggler, the advantages are straightforward: profit. According to a smuggler's former Mosotho middleman, in 1983/84, when Lesotho mohair was selling at an average price of 1019 lisente per kg, smugglers were paying a flat rate of 200 lisente per kg. That same year, when wool was selling at an average price of 222.1 lisente per kg, the farmer was being paid 60 lisente per kg by smugglers. This left a per kilogram gross margin of about 820 lisente for mohair and 160 lisente for wool. From these margins the costs of the middleman must be subtracted. Reportedly, he was paid 150 lisente per kg for mohair and 40 lisente per kg for wool. These payments were expected to cover all field expenses (petrol, food, lodging) as well as compensate for the middleman's time. Since wool has a higher mass than mohair (owing to its higher grease content), the cost of collecting wool could not have been less than the cost of collecting mohair. Thus, the middleman's mohair payments must have partially subsidised wool collection and his claim that there was little profit in the business for him does not seem surprising. Capital charges on the vehicle, the only other regular expenses, were borne by the smuggler.

Thus, depending on the cost of transporting the mohair across the border, a smuggler might clear four to six maloti per kg.<sup>37</sup> The profit margin was much lower on wool, however. It seems that, at the most, only about one maloti per kg could have been earned on wool. In the next section, what this means for total smuggler income will be assessed.

## 2. Estimating the Amount of Smuggled Wool and Mohair

Although precise data are unavailable, upper limit estimates of the amount of wool and mohair smuggled through official channels in the Republic of South Africa can be made. The South African Wool Board categorizes almost all of Lesotho's wool as "Basuto". Only a small percentage, less than one percent, is labelled "Merino". According to South African Wool Board officials, any wool smuggled out of Lesotho would be sold as Basuto wool because of its characteristics. This would probably be sold near Lesotho and virtually all of the Basuto wool sold in

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<sup>37</sup>This particular smuggler apparently had a license to export hides and skins. He simply wrapped his wool or mohair in skins and transported it through the border posts. (Reportedly, he "exported" himself this way once when he failed to obtain a South African visa!)

South Africa is, in fact, sold in magisterial districts bordering on Lesotho. Some of this wool will have originated legitimately from sheep raised in these districts under environmental conditions similar to those in neighbouring Lesotho. Some will have been smuggled, however. Thus, a measure of this non-Lesotho Basuto wool provides an upper-limit estimate to the amount of wool smuggled out of Lesotho and sold through official channels. These data are provided in Table VII.5.

If these estimates are correct, the amount of wool being smuggled out of Lesotho and sold through the official marketing network is presently almost inconsequential. Although the statistics indicate that it may have increased somewhat in recent years, this increase may be illusory. The recent increase in "other" Basuto wool may be nothing more than an increase in production by border farmers in response to recently higher wool prices.

TABLE VII.5  
Upper-Limit Estimates of Wool Smuggled from Lesotho  
and Sold Through Official Channels in South Africa

Year	Basuto Wool Lesotho (kg)	Basuto Wool Other (kg)	Total Basuto Wool (kg)	% Other of Total
1974/75	1,648,275	105,694	1,753,969	6.0
1975/76	NA	NA	NA	NA
1976/77	1,734,449	105,812	1,840,261	5.7
1977/78	1,822,836	60,356	1,883,192	3.2
1978/79	2,431,780	54,820	2,486,600	2.2
1979/80	2,457,748	25,784	2,483,574	1.0
1980/81	2,655,404	22,019	2,677,486	0.8
1981/82	2,685,263	19,919	2,705,182	0.7
1982/83	2,929,077	21,095	2,950,172	0.7
1983/84	3,145,281	57,663	3,202,944	1.8
1984/85	3,155,218	66,627	3,221,845	2.1

NOTE: Early figures for Basuto wool produced in Lesotho differ substantially from measures of the total wool produced in Lesotho because the former did not include coarse, coloured or Merino wool. After 1977/78, coarse and coloured wool seem to have been included in the "Basuto" category in SAWB tables. Wool classified by the SAWB as "Merino" is a very small percentage (less than 1%) of the total wool sold in Lesotho.

SOURCE: South African Wool Board, Statistical Analysis of Wool Produced in Southern Africa (various).

Estimates of smuggled mohair are somewhat more difficult to make because there is no category for mohair similar to the "Basuto" wool category. However, according to South African Mohair Board officials, "crossbred" mohair has characteristics

very similar to Lesotho mohair. Much of this is sold in the Orange Free State in magisterial districts bordering on Lesotho. Any smuggled mohair would almost surely be sold as crossbred, they think. Thus, the amount of crossbred mohair sold provides upper-limit estimates of the amount of mohair smuggled from Lesotho and sold through official channels. This is presented in Table VII.6.

TABLE VII.6  
Upper-Limit Estimates of Mohair Smuggled from Lesotho  
and Sold Through Official Channels in South Africa

Year	Lesotho Mohair Sold (kg)	OFS Crossbred Mohair Sold (kg)	Total Lesotho & Crossbred (kg)	% Crossbred of Total
1976/77	340,000	107,037	447,037	23.9
1977/78	396,660	100,877	497,537	20.3
1978/79	504,087	92,119	596,206	15.5
1979/80	497,220	99,681	596,901	16.7
1980/81	480,968	78,787	559,755	14.1
1981/82	244,270	57,335	301,605	19.0
1982/83	415,303	33,498	448,801	7.5
1983/84	668,706	44,102	712,808	6.2
1984/85	724,105	41,127	765,232	5.4

SOURCE: South African Mohair Board, unpublished statistics.<sup>38</sup>

Not all smuggled mohair would move through official channels in South Africa. Some, it is alleged by those who claim to know, is bought by processors independently of the South African Mohair Board. Thus, the upper-limit estimates of smuggled mohair sold through official channels probably underestimate the true level of mohair smuggling from Lesotho.

From analysis of survey data presented in the previous chapter it was estimated that 10 percent of goats were clipped twice and 14 percent were clipped at home. Although the first estimate is impossible to verify (and may be low), the second is probably not too far off, given the upper limits placed on it by the number of goats clipped at government woolsheds (which can be verified) and the number clipped at private traders. Smuggled mohair would almost certainly be clipped at home and most of the hair from one of the clips of the double-clipped goats would probably be sold to smugglers. Thus, the percentage of the

<sup>38</sup>I would like to thank Mr. D. H. Oosthuizen, of the South African Mohair Board, for giving me access to these data.

total clip (legally and illegally sold) that is smuggled probably cannot exceed 15 percent by very much. On the basis of the 1984/85 clip, perhaps 128,000 kg of a total clip of about 852,000 kg was smuggled. This constitutes about 18 percent of the legally sold clip of 724,000 kg.

Because mohair smuggling is more lucrative than wool smuggling, these estimates must be viewed much more tentatively than the estimates of wool smuggling. With that in mind, it seems reasonable to conclude that somewhat less than 5 percent of the wool clip and perhaps as much as 15 to 20 percent of the mohair clip is smuggled.

On the basis of these estimates and the above-estimated profit margins, some estimates of smugglers' profit can be made. Three percent wool smuggled would equal about 98,000 kg and about M 100,000 profit from wool. Fifteen percent mohair smuggled would yield between M 512,000 and M 640,000 profit from mohair. The total of two-thirds to three-quarters of a million maloti profit should be sufficient to provide rather comfortable incomes to a number of smugglers.

Despite the admittedly tentative nature of these estimates, it appears that smuggled wool and mohair, as a percent of the total clip, may both be on the decline. LPMS District Marketing Officers, Messrs. Moteane and Machongo, were not surprised by this possibility. They thought that more rapid payment by LPMS and better extension work by LPMS and Livestock officials might be paying off in the lessened appeal of smuggling.

Although illegal activity necessarily is to be discouraged; nonetheless, smuggling should be put in proper perspective. LPMS and Livestock officials, perhaps remembering the past, tend to exaggerate the amount of smuggling that goes on. Typical is the following quotation in the 1983/84 Annual Report of the Ministry of Agriculture:

Wool/Mohair smuggling are still prevalent in most districts. . .

and the comment of one of the LPMS Field Marketing Officers who remarked that "Mohair is smuggled like daggha".

Whereas smuggling may have been common in the past, it does not appear to be so common today. This is not to argue for complacency about smuggling. It may mean that policies other than frontal assault by law enforcement officials may be more effective in dealing with most of the remaining smuggling problem, however. This will be discussed further in Section E, below.

It is also common to hear officials express the opinion that smugglers are "cheating" farmers by paying too low prices. They are paying lower than gazetted prices, it is true, and they certainly appear to be making good profits; but are farmers being cheated? Cheating implies taking advantage of someone through fraud or deception. Alternatively, if coercion were involved one could certainly make a case for cheating. With regard to coercion, we have never seen any evidence that this is taking place; nor have we heard of any such evidence. With regard to fraud or deception, this is probably also unlikely given the fact that knowledge of market prices and sales opportunities are widely broadcast on Radio Lesotho or through word-of-mouth. If farmers are selling to smugglers it is voluntarily because smugglers are providing services (village buying, coloured purchases, instant payment) for which some farmers are willing to pay in terms of lower wool and mohair prices.

To say that farmers are not being cheated need not imply that the smugglers' market is a fair one for farmers. The illegality of the market itself limits competition by limiting entrants. This permits smugglers to pay lower prices than would probably be paid in a more competitive situation. It may well be that increased competition in this area would increase prices to farmers and erode some of the oligopsony profit that smugglers are now making (see Section E, below).

#### D. Farmers' Comparative Perceptions of the Advantages and Disadvantages of Existing Marketing Institutions

Each of the three marketing institutions occupies a unique niche in the overall marketing structure. This is clear from the responses of farmers who were asked to list the advantages and disadvantages of each of the institutions during the course of the Woolshed and Livestock Holders surveys. Farmers' perceived advantages are listed in Table VII.7.

By a clear majority, farmers surveyed by both surveys thought that they received a higher total payment by selling through LPMS than through other outlets. A substantial minority listed this as the principal advantage of selling to private traders, also. As was observed, above, the actual difference in payments between the two outlets is slight. Thus, the disagreement as to which pays more is not too unexpected. What is surprising is the number of respondents that thought smugglers paid the most. Perhaps these respondents had few other options.

Taking both surveys together, most prompt payment appears to be the principal advantage of selling to traders. Cash payment does not seem so important. Perhaps if LPMS could speed up their payments, traders would lose some of their competitive advantage.

There appears to be little agreement on the principal advantages of selling to smugglers. Cash payments and prompt payments are the main advantages for some. Others find the proximity to market to be most advantageous. Considering the diverse functions of smugglers, this ambiguity is not surprising.

TABLE VII.7  
Alternative Marketing Institutions:  
Farmers Perceived Primary Advantages

Market	Woolshed Survey	Livestock Holders Survey
Livestock Products Marketing Service	<ol style="list-style-type: none"> <li>1. Highest Total Payment 59.0% (72)</li> <li>2. Only Purchaser Available 9% (11)</li> <li>3. Highest Initial Payment 9% (11)</li> <li>4. Closest Market 4.1% (5)</li> <li>4. Best Grading 4.1% (5)</li> </ol>	<ol style="list-style-type: none"> <li>1. Highest Total Payment 61.5 % (59)</li> <li>2. Only Purchaser Available 13.5 % (13)</li> <li>3. Closest Market 6.3% (6)</li> <li>4. Highest Initial Payment 5.2% (5)</li> <li>5. Most Prompt Payment 4.2% (4)</li> </ol>
Private Licensed Trader	<ol style="list-style-type: none"> <li>1. Most Prompt Payment 40.7% (44)</li> <li>2. Accepts Coloured Wool or Mohair 16.7% (18)</li> <li>3. Highest Total Payment 13.0% (14)</li> <li>4. Cash Payment 7.4% (8)</li> <li>5. Highest Initial Payment 3.7% (4)</li> </ol>	<ol style="list-style-type: none"> <li>1. Highest Total Payment 28.6% (34)</li> <li>2. Most Prompt Payment 18.5% (22)</li> <li>3. Closest Market 16.8% (20)</li> <li>4. Only Purchaser Available 12.6% (15)</li> <li>5. Highest Initial Payment 9.2% (11)</li> </ol>
Smuggler	<ol style="list-style-type: none"> <li>1. Highest Total Payment 22.4% (17)</li> <li>2. Most Prompt Payment 17.1% (13)</li> <li>3. Accepts Coloured Wool or Mohair 13.2% (10)</li> <li>4. Cash Payment 11.8% (9)</li> <li>5. Closest Market 10.5% (8)</li> </ol>	<ol style="list-style-type: none"> <li>1. Closest Market 43.8% (14)</li> <li>2. Most Prompt Payment 28.1% (9)</li> <li>3. Only Purchaser Available 9.4% (3)</li> <li>3. Highest Total Payment 9.4% (3)</li> </ol>

NOTE: The numbers in parentheses are the number of respondents mentioning the corresponding response.

SOURCE: 1986 Woolshed Survey, 1985 Livestock Holders Survey (see Swallow, Brokken, Motsamai, and Soping, 1986).

The principal disadvantages perceived by farmers from selling through the different channels are listed in Table VII.8.

TABLE VII.8  
Alternative Marketing Institutions:  
Farmers Perceived Primary Disadvantages

Market	Woolshed Survey	Livestock Holders Survey
Livestock Products Marketing Service	<ol style="list-style-type: none"> <li>1. Slow Payment 63.7% (65)</li> <li>2. Coloured Wool or Mohair Not Accepted 8.8% (9)</li> <li>3. Small Payment 7.8% (8)</li> <li>4. Charges Too High 3.9% (4)</li> </ol>	<ol style="list-style-type: none"> <li>1. Slow Payment 60.8% (31)</li> <li>2. Charges Too High 7.8% (4)</li> <li>2. Too Distant 7.8% (4)</li> <li>3. Does Not Pay Cash 5.9% (3)</li> </ol>
Private Licensed Trader	<ol style="list-style-type: none"> <li>1. Small Payment 42.5% (48)</li> <li>2. Charges Too High 21.2% (24)</li> <li>3. Degrades Clip 10.6% (12)</li> <li>4. Unreliable 8.8% (10)</li> <li>5. Slow Payment 4.4% (5)</li> </ol>	<ol style="list-style-type: none"> <li>1. Small Payment 60.0% (33)</li> <li>2. Unreliable 16.4% (9)</li> <li>3. Charges Too High 5.5% (3)</li> <li>3. Degrades Clip 5.5% (3)</li> </ol>
Smuggler	<ol style="list-style-type: none"> <li>1. Unreliable 47.9% (46)</li> <li>2. Small Payment 28.1% (27)</li> <li>3. Degrades Clip 6.3% (6)</li> <li>4. Charges Too High 5.2% (5)</li> </ol>	<ol style="list-style-type: none"> <li>1. Unreliable 52.1% (38)</li> <li>2. Small Payment 34.2% (25)</li> <li>3. Charges Too High 4.1% (3)</li> <li>3. Slow Payment 4.1% (3)</li> <li>4. Degrades Clip 2.7% (2)</li> </ol>

NOTE: The numbers in parentheses are the number of respondents mentioning the corresponding response.

SOURCE: 1986 Woolshed Survey, 1985 Livestock Holders Survey (see Swallow, Brokken, Motsamai, and Sopeng, 1988).

With regard to the principal disadvantages, there appears to be greater agreement amongst respondents. Slow payment is mentioned as the principal disadvantage for LPMS by growers in both surveys. By contrast, responses relating to lower payments (small payment, too-high charges, degraded clip) are considered to be the principal disadvantages of selling to traders. To some extent this is unavoidable. As was observed above, traders have fewer wool classes available to them than does LPMS. Unreliability (to be expected in an illegal enterprise) and small payments are consistently mentioned as the main disadvantages of smugglers.

Thus, each of the marketing outlets has a different function to perform. Farmers desiring higher grades, and perhaps higher payments thereby, may sell via LPMS. Delayed payment is the price they must pay for marketing through this route, however. Private traders offer prompt payment and, for some farmers, higher payments. They also accept coloured fleeces. Most farmers consider smaller payment to be the price of marketing via this route. Finally, smugglers seem to offer a nearby market

paying cash promptly. Their costs are unreliability and smaller payments.

#### E. Smugglers and Hawkers

Much of the smuggling that takes place probably would not exist if hawkers were still operating: most smuggling seems to fill the gap left by the demise of the hawker. The exception is the purchase and smuggling of wool and mohair from stolen animals.

Hawkers were eliminated because of the desire to regularize wool and mohair purchases and improve classing (see Chapter VI). That justification does not seem so important today now that a well-operating alternative system is in place which can pay high prices and give good grades. Hawkiers could provide no real competition to this system. They could provide a valuable service to some farmers though.

Hawkiers could be licensed to purchase wool or mohair for sale to the rug and tapestry industry in Lesotho. This would avoid the objection that it would be difficult to properly class hundreds of mixed-up small lots for sale in South Africa. Such classing would be a low priority to the local weaving industry and it would be very pleased to obtain a steady supply of wool and mohair at a reasonable price. This would help it to remain competitive on world markets and would avoid the irony of some Lesotho "mohair" rugs being made from imported Lincoln wool.

Alternatively, if it were thought undesirable to interfere with present regulations requiring all fleeces to be classed, hawkiers could be licensed to sell to private traders. Traders could then undertake the classing. Indeed, some traders might find it profitable to hire hawkiers to tout for them and purchase wool and mohair in the villages.

There are additional advantages to licensing hawkiers. In principle, increased law enforcement could eliminate the remaining smuggling, albeit at very high cost. Competition from licensed hawkiers would eliminate most of the remaining smuggling at no cost at all, however. Hawkiers would drive most smugglers out of business. In addition, the government would gain revenue. At present, the government is losing 21 lisente per kg of mohair and 7 lisente per kg of wool smuggled in dipping fees. According to the above smuggling estimates, this could be as much as M 34,000 a year. Hawkiers could collect these fees. In addition, being legal, hawkiers may be more reliable than illegal smugglers. Finally, hawking would provide useful employment, requiring little capital investment, for a number of Basotho. Even if only 75 percent of the smuggling were eliminated, the M 500,000 profit accruing to hawkiers thereby could keep perhaps as many as one hundred Basotho gainfully employed.

Government woolsheds and licensed private traders would have little to fear from hawkers' competition. Hawkers would necessarily have to pay much lower prices than are paid by these more established purchasers. It is doubtful that they would attract much more business than smugglers do now. To a small number of farmers, however, they would be providing valuable services that LPMS and private traders cannot now provide.

## V. Future Marketing Arrangements

With the legalisation of hawking, a legal, three-tiered marketing system meeting the diverse needs of Basotho sheep and goat raisers would be established. Such a system should not be altered markedly without very careful planning and consideration (in this regard, see the thoughtful discussion in Musiyambiri, 1987). To do otherwise might well destroy many of the incentives that underlay Lesotho's largest agricultural industry.

Numerous proposals have been put forward to undertake locally some of the processing of Lesotho's clip. The nature of the processing technology dictates that most, if not all, of the clip would have to be processed by the plant if it were to operate profitably. As a result, there would be a strong temptation to require all of the clip to be sold to the processing plant. Although the three-tier marketing system could continue to operate, the purchase price would no longer be set necessarily by market forces as it is now. The plant would have the ability to dictate the price and would have a strong incentive to do so, as well. Being a monopsony, it would also have the capability of paying the lowest prices possible to farmers. While this would certainly enhance its own profitability, it could destroy the incentives for Basotho farmers to continue producing wool and mohair. If it did not, it could force them to seek out smugglers to take advantage of the higher prices in South Africa. Either way, the domestic industry would be in jeopardy.

If the processing plant is planned and operated efficiently and according to strict rules of profitability, the temptation to pay below world market prices can be held at bay. Should the plant not be carefully planned or not operated efficiently, however, it may be unable to operate profitably at competitive prices. Then, if it is to avoid subsidies, it must lower its purchase price.

Assuming that a Lesotho processing plant could operate about as efficiently as a South African one, it should be possible to pay Basotho farmers a net price somewhat higher than they are getting now and still obtain wool or mohair at a lower gross price than prevails in Port Elizabeth. This is because several of the charges now associated with marketing through present

channels could be avoided. In addition, the cost of transporting the total scoured clip to the coast should be less than the present cost of transporting the total grease clip. What charges can be eliminated will depend on Lesotho's final sales arrangements. Some, such as the Stabilization Levy which provides a fund to smooth out fluctuations in prices, may be usefully continued under a new arrangement.

Several other considerations should be borne in mind when planning for further processing of the clip:

(1) Lesotho's rangelands are drastically overstocked. If they are to recover from overgrazing, the number of animals presently grazing on them will have to be reduced markedly (see Combs and Hunter, 1987). If this fails to happen, currently low livestock productivity will only worsen. The need to destock poses a dilemma to operators of a processing plant, however. While one would hope that productivity would ultimately increase to compensate for the decline in sheep and goat numbers, this will not happen in the short-term. Thus, the plant must either be prepared to operate at less than full capacity for some years or have contingency plans for importing unprocessed wool and mohair to make up for the shortfall in local clip. It would be a tragedy if the plant's profitability considerations were permitted to impede Lesotho's very real need to destock its rangelands.

(2) Lesotho should be careful about severing its ties with the South African Wool and Mohair boards. Once cut they may be difficult to reestablish in the event that the processing plant ultimately is unsuccessful. Presently, Lesotho's wool clip is only 3.2 percent of South Africa's total wool grease mass and 2.8 percent of its realization value. Lesotho's mohair is proportionately more important, but is still only 9.3 percent of the total by mass and 7.2 percent of the total by value. Once gone, the South Africans may not wish to bother with these relatively small amounts again.

## VI. Conclusions

The present marketing structure in Lesotho has evolved over a century to its present form. In the past, the structure was dominated by private traders who either operated from fixed trading stations or, as hawkers, travelled about the country and bought and sold in village areas. Private traders operated an integrated structure in which proceeds from sales of agricultural produce, the most important being wool and mohair, financed purchases of consumer goods. In addition, traders often provided farmers with credit.

Despite attempts by the Department of Agriculture to improve farmers' returns by introducing classing of the clip, there was

widespread suspicion of and resentment at the trader's role by Basotho farmers. Some of this may have owed to the restricted nature of the market and nationalistic political motivations; some of it may have been stimulated by legitimate dissatisfaction with not always fair marketing practices. In response, government initially encouraged co-operative societies. These encountered financial and managerial difficulties and never marketed more than 10 percent of the clip, however. After Independence, government opted for a different approach: regulation of private traders and competition from a government marketing network. The precise nature of this has changed as problems have been encountered and solutions sought but this is the approach still in effect today. Popular perceptions notwithstanding to the contrary, the per kilogram net return to farmers from sales to private traders or through the Livestock Products Marketing Service are roughly the same. To farmers, these two channels provide different services, however. LPMS provides perceived higher prices at the expense of payment delays. Traders provide prompt cash payments at the expense of perceived lower prices. Clip marketed through both of these channels is sold by auction in South Africa through the auspices and facilities of the South African Wool and Mohair Boards and the farmers' marketing co-operative, BKB.

In addition to the two legal marketing channels, farmers can sell also to smugglers operating illegally. Smugglers offer a convenience for small farmers in remote areas because they collect the clip from the farmer's village and pay a single cash payment. In this regard, they function like hawkers. They also provide a sales outlet for the clip from stolen animals.

Wool smuggling does not appear to be very profitable. Thus, probably less than five percent of the wool clip is smuggled. Mohair smuggling seems to be highly profitable, however: profits as high as M 4-6/kg may be earned. Because of this, the amount of mohair smuggled is greater--perhaps as much as 15-20 percent of the clip.

The three marketing channels for wool and mohair are diagrammed in Figures VII.3 and VII.4, respectively.

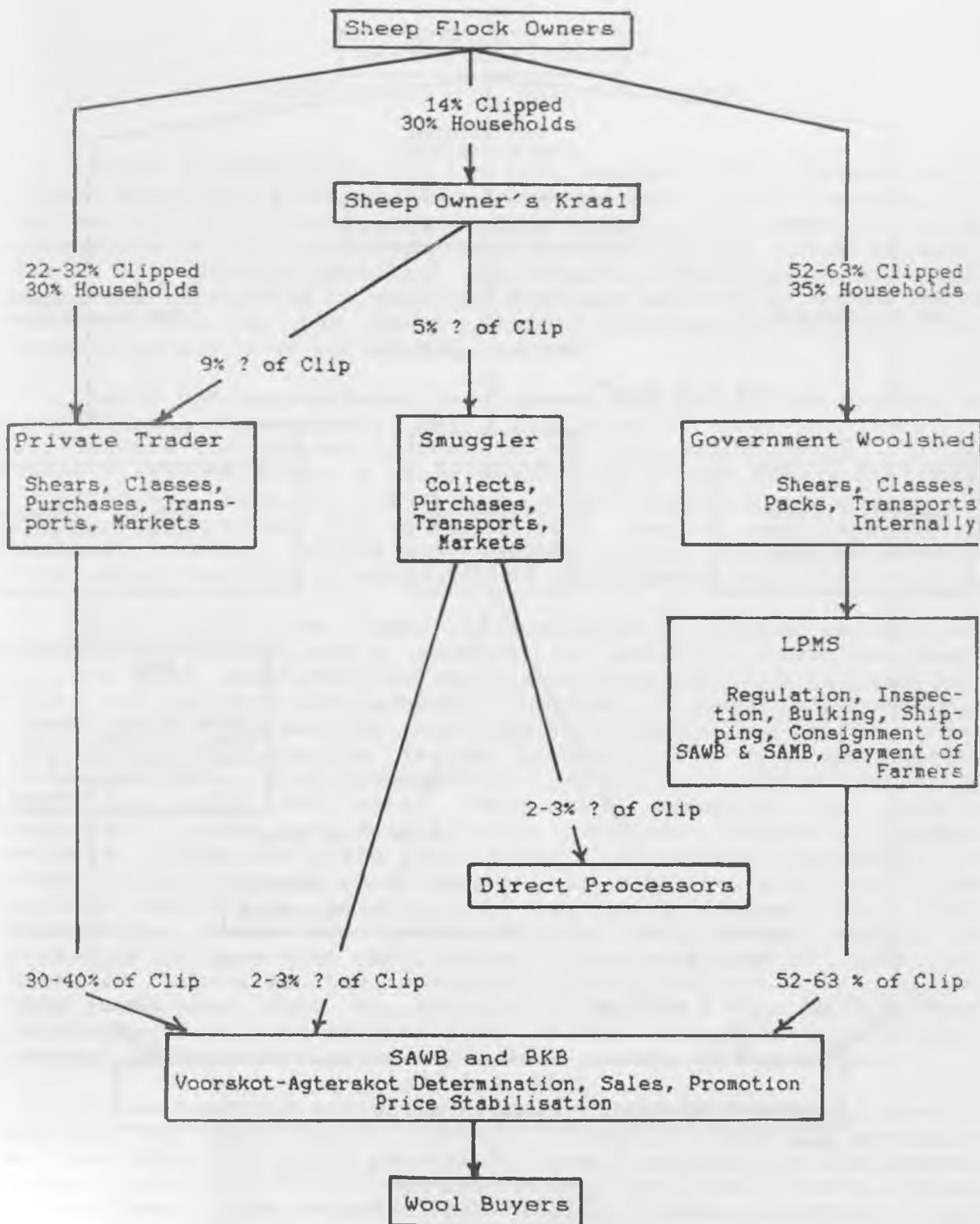


FIGURE VII.3  
The Wool Marketing Chain

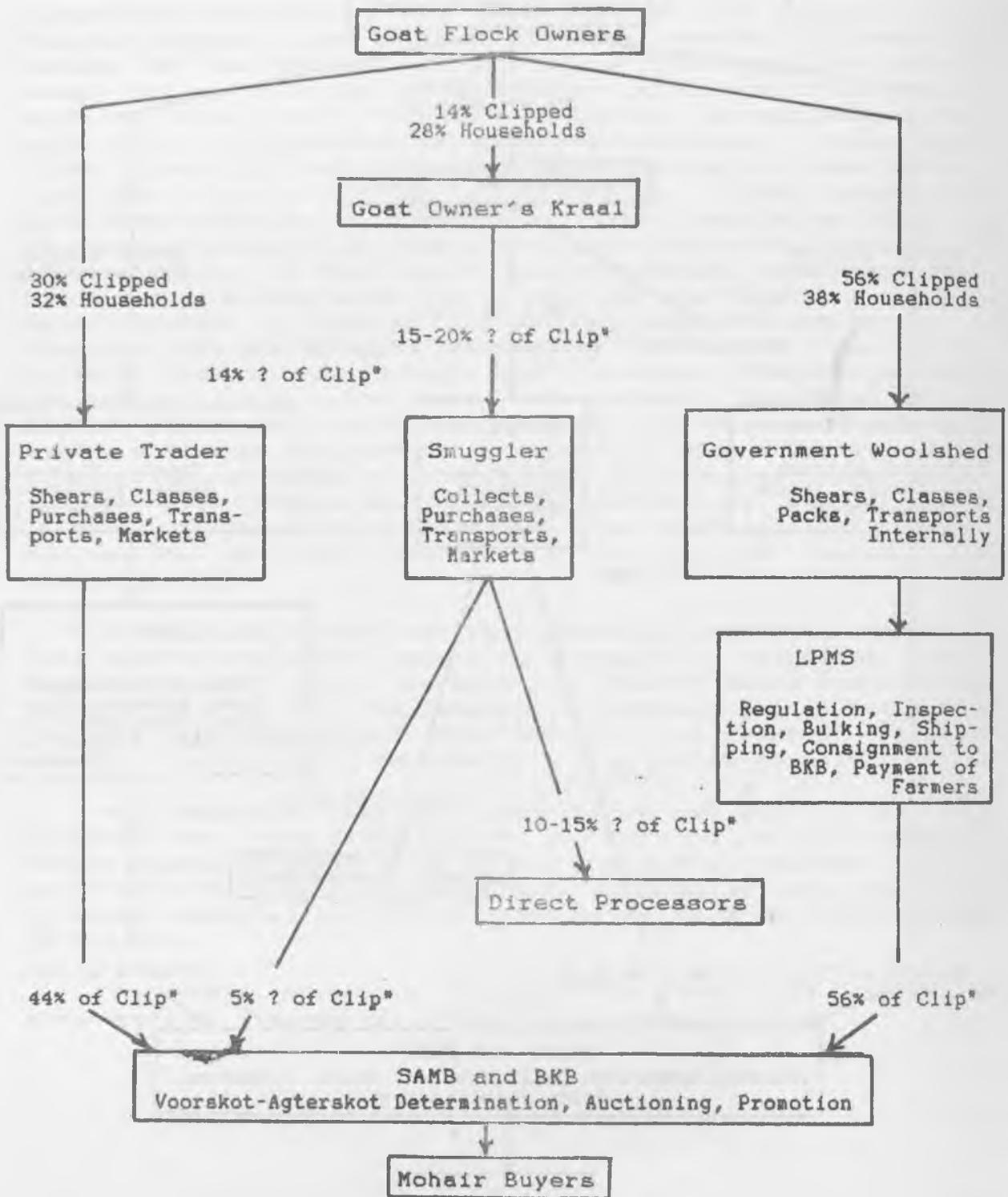


FIGURE VII.4  
The Mohair Marketing Chain

NOTE: \*% here clipped mohair exceeds % goats here clipped to reflect double-clipped mohair. Total clip percentages add up to 115-120% to reflect the estimated amount of double-clipped and smuggled mohair.

## CHAPTER VIII

### CONCLUSIONS and RECOMMENDATIONS

Since Independence the Lesotho economy has undergone rapid growth which has substantially increased per capita incomes. The sources of this growth have not primarily been domestic income generation but the employment of Basotho in the mines of South Africa and foreign economic assistance. This has made Lesotho extremely vulnerable to external economic activities. Thus, with the downturn of the South African economy in the 1980s, the Lesotho economy has slowed down as well.

Rapid non-agricultural development can assist the process of agricultural development, particularly as it draws people out of agriculture and reduces the stress on scarce resources such as land. This could make a range destocking policy more politically acceptable. Most of the growth in non-agricultural employment since Independence has been in the service and commercial sectors, however. Little has occurred in the industrial sector. This makes the task of agricultural development more difficult.

Aside from the fact that reliance on another economy may excessively subject one's economy to external vagaries, South African mine employment is not a long-term solution to Lesotho's quest for economic development. Sources of domestic growth and income generation must be found and developed. One of the oldest and largest such sources is the production of wool and mohair. Throughout the post-Independence period, with the exception of the late 1970s and early 1980s when diamonds were briefly important, wool and mohair have remained Lesotho's largest exports. Sheep and goats are also the largest generators of domestically produced rural income. In addition, although cattle produce substantial amounts of non-cash income for rural households, sheep and goats provide the largest source of domestically generated cash income. The importance of sheep and goats in this area has increased during the last twenty years. This has been more by default than as a result of any improvements in the productivity of the sheep and goat sector, however. The potential of the sector was far from realized.

Overall, sheep and goat numbers have not changed greatly during the past twenty years. Presently there are about 1.4 million sheep and about .9 million goats grazing on the Lesotho range. Wool and mohair marketed output declined, however, owing to declines in the average per animal fleece weights. Wool prices, but especially mohair prices, increased sufficiently in nominal terms to stay ahead of inflation. Thus, the total value of output increased. Declining fleece weights caused real returns per sheep to stagnate and substantially moderated their increase for goats, however. This lessened the purchasing power

of farmers' wool and mohair incomes. Overall, wool and mohair sales barely provided a constant absolute contribution to Lesotho's Gross Domestic Product in the post-Independence period.

The average fleece weight for sheep is about 2.4 kg/sheep; that for goats is about 0.7 kg/goat. Both of these are substantially below the average for South Africa. What is more, the average fleece weight for goats has been declining during the past twenty years, after thirty years of gradual increase. Although many factors can be held responsible for the relatively poor performance of Lesotho's sheep and goats, poor nutrition, owing to the overgrazed condition of the range, and an historic neglect of breeding and culling, particularly of goats, are especially important. Reversal of recent trends and the achievement of increases in fleece weight and average price are within the realm of possibility. Higher fleece weights and better quality have been achieved in the past and are being achieved presently by a number of individual farmers. To make them more general will require changes in herding and husbandry practices involving animal nutrition, age and sex compositions of the flock, winter care, breeding, and veterinary care. A redistribution of the national sheep and goat flocks between the lowlands and mountainous areas in conjunction with a destocking programme may be especially necessary. Lowland sheep and goats achieve much lower productivity (whether measured by fleece weight or average fleece price) than Mountain animals. Their access to the common range is a relatively inefficient use of this scarce and extremely valuable national resource. Lastly, but most importantly, increased productivity of sheep and goats is dependent on a viable destocking programme to permit recovery of rangelands and to improve the availability of forage (see Combs and Hunter, 1987). Improvements in sheep and goat productivity can help to make this sector able to contribute to Lesotho's oft-stated goal of reducing its dependence on mine labour and migrant remittances.

The history of sheep and goats in Lesotho is a long one. Its examination may help to isolate the origin of and put in perspective some of the problems confronting the small stock sector today.

Basotho familiarity with sheep and goats pre-dates the origin of the modern Basotho nation under Moshoeshoe. Oral accounts mention flocks of fat-tailed sheep and boer goats kept by Basotho herders, in addition to their herds of cattle.

Following the cessation of the lifigane in the 1830s, the Basotho nation expanded rapidly. Initially this was merely an expansion into virgin lands along the Caledon River Valley. As herds and flocks increased, however, this included tentative forays into the interior mountain areas as well. Contemporaneous to this activity was the arrival of the Boers in the area

adjacent to Lesotho. Trade, which had long existed between the Basotho and neighbouring tribes, was given a new fillip by the demand of the Boers for grains and other agricultural products. At the same time, new trading contacts were established with the Cape Colony through itinerant hawkers and settled traders. The Basotho responded to these stimuli by increasing their production of agricultural products for the market.

Merino sheep production expanded rapidly in the Cape Colony after the 1820s. In the 1830s, Angora goats were introduced in the same area and by the 1850s had become an important source of agricultural income. The rapid expansion of the wool trade at this time attracted a number of Basotho migrant workers. Upon completion of their contracts, they often returned home with Merino sheep and Angora goats.

Within about two decades, from the 1860s to 1880s, Basotho stock keepers had almost completely replaced the original fat-tailed sheep by the new Merino variety. This was in response to the high wool prices being received at this time. Transformation of goat flocks from boer goats to Angoras lagged this by a decade but was almost as rapid. By the turn of the century, most of the sheep and goats (making allowance for crossbreeds) were of the new varieties.

Between 1890 and 1930, the numbers of sheep and goats grazed on the Lesotho range increased very rapidly. From a few hundred thousand at the beginning of the period, small stock totalled almost four million at the end. This increase accompanied and was a response to several contemporaneously occurring changes in Lesotho's economy. Discriminatory policies in South Africa and competition with cheap foreign grain had reduced the opportunities for grain export considerably. To gain cash income, increasingly necessary in the rapidly expanding monetary economy, Basotho increased their labour migration and production of wool and mohair. In addition, population expansion required the settling of the mountain areas where people often had few alternative agricultural options to herding. This period of rapid expansion paralleled generally rising prices for wool and mohair.

From 1931 to about 1935 the number of small stock declined drastically. Both sheep and goat numbers were cut approximately in half. A number of factors accounted for this, among which were dramatic declines in wool and mohair prices, drought, and disease. Contemporary observers thought that Basotho were eating their small stock to compensate for the reduction in grain supplies. Excessive overstocking and greatly reduced animal condition and health were also partly responsible.

Since 1931, small stock numbers have fluctuated around an apparent steady state of about two million animals. Despite this

apparent constancy, there has been a long-term decline in sheep numbers which has been compensated for by an increase in goat numbers. The relative increase in the income derived from goats over that derived from sheep is the most likely explanation for this change.

The small stock sector has been confronted with a number of serious problems over the years. Some, such as scab infestations, have been successfully dealt with on several occasions by compulsory dipping campaigns. Improved breeding and culling of sheep also appear to have had some success, although there is still room for improvement of the breed. Goats might have responded as well had they not been neglected until the 1950s.

In other areas, success has been more difficult to achieve. Most conspicuous in this regard are the problems of rangeland degradation and overgrazing. Warnings of potential overgrazing problems date from the 1850s. Serious concern dates from the 1930s. With the exception of the unplanned destocking between 1931 and 1935, no serious progress has yet been made in this direction, however. It appears that this problem may finally threaten the very viability of the sheep and goat sector itself.

Reliable data on the social distribution of sheep and goats is not available before Sheddick's 1954 study of land tenure. Historical evidence suggests that the new Merino and Angora breeds were initially adopted by commoners often associated with mission stations. Because of the relative autonomy of missions, these people were relatively free from traditional obligations and could undertake new economic activities. Members of the chieftaincy must have quickly adopted these new breeds because accounts from the early part of the Twentieth Century frequently mention large flocks belonging to chiefs. Nonetheless, commoners have continued to be well-represented amongst small stock owners.

Between Sheddick's study in 1954 and the latest Agricultural Census in 1980, the percentage of agricultural households without sheep or goats has steadily increased. At the same time, the number of households holding 50 percent of the small stock has decreased. Both trends point to a similar conclusion: increasing concentration of sheep and goat ownership. This has been accompanied in recent years by increases in average flock size. Although these trends may be worrisome from an egalitarian standpoint, they may be concentrating small stock in the hands of stock keepers keen on their productive and efficient management. What is more, they may make the targetting of extension assistance easier.

The trend in geographic distribution is running counter to increased efficiency and productivity. The initial expansion of the sheep and goat sector was accompanied by the redistribution of small stock from the Lowland areas to the Mountains. Within

the last two decades, this process appears to have reversed. The proportion of sheep and goats kept in the mountains has declined while those in the Lowlands and Senqu River Valley have increased. Mountain sheep and goats have significantly higher fleece weights and wool and mohair quality than animals kept elsewhere. As a result, the average monetary return per animal is higher. This redistribution may adversely affect Lesotho's overall small stock productivity and with it the income generated from the small stock sector.

The quantity and quality of the wool and mohair clip, considered on an aggregate or on a per animal basis, is closely related to the quality of management. The amount of labour and the amount and quality of decision-making authority are important in this regard. Sex, age, education and residence of the household head may all affect the quality of the management function.

In most of the geo-climatic zones, wool and mohair production for the generation of cash incomes appear to be the major motivations for raising sheep and goats. This is especially true for larger flock owners. The only exceptions are the Lowland zones for sheep and the Northern Lowlands and Foothills for goats. In these zones, meat production takes on much greater significance, although it attracts neither a majority nor a plurality of adherents. Generally, these zones are the some of the areas in which sheep and goats achieve their lowest wool and mohair productivities.

The matter of livestock distribution needs to be examined closely and debated intensely. Nonetheless, it may be desirable to reserve the Mountain areas, the Senqu River Valley and selected Northern Lowland and Foothill areas for the grazing of Merino sheep and Angora goats. These are the areas where they perform best and earn for their keepers the highest returns. Not surprisingly, these are also the areas where their keepers have the highest commitment to wool and mohair production. In the remaining areas, not only are the animals less productive and earn lower returns, but meat production and sale of animals take on greater importance as motivations for raising them. In these areas thought might be given to introducing small stock especially suited to intensive production for meat and milk. Merino sheep and Angora goats are not particularly well-suited to the production of either of these products. An additional benefit of such a programme would be that it would lessen the sacrifice from destocking of Lowland people.

Reliance on wool and mohair sales as income sources is allied to the matter of motivation. A plurality of sheep and goat raising households in all zones rely on migrant remittances as their principal cash income source. This is especially true in the Lowlands. In other areas, livestock and livestock

products as a source of income become very important. Farmers interviewed during the Woolshed Survey, who constitute a special subset of sheep and goat farmers--those with larger flocks and a greater commitment to commercial production--relied much more heavily on wool and mohair sales than on migrant remittances. Although some people may be motivated to produce wool and mohair out of necessity because they have no other options available, those who do it by choice and rely on the income so generated may be more willing to listen to the merits of improved management practices from extension advisers.

The raising of range livestock has traditionally been a male function in Lesotho. Nevertheless, about 13 percent of the heads of small stock keeping households are women. They tend to be older and have smaller flocks than their male counterparts. Many may have acquired their flocks through being widowed and may not have a strong commitment to sheep and goat management for wool and mohair production. Although it needs to be studied in greater detail, they may simply be depleting their inheritance so as to obtain additional support for their old age. This group may require special targeting of extension assistance and advice, particularly in the areas of disease and parasite prevention and control.

The level of education of small stock managers may affect both their receptivity to new management practices and their ability to understand and put them into effect. The majority of sheep keepers have some education. This varies by geo-climatic zone but the proportion with education is higher in the Lowlands and lower in the Foothills, Remote Mountains and Senqu River Valley. Goat keepers tend to be less well-educated than sheep keepers. This also varies by zone and the pattern is very similar to that for sheep.

Another factor that may affect the management function is the residency of the household head. Residency may imply a greater amount of attention paid to management as well as a greater labour availability. Although residency varied by zone, being lowest in the Southern Lowlands, the vast majority of sheep and goat keepers surveyed in the 1985 Livestock Holders Survey were resident at home. Residency was higher in the Northern Lowlands and lower in the Southern Lowlands than elsewhere.

Residency and labour migration are interlinked. Some studies have suggested that there is a correlation between having been a migrant in the past and size of flock today. Labour migration would provide one with the means of accumulating capital with which small stock could be purchased. Small stock could serve as an investment by which one's capital could be maintained. There also seems to be a correlation between size of flock and having more than one migrant in the household.

The characteristics of the household establish basic personal constraints within which the management function must be performed. How do managers perceive their problems? By a wide plurality, farmers think disease and parasites are their major problems. A sizeable number also list stock theft or loss and problems of inadequate food (relating to the condition of the range). Although the first problem is somewhat amenable to individual solution (provided managers have adequate knowledge about appropriate preventions and cures), the remaining problems require social action to deter stock theft or better control and use of the range. Farmers generally have a realistic sense of what is necessary to solve their perceived problems. What they seem to lack is a means of effecting the solution, especially to the problems requiring social or co-operative solutions.

How are sheep and goat keepers managing to overcome their constraints and identified problems? One solution to labour shortages and management constraints is to loan out (mafisa) one's animals to someone better able to look after them. Although the flow values of the animals are lost, their stock value is retained. Estimates are that perhaps as many as 20 percent of sheep keeping households and between 20 and 25 percent of goat keeping households are involved in a mafisa arrangement. Mafisa does not appear to be a means to counteract the increasing concentration of small stock ownership. Animals tend to be mafisa'd out by households with smaller flocks to households with larger ones. These are usually people who are better able to manage the animals. As a result, the percentage of animals involved in the mafisa arrangement is much smaller than the number of households involved. Approximately 10 percent of goats and 5-6 percent of sheep are involved in a mafisa arrangement.

Although mafisa may solve some of the management problems of selected small flock owners, there is reason to believe that mafisa'd animals may not be as well-managed as owned animals. If so, this could have adverse implications for breeding and disease control on the common range. This matter needs to be looked at more closely and may be deserving of special programmes and extension advice.

Disease and parasites are perceived to be important management problems by many farmers. Dipping, dosing and vaccination can be effective remedies for these problems and have been promoted by the Livestock officials for years. In fact, dipping is compulsory and is financed by a levy on wool and mohair sales.

Despite being compulsory, not all small stock are dipped. Estimates are that about 70 percent of small stock receive the recommended two dippings. Survey data indicate that large flock keepers are more inclined to dip than small flock keepers. Since common range grazing may result in parasites being rapidly transmitted amongst animals, the 30 percent of small stock that

are not dipped may pose a potentially serious problem. Special targeting of small flock keepers in Lowland areas (where small flocks are more common) with extension advice may pay off handsomely.

Dosing against internal parasites is considerably less common than dipping. Only approximately 20 percent of the rather special Woolshed Survey sample dosed 4 or more times, as recommended. Approximately 25 percent did not dose at all. Because of the special nature of the sample, this should be taken as representative of only the larger, more commercially-oriented farmers. Dosing by the "average" farmer is likely to be much less common.

Animal nutrition may affect both the quantity and quality of the clip. Internal parasites rob the animals of much of the small food intake they get from the overgrazed range. More widespread dosing may pay off in larger fleece weights and higher average prices. Although this needs to be looked at more carefully, there may be a justification for instituting a programme of compulsory dosing financed by an enlarged "animal health" levy modelled on the current dipping programme.

Improved management of sheep and goats may be brought to naught if the animals are stolen. The historical literature mentions the problem often. Survey data suggest that a relatively small proportion of sheep and goats are stolen (approximately 3 percent of sheep and 1.5 percent of goats) in any one year. Nonetheless, a relatively large number of stock keepers are affected by theft. Perhaps as many as 20 percent of sheep keeping households and 10 percent of goat keeping households may have an animal stolen during a year. Of those animals reported stolen, about one third are recovered. Much less than half of the animals stolen are reported, however.

Anecdotal evidence suggests that the incidence of stock theft is not uniform amongst small stock keepers. Some are hit badly while other are not affected at all. Thus, it may be a severe deterrent to some farmers in certain areas and only a potential bother to others.

The efficiency and perceived fairness of the marketing structure can have a profound impact on the commitment of stock keepers to good management for high monetary returns. Throughout most of the last hundred years, most of the wool and mohair clip was handled by private traders. These consisted of two types: traders with general licenses who operated from a fixed location and hawkers who travelled throughout the countryside and were forbidden to establish a fixed trading location. Over time, the position of the former group advanced relative to that of the latter. After 1952, hawkers were not permitted to deal in wool and mohair legally and their position gradually degenerated to

that of a peddler of retail goods. Private traders operated an integrated structure in which proceeds from sales of agricultural produce, the most important being wool and mohair, financed purchases of consumer goods. In addition, traders often provided farmers with credit.

Because of real or alleged abuses, the private traders came under increasing criticism from Basotho politicians and officials, particularly in the years just preceding Independence. Two measures were taken to meet this criticism. One, co-operative societies were encouraged after 1948 in the hopes of introducing greater competition into the market and securing higher returns for farmers. Despite initial enthusiasm, co-ops never dealt with more than 10 percent of the wool and mohair clip. They had difficulty establishing sound financial and managerial foundations and largely ceased to play an important role in wool and mohair marketing after the mid-1960s. The second method adopted was to provide government competition to and regulation of private traders. This is the system in existence today.

Procedures of wool and mohair marketing evolved during the pre-Independence period and created the foundation for the present system. Simple classing was introduced in the 1930s and was gradually systematised. Initially this was undertaken in response to the poor market for animal fibres. A fillip was provided by the need for better-classed wool by the World War II British Wool Buying Commission.

After 1952, it was illegal for any wool or mohair to be exported from Lesotho unclassed. In subsequent years classes have been refined. Today, with the exception of a relatively small amount of clip which is smuggled out of the country, all wool and mohair is classed either by private traders or at government woolsheds.

Before wool and mohair can be sold, it must be clipped. Initially, virtually all of it was clipped at the farmers home and either bought by hawkers or transported to traders for sale. With the promotion of classing, however, Livestock officials have sought to encourage stock keepers to clip either at the private trader's location or at the government woolshed where classing can be handled more easily. At the time of Independence, perhaps as many as 50 percent of the farmers were still clipping at home. In the last twenty years, the percentage has dropped dramatically. Now, only about 28-30 percent of stock keepers are clipping at home. Since only about 14 percent of the sheep and goats are clipped at home, these stock keepers have disproportionately small flocks.

Between 50 and 60 percent of sheep and goats are clipped at government woolsheds. These animals are owned by about one-third

of the small stock owning households; thus, they come from disproportionately large flocks. The remaining 30 percent of sheep and goats and 30 percent of households clip at the private traders.

Despite popular perceptions, the per kilogram net return to farmers from sales to private traders or through the Livestock Products Marketing Service are roughly the same. To farmers, these two channels provide different services, however. LPMS provides perceived higher prices at the expense of payment delays. Traders provide prompt cash payments at the expense of perceived lower prices. Clip marketed through both of these channels is sold by auction in South Africa through the auspices and facilities of the South African Wool and Mohair Boards and the farmers' marketing co-operative, BKB.

In addition to the two legal marketing channels, a few farmers sell to smugglers operating illegally. Smugglers offer a convenience for small farmers in remote areas because they collect the clip from the farmer's village and pay a single cash payment. In this regard, they function like hawkers. They also provide a sales outlet for the clip from stolen animals.

Wool smuggling does not appear to be very profitable. Thus, probably less than five percent of the wool clip is smuggled. Mohair smuggling seems to be highly profitable, however: profits as high as M 4-6/kg may be earned. Because of this, the amount of mohair smuggled is greater--perhaps as much as 15-20 percent of the clip.

Many of the reasons that wool or mohair producers sell to smugglers are the same as the reasons they once sold to hawkers. Principal amongst these are the convenience of being able to sell in the village and receipt of a total cash payment upon sale. These advantages appear to be most important to small flock keepers in remote areas. For them, trekking their flock or transporting their clip to the trader or government woolshed may not seem cost effective.

Much of the smuggling that presently takes place could be eliminated by licensing hawkers once again. Hawkers would be in competition with smugglers and, since they would be operating legally, could afford to pay higher prices. With the exception of clip from stolen animals, most presently smuggled wool or mohair would be sold to hawkers. Hawkers, in turn, could sell either to local handicraft producers or to private traders. This would have the advantage of providing legal employment for a number of Basotho and would permit law enforcement officials to concentrate on the real problem: stolen animals.

South African Mohair Board officials have long complained about the length of Lesotho's mohair. Too much of it is too

short to command a good price, they allege. The reason for this, they claim, is that many of Lesotho's goats are being shorn twice a year. Such evidence as exists indicates that the percentage of goats being shorn twice is about 10 percent. This may be an underestimate, however. Aside from double-clipping there may be several other factors contributing to short mohair. One is breeding. There are many short-haired boer goats in the national flock. Goat breeding has not received the attention in the past that sheep breeding has. Another reason may be contamination of the fleece by xanthium. It is reported that many mohair producers attempt to eliminate the xanthium cockleburs before sale by methods that weaken and break the fibres. Not much is presently known about the impact of breeding or the effect of xanthium. Both of these need to be investigated since, if they are contributing to the short mohair problem, they may be responsible for the low productivity of Lesotho's goats.

Finally, there has long been a bias in livestock policy towards sheep. This needs to be re-evaluated. Wool price increases have not generally kept pace with inflation. Thus, the purchasing power of per animal sheep returns has tended to decline over the long run. Mohair prices, although highly variable, have generally done better. Per animal returns from goats have tended to increase over the long run. Farmers have recognized this and have gradually increased the proportion of goats in their flocks.

It may be desirable to put more emphasis on goats for another reason, however. Lesotho sheep presently produce a fleece weight that is about 60 percent of that produced by white sheep farmers in South Africa. Lesotho goats, by contrast, produce a fleece weight that is only about 25 percent of that produced by South African goats. Because there is so much room for improvement in goats, proportionately large productivity increases can be relatively easily achieved. A 100 percent increase in the productivity of sheep would be almost impossible; a 100 percent increase in the productivity of goats would still leave them at only 50 percent of the level of South African goats--there would still be even more room for improvement. Thus, scarce development funds will more quickly and cheaply yield returns in goat improvement than they will in attempting to get a relatively marginal improvement in sheep performance.

The history of the Lesotho wool and mohair industry is a long one. Basotho originally adopted the Merino and Angora breeds because of the income-generating opportunities they provided. The evidence is strong that they have adjusted their management and the mix of sheep and goats in their flocks in response to changing economic stimuli. Nonetheless stock keepers are operating under a number of constraints and the overall productivity of the industry is not high. The principal constraint confronting the industry is certainly the low level of

nutrition provided by the overgrazed range. Solution to this problem is almost a prerequisite to the solution to other problems. Fortunately, past history suggests that Basotho small stock keepers would respond rapidly to any available opportunities once this problem is solved. In that sense, the future of the industry looks bright.

APPENDIX I  
STATISTICAL APPENDIX

TABLE A:  
Macroeconomic Performance:  
Lesotho, 1960-1984

Year	Implicit GDP Deflat.	Real GNP (M mil)	Real GDP (M mil)	Pop ( '000)	Per Capita GNP	Per Capita GDP	GNP/ GDP (%)	GNP Growth Rate	GDP Growth Rate
1960	72.8	37.4	33.9	870	42.95	39.00	110	NA	NA
1961	74.0	38.2	34.5	885	43.21	38.94	111	2.4%	1.6%
1962	75.2	44.0	39.8	901	48.85	44.13	111	15.1%	15.4%
1963	76.3	48.6	44.0	917	53.02	48.02	110	10.5%	10.8%
1964	77.8	53.1	47.7	935	56.78	51.00	111	9.2%	8.3%
1965	80.4	54.0	48.8	953	56.64	51.16	111	1.7%	2.2%
1966	83.4	61.5	48.6	973	63.22	49.91	127	14.0%	-0.4%
1967	86.4	61.2	49.0	993	61.66	49.30	125	-0.5%	0.8%
1968	87.8	63.3	50.0	1015	62.39	49.26	127	3.4%	2.1%
1969	89.4	66.7	52.7	1037	64.29	50.80	127	5.3%	5.4%
1970	91.9	68.8	53.4	1051	65.43	50.84	129	3.2%	1.4%
1971	95.2	73.7	57.5	1086	67.90	52.91	128	7.2%	7.5%
1972	100.0	82.9	62.2	1111	74.62	55.99	133	12.4%	8.3%
1973	112.2	100.3	68.0	1137	88.19	59.81	147	20.9%	9.3%
1974	129.3	108.0	66.9	1164	92.75	57.47	161	7.7%	-1.6%
1975	142.0	127.7	73.8	1192	107.11	61.92	173	18.3%	10.3%
1976	164.9	136.3	83.2	1220	111.74	68.20	164	6.8%	12.7%
1977	184.3	150.4	95.9	1249	120.42	76.76	157	10.3%	15.2%
1978	207.3	159.8	101.2	1279	124.95	79.13	158	6.3%	5.6%
1979	233.3	169.1	109.3	1309	129.18	83.50	155	5.8%	8.0%
1980	259.2	209.1	125.2	1346	155.35	93.01	167	23.7%	14.5%
1981	291.3	221.0	122.2	1383	159.78	88.37	181	5.7%	-2.4%
1982	335.6	235.8	114.4	1422	165.81	80.42	206	6.7%	-6.4%
1983	375.6	243.6	114.9	1462	166.65	78.60	212	3.3%	0.5%
1984	425.2	NA	NA	1503	NA	NA	NA	NA	NA

NOTE: The base year for the Implicit GDP Deflator is 1972 (1972=100). Per capita GDP and GNP are in real terms.

SOURCE: World Bank Statistics, Central Bank of Lesotho

TABLE B  
Wool and Mohair Sales Data  
1929 - 1984

Year	Wool Sales (kg)	Mohair Sales (kg)	Wool Sales (M)	Mohair Sales (M)	Wool Price c/kg	Mohair Price c/kg
1929	5868275	872166	889842	188328	0.149	0.212
1930	4413122	313202	427617	44308	0.071	0.104
1931	4229856	196608	563251	42219	0.046	0.075
1932	5367137	210870	468957	19643	0.039	0.042
1933	4474301	392292	873710	53933	0.088	0.062
1934	2310559	238000	318433	25273	0.103	0.079
1935	2907824	262000	376597	44833	0.090	0.119
1936	2715627	308000	370974	84238	0.113	0.227
1937	2115123	286000	354813	115769	0.135	0.326
1938	2931598	250000	394925	83582	0.085	0.212
1939	3307176	304000	469988	85999	0.092	0.183
1940	3597932	414000	419970	76847	0.115	0.183
1941	3329856	398000	554304	107538	0.120	0.194
1942	3617436	468000	689703	126203	0.129	0.183
1943	3321237	488000	441822	67209	0.147	0.152
1944	3587499	540000	655485	83815	0.151	0.128
1945	3802050	546000	583780	74646	0.144	0.128
1946	4810139	657826	747524	95583	0.137	0.128
1947	4429784	845800	541564	158793	0.191	0.293
1948	4309315	1478686	666787	224910	0.343	0.337
1949	4403616	1953396	847004	285698	0.444	0.337
1950	3872644	3126388	720856	529204	0.807	0.734
1951	3092634	3305260	563538	487011	1.069	0.864
1952	3252353	2030860	557924	706020	0.624	1.265
1953	3377362	2978294	515740	701529	0.882	1.360
1954	3570826	2411530	504794	577578	0.675	1.144
1955	3498225	1913876	500318	645255	0.547	1.290
1956	3571017	2619898	484479	681436	0.734	1.407
1957	2877381	1408794	479028	695947	0.490	1.453
1958	3243173	1247934	449968	446400	0.385	0.992
1959	3207307	1612320	490552	742970	0.503	1.515
1960	3403228	1465586	535548	658814	0.431	1.230
1961	3846525	1600164	574311	759675	0.416	1.323
1962	4128018	1986822	685748	725664	0.481	1.058
1963	3848915	2304753	720034	873063	0.599	1.213
1964	3760153	1613419	958998	997596	0.429	1.040
1965	4306473	1996861	1009306	1086165	0.464	1.076
1966	4274328	1719650	1066651	942904	0.402	0.884
1967	2574245	881000	998807	686191	0.388	0.687
1968	3062517	873000	1142319	871673	0.373	0.763
1969	2869763	874000	1139296	1036891	0.397	0.910
1970	4736200	912000	1017273	837623	0.193	0.823
1971	3177000	774000	867206	653715	0.244	0.754
1972	3708300	2040000	767065	1254431	0.550	1.635
1973	4764200	2460800	566955	1691014	0.517	2.983
1974	4004000	1554955	678003	1589162	0.388	2.344
1975	1745408	1718744	616419	2290821	0.985	3.716
1976	2381642	2595049	NA	1989000	1.090	NA
1977	2391921	2923330	396660	1925362	1.222	4.854
1978	2444299	3552313	504087	4879100	1.453	9.679
1979	2466529	4172254	497220	4331376	1.692	8.711

TABLE 8, cont.

Year	Wool Sales (kg)	Mohair Sales (kg)	Wool Sales (M)	Mohair Sales (M)	Wool Price c/kg	Mohair Price c/kg
1980	2663180	4252674	480968	2737994	1.597	5.693
1981	2690105	5065466	244270	1398684	1.883	5.726
1982	2933712	5230921	415303	2443585	1.783	5.884
1983	3145281	6985530	668706	6814322	2.221	10.190
1984	3162477	11160564	724105	10017574	3.529	13.834

SOURCE: Pim Commission, 1935; Bureau of Statistics, Annual Statistical Bulletin (various); South African Wool and Mohair Boards

TABLE C  
Livestock Numbers

Year	Sheep	Goats	Cattle
1930	NA	NA	NA
1931	2828700	1005822	NA
1932	1949322	723447	NA
1933	1884597	669195	NA
1934	1469199	531001	NA
1935	1285596	432230	352311
1936	1884597	410620	414872
1937	1283000	411931	418921
1937	1470000	489574	434990
1937	1599000	568687	447763
1937	1597887	565554	470040
1937	NA	NA	NA
1937	NA	NA	NA
1937	NA	NA	NA
1937	NA	NA	NA
1937	1555000	541974	437217
1946	NA	NA	NA
1947	1703000	647013	429158
1948	NA	NA	NA
1949	1558000	609267	NA
1950	NA	610000	NA
1951	1564000	637065	401221
1952	NA	NA	NA
1953	1303000	550612	406454
1954	NA	NA	NA
1955	1339000	654800	408144
1956	NA	NA	NA
1957	1221000	535286	381770
1958	1232000	505562	362982
1959	1300657	594395	387769
1960	1037372	579166	331203
1961	1227386	632032	376740
1962	1434538	749454	386342
1963	1431631	791726	366146
1964	1407644	715798	307982
1965	1661502	877820	346079
1966	1457590	885586	357754
1967	1526442	890628	375709
1968	NA	679344	NA
1969	NA	NA	NA
1970	1655128	973767	551520
1971	NA	NA	NA
1972	NA	NA	NA
1973	1556900	961900	465500
1974	1577400	885400	512400
1975	1519700	835000	502400
1976	1128000	615500	485500
1977	942833	582000	526181
1978	973996	618314	560327
1979	1043561	784346	593929
1980	1168404	766535	589976
1981	1337448	930413	562372
1982	1279449	872145	537517
1983	1281000	857000	529175
1984	1412188	1028625	522125
1985	1410762	988099	487049

SOURCE: Pim Commission, 1935; Bureau of Statistics, Annual Statistical Bulletin (various).

TABLE D  
Rainfall: Selected Stations

Year	BB	Maf	QN	TY	MH	Mok	Mbu	Qut	TT	Avg
1929	1007	920	1111	769	848	NA	741	951	NA	906
1930	790	509	574	488	550	564	554	615	NA	562
1931	727	755	959	695	825	550	801	924	NA	716
1932	710	586	770	487	458	498	537	480	NA	543
1933	732	612	743	576	664	447	594	658	NA	586
1934	1266	807	1048	1088	831	705	1119	800	NA	901
1935	545	751	750	717	686	494	761	713	NA	610
1936	758	765	779	763	810	607	671	763	NA	688
1937	719	630	815	594	780	457	607	638	NA	608
1937	881	715	1009	662	739	645	706	877	NA	741
1937	817	867	1011	700	817	629	774	760	NA	741
1937	735	672	895	623	739	721	616	841	NA	699
1937	653	615	640	555	568	497	645	637	591	594
1937	949	1056	1406	773	1003	565	902	821	671	862
1937	1153	922	1303	916	1142	700	1077	1004	974	1001
1937	769	533	773	559	507	584	529	502	515	588
1937	595	543	806	440	482	407	428	442	462	507
1946	814	742	917	708	625	565	564	685	570	678
1947	855	955	1223	558	732	550	678	640	511	714
1948	610	697	1112	521	635	437	585	480	550	609
1949	683	510	975	628	560	538	549	624	590	631
1950	893	972	1416	996	982	700	953	897	628	894
1951	827	678	691	690	660	397	561	766	482	617
1952	736	661	1046	690	584	576	650	743	627	697
1953	662	620	1005	872	685	546	744	765	568	698
1954	609	593	888	578	694	480	490	695	565	615
1955	927	854	939	943	965	556	937	868	615	802
1956	783	933	1051	855	830	672	726	875	751	816
1957	1098	880	1127	1016	1026	806	934	985	NA	789
1958	737	741	930	826	915	743	700	707	NA	632
1959	767	505	894	863	821	732	691	717	650	736
1960	954	656	829	867	851	729	729	894	NA	660
1961	852	923	788	742	886	631	695	893	603	754
1962	576	687	618	647	647	697	694	668	402	604
1963	854	911	945	816	1022	672	800	944	656	817
1964	844	601	894	811	650	704	676	551	623	704
1965	447	406	718	511	408	449	419	465	357	459
1966	550	592	894	529	727	529	596	636	605	622
1967	863	848	726	772	826	608	761	797	615	733
1968	565	521	460	498	620	465	586	532	258	471
1969	619	598	731	655	698	504	644	676	541	614
1970	610	627	596	NA	629	NA	586	491	NA	590
1971	691	600	789	716	514	444	645	763	558	624
1972	646	685	725	875	792	686	739	727	581	699
1973	734	630	626	677	501	525	487	589	550	590
1974	744	805	955	934	944	670	746	887	642	790
1975	943	792	980	1023	763	731	947	699	799	841
1976	1024	1030	1070	1198	891	775	974	775	892	939
1977	658	849	960	879	659	540	806	843	721	750
1978	824	649	706	846	738	705	718	551	773	727
1979	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1980	565	NA	587	583	521	426	812	606	593	577
1981	812	NA	828	1031	882	524	775	850	628	762
1982	679	NA	503	632	598	421	540	697	572	573
1983	645	NA	590	610	753	574	617	493	583	605

SOURCE: Meteorological Data to December, 1970, and Hydromet Services Department. Average Lesotho Rainfall calculated using the formula in de Baulny, n.d.

TABLE E  
Raw Data for Regression Equations  
Chapter 3

Year	Rain Dev	Mok Temp Dev	QN Temp Dev	Mok Low Temp Dev	QN Low Temp Dev	Sheep/ Goats
1929	216	NA	NA	NA	NA	NA
1930	-128	-1.2	-2.0	-0.6	-5.2	NA
1931	26	NA	0.6	NA	-0.5	2.81
1932	-147	-0.6	-2.9	-1.1	-3.1	2.69
1933	-104	-0.6	-0.7	-0.5	-1.3	2.82
1934	211	0.4	0.2	1.1	-0.1	2.77
1935	-80	-1.3	-2.3	-1.4	-2.0	2.97
1936	-2	0.3	-0.3	-0.8	-0.7	4.59
1937	-82	NA	0.6	-1.3	0.1	3.11
1938	51	-2.5	0.6	-0.1	-0.1	3.00
1939	51	-1.0	1.8	-0.6	-0.1	2.81
1940	9	NA	1.0	0.2	0.6	2.83
1941	-96	0.3	-2.2	-0.2	-2.2	NA
1942	172	0.9	0.2	0.7	0.4	NA
1943	311	-1.1	-2.0	0.2	-1.1	NA
1944	-102	0.6	NA	0.6	NA	NA
1945	-183	-0.4	-0.2	-1.3	0.0	2.87
1946	-12	0.1	0.3	-0.7	0.2	NA
1947	24	-0.5	-0.3	0.2	0.1	2.63
1948	-81	0.7	1.0	0.7	0.6	NA
1949	-59	0.6	0.5	0.2	-0.1	2.56
1950	204	0.7	0.2	1.2	0.6	NA
1951	-73	-1.0	-1.0	-2.2	-1.3	2.46
1952	7	0.4	0.3	0.0	0.2	NA
1953	8	-0.3	-0.2	-1.0	-0.1	2.37
1954	-75	-1.1	-1.1	-2.5	-1.6	NA
1955	112	-0.3	-0.2	-1.0	0.1	2.04
1956	126	0.8	0.9	-0.2	1.3	NA
1957	99	-0.3	NA	0.1	0.3	2.28
1958	-58	NA	NA	NA	NA	2.44
1959	46	0.1	0.8	-0.3	0.9	2.19
1960	-30	0.3	NA	-1.2	NA	1.79
1961	64	0.2	0.5	-0.1	0.4	1.94
1962	-86	0.0	2.8	-1.7	2.4	1.91
1963	127	-0.5	0.2	-1.1	-0.4	1.81
1964	14	NA	-0.1	NA	-0.9	1.97
1965	-231	NA	-0.8	NA	-0.1	1.89
1966	-68	0.3	0.5	-1.2	0.2	1.65
1967	43	-1.4	-1.9	0.2	-1.2	1.71
1968	-219	0.9	-0.9	1.5	-0.3	NA
1969	-76	-0.9	0.8	-0.7	1.1	NA
1970	-100	NA	-2.3	NA	0.6	1.70
1971	-66	0.0	1.5	1.5	0.8	NA
1972	9	1.3	NA	0.8	NA	NA
1973	-100	0.6	-0.3	0.8	-0.2	1.62
1974	100	0.6	-1.0	2.1	-0.6	1.78
1975	151	1.3	5.1	1.6	5.3	1.82
1976	249	0.5	NA	1.6	NA	1.83
1977	60	1.2	0.4	1.3	0.9	1.62
1978	37	1.2	0.9	2.3	1.3	1.58
1979	NA	NA	-0.2	NA	0.5	1.33

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 TABLE E  
 Raw Data for Regression Equations  
 Chapter 3  
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Year	Rain Dev	Mok Temp Dev	QN Temp Dev	Mok Low Temp Dev	QN Low Temp Dev	Sheep/ Goats
1980	-113	1.1	NA	-0.5	NA	1.52
1981	72	-0.3	NA	1.0	0.3	1.44
1982	-117	0.4	NA	1.3	0.0	1.47
1983	-85	NA	0.7	NA	1.4	1.49
1984	NA	0.4	0.4	1.2	2.5	1.37

SOURCE: Hydromet Services Department, Tables C and D. For further explanation see Chapter III, Section IV.  
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## APPENDIX II

### 1986 WOOLSHED SURVEY

The purpose of the Woolshed Survey was to obtain a profile of sheep and goat farmers who were in the process of marketing their wool and mohair and obtain information on their production and marketing problems. The intention was to interview an approximately equal number of sheep owners during the wool shearing season in the Spring and early Summer and goat owners during the mohair clipping season in late summer and early Autumn. A copy of the survey instrument follows this introductory explanation.

The first woolsheds were visited in early January 1986 in the Mountain areas of Maseru District and in Thaba Tseka District. It was intended to proceed immediately thereafter to Mokhotlong and Butha Buthe Districts. In the event, a border closure imposed by South Africa made it impossible to obtain petrol. Shortly thereafter a change in the Lesotho Government made it temporarily impossible to obtain transport for field work. By the time these difficulties were overcome, the wool season was almost over. Although an attempt was made to resume the original schedule, it was quickly found that there were not enough farmers still shearing to make continued interviewing worthwhile. The only thing to do was to re-enter the field during the mohair clipping season. Since a large percentage of farmers who raise goats also raise sheep, it was thought that sheep farmers could be covered in this way.

No consciously chosen random sample was selected. Rather, days were selected to visit a woolshed and attempts were made to interview all farmers present on that day. As the survey was conducted during early and late periods in the wool and mohair seasons, it is felt that there should be no bias towards farmers according to the time they shear. There is a source of bias owing to the difficulties encountered in getting into the field. That is, it was intended to survey farmers at both private and government woolsheds. The survey concentrated on the Southern Lowlands and Senqu River Valley during the mohair season. In these areas there are few private traders buying wool and mohair. Those that were buying were not clipping at the time of the survey. Thus, no farmers at private woolsheds were interviewed during the mohair clipping season.

The following statistics summarize details about the survey:

Type of Woolshed:	Government Woolshed	118 respondents
	Private Trader	17 respondents

Season:	Wool	43 respondents
	Mohair	92 respondents

For several reasons, the average size of flocks held by members of the sample was substantially larger than the average in Lesotho. Part of the reason is owing to the location of the interviews. Necessarily, farmers who shear at home were disproportionately under-represented in the sample. These farmers tend to have smaller flocks than other. Likewise, although a few farmers shearing at private traders were included, they were under-represented in the sample. Farmers shearing at this location have smaller average flocks than farmers shearing at government woolsheds. Thus, the sample should not be taken to be representative of wool and mohair farmers as a whole. Instead, it tends to represent farmers who own both sheep and goats and who shear at government woolsheds. Although not representative, this group of farmers is likely to be important in any wool and mohair development effort.

WOOL & MOHAIR PRODUCTION & MARKETING  
RESEARCH PROJECT

WOOLSHED SURVEY

The purpose of this survey is to assess the characteristics of sheep and goat producers, their management patterns and sales practices. The information is designed to supplement data collected by other surveys. All information will be kept strictly confidential and will be used only by this project.

CODES:

Relationship to Household Head

1. Household head
2. Spouse of head
3. Child of head/spouse
4. Parent of head/spouse
5. Sibling of head/spouse
6. Spouse of child of head/spouse
7. Grandchild of head/spouse
8. Other relative of head/spouse
9. Full-time hired worker
10. Other person not related to head/spouse

Highest Education

1. None
2. Std. 1 - 5
3. Std. 6 - 7
4. Form A - C
5. Form D - E
6. Non-agric. vocational
7. Agric. vocational
8. University

1. Name of Respondent \_\_\_\_\_
2. Interviewee No. \_\_\_\_\_
3. Place Interviewed \_\_\_\_\_
4. Date \_\_\_\_\_
- A. GENERAL HOUSEHOLD DESCRIPTION:
5. Are you the household head? Yes \_\_\_\_\_ No \_\_\_\_\_
6. If not, what is your relationship to him/her? \_\_\_\_\_
7. What is the age \_\_\_\_\_ and sex \_\_\_\_\_ of the household head?
8. Is the household head presently a migrant in South Africa or elsewhere in Lesotho? No \_\_\_\_\_ Yes, in South Africa \_\_\_\_\_  
Yes, elsewhere in Lesotho \_\_\_\_\_
9. If household head is presently a migrant, how long has he/she been a migrant? \_\_\_\_\_ years.
10. If household head is not presently a migrant, has he/she ever been a migrant in the past? Yes \_\_\_\_\_ No \_\_\_\_\_  
When? From \_\_\_\_\_ to \_\_\_\_\_.
11. Does the household head hold any office in the village?  
Yes \_\_\_\_\_ No \_\_\_\_\_. If yes, what is it \_\_\_\_\_
12. What is the highest level of education of the household head?  
\_\_\_\_\_
13. How many persons are there in the household? \_\_\_\_\_

14. How many other household members are there who are migrants in South Africa, other than the household head? \_\_\_\_\_
15. What is the highest level of education of any household member? \_\_\_\_\_
16. How many fields do you/your household have available (i.e. own or share in) for planting? \_\_\_\_\_
17. Do you sharecrop in any fields? Yes\_\_\_\_\_ No\_\_\_\_\_. If yes, how many? \_\_\_\_\_
18. Agricultural assets: Do you own or share any of the following? (Yes = 1; No = 2)

Asset	Own	Share
a. Plough		
b. Planter		
c. Cart		
d. Harrow		
e. Cultivator		
f. Tractor		
g. Ox yoke		

19. Household source of income: Does your family receive cash income from any of the following sources (or did it in the past year 1985)? Rank the top three in order of importance.

Yes	No	Source of Income	Importance
		a. Migrant work of men (RSA)	
		b. Migrant work of women (RSA)	
		c. Work of men in Lesotho	
		d. Work of women in Lesotho	
		e. Sale of field produce & vegetables	
		f. Sale of sheep and goats	
		g. Sale of wool and mohair	
		h. Sale of other livestock and livestock products	
		i. Sale of goats and beer	
		j. Sale of household produced handicrafts	
		k. Rental of oxteams, equipment, or animals	
		l. Rental of house or rooms	
		m. Profits from shop or cafe	
		n. Gifts or help from friends & relatives	
		o. Trade or barter	
		p. Other. Specify	

B. LIVESTOCK AND LIVESTOCK MANAGEMENT

20. Livestock Inventory: How many of the following animals do you manage?

Type	Managed		Owned	
	Total	Local Improved	Total	Local Improved
a. Cattle (all)				
b. Sheep (all)				
Coloured				
Whethers				
Rams (over 1 yr)				
Ewes (over 1 yr)				
Lambs (0-1 yr)				
c. Goats (all)				
Coloured				
Whethers				
Bucks (over 1 yr)				
Does (over 1 yr)				
Kids (0-1 yr)				

21. Mafisa. How many of the following animals do you mafisa?

Type	Mafisa In	Mafisa Out
a. Cattle		
b. Sheep		
(Coloured)		
c. Goats		
(Coloured)		

22. Cattle Post: How many of the following animals did you take to the cattle post last year (1984 - 1985), and when?

Type	Number	Month Taken	Month Returned
a. Cattle			
b. Sheep			
c. Goats			

23. How many herdboys do you have in the village? \_\_\_\_\_ in the cattle post? \_\_\_\_\_.

24. Do you share herders with other livestock owners? Yes \_\_\_\_\_  
No \_\_\_\_\_. If yes, with how many? \_\_\_\_\_.

25. How many times did you DIP your sheep last year (1985)?  
 -----\*
26. How many times did you DIP your goats last year (1985)?  
 -----\*
27. How many times did you DOSE your sheep last year (1985)?  
 -----\*
28. How many times did you DOSE your goats last year (1985)?  
 -----\*
29. Feeding: How do you feed the animals you manage?

Type	Common Range	Grazing Own Field	Fodder Own Field	Crop Resid	Bought Fodder	Salt	Rumi- vite	Maize	Other
------	-----------------	-------------------------	------------------------	---------------	------------------	------	---------------	-------	-------

Cattle

Sheep

Goats

CODE: Yes = 1; No = 2

30. Livestock Acquisition: Please state how many of the following you acquired during the past year (1985).

Type	Purchase	Bohali	Gift	Inheritance	Birth Total	Other (specify) Twins
------	----------	--------	------	-------------	----------------	--------------------------

Wethers

Rams	I
	U

Ewes

lambs

Wethers

Bucks	I
	U

Does

Is

CODE: I = Improved  
 U = Unimproved

31. Livestock Disposal: Please state how many of your sheep and goats were disposed of in the following ways during the past year (1985).

Type	Death by			Slaughter for					
	Disease	Accident	Starving	Ritual	Meat Sale	Meat Sale	Bohali	Theft	Other
Total Sheep									
Improved Sheep									
Total Goats									
Improved Goats									

32. If some of your animals were stolen, how many have you been able to recover? Sheep \_\_\_\_\_. Goats \_\_\_\_\_.

33. Does the problem of theft affect the way you manage your sheep and goats? Yes \_\_\_\_\_. No \_\_\_\_\_. If yes, how?  
 -----  
 -----

34. How many of your male sheep or goats are castrated?

	Improved	Unimproved	Coloured
Male Sheep			
Male Goats			

35. What is your attitude towards castration of male sheep and goats? -----  
 -----

36. Do you have improved rams or bucks? Yes \_\_\_\_\_. No \_\_\_\_\_.  
 If yes, why?

- a.
- b.
- c.

If no, why not?

- a.
- b.
- c.

37. During what month are most of your lambs born? \_\_\_\_\_.  
 When was your first lamb born last year? \_\_\_\_\_. When was the last lamb born? \_\_\_\_\_.

38. During what month are most of your kids born? \_\_\_\_\_  
 When was your first kid born last year? \_\_\_\_\_. When  
 was the last kid born? \_\_\_\_\_.

39. How much time is there usually between lambings? \_\_\_\_\_  
 \_\_\_\_\_.

40. How much time is there usually between kiddings? \_\_\_\_\_  
 \_\_\_\_\_.

41. Why do you raise sheep and/or goats? (List in order of  
 Importance).

- | Sheep | Goats |
|-------|-------|
| a.    | a.    |
| b.    | b.    |
| c.    | c.    |
| d.    | d.    |
| e.    | e.    |
| f.    | f.    |

42. Does your household own a working radio? Yes\_\_\_\_\_ No\_\_\_\_\_.

43. How do you obtain information on sheep and goat management  
 practices? Rank the three most important.

- | Yes | No | Source                             | Rank |
|-----|----|------------------------------------|------|
|     |    | a. Radio                           |      |
|     |    | b. Woolshed staff                  |      |
|     |    | c. Diptank staff                   |      |
|     |    | d. District Livestock Officer      |      |
|     |    | e. District Livestock Assistants   |      |
|     |    | f. Livestock Attendants            |      |
|     |    | g. Agricultural extension officers |      |
|     |    | h. Project officials               |      |
|     |    | i. Other government officials      |      |
|     |    | j. Extension publications          |      |
|     |    | k. Newspapers                      |      |
|     |    | l. Other (specify)                 |      |

44. How do you obtain information on wool and mohair sales and prices? Rank the three most important.

Yes	No	Source	Rank
		a. Radio	
		b. Woolshed staff	
		c. Diptank staff	
		d. District Livestock Officer	
		e. District Livestock Assistants	
		f. Livestock Attendants	
		g. Agricultural extension officers	
		h. Project officials	
		i. Other government officials	
		j. Field Marketing Officer	
		k. Extension publications	
		l. Newspapers	
		m. Other (specify)	

45. Please tell us, in order of importance, your major livestock production problems and your suggested solutions to them.

Problems		Solutions	
a.		a.	
b.		b.	
c.		c.	
d.		d.	

46. Are you a member of a wool growers' association? Yes \_\_\_\_\_  
 No \_\_\_\_\_. If yes, what are your attitudes towards it?

-----  
 -----

C. CLIPPING AND SALE OF WOOL AND MOHAIR

47. Did you clip your sheep and goats last year (September 1, 1984 to August 31, 1985)? Yes \_\_\_\_\_ No \_\_\_\_\_. If yes, answer Question 48.

48. Last year's clip (September 1, 1984 to August 31, 1985)

	Purchasing Agents	Number Date Clipped	Date 1st Pay	Amount 1st Pay	Date 2nd Pay	Amount 2nd Pay
Wool Clip	a.					
	b.					
	c.					
	d.					
Mohair Clip	a.					
	b.					
	c.					
	d.					

CODE: LPMS Woolshed = 1  
 Private licensed trader = 2  
 Buyer who comes to the village = 3  
 Other (specify) = 4

49. Do you ever clip twice a year? Yes\_\_\_\_\_ No\_\_\_\_\_. If yes, why? \_\_\_\_\_

50. If last years clip was sold through other than LPMS, how was the payment made? (more than one answer is possible)

- a. Cash \_\_\_\_\_
- b. Cheque \_\_\_\_\_
- c. Loan against future payment \_\_\_\_\_
- d. Credit against purchases in store \_\_\_\_\_
- e. Credited against previously granted loan or store credit \_\_\_\_\_
- f. Other (specify) \_\_\_\_\_

51. Details of current clip sales (ask to see receipt)

Number Shorn \_\_\_\_\_ Place Shorn \_\_\_\_\_

Purchasing Agent \_\_\_\_\_ Date \_\_\_\_\_

	Class	Weight	Price
a.			
b.			
c.			
d.			
e.			
f.			
g.			
h.			
i.			
j.			
k.			

52. If sale is through other than LPMS, how is payment to be made for the present sale?

- a. Cash \_\_\_\_\_
- b. Cheque \_\_\_\_\_
- c. Loan against future payment \_\_\_\_\_
- d. Credit against purchases in store \_\_\_\_\_
- e. Credited against previously granted loan or store credit
- f. Other (specify) \_\_\_\_\_

53. Have you noticed any change in LPMS payments policy during the last year (1985)? Yes \_\_\_\_\_ No \_\_\_\_\_. If yes, how?

\_\_\_\_\_  
\_\_\_\_\_

54. Rank the three most important reasons (if any) for selling through the following marketing agents. (1 = most important) Don't prompt.

Private Buyer who  
Licensed comes to  
LPMS Trader the village Other

- a. only available purchaser
- b. closest market outlet
- c. buyer gives highest total payment
- d. buyer gives highest initial payment
- e. buyer pays most promptly
- f. buyer grades the clip most satisfactorily
- g. buyer accepts small clips
- h. buyer provides credit against final payment
- i. buyer pays in cash
- j. buys coloured wool/mohair
- k. other (specify)

55. Rank the three most important reasons (if any) for you not selling through any of the marketing agents. (1 = most important). Don't prompt.

Private Buyer who  
Licensed comes to  
LPMS Trader the village Other

- a. charges too high commissions
- b. is unreliable/untrustworthy
- c. buyer degrades the clip
- d. pays too slowly
- e. pays too little
- f. buyer does not pay with cash
- g. buyer will not buy coloured wool/mohair
- h. other (specify)

56. Do you have any general comments about the marketing agents?

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