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LAND TENURE AND OTHER CONSTRAINTS TO COMMERCIAL AGRICULTURE

ON

SWAZI NATION LAND:

A SURVEY OF SWAZILAND'S ADVANCED FARMERS

by

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EXECUTIVE SUMMARY

The purpose of this study was to identify constraints to commercial agriculture on Swazi Nation Land with special attention paid to potential constraints that may be related to Swaziland's traditional system of land tenure. This was done by examining the experience of participants in the Ministry of Agriculture's Advanced Farmer Scheme.

A random sample of 50 advanced farmers was drawn and a questionnaire covering homestead demographics, land holdings, acquisition and security, crop production and sales, marketing, farming methods, tribute labour, fencing and irrigation was administered.

Some of the potential constraints examined in this research were found to be little or no constraint at all. These include:

- Subdivision and fragmentation of holdings
- The inability to acquire additional land, including the inability to borrow land
- The inability to use land as collateral for credit
- Chief and community opposition to fencing
- Having to plough the chief's land before your own

Other potential constrains were found to be real constraints of varying degrees of seriousness. In many cases, though, it was difficult to say how serious a constraint they are. These include:

- Chief and community disapproval of commercial farming and visible success combined with the threat of banishment
- Late removal of cattle from fields in the Spring
- Tribute labour

In addition, non-tenure related constraints such as transportation, marketing, access to inputs and labour were examined. It had been expected that marketing problems and especially low producer prices would be found to be major impediments to increased commercial production. However, very few advanced farmers seemed to feel these were a problem for them. Instead, problems in obtaining transport, inputs and labour were often cited as serious non-tenure related constraints.

Subdivisions of holdings was found to take place on Swazi Nation Land but, at least for advanced farmers and their descendants, it has not resulted in average field size or total field area smaller than those of non-subdivided homesteads.

A shortage of land did not seem to be a problem for most advanced farmers. Only six farmers said that they had ever tried and failed to get more land and all of these were farmers who had succeeded in obtaining additional land at other times. Forty percent of the advanced farmers reported they had sought and obtained land in addition to their initial inheritance or allocation and most of these had done so by asking the chief or borrowing.

The inability to use land as collateral did not seem to prevent access to credit. Three quarters of the advanced farmers do use credit, mostly for seasonal loans to buy inputs and, less frequently, for major purchases such as tractors and other farm equipment. Only one out of twelve people who had never borrowed money cited lack of collateral as the reason.

Fencing has become widespread among advanced farmers and there seems to be little or no constraint due to chief or community opposition. All but three of the advanced farmers fence all or part of their holdings and the three who do not fence cited lack of money, not community opposition as the reason.

Some evidence was found that the threat of banishment is a deterrent to commercial farming in some areas of Swaziland. Reasons that a person may be banished have been reported by many observers at least since Hilda Kuper described them in the 1940's. There is not sufficient data from the survey to say whether they are any weaker now than they were then. However, it is suspected that the emphasis has changed. Many commercial practices, formerly unpopular, have been gaining acceptance over the years. It is probable that today, conspicuous success and prosperity is much more likely to create envy and ill will in a community than fencing, irrigating, or selling cash crops.

Though there was little problem with the time cattle are allowed onto the fields, many of the advanced farmers reported that they are prevented from ploughing as early as they would like because the chief waits too long to call for the removal of the cattle. Of those living where the chief determines the date by which cattle must be removed from the fields, most said that they would have ploughed earlier if the chief had set the date earlier.

Prior research has concluded that having insufficient land is a major constraint for farmers who want to farm commercially on Swazi Nation Land while labour is not a constraint. Just the opposite was found to be the case for many advanced farmers. Over two thirds of the farmers interviewed had insufficient homestead labour for weeding and/or harvesting. While many of them were able to overcome this constraint through hiring labour or inviting *lilima*, over half said that they were unable to get enough outside labour.

The study found evidence that the practice of tribute labour for the chief or king can worsen an advanced farmer's labour constraint at critical times of the cropping season. However, as perceived by the farmers themselves, the effect of tribute labour on their farm work was not a major problem.

Many researchers have concluded that problems related to marketing, especially low producer prices, are the most serious constraint to commercial agriculture. The advanced farmers were found to have some problems with marketing but low producer prices were not one of them. Only one farmer complained that the price he received for his crops was too low and that was because he felt they were given too low a grade.

The most common marketing problem concerned transport. Half of the farmers who sell their crops said they had problems with transporting their crops to market. Some complained that hiring transport is too expensive while others said they didn't like being dependent on hired transport, mostly because it didn't come right when it was wanted. This latter problem was most critical for two vegetable farmers who reported that sometimes their produce spoiled before they could get it to market.

Obtaining inputs posed difficulties for a majority of the advanced farmers. 64% reported some sort of problem in obtaining seed, fertilizer, insecticides and/or farm equipment. Half of these farmers' problems stemmed from not having enough money to buy the inputs, but over half the complaints dealt with the difficulty of getting the inputs, the distances that must be travelled or the fact that they don't arrive at the shed until too late.

The delay involved in hiring a tractor was also a major source of complaint. About three quarters of the advanced farmers hire a tractor to plough. 40% of these report they must wait from two weeks up to a month or more from the time they wanted their fields ploughed.

The problems in obtaining inputs do not seem to have prevented most farmers from using them. All but one advanced farmer uses hybrid seeds and similarly, only one farmer does not use fertilizer. However, the problems cited by many of the farmers can limit the use of these inputs and reduce their effectiveness. Over a quarter of the farmers said they couldn't afford to buy the recommended amount of fertilizer or buy as much hybrid seed as they wanted. Other farmers said they depended on the RDA shed for their inputs and were often seriously delayed because seed and fertilizer do not arrive at the shed until too late, if at all.

The success of the survey was dependent on the assistance and cooperation of many people at all levels within the Ministry of Agriculture and Cooperatives. Many of the senior administrators and department heads at headquarters in Mbabane were themselves involved in running the Advanced Farmer Scheme. They provided invaluable information and advice about the history of the scheme and how to identify and locate the advanced farmers.

The Senior Extension Officer and the Regional Extension Coordinator in each district gave permission to meet with their extension staff and helped make the arrangements for these meetings. The Extension Officer in each of the subdistricts allowed us to attend their meetings and helped us identify which of their extension workers could introduce us to the advanced farmers in their area.

It was the front line extension workers, however, of which the most was asked. They went out and made arrangements with the advanced farmers to meet with us and then at the appointed time, accompanied us out to the homestead, and introduced us. If one extension worker knew two or three advanced farmers, he or she often spent a full day taking us from one farmer to the next and making introductions. This was an essential part of the fieldwork and their willing assistance was truly appreciated.

Finally, without the cooperation of the advanced farmers themselves, this survey would have been impossible. Each one patiently answered our questions, sometimes for an hour or more, during two separate interviews. It is hoped that their answers will help the Ministry of Agriculture and Cooperatives to better serve them.

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INTRODUCTION

The Advanced Farmer Survey is part of a larger research effort entitled, "Changes in Agricultural Land Use: Institutional Constraints and Opportunities," which has been undertaken by the Ministry of Agriculture and Cooperatives with the assistance of the University of Wisconsin Land Tenure Center. The purpose of this study is to identify constraints to commercial agriculture on Swazi Nation Land with special attention paid to potential constraints that may be related to Swaziland's traditional system of land tenure. This is done by examining the experience of participants in the Ministry's Advanced Farmer Scheme.

1.1 The Advanced Farmer Scheme

Begun in 1961, the Advanced Farmer Scheme was designed to encourage the adoption of modern agricultural techniques among farmers on Swazi Nation Land. Because of limited extension resources, it was decided that the scheme should be aimed at Swazi farmers who would be most receptive to adopting its recommendations, i.e., those who were serious about farming and interested in doing so on a commercial basis. It was hoped that over the years, the scheme would expand as the first advanced farmers served as opinion leaders and good examples for the majority of farmers.

The primary activities of the Advanced Farmer Scheme were to qualify farmers for membership in the scheme, to make sure members were receiving extension advice, and to promote their attendance at short courses on agricultural subjects. To become an advanced farmer, a farmer was supposed to meet certain standards. These included:

- cooperating with extension staff and following their instructions
- being adequately equipped to pursue one's type of farming
- making a good living from farming
- keeping simple farm records
- being an active member of the local Farmer's Association

Upon becoming an advanced farmer, a farmer received a badge and a certificate. Besides the recognition that came with the badge and certificate, advanced farmers also were given specific extension messages and the opportunity to attend short courses on agricultural subjects. The extension messages emphasized during the Advanced Farmer Scheme were:

- Suitability of crops for a particular area
- Encouraging winter ploughing
- Encouraging early ploughing and planting

- Switching from broadcasting to the use of planters to plant in rows
- Encouraging timely weeding
- Late in the scheme, methods of crop storage were taught

Since it was aimed at the better farmers, the scheme was unable to avoid the appearance of elitism and was discontinued in 1972. At that time there were 919 advanced farmers and 2700 pupil farmers, i.e., those who had joined the scheme but had not yet satisfied the requirements to become an advanced farmer. A complete description and evaluation of the Advanced Farmer Scheme is contained in Appendix A.

1.2 Why the Advanced Farmer Scheme?

Many analysts of Swazi agriculture have pointed out that not all Swazi rural residents are farmers and certainly not commercial farmers. Although all Swazi men are entitled to land on which to plough, graze their cattle and build their homestead, they are not all interested in making their living from farming. Many Swazi homesteads hold agricultural land which they only use to grow subsistence crops at minimum effort or which they may not plough at all but keep for reasons of security or to have something to pass on to their children. They are not interested in producing a surplus to sell commercially or trying to make their living from farming. There are many reasons put forward for this but it usually comes down to the fact that a significant proportion of homestead members can get a higher return on their labour working in the wage sector than they can by staying home and farming [see Low, 1982].

There are, however, some Swazi homesteads who are interested in commercial farming and who do depend on farming as a major, if not their primary source of income. The purpose of this research is not to learn why people choose to become commercial farmers in the first place. Rather, it is to identify the worst constraints faced by those who are already involved in commercial farming. Therefore, it is this second category of Swazi homestead on which this research must focus.

A simple random sample of 50 homesteads on Swazi Nation Land would be unlikely to turn up very many commercial farmers. However, it was expected that the membership role of the Advanced Farmer Scheme would provide a population of Swazi homesteads with a very high proportion of commercial farmers on which a survey could be conducted. The fact that the scheme was in operation 20 years ago adds a time dimension to the study. Not only can successful commercial farmers be interviewed but also those who may have tried commercial farming in the past and failed.

1.3 Commercial Farmers Defined

It was assumed in the design of this survey that most of the advanced farmers would be found to be involved in commercial agriculture. Was this assumption justified? Data from the survey indicates that it was. For comparison purposes, the definition of commercial farming used in Testerink's analysis of agricultural commercialization in Swaziland [1984, pp. 1-5] was used. This definition is based on (1) whether a farmer produces a significant amount of non-edible cash crops such as cotton or tobacco and/or (2) whether a farmer deliberately plans to produce a surplus for market above and beyond that required for subsistence and a hedge against uncertain growing conditions. As can be seen in Table 1.1, 65.5% of Testerink's sample of Swazi households fall into the non-commercial category, 16.1% are semi-commercial and 18.4% are commercial farmers. In contrast, only

TABLE 1.1

NUMBER AND PERCENTAGE OF HOMESTEADS (HOUSEHOLDS*)
IN EACH CATEGORY OF COMMERCIALIZATION

	HOUSEHOLDS (RANDOM SAMPLE)		(1)** ADVANCED FARMERS		(2)** ADVANCED FARMERS	
		%		%		%
NON-COMMERCIAL	414	65.5	5	10.9	11	23.4
SEMI-COMMERCIAL	102	16.1	9	19.5	8	17.0
COMMERCIAL	116	18.4	32	69.6	28	59.6
TOTAL	632	100.0	46	100.0	47	100.0

- * Testerink used the household rather than the homestead as his unit of analysis. However, since most homesteads have only one household and subsistence production was estimated based on the number of household or homestead members, this should not affect the comparability of these statistics.
- ** Advanced farmer homesteads are classified into the different categories of commercialization using (1) Testerink's definition of commercial farmers and (2) the definition of commercialization developed in this study.

10.9% of the advanced farmers are not involved in commercial activity 19.5% are semi-commercial and 69.6% are commercial farmers. It can be concluded that advanced farmers do represent a different type of farmer than the average rural resident. Almost 90% of the advanced farmers are engaged in commercial or semi-commercial farming compared to 34% of the rural population as a whole.

Although Testerink's definition of commercialization was used to compare advanced farmers to the average rural Swazi homestead, a more comprehensive definition, using data from the present survey, was employed to evaluate the actual commercial

status of advanced farmers. This definition takes into account actual maize, legume, vegetable, cotton and tobacco production, gross crop sales, land holdings, frequency of maize sales, importance of farm sales as a source of income to the homestead, and finally, whether or not commercial agriculture is an explicit goal of the homestead.

The last two columns of Table 1.1 display the numbers and proportion of farmers that fall under each category using the new definition. The basic pattern is the same but there are twice as many non-commercial farmers than under Testerink's definition and the percent of full-fledged commercial farmers has fallen from 69.6% to 59.6%. Still over three quarters of the advanced farmers surveyed are either commercial or semi-commercial farmers. For more information on the definitions of commercial farming, see Appendix B.

Advanced farmers were found to differ from the rural population as a whole in other ways as well. For example, average homestead size was found to be half again as large for advanced farmers: 15.3 members per homestead compared to the national average of 10. One third of advanced farmer homesteads have more than one household.

Land holdings of advanced farmers are much larger than most of their neighbours. Past surveys have come up with average land holdings on SNL in the range of 1.5 to 2.6 hectares. The average total area of an advanced farmer's fields (including grass strips) was found to be 6.5 hectares. There was little variation in average total field area among the different ecological zones except for the lowveld. This figure was between 3.4 and 4.4 hectares for the highveld, wet and dry middlevelds and Lubombo. The average total field area in the lowveld however was 13 hectares.

Some interesting comparisons can be made with the 1983/84 Swaziland Census of Agriculture. According to the census, only 16% of all Swazi homesteads produce enough maize to feed the homestead every year and 34% never produce enough to feed the homestead. The same question was asked in the Advanced Farmer Survey with very different results. 51% of the advanced farmers said they always produced enough maize to feed the homestead and only 4% said they never did.

There is also quite a difference in farming practices between the two groups. Advanced farmers are almost 4 times as likely to irrigate than the average rural homestead (34% compared to 9%). Almost half of the homesteads on SNL use no fertilizer on their fields compared to only 2% of the advanced farmers. While 27.8% of Swazi homesteads were reported in the census to use tractors for all or part of their ploughing, 87.2% of the advanced farmers use tractors. Despite the wide use of tractors among advanced farmers, they also have twice as many oxen (4.5 compared to 2.4)* and head of cattle (20.5 compared to 9.1)* on

average as their neighbours. This helps confirm the suspicion that advanced farmers are wealthier than the average homestead. (Demographic information on the advanced farmers is reported in Appendix C).

Thus, it appears that the decision to use the membership list of the Advanced Farmer Scheme to identify a population containing a large number of commercially oriented farmers was justified. A random sample of 50 farmers was drawn from this list. A questionnaire was designed covering homestead demographics, land holdings, land acquisition, crop production and sales, marketing, farming methods, community obligations, fencing and irrigation. The questionnaire was administered over the first half of 1987 and resulted in a large body of data, the analysis of which is the subject of the rest of this report. Due to the difficulty of locating all of the advanced farmers, the final sample consisted of 47 farmers. Data collection methodology is described more fully in Appendix D.

1.4 Potential Constraints to Commercial Agriculture

Potential constraints to commercial agriculture on Swazi Nation Land were identified through a review of the literature on Swazi agriculture combined with personal interviews with agricultural officers in the Ministry. These constraints became the focus of the survey questionnaire which was designed to determine which of them were real constraints as perceived by the advanced farmers and which were not.

The collection of potential constraints was divided up into two categories: (1) those related to Swaziland's traditional system of land tenure and (2) non-tenure related constraints. The potential constraints related to land tenure are analyzed in Section 2 of this report. They have been grouped into the following broad categories.

1. Shortage of land and the inability to get enough land to farm at the desired scale.
2. Lack of secure tenure.
3. Credit constraint due to the inability to mortgage land.
4. Lack of farmer control over production decisions.

* These averages include homesteads with no cattle.

Section 3 covers potential non-tenure related constraints to commercial agriculture. The primary areas of concern are marketing, access to inputs, and labour. A summary and conclusions regarding the major constraints faced by commercial farmers on Swazi Nation Land are presented in Section 4.

TENURE-RELATED CONSTRAINTS TO COMMERCIAL AGRICULTURE

2.1 Constraints Relating to Land Shortage

Subdivision and Fragmentation

One reason that a farmer may not have enough land is that when he inherited it from his father, the original homestead was split up among the sons or other family members. This process is called subdivision and each time it happens, the land is split into smaller and more numerous units. Eventually fields or land holdings can be broken down into units too small to be cultivated efficiently.

Fragmentation often follows subdivision as farmers try to obtain enough land to make farming worthwhile. They may acquire additional land by asking the chief or other members of the community, by borrowing, or occasionally, by purchasing Title Deed Land (TDL). However, this land may often be located a distance away from the homestead. Having many small fields located far away from each other rather than having all one's land consolidated in one area imposes several types of costs on a farmer. First there is the lost time needed to get from the home to the field and from one field to the next. There is also the time and expense involved in conveying inputs, equipment, and tractors or oxen to the fields and gathering and transporting the harvest back to the homestead. Another problem caused by having one's fields spread over a large area is the inability to keep sufficient watch over them to protect them from livestock or bird damage and theft.

Sometimes there is an advantage to fragmentation which can outweigh these costs. That is, by having fields spread over a large area, a farmer is able to reduce his risk of crop failure by farming on different soils and possibly in different rainfall areas. Since subdivision and fragmentation are related but different processes, they are examined separately.

Subdivision:

Is subdivision taking place on Swazi Nation Land? The evidence from this survey is that it is. Out of the sample of 47 advanced farmers, 51% (24) inherited all or part of their present land holdings. Two thirds (16) of these shared their inheritance with other family members (or in two cases, with the chief) while only one third (8) inherited all of the fields of the original homestead.

The more interesting question is whether this subdivision results in smaller fields or land holdings. This could happen in

two ways. Consider the example of a simple homestead with one field and three sons. At the death of the father, the field is divided into three fields and each of the new smaller fields is inherited by one of the sons. The alternative example is that of a homestead with three fields and three sons. When the father dies, each of the sons is given one of the fields. In both cases, each son has only one third of the land area farmed by the original homestead. However, in the first case, the field has been made smaller. In the second example, the sizes of the fields as production units have not been changed. Only the number of fields held by each homestead has been reduced.

Two methods were therefore used to test whether subdivision has resulted in smaller land holdings. The first is to compare the size of fields inherited by the sole inheritors of land to the size of fields received by those who shared their inheritance. The second is to look at the total land area inherited by each of the two groups.

The results were surprising as can be seen from Table 2.1. The average field size for sole heirs was actually a little smaller than the average size of fields held by those who had shared their inheritance (1.86 hectares and 2.11 hectares respectively) although the small difference in the means was not statistically significant.

TABLE 2.1

FIELD SIZES BY TYPE OF ACQUISITION AND DISTANCE FROM HOMESTEAD
(HECTARES)

HOW ACQUIRED/DISTANCE	MEAN	STD DEV	MIN	MAX	NUMBER
ALL FIELDS	1.98	3.17	.032	26.00	151*
INHERITED FIELDS-NOT SHARED	1.86	1.64	.049	5.31	19
INHERITED FIELDS-SHARED	2.11	2.19	.065	9.61	40
ALLOCATED FIELDS	1.89	3.13	.032	22.46	70
FIELDS RECEIVED AS GIFTS	.78	.50	.127	1.62	7
BORROWED FIELDS	2.8	6.72	.088	26.00	14
PURCHASED FIELDS	1.02	--	--	--	1
FIELDS BEYOND 500 METRES	2.11	4.02	.049	26.00	46
FIELDS WITHIN 500 METRES	1.92	2.75	.032	22.46	105

* Ten of the 161 fields in the survey were not measured.

In fact, despite the great variability in field size, the average field size is remarkably constant at about 2 hectares regardless of how the field was acquired or its distance from the homestead. Only fields received as gifts and purchased fields (of which only one was measured) were significantly smaller on average.

One possible interpretation of these results is that fields are generally not split up in the process of subdivision. Rather, holdings made up of two or more fields may be divided up as in the second example above. If this were true, it would be expected that the total number of fields and the total land area inherited through subdivision would on average be less than the number and area inherited by sole heirs. However, this expectation was also not supported by the data. The average number of fields inherited by the two groups was almost identical. Sole heirs received an average of 2.5 fields while heirs of subdivided homesteads inherited 2.6 fields. In terms of land area inherited by the two groups, inheritors of subdivided homesteads actually received more land on average: 5.3 hectares compared to 4.4 hectares.

One fact which may help explain these numbers is that advanced farmers are not representative of Swazi rural residents as a whole. When land is split up at inheritance, it may not be divided equally. The principle heir may often receive the lion's share while other family members receive smaller portions. It is possible that the principle heir is more likely to have become an advanced farmer than his siblings. Also, in the cases in which the advanced farmer had died, it was the principle heir who was contacted for the survey. In fact, 7 out of the 16 farmers interviewed who had shared their inheritance reported that they had received a larger than equal share. Only one said she had received a less than equal share. Another explanation would be that on average only larger homesteads are subdivided at inheritance while smaller homesteads remain in the hands of the eldest son leaving the other sons to find more land on their own. This is supported by the fact that among the 23 farmers in the survey who acquired no land through inheritance, 56.5% (13) of them said it was because the land had been bequeathed to an older brother or other family member.

No matter what the explanation, it does appear that, at least among advanced farmers and their descendants, subdivision has not resulted in average field size or total field area smaller than those of non-subdivided homesteads. It will be interesting to compare these results with those of the Traditional Sector Land Use Survey which was conducted on a wider sample of Swazi homesteads.

Fragmentation:

This study endeavored to answer several questions about fragmentation. What is the extent of fragmentation among advanced farmers on Swazi Nation Land? How many have fields located away from their homesteads? What kinds of distances are involved? How did the fragmentation come about? Has fragmentation been reduced in areas that have been resettled? And finally, how much of a problem is fragmentation as perceived by the advanced farmers themselves?

Measuring the extent of fragmentation first requires a definition. Fields adjacent to the homestead or within 500 metres were considered to be non-fragmented while fields 500 metres or more away from the homestead were defined as fragmented. The degree of fragmentation is a function of distance and distance was broken down into five categories: 500 metres to 999 metres, 1 kilometre to less than 2 km, 2 km to less than 5 km, 5 km to less than 10 km, 10 km to less than 20 km, and 20 km or more.

There are several ways of looking at the extent of fragmentation among advanced farmers. Out of the 47 farmers, 53% (25) had at least one field located more than 500 metres away from the homestead. However, in terms of the number of fields, 68% (109 out of 160) of all fields were located at the homestead or within 500 metres. These numbers vary dramatically depending on how the field was acquired. Only one out of 8 (12.5%) fields received as gifts were located more than half a kilometre away from the homestead. Inherited fields and fields allocated by the chief

TABLE 2.2

DISTANCE OF FIELDS FROM HOMESTEAD BY MEANS OF ACQUISITION

	INHERITED		ALLOCATED		GIFT		BORROWED		PURCHASED	
	NUMBER	%	NUMBER	%	NUMBER	%	NUMBER	%	NUMBER	%
NEXT TO HOMESTEAD	37	60%	43	59%	5	63%	1	7%	0	0
< 200 METRES & NOT NEXT TO HOMESTEAD	10	16%	4	5%	0	0	0	0	0	0
200 TO 499 METRES	2	3%	4	5%	2	25%	1	7%	0	0
500 TO 999 METRES	0	0	8	11%	0	0	3	20%	0	0
1 KM TO < 2 KM	8	13%	5	7%	0	0	2	13%	0	0
2 KM TO < 5 KM	5	8%	5	7%	1	12%	5	33%	0	0
5 KM TO < 10 KM	0	0	2	3%	0	0	3	20%	0	0
10 KM TO < 20 KM	0	0	2	3%	0	0	0	0	0	0
20 KM OR MORE	0	0	0	0	0	0	0	0	2	100
TOTAL	62	100	73	100	8	100	15*	100	2	100

* The distance from the homestead of one of the 16 borrowed fields was not ascertained in the survey.

were also mostly located around the homestead. Just 21% (13 out of 62) of inherited fields and 30% (22 out of 73) allocated fields were at a distance of more than 500 metres. On the other extreme were borrowed fields, of which 81% (13 out of 16) were located away from the homestead, and purchased fields, both of which were located farther away than any of the other fields, more than 20 km. Another pattern which emerges is that not only

is a higher percentage of borrowed and purchased fields located beyond 500 metres from the homestead but the distances involved are greater, too. A full 60% of inherited fields located more than 500 metres away are still within 2 km and all of them are less than 5 km away. For borrowed fields located away from the homestead, 60% are located more than 2 km away with several in the 5 to 10 km range.

There are many causes of fragmentation among advanced farmers on SNL but most of them do not correspond to the usual conception of fragmentation as a problem, i.e., needing additional land but only being able to find it far away from the homestead. This type of situation represents less than a third of the total cases of fragmentation. Out of the 25 farmers with fragmented holdings, 32% (8) seem to have been motivated by a shortage of land in obtaining those distant fields. Table 2.3 indicates how fragmented fields were obtained and the reasons.

A surprising number of farmers received fragmented holdings at inheritance or when they were first allocated land by the chief to establish their homesteads. In most of the 13 cases, it was not established why the inherited or originally allocated land was fragmented to start with. The exceptions are two women homestead heads who had inherited fields from their husbands. These fields had been relocated away from the homestead during resettlement.

Although resettlement is, in general, supposed to contribute to the consolidation of people's land holdings, it has sometimes resulted in fragmentation as homesteads and fields are placed away from each other. This seems to have been the cause of the fragmentation for 3 advanced farmers (5 farmers if those who inherited land fragmented during resettlement are included). Another indication that resettlement has not helped to consolidate holdings is that while 53% of the advanced farmers have at least one fragmented field, 75% of those who have been moved during resettlement have at least one fragmented field. While only 22% of all fields not acquired through resettlement are located over 1 kilometre away from the homestead, over half of the fields received through resettlement are at least that far away.

Another reason farmers get fields located away from the homestead is the opportunity of joining an irrigation scheme. Seven farmers have fragmented fields that they either borrowed or were allocated in an irrigation scheme.

Two advanced farmers purchased IDL to expand their farming and both of these fields were located farther away than other fields, over 20 km. However, the distance of these fields seems to have been considered a positive attribute by the farmers who bought them. One of the farmers wanted land in a different ecological zone (highveld vs. middleveld) on which to grow maize. The other one wanted land where he could "...plough freely because on SNL, cattle trouble me."

TABLE 2.3

REASONS FOR OBTAINING FRAGMENTED FIELDS

REASON	HOW OBTAINED	NUMBER OF FARMERS	% OF FARMERS*	NUMBER OF FIELDS
WANTED TO EXPAND CULTIVATION	BORROWED	3	--	10
	GIFT	1	--	1
	NEW ALLOCATION	4	--	6
TOTAL		8	32%	17
ESTABLISH NEW HOMESTEAD	ALLOCATED (KHONTA)	6	--	6
	INHERITED	7	--	13
TOTAL		13	52%	19
RESETTLEMENT	ALLOCATED	3(5)**	20%	3(9)**
JOIN SCHEME	ALLOCATED	4	--	6
	BORROWED	3	--	3
TOTAL		7	28%	9
WANTED LAND AT ANOTHER LOCATION	PURCHASED	2	8%	2
TOTAL		25		51

* Percent of farmers who have fragmented fields. Also note that the number of farmers adds up to more than 25 because some of the farmers acquired two or more fragmented fields for different reasons.

** Numbers in parentheses include farmers who inherited fields fragmented by resettlement.

The classic case of fragmentation, i.e., as a result of subdivision, was not found among the advanced farmers. Of the 16 farmers who shared their inheritance, 6 had no fragmentation of their holdings and the other 10 had fragmented fields for reasons other than not being able to find additional land close by. Four of these advanced farmers inherited land already fragmented. Two got fields located away from their homestead during resettlement. Another two were either allocated or lent distant fields in irrigation schemes. A farmer who purchased additional land did so to avoid the restrictions and cattle problems he experienced on his Swazi Nation Land. Finally, one farmer was allocated a fragmented field which actually reduced the amount of fragmentation he faced by allowing him to discontinue using an

even more distant field. Thus, in this sample of advanced farmers, subdivision of inheritance was not a cause of fragmentation.

How much of a problem is fragmentation as perceived by the advanced farmers? 60% of the farmers with fragmented fields said the distance to the fields caused them no problems. However, the other 40% complained about the time and expense involved in getting people, implements and crops to and from the fields as well as the inability to properly watch over them. Thus, out of all of the advanced farmers surveyed, about one in five considered fragmentation of their fields to be a problem.

Two factors seemed to influence whether a farmer considered fragmentation to be a problem: distance (as would be expected), and the reason the fragmented field was acquired. The costs imposed by distance were sometimes offset by other advantages such as escaping restrictions on SNL, being able to farm in a different ecological zone, or being able to irrigate. Farmers who acquired fragmented fields for these reasons did not complain about the distance even though the fields were often located great distances away. Farmers who got fragmented fields without any special characteristics were more likely to complain as the distance of these fields from their homes increased.

Obtaining Additional Land

If a farmer doesn't have enough land to farm as he wishes can he get more? The answer appears to be yes. 40% (19) of the advanced farmers sought and obtained additional land after they had already acquired their initial inheritance or allocation. In order of frequency, 12 (26%) asked the chief for more land, 9 (19.1%) borrowed land, 3 (6%) asked other people, and 2 (4%) purchased Title Deed Land, and some did more than one of these. 32% (15) of the farmers said they were looking for more land right now, and most of these were doing so by approaching the chief (6) or potential lenders (4).

There were only 6 farmers who reported they had ever tried to get more land and failed. However, all of these were farmers who had also been successful at obtaining other land. The failures were not failures to get any land but just a particular piece of land at a particular time. In only one case was a person told by the chief that there is no more land.

The next question which must be addressed is when did these farmers get their fields? As population pressure on the land has increased, has it become more difficult to obtain additional land? Did most of the advanced farmers ask for and get their additional land many years ago or has it been possible for them to obtain new fields in recent years as well? Survey data displayed in Table 2.4 implies that it is still possible to add

to one's holdings on SNL. There seems to have been no decrease over time in the number of farmers who have been able to acquire new allocations of land from the chief. Of the twelve farmers who

TABLE 2.4
PERIOD IN WHICH ADDITIONAL FIELDS WERE OBTAINED

	SINCE 1980		1972-1979		BEFORE 1972		TOTAL	
	FARMERS	%	FARMERS	%	FARMERS	%	FARMERS	%
ALLOCATED	4	33%	4	57%	4	57%	12	46%
BORROWED	7	58%	2	29%	0	0	9	35%
GIFT	0	0	0	0	3	43%	3	12%
PURCHASED	1	8%	1	14%	0	0	2	8%
TOTAL	12	100%	7	100%	7	100%	26	100%

asked for additional land, four have received that land since 1980, four between 1972 and 1979, and four got their land before 1972. The table seems to indicate that borrowing of fields has become more common recently but that may not really be true. The figures do not include fields that were borrowed earlier but are no longer being borrowed and as discussed in the next section, there are 15 farmers who report that they used to borrow fields that they are no longer borrowing.

Borrowing Fields

The issue of borrowing is of particular interest because of the observation that many rural homesteads have only a small portion of their arable land under cultivation. Thus, the situation can arise in which some farmers want more land to expand their farming but there is none available. At the same time, much of what is already claimed by other people is underutilized or is not being used at all. Homesteads with more land than they presently need are, however, reluctant to give it up. They may plan to use it in the future or give it to their children or just keep it in case of emergency.

Borrowing is a means by which land could be temporarily put in the hands of a person who would use it productively, yet still allow it to be reclaimed by the owner when he needs it back. There are both benefits and risks to lending out land from the point of view of the lender and depending on their relative weights, a potential lender may or may not actually lend out land. The benefit comes from avoiding the risk of having the

chief take away one's land and give it to somebody else because it's not being used productively. Hughes [1972, p. 150] mentions this as a possibility under the traditional tenure system and cites it as a reason a person may lend land to a relative who will cultivate it with the least effort necessary to retain claim to it.

Data from the survey seems to confirm that this may happen, at least in some chiefdoms. 40% (19) of the advanced farmers said they felt there was a definite risk that the chief would give land to somebody else if the owner left it fallow for too long. In most of these cases, this was a rule that the chief had announced but never acted on. However, there were five farmers who said that such a thing had actually happened.

If there is risk involved in leaving land idle, there is also risk in lending it out, especially for a long period of time. Since there are no documents with which ownership can be proved, a person who borrows a field for a long time may begin to feel that he has a claim to it. If the chief who originally allocated the field dies or it is the children of the original borrower who are now farming it, there is much potential for dispute when the lender tries to reclaim the field.

In the survey, an attempt was made to get some idea of the extent of borrowing and problems associated with borrowing from both the borrower's and lender's point of view. 43% (20) of the advanced farmers reported that they borrow and/or used to borrow fields. 19% (9) are presently borrowing fields. Of those who used to borrow, about half returned the fields by choice because they no longer wanted them. The other half had to return them because the lender wanted them back.

Several of the advanced farmers (13%) reported that they loan or used to loan out land. Four of them are currently loaning out land while two no longer loan land. In one of these cases, the farmer reclaimed the land so he could use it himself and in the other, the borrower no longer wanted the land.

These figures seem to be much higher than those for the rural population as a whole. Preliminary indications from the Traditional Sector Survey are that borrowing is extremely rare. Only about 2% of rural homesteads were found to borrow fields. However, the fact that so many advanced farmers do borrow or used to borrow land seems to indicate that borrowing is an accepted practice and that those who want additional land are able to borrow.

About half of the advanced farmers who borrow or loan out land deal with their relatives and in those cases, the lender does not expect anything in return from the borrower. Of the cases in which fields are borrowed from or loaned to non-relatives, less than half of the lenders require some kind of

payment. Of those who do, it is usually expected of the borrower that he plough the lender's fields. There is also one instance in which the borrower is asked to pay part of his harvest.

Few people reported problems with borrowing or lending. Three (15%) of the farmers who borrowed said that they had problems with the lender becoming jealous or acting unfairly. For example, one farmer complained that the lender waited until he had ploughed before coming to take the land back. None of the farmers who now loan or used to loan land reported any problems. However, one man who neither borrows nor loans, said that the big problem with lending land is that, "you can have a dispute with the borrower over whose land it is when you want it back." This was confirmed indirectly by another advanced farmer who was unhappy that a piece of land he had been given by his neighbour was later taken away. Apparently there was some disagreement over whether the land was actually his to keep or had just been loaned to him.

The unpredictable nature of random sampling is demonstrated by the results of the questionnaire pretest conducted prior to the survey on eight advanced farmers around the country. Three of these farmers, a much larger proportion than in the survey itself, said that there was a big problem reclaiming land lent out. As one put it, "When the person who lent the land dies and his children try to reclaim it, there are problems and the case goes to the libandla." Another farmer added, "You should put it all in writing."

2.2 Security of Tenure

Banishment

One feature attributed to the traditional land tenure system in Swaziland is the lack of secure tenure. The chief has the power to allocate land but he also has the power to take it away. It has been reported that a farmer who works hard and becomes successful through farming is a target for community jealousy and a potential candidate for banishment. According to this way of thinking, initiative, competitiveness and striving to get ahead are not socially acceptable qualities. When a person rises above the rest he is thought to be making himself too important or trying to be like a chief and his success may be attributed not to hard work, but witchcraft. The outcome of all this is that an advanced farmer may feel pressure not to rise above the crowd or work too hard for fear of community ill will and increasing the danger of banishment.

According to Hughes, "if a man becomes too rich, he may arouse the envy of his chief, and be banished. If he antagonizes his neighbours, they may seek his banishment.... Similarly, anyone who starts to commercialize his land in a manner of which a

substantial section of the community disapproves does so at his own peril." [1972, pp. 148-149]

Several questions about banishment and community attitudes toward commercial farming were asked in the survey to try to determine whether attitudes such as have just been described really influence people's behavior. Data from this survey confirm that banishment, although it does occur, is not frequent. When asked if they knew of any cases in which someone, living in their chiefdom had ever been banished, 74.5% of the farmers surveyed said they did not. Of the 12 farmers who knew of instances of banishment, only five described cases which had occurred in the last five years.

However, as others have pointed out, banishment does not have to occur frequently. The threat of banishment is an effective tool to enforce conformity to locally approved social norms.

In how many of these 12 cases was the person really banished because he had adopted commercial farming methods at odds with traditional practices or because he had become prosperous in his farming and so aroused the jealousy and envy of his neighbours and chief? In five of the cases, the matter seemed to be unrelated to farming such as murder or having an affair with the chief's wife. Six banishments were said to have been for witchcraft or unspecified disagreements with the chief and so it is possible that some of these occurred for the reasons with which we are interested. However, one case of alleged witchcraft turned out to be a classic case of a successful farmer being accused of witchcraft and banished. One of the advanced farmers recounted the following story:

"A man was very successful at farming and grew many mangoes. He was also a priest in a revivalist church. Some other priests were jealous of his success as a preacher and went to the chief and accused the man of bewitching them. The chief, who coveted the mango trees, went to Lobamba and got authority to banish the man. Now the chief is eating the mangoes."

The farmer who told us this story was himself a serious commercial farmer. He commented that his chief was not particularly encouraging of farming and that, furthermore, he himself was not on good terms with this chief. When asked, he also said that he thought what happened to the priest with the mangos could happen again and maybe to him! So, out of the 47 farmers surveyed, at least one was found who knew of a case in which a man was banished because the chief and others were envious of his success.

In terms of his position and security in the community, an advanced farmer must also worry about the attitudes of the community toward commercial farming, not just the chief's, though

the two are certainly related. The advanced farmers in the survey were asked how they thought their neighbours felt about farmers who use their SNL to grow a surplus of crops to sell. 27.7% (13) said that their neighbours approved of such farming but there were also 10.6% (5) who said their neighbours disapproved. The bulk of the respondents said that either their neighbours didn't care or that they didn't know how their neighbours felt about it (34.0% and 27.7% respectively). The response to this question did not seem to be related to the status of the farmers who gave it. For example, of the five farmers who said their neighbours disapproved of commercial farming, two were commercial farmers, one of whom was quite prosperous, two were semi-commercial farmers and one was a non-commercial farmer.

There are actually two separate issues involved here. (1) Negative attitudes toward commercial farming seen as an improper use of SNL and (2) negative attitudes toward individuals who rise above their peers in terms of success and wealth. The case of banishment described above seems to involve both issues. The question about feelings toward commercial farming only reflects the first of these issues. Magagula [1978] in his dissertation on Swaziland rural development asked a question about the second issue. He asked his respondents whether they agreed or disagreed with the statement, "If you get extremely rich and successful, jealous neighbours will bewitch you." 60% either agreed or strongly agreed with the statement, with most of those in the "strongly agree" category.

The relevant question is what kind of dampening effect do the few instances of banishment and these kinds of community attitudes have on farmers' incentives to make a success of their farming? Countrywide, it is difficult to say because one thing that became clear during the survey was that different chiefs and different communities have different attitudes about commercial farming. Some chiefs encourage it by clearing cattle from the fields early, giving blanket permission to fence or cooperating with irrigation and other production schemes. Other chiefs, like the one in the banishment case above, are, at best, indifferent to commercial farming and possibly even opposed to the use of Nation Land for anything but subsistence farming. Certainly, the farmer who told us about the banishment felt threatened and insecure. The banishment served as a warning to him and any other aggressive farmers living under a chief with similar attitudes. However, it would be expected that this and similar banishment cases would have much less deterrent effect on successful commercial farmers living in areas with "progressive" chiefs. A few other advanced farmers reported that their neighbours "grumbled among themselves" about various commercial practices they followed.

In the opinion of the author, the threat of banishment and chiefly and community disapproval of certain practices or too much success are deterrents to commercial farming in some areas

of SNL. However, the strength of this deterrent varies widely and in many places it may be non-existent.

These motives for banishment have been reported by many observers at least since Hilda Kuper described them in the 1940's. There is not sufficient data from the survey to say whether they are any weaker now than they were then. However, it is suspected that the emphasis has changed. Many commercial practices, formerly unpopular, have been gaining acceptance over the years, as will be reported below. It is probable that today, conspicuous success and prosperity is much more likely to create envy and ill will in a community than fencing, irrigating, or selling cash crops.

Resettlement

Like banishment, the threat of resettlement could reduce a farmer's willingness to make improvements in his land or homestead. Any investment that he might make, such as fencing, would be lost if his area were resettled and his fields and home moved. The question of resettlement and its effect on farmers was investigated in the Advanced Farmer Survey.

Some of the results were unexpected, starting with the number of people who said that they had already been resettled. 72.2 (34) of the advanced farmers claimed to have been resettled and over half of these said that the resettlement had taken place since 1980. More surprising is that 64.7% (22) of those who had been resettled said that neither their homestead nor their fields had been moved. The explanation was usually that the area had been resettled but that their homestead and fields had been found to be "in line."

Twelve of the advanced farmers had actually been moved during resettlement, either their homestead, their fields, or both. Most of the seven whose fields were moved were not happy with the resettlement. They complained that they got less land of the same or worse quality than they had had before. In addition, resettlement led to land disputes for two of the farmers. One said that the land he had been given during resettlement was reclaimed by the former user. Another said the chief was using resettlement to try to replace him with somebody he liked better. Only one person said that resettlement had made farming easier, but he had just had his house moved, not his fields.

Of the thirteen farmers who have not been resettled, only four expect to be resettled in the future and two are worried they will be given smaller fields. One farmer, though, was optimistic about the prospect of future resettlement saying that, "resettlement will provide for grazing land whereas there is none now."

It would appear that resettlement is not a major source of tenure insecurity among the advanced farmers. 91.5% (43) of them have either already been resettled or do not expect to be. Furthermore, resettlement seems to have been relatively painless for most of those who have been through it. Only 20.6% (7) of the resettled farmers actually had their fields moved. Though it may have been an unpleasant experience for most of these farmers, it is over. They do not have to worry about being resettled again. That is probably the most fundamental aspect of resettlement as it relates to security of tenure. Before it takes place, it could be a major source of insecurity but after it has been completed, the uncertainty vanishes. For most of the advanced farmers, then, resettlement is no longer a factor in their security of tenure. However, for the 8.5% who still expect to be resettled, it may create a serious disincentive to make improvements on the land until the uncertainty hanging over them is resolved.

2.3 Credit Constraints

One of the most common criticisms of traditional Swaziland land tenure as opposed to private property is the lack of immovable assets to pledge as collateral for loans. Others would argue that this is, in fact, one of the strong points of the traditional system. As Russe l points out, "Since land cannot be pledged, its occupants are spared the temptation of indebtedness and the entailed threat of expropriation. In this way, even the weak are protected from landlessness." [1985, pp.34]

Yet there is still the possibility that because farmers are unable to risk their land by using it as collateral, commercial agriculture in Swaziland is constrained by lack of credit. Previous research [Guma and Simelane, 1982; Mercey, 1983; and de Vletter, 1984] has found that about 10% of SNL homesteads have borrowed from SwaziBank and only a quarter of those who are denied credit fail because of lack of collateral. In addition, only 5% of those who have never tried to get credit cited lack of collateral as the reason. Thus, at least as perceived and reported by rural residents in previous surveys, lack of collateral is not the major barrier preventing them from obtaining credit. There has also been the suspicion that credit has little effect on increasing expenditure on agricultural inputs because much of it is spent on non-agricultural purchases. De Vletter however, suggests that while credit may not be a problem for the average SNL homestead, it may very well be a serious constraint for the commercial or aspiring commercial farmer.

The Advanced Farmer Survey did not generate sufficient data to give a definitive answer on this point, but what data there is suggests that credit is not a major problem for advanced farmers. Compared to the 10% just cited, 75% (35) of the advanced farmers in the sample reported that they borrowed money. The vast majority of them, 86% (30) took out seasonal loans for seed, fertilizer and other inputs. The other major type of loan was for tractors or farm equipment, 23% (8). 83% (29) of the farmers borrowed from SwaziBank. There was only one loan from a cooperative and one through the People's Participation Project (PPP). Cattle were the collateral of choice (89%, 31) but one farmer used his car and two others used both cattle and their wages. Of the 12 people who never tried to borrow, only one said lack of collateral was the reason. Half of those who never borrowed said they had no need of borrowing. Fourteen farmers (30%) had ever been denied a loan but 12 of these had borrowed money at other times. Half of the failed attempts to borrow money were due to insufficient collateral.

Not being able to get collateral was not listed as a matter of concern for any of the farmers surveyed though two of them did complain about high interest rates. This is not to say that lack of capital is not a constraint for them. Over half of the advanced farmers said that they were short of money, in general, or did not have enough money to buy inputs or implements. However, the prospect of borrowing more money did not seem to be attractive to them as they would be expected to pay it back.

In summary, though there may be a liquidity constraint or as phrased by one banking official, a planning constraint, the survey did not provide evidence that advanced farmers are constrained in obtaining credit by the inability to mortgage their land. Three quarters of the farmers surveyed did use credit and of the 15% (7) who had had credit denied for insufficient collateral, all had obtained other loans at other times.

2.4 Farmer Control Over Production Decisions

The literature on land use repeatedly raises the issue of constraints on farmers' ability to make fundamental decisions regarding farming practices and the use of their land. There are actually several issues under this general heading. These are fencing, when cattle are and are not allowed in the fields, and tribute labour.

Under traditional tenure, a farmer temporarily loses the right to exclude others from his fields after harvest when livestock are allowed to roam freely through the fields to graze on the crop residues. It has been suggested that this constrains early planting required by some maize hybrids and that it makes

it difficult or impossible to double crop during the winter season.

Fencing

Fencing, which would allow a farmer to control cattle movement over his fields has been strongly opposed by many Swazis in the past. Fencing has negative associations for many Swazis because it is a symbol of their loss of land to the Europeans during the concessionary period. It is also viewed by traditional authorities and many rural people as a potential interference with communal use rights after harvest and making the rights of individuals over land too exclusive, reducing chiefly authority over land allocation.

Yet fencing is a means by which a Swazi farmer can increase his yields by protecting his crops from livestock. It also makes it easier to winter plough, irrigate, and plant early in the Spring. Hughes [1972] reported that fencing had begun to gain limited acceptance in Swaziland and that fencing off one's own residential area including a few small cultivated patches was generally accepted. However, he goes on to say that:

"...too great an enthusiasm for fencing can have its dangers. If a man decides to irrigate a large area, say and fences this off, he may arouse the ire of his conservative neighbours. They may argue that he is depriving them and all the rest of the community of their Right of Stover. In one case investigated, such an attempt at large scale irrigation (which was encouraged and supported by government officials) was one of the reasons for passing a sentence of banishment on a man." [p. 226]

Laurel Rose in her recent study of customary land dispute settlement in Swaziland [1987] noted that fencing matters represent one of the most common disputes between community members over land use rights. However, the problem is not so much in obtaining permission from authorities as it is defining the boundaries where the fence is to be placed. She states that, "when fences are erected, latent boundary disputes often flare up and new ones arise." [p. 42]

Many questions about fencing were addressed in the Advanced Farmer Survey. How many people actually fence and why? To what extent do traditional attitudes about fencing constrain those farmers who want to fence? How do communities and chiefs really feel about fencing? What problems are encountered by people who fence? A related issue is the power that fencing gives one to control the movement of other people's livestock through one's

fields. Does this aspect of fencing cause problems with one's neighbours?

The number of advanced farmers who fence was even greater than expected. Only 6% (3) of the 47 farmers surveyed had no fencing at all. Of the 44 farmers with fences, 23 fenced their entire holding or had every field fenced. The other 22 fenced some but not all of their fields and had, on average, about half of their fields fenced.

Without exception, the reason given for fencing was to protect crops from livestock at various times of the year. The demarcation of boundaries was never given as another purpose of erecting a fence. It is very possible, however, that the intent to define boundaries or strengthen ones claim to a piece of land by fencing is a motivation which a farmer would be reluctant to acknowledge.

Only 18 farmers said they fenced in order to be able to plant or plow during the winter when livestock are otherwise allowed to roam free through the fields. The fact that 93% fenced in order to keep livestock out during the normal cropping season seems to indicate that the supervision of cattle during that time is not adequate to protect crops from damage. It is interesting that one farmer said that fencing enabled him not only to keep other people's cattle out of his field but also to keep his cattle out of his neighbours' fields.

TABLE 2.5

REASONS FOR FENCING

REASON FOR FENCING	NO. OF FARMERS	% OF FARMERS
PROTECT CROPS FROM LIVESTOCK:		
DURING CROP SEASON	41	93.2%
DURING WINTER	16	36.4%
ENABLES ME TO WINTER PLOUGH	2	4.5%
CONTROL MY OWN LIVESTOCK	1	2.3%
TOTAL	44*	100%

* The number of responses is more than the 44 farmers who fence because of multiple responses.

Although no one specifically mentioned irrigation as a reasons for fencing, the two are clearly related. While 67% of all fields are fenced, 95% of irrigated fields are fenced and the one irrigated field that is not fenced is irrigated by bucket, not by furrow or sprinkler.

There are several different ways of assessing whether traditional anti-fencing attitudes of the chief and/or the community act as a constraint to fencing. Just by the numbers of advanced farmers who fence and the extent of their fencing, it is suspected that such attitudes are little constraint. Are farmers who fence ignoring these attitudes or have the feelings against fencing themselves disappeared? Data from the survey suggests the latter.

Table 2.6 shows the attitudes toward fencing of chiefs and community members as perceived by the advanced farmer. 78.8% of the advanced farmers reported that their neighbours either approved or didn't care about fencing. An even larger majority, 85.1% , said that their chief either approved or didn't care

TABLE 2.6

ATTITUDES ABOUT FENCING

	HOW NEIGHBOURS FEEL		HOW CHIEFS FEEL	
	FREQUENCY	%	FREQUENCY	%
APPROVE	23	48.9%	28	59.6%
DON'T CARE	14	29.8%	12	25.5%
DISAPPROVE	3	6.4%	0	0
DON'T KNOW	7	14.9%	6	12.8%
NO CHIEF	--		1	2.1%

about fencing and none felt that their chief disapproved of or opposed fencing. In fact, in 45% (21) of the cases, the chief himself had all or part of his holding fenced. Fencing is not just done by advanced farmers either. 55.3% (26) of the advanced farmers reported that most of their neighbours fenced too.

One other way a "traditional attitudes" constraint on fencing might have been detected is by looking at why some people haven't fenced more than they have or in three cases haven't fenced at all. The reasons given in the survey had nothing to do with either chief or community opposition. All three non-fencing farmers cited lack of money as their reason for not fencing. That was also the most common reason for farmers not having fenced all their fields (73%). Another 14% said they hadn't fenced all of their fields because it wasn't necessary.

The traditional system of allowing cattle into the fields during winter to eat the stover and the disadvantages of this system is well summarized by Hughes.

"In the "old time" system of agriculture, fields were thrown open for grazing once the crops had been reaped (the Right of Stover) and the cattle were no longer herded but left free to range. In many parts of Swaziland today the state of the grazing areas is so bad

that crop residues in the fields probably make an important contribution to the local cattle's dry season diet.

Technically, this has the disadvantage that it removes from these fields organic matter which should, ideally, be ploughed back to maintain the fertility and structure of the soil. . . [I]f cattle are free to eat these residues and wander off elsewhere, much of the advantage of fertilization is lost. The man who fertilizes may reap a better crop, it is true, but the structure of the soil deteriorates." [pp. 225-226]

By fencing and keeping his neighbours' cattle out of his fields during winter for the above reasons, or for winter ploughing, or for irrigating and winter cropping, the farmer is reducing his neighbors' "Right to Stover." Can a farmer keep his neighbours' cattle out of his fields without creating ill will? How do neighbours feel about a farmer ploughing under his crop residue, cutting it, or allowing his own cattle to feed in the fenced area but not theirs? How do they react if they find such a farmer's cattle in their fields?

Not every farmer who fences keeps his neighbors' cattle from feeding on his stover after harvest. The act of fencing is not, in itself, necessarily a violation of the "Right to Stover". Of the 44 farmers surveyed who fence, it was found that 57% (25) do not prevent their neighbours' cattle from grazing in their fields after harvest. These farmers (1) just open the gate and allow the cattle in to feed or (2) only keep the cattle out of a small fenced garden or irrigated field, allowing them into all their other fields. Some of these farmers winter plow but only late in the winter after livestock have already browsed in fields.

The remaining 43% (19) of the fencing farmers violated their neighbors' "Right to Stover" in several ways. They may (1) keep all cattle out of the fenced areas, (2) allow their own in to feed but keep others out of (3) let their neighbors' cattle in but only after the stover has been cut and stored or ploughed under. As perceived by these farmers, however, most of their neighbors don't care. Only 2 farmers reported that there is some disapproval of their not leaving the stover in the fields. ("They grumble amongst themselves but there is nothing they can do.") Eight farmers said that nobody cares, one farmer didn't know and one said his neighbors usually approve of his actions. (Unfortunately, this question was not asked of the 7 farmers who left their stover standing but only allowed their own cattle in to feed on it.)

This is consistent with Sibisi's findings in her study of "keen" farmers in which she found that most of the farmers she surveyed had succeeded in getting their communities to accept their practice of fencing and cutting of the stover [1981, p.55]. However, she stressed that there seemed to be some conditions on the acceptability of these practices. First it was important

that only a few people do it so that the traditional system was not overturned. Secondly, those few farmers who excluded other people's cattle from their stover had better keep their own cattle out of their neighbors' fields.

No evidence of this latter condition was found in the present survey. Without exception, all the farmers who cut their stover or ploughed it under so that it was unavailable for their neighbours' livestock reported that there was no problem if their cattle browsed in their neighbours' fields.

The existence of the first condition is more difficult to judge from this survey. Though these practices are very common among the advanced farmers surveyed, they may not represent the behavior of the average resident on SNL. Are the practices of fencing and violating the "Right to Stover" the exception to the rule, practiced by only a few advanced farmers as Sibisi concludes? Or are these practices becoming more widely adopted on SNL and do they therefore represent a fundamental change in traditional Swazi land tenure rules? The answers to this question will have to wait the results of the Traditional Sector Survey based on a random sample of all homesteads on SNL and not just advanced farmers.

Rose made the point that the problem with fencing may not be fencing, per se but fencing before the boundary on which the fence is placed has been agreed upon by all concerned. She tells of a chief who commented that, ". . . people who want to fence must inform the authorities of their intentions, i.e., the kind of fence they plan to erect and the exact location . . . [S]uch action would present disputes." [p.42]

None of the advanced farmers surveyed reported any problems with fencing and boundary disputes. However, a surprising number of them did not consult with their neighbours or seek the permission of the chief before they fenced. Only 40.9% of those who fenced consulted their neighbors and 45.5% sought out permission of the chief. 38.6% (17) consulted neither neighbors or their chief, though four farmers reported it was not necessary to ask the chief for permission because the chief had announced that anybody could fence who wanted to. Of the 18 farmers who did consult their neighbors only 2 did so to discuss boundaries.

Despite the claim by most of the advanced farmers that fencing was approved by the community or was at least a matter of indifference, 32% (14) of those who fenced reported that they sometimes found their fences cut. One of these farmers explained that his fence was cut by kids making wire cars, but the others must suspect that there is at least one member of their community who does not like their fence and the fact that the movement of his cattle is restricted. It is interesting that although 2 out of 3 of the farmers in communities disapproving of fences experienced cut fences, 30% of the farmers from both approving and indifferent communities also had their fences cut.

Actions and Requirements of the Chief

It has sometimes been suggested that some actions of the chief or obligations to him can get in the way of the dedicated farmer. Traditionally, the chief announces when cattle are allowed onto the fields after harvest and when cattle are to be cleared from the fields in the Spring so that ploughing can begin. The timing of these events may not coincide with the plans of the advanced farmer who may not follow the same schedule as his neighbours. For example, early ploughing, a practice strongly encouraged during the Advanced Farmer Scheme, is made difficult if the chief does not clear the fields of cattle until later in the season. Have advanced farmers actually had problems of this nature?

In terms of the opening of fields to grazing by cattle, it was found that in 55% (26) of the cases, the chief does not announce the date at all. People in the community are said to "just know" when the time has come to let the cattle into the fields. The chief does not have to announce it. Of the 21 farmers who live in areas in which the chief does announce when cattle are to be allowed into the fields, only 2 reported that cattle are allowed in before they are ready. However, in one case, the reason this happens is because people let their cattle in before the date set by the chief. In the other case, the farmer reported that she had planted very late.

Though there was little problem with the time cattle are allowed onto the fields, many of the advanced farmers reported that they were prevented from ploughing as early as they would like because the chief waited too long to call for the removal of the cattle. 70% (33) of the farmers said that in their area the chief announced when livestock must be taken out of the fields. However, the deadline by which the cattle must be removed varied widely. In one area, the chief required cattle to be removed in July. In three others, the date wasn't set until December.

TABLE 2.7

MONTH BY WHICH CATTLE MUST BE REMOVED FROM FIELDS AS ANNOUNCED BY CHIEF

	NUMBER OF CHIEFDOMS	%*	CUMULATIVE %
JULY	1	3.2%	3.2%
AUGUST	6	19.4%	22.6%
SEPTEMBER	6	19.4%	42.0%
OCTOBER	11	35.5%	77.5%
NOVEMBER	4	12.9%	90.4%
DECEMBER	3	9.6%	100.0%
DIDN'T ANNOUNCE LAST YEAR	1	--	--
DON'T REMEMBER	2	--	--
DOESN'T ANNOUNCE	13	--	--

* Calculated as the percent of chiefdoms in which the date is known and announced.

Table 2.7 shows the distribution over time. Only 20% of the chiefdoms had the cattle cleared out of the fields by the end of August. Another 20% were very late, not removing the cattle until November or December. The majority of chiefs called for the removal of cattle during September and October, a time when many people want to start ploughing. Thus, in over 70% of the chiefdoms in which the chief sets a date for cattle removal, there are varying degrees of potential for farmers to be delayed in their ploughing. This is confirmed by the responses to two other questions on the subject. 87.9% (29) of the advanced farmers in areas where removal dates were set claimed that they would have ploughed earlier if the chief had set the date earlier. Likewise, 36.4% (12) of these farmers said that they ploughed immediately after cattle were removed and an additional 48.5% (16) claimed to have ploughed before the cattle removal date. Thus 84.8% (28) ploughed before or immediately after the date set for cattle removal.

All of these facts raise some additional questions about fencing. The 2 farmers who complained about cattle being released into the fields before they were ready both have fences around all of their fields. Many of the farmers who said they would plough earlier if the chief set the removal date earlier have fenced all or most of their fields. Why don't they all plough before that date (as 16 of them have done)? Part of the answer is that fences don't seem to be totally effective in keeping cattle out of the fenced areas. This can be seen in Table 2.8 which shows that 89.4% (42) of the advanced farmers have problems with other people's livestock damaging their crops. What is more surprising is that fencing does not seem to help as 91.3% (21) of the farmers who have fenced all their fields still have livestock damage to their crops. This damage is not only

due to goats who have no trouble slipping through wire fences. Damage by cattle was reported by most of the farmers as shown in the last column of the table.

TABLE 2.8

CROP DAMAGE CAUSED BY LIVESTOCK

	NUMBER IN		LIVESTOCK DAMAGE		CATTLE DAMAGE	
	EACH CATEGORY	FREQUENCY	%	FREQUENCY	%	
ALL ADVANCED FARMERS	47	42	89.4%	36	76.6%	
THOSE WHO FENCE	44	40	90.9%	34	77.3%	
ALL FIELDS FENCED	23	21	91.3%	18	78.3%	

Once again, farmers who fence all of their fields seem to be no more successful in preventing cattle damage than those who fence only part of their holdings or none at all. 78.3% (18 out of 23) of the farmers with fences around all their fields reported crop damage by their neighbor's cattle.

Before concluding that fences are totally ineffective in achieving their stated purpose, i.e. protecting crops from livestock damage, the possibility should be considered that crop damage in fenced fields is less than in non-fenced fields even though fencing is not totally successful in preventing livestock from entering a field. Unfortunately, the magnitude of the crop damage was not determined in the survey. What little evidence there is does not support this hypothesis. That is, one of the three farmers with no fencing was also one of the five farmers who reported no livestock damage to crops.

The data on incidence of cattle damage to crops suggests that fencing of fields is not a complete substitute for the supervision of cattle and other forms of control. This also helps explain why even farmers with most or all of their fields fenced might feel constrained not to plough and plant before cattle have been removed from the cultivated areas.

Tribute Labour

Another traditional practice which could hinder the work of a serious farmer is that of tribute labour. Does the chief require people to come help him plough his fields before any other fields in the community are allowed to be ploughed? Are people called to help the chief or the king plough, weed or harvest at just the time when they need all the homestead's

labour resources on their own fields for those tasks? If so, how significant are these problems and how do farmers feel about them?

The requirement that the chief's fields be ploughed before those of his subjects could impose a serious constraint on the advanced farmer who wants to plough and plant early. Communication with a number of Swazis on this subject before the survey led us to believe that this was a common practice on SNL. However, the results of the survey show otherwise. Only 8.5% (4) of the respondents said it was not permitted to plough their land before the chief's fields had been ploughed. One of these farmers said he couldn't plough before the chief did because he was on such poor terms with the chief that he didn't want to give offense. He implied that the restriction did not apply to his neighbors. Another two of these farmers described what we had been told was the traditional practice. According to one:

"Every year before ploughing, everyone is called by the chief to go to the mountain to give something to the gods and ask them to give a good harvest in that particular season. From there, they first do the chief's fields."

Although the requirement that the chief's fields be ploughed first is no longer common, it may still pose a serious constraint to early ploughing in those few areas in which it is practiced.

Data from the survey suggests that the practice of contributing labour to the chief is almost universal on Swazi Nation Land and that it may exacerbate a labour constraint for some advanced farmers. All of the advanced farmers (except two from areas where there is no chief), reported that the chief calls them to work in his fields. In 78% (35) of the chiefdoms, subjects are called for ploughing, weeding and harvesting. In the remaining 10 chiefdoms, the chiefs call the people to help in only one or two of these tasks. Most of the advanced farmers obey the chief's call. One farmer said he was exempted because of poverty and failing health while another said he sometimes went to help in the chief's fields but not this year. Thus, 91.5% (43) of the farmers surveyed contributed labour to the chief.

The drain this might impose on the homestead labour force was measured in two ways: (1) the number of homestead members sent to work and (2) the number of days spent working. As revealed in Table 2.9, a majority of homesteads (55.8%) sends just one representative to work in the chief's fields. Another 18.6% (8) of the homesteads send two members and the numbers decline from there. Two farmers reported that everybody at the homestead participates when the chief calls.

TABLE 2.9

NUMBER OF HOMESTEAD MEMBERS PARTICIPATING IN TRIBUTE LABOUR

NUMBER OF PEOPLE	CHIEF'S FIELDS		KING'S FIELDS	
	FREQUENCY	%	FREQUENCY	%
1	24	55.8%	24	63.2%
2	8	18.6%	9	23.7%
3	5	11.6%	3	5.3%
4	3	7.0%	4	7.9%
6	1	2.3%	0	0
EVERYBODY	2	4.7%	0	0
TOTAL	43	100.0%	38	100.0%
AVERAGE NUMBER				
PER HOMESTEAD				
	2.0		1.8	

All of the homesteads contributing labour to the chief also donate the use of their tractors or oxen and other farming implements. But ploughing, weeding and harvesting the chief's fields are not the only tasks for which homesteads are required to supply labour. Almost three quarters (34) of the advanced farmers said they were also required to do other tasks for the chief besides working in his fields. These included helping to build the kraal or other structures, cutting and thatching grass, shearing maize and running errands. In addition to these responsibilities to the chief, the homestead must also respond when the king calls the nation to contribute labour, usually for weeding, harvesting and non-agricultural tasks. 80.9% (38) of the advanced farmers said they send people when the king calls the nation. As with sending workers to help the chief, a majority of homesteads send just one representative when the king calls.

Perhaps more indicative of the labour costs to the homestead imposed by tribute labour is the number of days involved. The number of days spend on agricultural tasks for the chief and king ranged from 0 to 105 days a year with an average of 34.4 days. Although some homesteads spent much time in the chiefs fields and little time in the king's, others do just the opposite, the average time spent working for the chief and for the king is about equal.

TABLE 2.10

NUMBER OF WORKER DAYS* OF TRIBUTE LABOUR

WORKER DAYS	CHIEF'S FIELDS			KING'S FIELDS			BOTH		
	NUMBER OF HOMESTEADS	%	CUM %	NUMBER OF HOMESTEADS	%	CUM %	NUMBER OF HOMESTEADS	%	CUM %
NONE	4	8.7%	8.7%	10	21.7%	21.7%	2	4.4%	4.4%
UP TO 2 WEEKS	13	28.3%	37.0%	5	10.9%	32.6%	4	8.9%	13.3%
2 TO 4 WEEKS	13	28.3%	65.3%	12	26.1%	58.7%	7	15.6%	28.9%
4 TO 6 WEEKS	4	8.7%	74.0%	12	26.1%	84.8%	10	22.2%	51.1%
6 TO 10 WEEKS	8	17.4%	91.4%	4	8.7%	93.5%	9	20.0%	71.1%
10 TO 15 WEEKS	0	0	91.4%	0	0	93.5%	5	11.1%	82.2%
15 WEEKS	4	8.7%	100.0%	3	6.5%	100.0%	8	17.8%	100.0%
TOTAL**	46	100.0%	--	46	100.0%	--	45	100.0%	--
AVERAGE FOR ALL	34.1 WORKER DAYS			27.7 WORKER DAYS			62.4 WORKER DAYS		
RANGE	0 TO 240 WORKER DAYS			0 TO 144 WORKER DAYS			0 TO 348 WORKER DAYS		

* Worker days for each homestead is calculated by multiplying the number of days worked by the number of homestead members sent.

** Totals do not add to 47 because there was one farmer in each category who did not know how many days of work his homestead had contributed.

The concept of "worker days" was used to measure the labour contribution of each homestead. For each homestead, this was calculated by multiplying the number of homestead members participating in the tribute labour by the number of days worked. (The time spent working on non-agricultural tasks could not be included.) The results are shown in Table 2.10. The average advanced farmer donated 62.4 worker days of labour to the chief and king. One farmer claims to have contributed 348 worker days a year, the equivalent of donating the full time labour of one homestead member.

The magnitude of these figures would certainly suggest that tribute labour draws away a significant amount of labour from the homestead just when it is needed most. However, a majority of the farmers said it was not a burden to them. Almost two thirds of the farmers who contribute labour to the chief or the king said it did not affect their own farm work. Fifteen farmers who sent workers to the chief and 11 who answered the king's call said that it did delay them in their work.

TABLE 2.11

DOES WORKING IN CHIEF'S OR KING'S FIELDS EFFECT YOUR OWN WORK?

	CHIEF'S FIELDS			KING'S FIELDS		
	FREQUENCY	TOTAL %	% OF THOSE WHO SEND	FREQUENCY	TOTAL %	% OF THOSE WHO SEND
IT HAS NO EFFECT	28	59.6%	65.1%	25	53.2%	69.4%
IT DELAYS MY WORK	15	31.9%	34.9%	11	23.4%	30.6%
DO NOT SEND WORKERS	4	8.5%	--	11	23.4%	--

The questions regarding the effect of tribute labour on a farmer's own work was worded very carefully because it was recognized that this might be a sensitive issue about which a farmer might be reluctant to discuss frankly. This suspicion was confirmed by the fact that some of the farmers seemed a bit surprised at the question. Thus the responses to this question may have been biased by some farmers giving the diplomatic answer of, "It has no effect." when in actuality, providing tribute labour does make their farming more difficult.

Other data which could indicate the existence of a labour constraint were collected in the survey. (Labour as a constraint is discussed more fully in Section 3.3.) Farmers were asked whether they invited lilima or hired workers and whether or not there were some times of the year in which they did not have enough labour to do the necessary work in the fields. Inviting lilima or hiring labour was taken as a sign that there was insufficient homestead labour at the times the additional labour was sought, usually for weeding and harvesting. There were 32 farmers (68.1%) who hired labour. However, in the group of 16 farmers who said that providing tribute labour delayed their work, hiring labour was even more common. All but one of these farmers (93.8%) hired labour. More difficult to explain is that while there were 21 farmers who stated that they faced labour shortages and 16 who said that providing tribute labour delayed their own work, only 6 said both. Similarly, there was not the expected relationship between the perceived burden imposed by tribute labour and the actual number of worker days spent in tribute labour. Although the two highest contributors of labour said it delayed their work, as would be expected, 68.8% (11 out of 16) of those claiming to be delayed by tribute labor donated less than the average number of worker days. The explanation for the wide variation in worker days donated is not known. Does a farmer donate more because he wants to and has plenty of labor or because in his chiefdom more is expected? The fact that 92.9% of the farmers who provided tribute labour said that they contributed about the same as their neighbors suggests the latter.

While there is evidence that the practice of tribute labour can impose on or worsen a farmer's labour constraint at critical times, the farmer who chooses not to contribute labour could face other costs. The most obvious cost is the imposition of a fine. Most farmers reported that the consequence of not responding to the chief's call was having to pay a fine ranging from £10 to £100 or in some cases, literally a cow. A more serious cost, though is the possible loss of community good will and this may be of special concern to an advanced farmer who already may be transgressing some of the traditional rules of behavior, i.e., fencing, denying right of stover, and using SNL to grow a marketed surplus and thus having "more land than he needs." If an advanced farmer decides he cannot afford to send workers to help the chief and opts to pay the fine instead, he may be seen as withdrawing more from the community or as starting to think of himself as above his neighbors or an equal to the chief. Thus, tribute labour may be a means by which an advanced farmer can keep himself in good standing with the community.

Another side of the question is that advanced farmers may feel compelled to do more for the chief than their neighbors because of their success in farming, wealth or ownership of a tractor. However, as stated above virtually all the respondents said they thought they contributed neither more nor less than their neighbors. Only one farmer claimed to contribute more.

The impression of the author is that tribute labour was not perceived as a major problem by most of the farmers surveyed. When asked, some admitted that it did delay their work but many were quick to add, "but that is our custom," or "that is just the way of things," implying that they did not think it was an unjust burden.

Funerals may be more of a problem for farmers than tribute labour or the apparently little practiced rule that the chief's fields must be ploughed first. Unfortunately, this was not anticipated and so no questions about funerals were asked. However, several respondents brought up the subject on their own without being asked. One farmer explained to us that, "...there are certain times when farming activities are not allowed like when there has been a death in the chiefdom..." Another complained, "We on Nation Land have to mourn when we hear of a death in the area. We stop our work in the fields whereas just next door on Title Deed Land, work in the fields goes on. This slows my work because I can't make up for the time lost."

Thus, a funeral taking place at a critical time can interrupt a farmer's work much more than tribute labour. While tribute labour does not bring all work to a halt since homesteads generally need only send one or two representatives, funerals seem to require that all work be stopped for a certain period of time. Little can be said here about the frequency and extent of

the burden funerals may impose on advanced farmers because no data was collected on the topic. However, it is significant that 2 farmers identified funerals as a problem without being asked. It is reasonable to expect that other advanced farmers in the survey would have been found to share these opinions if only they had been asked.

NON-TENURE RELATED CONSTRAINTS TO COMMERCIAL AGRICULTURE

3.1 Transport and Marketing

Many researchers have concluded that problems related to marketing, such as lack of transport, undependable markets, and low prices, are the most serious constraints to commercial agriculture on Swazi Nation Land. Harriet Sibisi in her research on "Keen Farmers" strongly emphasized this issue. She reported that:

"The greatest constraint on maize production is marketing (Emphasis hers.) Farmers consider the Swaziland Milling Company price far too low in view of input costs and the amount of work that goes into maize growing and resent having to compete with South African producers who are subsidized by their government. Hence, they sell most of their grain locally and sell much of it green. They also restrict output to what they know they can sell (above their own consumption)...Yet given adequate marketing opportunities and the right kind of support otherwise they could produce maize and other food crops in abundance; and they are still keen to do so (emphasis hers)." [1981, p. 3]

In anticipation that marketing problems would be high on the list of advanced farmer grievances, many questions about marketing were asked during the survey. However, the responses were different and much fewer than expected. Maize was sold by 64% (30) of the advanced farmers and 43% (13) of these reported problems in marketing their maize. However, most of the complaints concerned transport. Five farmers complained that hiring transport was too expensive. Four more said that they didn't like being dependent on hired transport, mostly because they couldn't sell when they wanted to. Finally, there was one farmer who owned his own bakkie but complained that it was too small and that he had to make multiple trips to the market.

Only five farmers, 17% of those who sell maize, reported problems in selling their maize. Two complained that the local markets were small and unreliable and that they were not always able to sell all their maize before it spoiled. Another two were not happy with having to wait in a long queue at Swazi Milling before they could sell. Only one farmer complained about getting too low a price and that was because he felt the milling company graded his maize too low.

Why are the results on the issue of marketing maize so different in Sibisi's report and the present research? Sibisi's "keen farmers" felt very strongly that the price they received for their maize from the Swaziland Milling Company (SMC) was much too low. Yet only one of the advanced farmers surveyed

complained about low prices and even that complaint was not so much over the general price of maize as it was that his maize had been given too low a grade. The obvious answer is that the price of maize has changed since Sibisi conducted her research in 1980 and 1981.

At that time, the government price for maize was E8.55 per 70 kg bag. By May 1986, the end of the cropping season about which the advanced farmers were asked, the official price of maize had risen to E23.45 per bag, an increase of 175%. But this increase is actually much less than it appears. With the high rate of inflation in Swaziland, prices have more than doubled since 1980. When the 1986 price of maize is converted to the equivalent of 1980 emalangi (using the Swaziland Retail Price Index for Low Income Groups) it is equal to only E10.67. Thus in real terms, there has been a 25% rise in the price of maize between 1980 and 1986.

It is good that Swaziland has been able to offer its farmers a steadily increasing price for maize during the 1980's especially since in many countries farmers have been faced with declining real (i.e., inflation adjusted) producer prices. However, would this 25% increase in six years, the equivalent of a 3.2% increase per year in the price of maize satisfy all the farmers who complained so vehemently of low prices in 1980, if they were not being at least partially fooled by the inflation induced appearance of a much larger price rise?

Sibisi also found that many keen farmers preferred to sell their maize locally rather than to the SMC whose price they considered to be too low. The data from the present survey confirms this pattern. Only 31% (9) of the farmers who sell maize sell it to the National Maize Corporation (NMC) which not operates the Swaziland Milling Company. The rest sell their maize at home to people who come to buy. A few also take it to local markets. The average selling price for maize reported by the advanced farmers was E23 per bag and ranged from E20 to E26. There was no difference in the average price received by those who sold to the NMC and those who sold at home. Why some farmers choose to send their maize to the milling company, while others sell at home or locally is not determined by price or geographical location. It is mostly the larger maize farmers who sell to the milling company. Average gross maize sales for this group is over three times the average for those who sell at home (E1905 compared to E582).

The marketing concerns expressed by sellers of cotton, legumes, fruits and vegetables were very similar. Problems with transportation were the most frequently mentioned type of marketing problem. These were split pretty evenly between those who thought hiring transport was too expensive and those who didn't like the inconvenience, delays and unpredictability involved in hiring transport. In addition, two out of 23 sellers

of legumes, fruits and vegetables said they had problems with their produce spoiling before they could get it to market.

While almost half the farmers who sold crops complained of problems with transport, only 20% said they had problems selling their crops. In addition to the problems of selling their maize described above, three vegetable sellers said they didn't know where to sell their produce and three said they were not always able to sell all their produce before it spoiled.

In summary, marketing did not seem to be the problem for advanced farmers it was expected to be. A majority of the farmers reported no problems. Those who did were mostly concerned about problems with transporting their crops to market. The transport constraint is not as serious as it might have been. Nobody said that they couldn't get transport at all. It was only that, for some, hired transport was felt to be too expensive and, for others, the problem was not the expense but that it didn't come right when it was wanted. This latter problem was most critical for two vegetable farmers who reported that sometimes their produce spoiled before they could get it to market. Finally, out of the 9 farmers who reported some kind of problem in selling their crops only one complained of low prices.

3.2 Acquisition of Inputs

Problems in obtaining farm inputs are another potential constraint to commercial agriculture. The advanced farmer survey examined the use of certain inputs and whether there were problems in obtaining them. A majority of farmers said they did have problems. 64% reported some sort of difficulty in obtaining seed, fertilizer, insecticides and/or farm equipment. About half of these farmers (53%) said they lacked enough money to buy the inputs but most of them (80%) also complained about the difficulty in getting the inputs, the distances that must be traveled to get them, or the fact that they don't arrive at the RDA shed until too late. 17% specifically mentioned that there were no tractors available in the area for hire.

Despite these reported difficulties in obtaining inputs, one powerful finding of the survey was the wide spread use of modern inputs among advanced farmers. The use of hybrid maize seed is a good example. All but one of the advanced farmers (98%) use hybrid seeds. A majority of them (62%) use hybrid seeds exclusively while another 36% use a mixture of hybrid and local seeds. Of those who use local seed (including the one who only used local seed), only 5 (28%) said it was because they could not afford to buy all hybrid seed. Most of those using a combination of hybrid and local seeds did so because of the positive attributes of local seed. They cited better taste, higher resistance to drought and better storability of maize from local

seed. Many also said they planted both hybrid and local seeds as a general strategy to reduce risk.

The use of fertilizer was also almost universal among the advanced farmers surveyed (98%). However, more people complained about its expense. One farmer said he could not use fertilizer at all, and 11 more said they used less than the recommended amount, because it is too expensive.

Tractor use was found to be very high among advanced farmers. 25% of the farmers owned tractors (though a third of this group said their tractors were broken down), and 74% of the farmers (including a few who also own a tractor) hire tractors for one or more tasks during the year. In total, 87.1% of the advanced farmers use a tractor either hired or owned for all or part of their ploughing. Despite these high numbers, 10% of the farmers said they were either sometimes or always unable to hire a tractor because none were available for hire in their area. The major source of complaint over hired tractors, however, was the often long wait between the time the tractor is wanted and the time it actually comes. 40% of the farmers hiring tractors said that the tractor comes from two weeks to a month or more after the time they want to plough.

Though problems were reported in obtaining inputs, the problems do not seem to have prevented most farmers from using them. All but one advanced farmer uses hybrid seeds and similarly only one farmer does not use fertilizer. 87% of the farmers surveyed own or hire a tractor. However, some of the problems described in the survey may limit the use of these inputs or reduce their effectiveness. 26% (12) of the farmers said that they could not afford to buy as much fertilizer as is recommended for their fields and the same number of farmers said they had insufficient funds to buy as much hybrid seed as they would like. Four farmers (9%) said the same about hiring tractors. Overall, one third (16) of the advanced farmers said that being short of cash limited their use of one or more of these inputs.

Besides being unable to afford enough inputs, not being able to get them when they are needed is also a serious problem for some farmers. Six farmers (13%) complained that inputs do not arrive at the RDA shed until too late while 10 farmers (21%) said that the tractors they hire come too late.

3.3 Labour

This research turned up numerous indications that labour may be a constraint for many advanced farmers at critical times during the cropping season. Some of these indicators have

already been discussed in relation to tribute labour in Section 2.4 above.

A broad picture can be obtained by looking at the homestead labour force in relation to the land holding of the homestead. Homestead labour was defined as the number of people, 15 years or older who either reside at the homestead or are employed away from the homestead but return to help with the ploughing, planting, weeding, and harvesting. The number of homestead members available for labour averaged 6.3 people and ranged from 2 to 19. 77% of the homesteads had a labour force of 7 members or less.

By dividing the number of homestead workers by the total field area of the homestead, the number of workers per hectare was obtained. There was very wide variation in homestead workers per hectare among the advanced farmers as can be seen in Table 3.1.

TABLE 3.1

HOMESTEAD WORKERS PER HECTARE

HOMESTEAD WORKERS PER HECTARE	NUMBER OF HOMESTEADS	%	CUM %
LESS THAN .5	8	17.4%	17.4%
≥ .5 BUT <1	9	19.6%	37.0%
≥ 1 BUT <2	20	43.5%	80.5%
≥ 2 BUT <5	7	15.2%	95.7%
5 OR MORE	2	4.3%	100.0%
TOTAL	46	100.0%	--

The average number of homestead workers per hectare was 1.57 but a majority of the farmers had less than that. Some of the variation is explained by the ecological zone of the homestead. Since holdings are on average 3 to 4 times as large in the lowveld than elsewhere, the labour available per hectare in the lowveld should be much less than average. Seven out of eight homesteads having less than .5 homestead workers per hectare were in the lowveld and there were no lowveld homesteads with more than 1.7 workers per hectare. As would be expected, homestead workers per hectare was highly correlated with other indicators of a homestead labour shortage.

As mentioned in Section 2.4, inviting lilima or hiring labour was taken as a sign that there was insufficient homestead labour at the times the additional labour was sought. There were 32 farmers, 68.1% of the sample, who hired labour. Nine farmers (19.1%) invited lilima but only two did not also hire labour. Thus, 72.3% (34) of the farmers augmented their own homestead labour with outside labour. Table 3.2 displays the very strong

correlation between hiring labour and low levels of homestead labour per hectare.

TABLE 3.2

RELATIONSHIP BETWEEN HIRING LABOUR AND HOMESTEAD WORKERS PER HECTARE

FREQUENCY ROW % COLUMN %	HOMESTEAD WORKERS PER HECTARE					ROW TOTALS
	< 5	≥ 5 & < 1	≥ 1 & < 2	≥ 2 & < 5	≥ 5	
HIRE LABOUR	8 100.0%	9 100.0%	11 55.0%	3 42.9%	0 0.0%	31 67.4%
DO NOT HIRE LABOUR	0 0.0%	0 0.0%	9 45.0%	4 57.1%	2 100.0%	15 32.6%
COLUMN TOTALS	8 17.4%	9 19.6%	20 43.5%	7 15.2%	2 4.3%	

While all of the 17 farmers who have less than one unit of labour per hectare hire additional labour, only 55% of those with between one and two homestead workers per hectare and 43% of those with between two and five homestead workers hire labour. Finally neither of the two homesteads with more than five workers per hectare hired labour.

Although hiring labour or inviting lilima indicates the existence of a homestead labour constraint, after having obtained outside labour, the homestead may have overcome that constraint. The relevant question is how many homesteads are short of labour even after having hired workers or invited lilima?

There were 21 farmers, 45% of the total, who said there were times during the year when they didn't have enough labour to do all the farm work. 18 of these hired labour and/or invited lilima. With hired labour there were two kinds of constraints: no money or no workers. Ten of the farmers who hired labour but still didn't have enough, said that they didn't have the money to hire any more workers than they already did. The other 8 said they would like to hire more workers but that there were just no more to be found. One farmer claimed to travel all over the country looking for additional labour, but that he could find few willing to work. This is somewhat surprising considering the

high unemployment rate in Swaziland and the small number of workers the farmers hire (91% of those hiring labour hired 10 workers or less).

Lilima is a traditional alternative to hiring labour. Rather than paying wages, a farmer could invite his neighbors to come work in his fields in exchange for home brewed beer, sometimes food and a good deal of socializing. But judging from the responses of the advanced farmers, lilima may not be what it used to be. Many farmers complained that people who come for lilima do little work and poor work at that. Worse, they sometimes do damage to the crops. One farmer said:

"Lilima spoiled my work. When they weeded, they also uplified the maize plants, so I stopped inviting them."

Other farmers reported that lilima is no longer practiced in their areas or if lilima is invited few or no people come. Finally, people in the rural areas may be becoming less willing to put in a day of work for just the chance to meet with friends and drink home brewed beer. Some of the advanced farmers said they couldn't afford to invite lilima because people who come expect to be paid wages as well as be provided food and beer. Therefore, lilima may no longer be an institution farmers can rely on to relieve seasonal shortages of homestead labour.

In summary, it can be said that some, but not all, advanced farmers face a labour constraint in their farming. Although over two thirds of the farmers interviewed had insufficient homestead labour for weeding and/or harvesting, many of these were able to overcome that constraint through hiring labour or inviting lilima. However, over half of this group said they were unable to get enough outside labour at the critical times. 11 farmers said they lacked the money to do so, while eight said they were unable to find any more people willing to work. There was also a small group of three farmers who said they were short of labour but neither hired workers nor invited lilima. All three said they were prevented from doing so by lack of money.

SUMMARY AND CONCLUSIONS:

Through the Advanced Farmer Survey a number of potential tenure-related constraints to commercial agriculture have been investigated. Some of these have been found to be little or no constraint at all. These include:

- Subdivision and fragmentation of holdings
- The inability to acquire additional land, including the inability to borrow land
- The inability to use land as collateral for credit
- Chief and community opposition to fencing
- Having to plough the chief's land before your own

Other potential constraints were found to be real constraints of varying degrees of seriousness. In many cases, though, it is difficult to say how serious a constraint they are. These include:

- Chief and community disapproval of commercial farming and visible success combined with the threat of banishment
- Late removal of cattle from fields in the Spring
- Tribute labour

In addition, non-tenure related constraints such as transportation, marketing, access to inputs and labour were examined. It had been expected that marketing problems and especially low producer prices would be found to be major impediments to increased commercial production. However, very few advanced farmers seemed to feel these were a problem for them. Instead, problems in obtaining transport, inputs and labour were often cited as serious non-tenure related constraints.

4.1 Some Non-binding Constraints

Subdivisions of holdings was found to take place on Swazi Nation Land but, at least for advanced farmers and their descendants, it has not resulted in average field size or total holding size smaller than those of non-subdivided homesteads.

About half of the advanced farmers had at least one field located over 500 metres away from the homestead and thus defined as fragmented. One in five advanced farmers, 40% of those with fragmented fields said that the distance to their fields cost them time and money, as well as make it difficult to watch over them properly. However, there were many causes of fragmentation and most had nothing to do with the usual conception of fragmentation as a problem. Less than a third of the cases of fragmentation were caused by farmers needing additional land but

only being able to find it far away from the homestead. None of the cases of fragmentation resulted from subdivision.

A shortage of land did not seem to be a problem for most advanced farmers. Only six farmers said that they had ever tried and failed to get more land and all of these were farmers who had succeeded in obtaining additional land at other times. Forty percent of the advanced farmers reported they had sought and obtained land in addition to their initial inheritance or allocation and most of these had done so by asking the chief or borrowing.

Borrowing was found to be a common method of obtaining additional land. Forty three percent of the advanced farmers borrow land and/or used to borrow land. Despite the potential for disputes at the time the land is reclaimed, none of the advanced farmers who loan or used to loan out land reported any problems.

The inability to use land as collateral did not seem to prevent access to credit. Three quarters of the advanced farmers do use credit, mostly for seasonal loans to buy inputs and, less frequently, for major purchases such as tractors and other farm equipment. Only one out of twelve people who had never borrowed money cited lack of collateral as the reason. Although there were seven farmers who had credit denied because of insufficient collateral, all of them had obtained other loans at other times. Finally, none of the advanced farmers said that not being able to get collateral was a problem for them although two complained about high interest rates.

The requirement that the chief's fields be ploughed before people can begin ploughing their own fields was seen as a potentially serious constraint to early ploughing and planting. However, it was found that very few chiefs still demand that their fields be ploughed first. Only three advanced farmers (6.4%) said that members of their community were not permitted to plough their fields before helping the chief plough his.

Fencing has become widespread among advanced farmers and there seems to be little or no constraint due to chief or community opposition. All but three of the advanced farmers fence all or part of their holdings and the three who do not fence cited lack of money, not community opposition as the reason. Only 6% of the advanced farmers thought their neighbours disapproved of fencing and none felt that their chief disapproved. Of the farmers who used their fences to restrict the movement of their neighbours cattle through their fields during the winter (denying the "Right to Stover"), only two (16%) felt that their neighbours did not like it. Finally, though advanced farmers overwhelmingly believe that their community as a whole does not oppose fencing, almost a third experience problems with having fences cut. Apparently, even pro-fencing communities have some members who do not like it.

4.2 Fencing and Cattle

The findings regarding fencing and cattle involve a paradox. Farmers wishing to depart from the traditional schedule for ploughing and harvesting by ploughing early, growing long maturing varieties, or irrigating and winter cropping, face the problem of cattle destroying their crops during the time when their neighbours' fields stand idle and cattle are allowed to roam freely throughout the fields. Fencing is supposed to be a solution to this problem. A fence should protect the fields of a farmer who grows crops during the winter, or ploughs and plants before the chief announces that the cattle should be removed from the fields.

An unexpected result of the survey was that late removal of cattle from fields in the Spring was felt to be a constraint to early ploughing despite the widespread use of fencing among the advanced farmers. All but three of the advanced farmers fence all or part of their land holdings. Yet in the areas in which the chief determines the date cattle are to be removed from the fields, 88% of the advanced farmers said they would have ploughed earlier if the chief had set the date earlier.

Fencing has not provided the expected degree of independence from the traditional calendar of ploughing, harvesting, and releasing the cattle into the fields. Two farmers who complained about cattle being released into the fields before they were ready both have fences around all of their fields. Many of the farmers who claimed they would plough earlier if the chief set the removal date earlier have all or most of their fields fenced. Why can't they plough when they want to?

Data on the incidence of cattle damage to crops suggests that fencing is not a complete substitute for the supervision of cattle and other forms of control. 77% of all advanced farmers reported crop damage from cattle but the incidence of crop damage was no less for farmers who had fenced all their fields. Fencing is, therefore, not a panacea. It does not seem to give farmers as much control over their production decisions as would be expected. Many farmers with most or all of their fields fenced still feel constrained not to plough and plant before cattle have been removed from cultivated areas.

4.3 Land, Labour and Banishment

Another unexpected result of the survey was that many advanced farmers are constrained by labour but do not seem to have a land constraint. Prior research has concluded that having insufficient land is a major constraint for farmers wishing to farm commercially on SNL while labour is not a constraint. In his analysis of agricultural commercialization in Swaziland, Testerink states that, ". . . comparing the resource bases of the farms, we can conclude that the main bottleneck is land. . . Labour is abundantly available [though] more so with non-commercial farmers than commercial farmers." [1984 p.28]. In The Swaziland Rural Homestead, De Vletter reports that, "for the highest crop income earners, labour did not appear as an important constraint. Instead, marketing emerged as a serious problem in addition to land shortage and lack of water." [1986, p.33]. Funnel, [1982] also argues that land rather than labour is the constraining factor for maize.

Just the opposite seems to be the case for the advanced farmers. The advanced farmers, even including the non-commercial farmers, have over twice as much land as Testerink's group of commercial farmers. While just over half of Testerink's commercial farmers have access to more than two hectares, only two (4.5%) of the advanced farmers have less than two hectares and both of these are non-commercial farmers. Over a third of the advanced farmers have over five hectares. Another indication of the lack of a land constraint among advanced farmers is that 36.2% (17) of them have land that has been left fallow for at least two years. This is not to say that none of the advanced farmers want more land. However, as reported in Section 2.1, many seem to have no trouble getting additional land by either asking the chief or borrowing.

TABLE 4.1

LAND HOLDINGS COMPARED

	ADVANCED FARMERS	COMMERCIAL*	AVERAGE RURAL RESIDENTS
AVERAGE LAND HOLDING	6.5 HA.	3.0 HA.	1.5 HA.*
% WITH LESS THAN .5 HA.	0%	1.7%	26.5%†
% WITH LESS THAN 2 HA.	4.5%	43.1%	-
% WITH OVER 5 HA.	34.8%	12.1%	-

* Testerink, 1984

† Annual Sample Census of Agriculture, 1971

At the same time, advanced farmers have fewer homestead workers per hectare as the commercial farmers in Testerink's

sample as revealed in Table 4.2. The disparity is even greater if non-residents of advanced farmer homesteads who return to work in the fields are excluded, as they are in Testerink's sample.

The constraint imposed by tribute labour can be understood in light of the above. Since most rural homesteads have a surplus of labour, tribute labour is no burden. Even for many homesteads which meet Testerink's definition of commercialization, labour, though less abundant, still seems to be plentiful enough that several workers can be sent to help the chief or king without much impact on homestead agricultural production. Therefore, for the community as a whole, tribute

TABLE 4.2
HOMESTEAD LABOUR UNITS PER HECTARE

LABOUR UNITS PER HECTARE	ADVANCED FARMERS		COMMERCIAL FARMERS*	
	%	CUM %	%	CUM %
LESS THAN .5	17.4%	17.4%	8.8%	8.8%
≥.5 BUT <1	19.6%	37.0%	21.1%	29.9%
≥ 1 BUT <2	43.5%	80.5%	36.8%	66.7%
MORE THAN 2	19.5%	100.0%	33.3%	100.0%

*Testerink, 1984

labour is a traditional institution with little cost in terms of foregone agricultural production which helps maintain cultural values and social relationships. However, for that small minority of serious commercial farmers represented by many of the advanced farmers, tribute labour can impose a constraint on how much they can produce. These farmers are likely to have expanded their land holdings in order to increase production and no longer have a surplus of labour from which they can donate several workers without affecting their own farm work. Though not a problem for every advanced farmer, a majority of the advanced farmers had insufficient homestead labour at critical times during the cropping season. 68% of the advanced farmers augmented their own homestead labour with hired labour and over half of this group said they were still unable to get enough outside labour for weeding and/or harvesting. Farmers who admitted that their work was delayed by tribute labour were those already facing a labour constraint. This can be seen by the fact that 94% of those who said tribute labour delayed their work also hired labour.

The costs imposed on advanced farmers by tribute labour may be less than the costs farmers would face if they did not participate in sending labour to the chief or king. Evidence was found in the survey that the threat of banishment may be a matter of concern for some advanced farmers in some areas. Out of the 47 farmers surveyed, one knew of a case in which a man was banished because the chief and others were envious of his success. Several other cases of banishment were reported that may also have involved jealousy of a person's property or disapproval of his farming practices but insufficient detail was gathered to determine the precise reason for the banishment. It was concluded that some advanced farmers may risk banishment, though it is very infrequent, and/or community disapproval to the extent that their style of farming and level of prosperity differ from that of their neighbours. An advanced farmer who does not send labour when he is called may find himself even more isolated from the rest of the community. It may add to the impression of his neighbours that he thinks of himself as being above them or as being an equal to the chief. Contributing his fair share of labour and gifts of produce to the chief may help the advanced farmer maintain good relations within his community.

Tribute labour may not be resented as an unjust burden by advanced farmers because it is seen as a normal part of life. It did not seem to be perceived as a major problem by most of the farmers surveyed. Though some did admit, when asked, that tribute labour did delay their work, many were quick to add, "but that is our custom," or "that is just the way of things."

4.4 Marketing and Access to Inputs

Many researchers have concluded that problems related to marketing, especially low producer prices, are the most serious constraint to commercial agriculture. The advanced farmers were found to have some problems with marketing but low producer prices were not one of them. Only one farmer complained that the price he received for his crops was too low and that was because he felt they were given too low a grade.

The most common marketing problem concerned transport. Half of the farmers who sell their crops said they had problems with transporting their crops to market. Some complained that hiring transport is too expensive while others said they didn't like being dependent on hired transport, mostly because it didn't come right when it was wanted. This latter problem was most critical for two vegetable farmers who reported that sometimes their produce spoiled before they could get it to market.

One result consistent with past research is that most maize, legume and vegetable sellers, sell their produce locally. Less than a third of the commercial maize farmers sell to the Swaziland Milling Company. About 10% of those who sell at home

or at local markets complained that the local markets are small and unreliable and that they are not always able to sell all their produce before it spoils. In addition, three of the vegetable sellers (13%) said they didn't know of a good place to sell their produce. Overall, marketing was much less of a constraint for advanced farmers than expected. Most reported no problems and those who did were primarily concerned with transportation.

Obtaining inputs posed difficulties for a majority of the advanced farmers. 64% reported some sort of problem in obtaining seed, fertilizer, insecticides and/or farm equipment. Half of these farmers' problems stemmed from not having enough money to buy the inputs, but over half the complaints dealt with the difficulty of getting the inputs, the distances that must be travelled or the fact that they don't arrive at the shed until too late.

The delay involved in hiring a tractor was also a major source of complaint. About three quarters of the advanced farmers hire a tractor to plough. 40% of these report they must wait from two weeks up to a month or more from the time they wanted their fields ploughed.

The problems in obtaining inputs do not seem to have prevented most farmers from using them. All but one advanced farmer uses hybrid seeds and similarly, only one farmer does not use fertilizer. However, the problems cited by many of the farmers can limit the use of these inputs and reduce their effectiveness. Over a quarter of the farmers said they couldn't afford to buy the recommended amount of fertilizer or buy as much hybrid seed as they wanted. Other farmers said they depended on the RDA shed for their inputs and were often seriously delayed because seed and fertilizer do not arrive at the shed until too late, if at all.

APPENDIX A

THE ADVANCED FARMER SCHEME

The Advanced Farmer Scheme, formally known as the Pupil / Advanced / Master Farmer Scheme was begun in Swaziland in 1961. It was modeled after similar projects reported to be successful in Botswana and Lesotho. As outlined in a review of the Advanced Farmer Scheme by former Chief Agricultural Officer G. Munyua Maina [1974 p. 10], the stated goals of the Advanced Farmer Scheme were the:

- 1) Achievement of national self-sufficiency in food supply.
- 2) Commercialization of agriculture in the Swazi (African) sector.
- 3) Stepping up of production of cash crops such as cotton and tobacco.
- 4) Improvement of the general standard of living in the rural areas.
- 5) Increasing of national wealth.

In addition to these, the scheme had other related goals which can be found in various Ministry documents written during the time of the scheme. One of the major motivations behind the Advanced Farmer Scheme, articulated in a Ministry discussion paper on master farmers, was to counter rural-urban migration in Swaziland and the resultant urban unemployment. It said, in part:

"Many Swazis now aspire to jobs in industry and the government but opportunities are limited and most people must perforce remain on the land. The creation of a group of master farmers, proud of their status as full time farmers and showing that a good living can be made from farming could do much to remove the erroneous impression that farming is somehow a second class occupation. Good farmers have a very important place in the development of Swaziland and one of the aims of the Ministry must be to demonstrate (through successful master farmers) that farming can be a very attractive and worthwhile occupation." [Richardson, 1971]

The Advanced Farmer Scheme was originally aimed at a minority of Swazi farmers, i.e., those who were or intended to become full time commercial farmers. It was hoped that the scheme would grow and expand as the first advanced farmers served as opinion leaders and good examples for the majority of farmers. According to Maina, "the implicit objective of starting the scheme was...to establish a farmers 'club' whose style of farming and standard of living was above average and which, it was thought, would make other non-progressive farmers wish to join the 'club'." Another objective reported in the 1966 MOAC annual report was "...to build up a record of the genuine full time Swazi farmers who earn their living from the land and to

enable extension staff to give these farmers special and individual attention and assistance."

These last objectives reflected a definite and perhaps controversial extension philosophy. At that time, Swaziland's extension resources were spread even more thinly than they are now. It was therefore thought necessary to concentrate extension effort on a particular subset of Swazi homesteads. But which group? One approach would have been to target extension advice to those who seemed to need it most: the poorest farmers using the worst techniques who had the most room for improvement. The opposite approach (and the one adopted by the Advanced Farmer Scheme) was to aim extension advice at those farmers who would be most receptive to adopting it. These would be the farmers who have already committed themselves to improving their farming and perhaps becoming commercial farmers. Here it was thought, extension would have the greatest effect in helping achieve the goals of increasing national agricultural output and attaining self-sufficiency. The problem was that these farmers may already have been the wealthiest people in the community so it may have appeared that the Advanced Farmer Scheme was helping the (relatively) rich get richer and ignoring the poorest farmers. In fact, this seems to be the major reason the scheme was abandoned in 1972. It was thought by some policy makers that the Advanced Farmer Scheme was promoting an elite group. Consequently, all efforts were channeled into the Rural Development Areas Program which was in its ascendancy at that time.

The primary activities of the Advanced Farmer Scheme were to qualify farmers for membership, to make sure members were receiving extension advice, and to promote their attendance at short courses on agricultural subjects. To join the Advanced Farmer Scheme, farmers were supposed to meet certain standards. In the early years of the scheme, the requirements were only laid out in general terms but by 1969, a revised set of standards had been codified. By this time, the name of the scheme had been changed. The original term, "Progressive" Farmer had been changed to "Advanced" Farmer and a new apprentice category was added, the "Pupil" Farmers. The requirements for membership were as follows [Maina pp.12-14]:

Pupil Farmers

- 1) Any farmer with whom the field extension officer works and who is prepared to take advice.
- 2) The farmer should preferably be a member of a Farmers' Association if any exist in his area.

Advanced Farmers

- 1) The farmer should continue to cooperate with extension staff and be willing to accept departmental recommendations.
- 2) He should be conversant and apply most (if not all) of the recommendations applicable in his area covering crop production and livestock husbandry.
- 3) He should adequately be equipped to pursue his particular branch of farming.
- 4) He should earn a good living from his farming operations, something of the order of R300 gross income per annum, and except under unfavorable circumstances, he should be able to realize profit per given unit.
- 5) To be able to see whether or not he is making a profit the farmer must keep simple farm records, even if this only consists of a notebook showing his inputs, dates of operations and yields.
- 6) Where a Farmers' Association exists, an advanced farmer should be a member of this body and take active interest in its affairs.
- 7) Where possible the farmer should have a vegetable garden having as many varieties as possible including some fruit trees either in the garden or in the homestead.
- 8) An advanced farmer should have a reasonably decent homestead which he should always strive to improve.

Upon becoming an advanced farmer, a farmer received a badge and certificate to that effect. (The Advanced Farmer Scheme never reached the stage of graduating advanced farmers to master farmer status because the scheme was abandoned before the requirements for becoming a master farmer had gotten beyond the discussion stage.) Besides receiving the recognition that came with the badge and certificate, advanced farmers also were given specific extension messages and the opportunity to attend short courses on agricultural subjects. According to David Dlamini, Senior Extension Officer for Manzini District, the extension messages emphasized during the Advanced Farmer Scheme were:

- Suitability of crops for a particular area
- Encouraging winter ploughing
- Encouraging early ploughing and planting
- Switching from broadcasting to the use of planters to plant in rows
- Encouraging timely weeding
- Late in the scheme, methods of crop storage were taught

Classes were held during the winter, so as to not compete with a farmers time, at the farming training centers in three out of the four administrative districts. Each session of classes would last up to a week. Several different sets of classes covering different topics were held each season. Many of the topics covered would be area-specific, for example, classes on tobacco growing held in Nhlanguano or on cotton pesticides in the lowveld. The plan called for the farmers to be picked up by a MOAC bus and be brought to the training center where they were to receive room and board for the duration of the course. A fee of about 50 cents a day was usually charged. There were sometimes problems, though. Several MOAC annual reports during the period of the scheme make reference to some districts having much trouble providing the necessary transport to the frustration of both instructors and participants.

Records of the specific content of the courses have been difficult to find. However, the advanced farmers contacted in this survey remember quite well the subjects of the courses they took. The most common courses reported were maize cultivation, cotton cultivation, fertilizer use, spraying cotton and raising dairy cows.

It was realized from the start of the Advanced Farmer Scheme that elitism and the appearance of elitism must be avoided if the scheme were to survive. To this end, the scheme was designed to consist of education only. It did not involve the provision of improved inputs at low or zero cost such as in the Rural Development Areas Program. However, one of the explicit requirements of the Advanced Farmer Scheme was that farmers in the scheme join the local farmers' association which was supposed to improve a farmer's access to inputs. Still, membership in the associations, enrollment in the farmer training classes, extension advice and membership in the Advanced Farmer Scheme were open to all farmers. Anybody who wanted to could join the Advanced Farmer Scheme as a pupil farmer. What the scheme did was identify those farmers with the interest to do so. Even so, the eventual demise of the Advanced Farmer Scheme was mostly due to the appearance of favoring some people over others which the scheme was unable to avoid.

Over the course of the Advanced Farmer Scheme, the number of farmers involved as pupil farmers grew from 271 in 1962 to 10 times that number 10 years later. By the end of the scheme, there were 919 advanced farmers. The enrollment statistics appear below.

TABLE A.1

ENROLLMENT OF PUPIL AND ADVANCED FARMERS, 1962-1972

YEARS	PUPIL FARMERS	ADVANCED FARMERS
1962	271	-
1963	435	64
1964	590	85
1965	761	119
1966	982	144
1967	1735	566
1968	2214	606
1969	2214	745
1970	2785	745
1971	2629	877
1972	2700	919

SOURCE: MAINA 1974, P.17.

To evaluate the success or failure of the Advanced Farmer Scheme, it may be best not to assess whether it achieved its five stated goals. These goals were either too general or unrealistic to be used as measures of the scheme's performance. For example, national self-sufficiency in food supply had not been achieved by the end of the scheme nor has it been even now. Does that mean the scheme was a failure? Assuming that there has been an increase in commercialization of Swazi agriculture or an improvement of the general standard of living in the rural areas, did the Advanced Farmer Scheme have anything to do with it? If so, how much? There is no way to tell.

A better, though more modest approach, is to see whether the scheme accomplished the specific tasks it set out to do. These were to make extension advice and farmer training courses available to the participants so as to encourage the adoption of certain recommended practices. Data obtained during the Advanced Farmer Survey makes possible an evaluation of the scheme's performance in these areas.

Thirty five farmers in the survey were asked about their experience in the Advanced Farmer Scheme. These questions were not asked at the eleven homesteads in which the original advanced farmer had died or the one homestead in which the advanced farmer was still alive but working in South Africa.

Overall, most of the advanced farmers had a positive opinion of the Advanced Farmer Scheme. 91.4% (32) of them said that the scheme had helped them in their farming. Three of them said it was no help. When asked how they were helped by the scheme,

about half of the farmers gave examples of the good advice they had gotten, such as the importance of fertilizer and how to use it. The Advanced Farmer Scheme was also credited by half of the farmers with helping them succeed in farming and selling crops. It became clear during the interviews that farmers have seen many schemes come and go over the years and that it is easy to get them all confused. One fifth of the farmers who said they were helped by the scheme cited benefits which were not a part of the Advanced Farmer Scheme, such as receiving free seed or being loaned money.

One of the ways the scheme was supposed to help the participants was to see that they received frequent attention and advice from the extension workers. In fact, 68.6% (24) of the advanced farmers said the extension worker did visit them more often after they joined the scheme. 23% said they didn't and 8.6% couldn't remember.

The advanced farmers in the survey were asked not only if they were visited more often by the extension worker but also about the frequency of those visits. Table A.2 displays the frequency of contact with extension workers by advanced farmers at the time of the scheme, the number of times per year the advanced farmers currently see their extension worker, and for comparison, the amount of contact all Swazi rural homesteads have with the extension workers as reported in the 1983-84 Swaziland Census of Agriculture.

TABLE A.2

FREQUENCY OF EXTENSION VISITS PER YEAR

	DURING THE SCHEME		CURRENTLY		AG CENSUS
	FREQUENCY	%	FREQUENCY	%	%
6 OR MORE TIMES	23	65.7%	12	25.5%	5.2%
3 TO 5 TIMES	4	11.4%	7	14.9%	4.5%
1 TO 2 TIMES	5	14.3%	3	6.4%	11.1%
NEVER SEE HIM	1	2.9%	25	53.2%	79.2%
DON'T KNOW	2	5.7%	0	0.0%	0.0%
TOTAL	35	100.0%	47	100.0%	100.0%

It would seem that advanced farmers see much less of their extension workers today than they did at the time of the advanced farmer Scheme. Whereas 65.7% of the advanced farmers said they saw their extension worker 6 or more times a year during the scheme, only 25.5% see them that often now. Only one advanced farmer reported that he was never visited by the extension worker when he joined the scheme. Now 53.2%, over half of the advanced farmers say they never see the extension worker. Despite the

drastic reduction in the amount of contact advanced farmers have with the extension service, they are still receiving much more attention than the average Swazi rural homestead as can be seen in the last column of the table. According to the Census of Agriculture, 79.2% of the rural population have no contact with agricultural extension. It appears that the Advanced Farmer Scheme did succeed in getting extension workers out to its members. Although that service has dropped off drastically since the scheme ended, advanced farmers still receive, on average, more attention from the extension service than their neighbors.

Data from the survey also shows that the Advanced Farmer Scheme succeeded at getting the participants to attend short courses on agricultural subjects. 80% (28) of the advanced farmers said that they had attended farmer training courses during the scheme and most of these went to at least two or three different sessions. As mentioned above, the most commonly topics covered in the courses as reported by the advanced farmers were maize cultivation, cotton cultivation, proper measurement and use of fertilizer and other inputs, cotton spraying and raising dairy cows.

The more important question to be addressed is whether all this effort to make extension advice and training courses available to the advanced farmers paid off in terms of getting them to adopt the agricultural practices recommended. Those practices include winter ploughing, early ploughing and planting, use of planters and timely weeding. The suitability of crops for particular areas and methods of crop storage were also taught during the scheme. The extent that some of these practices have been adopted by the advanced farmers can be gleaned from the results of the survey.

Stressing the importance of winter ploughing was an important part of the Advanced Farmer Scheme and now 15 years later, over half of the advanced farmers say that they do winter plough. 44.7% (21) said that they always winter plough and an additional 19.1% (9) said that they winter plough in years in which there is some rain during the winter. Two thirds of those who winter plough, do so in June or July while the other third of the farmers plough earlier in April or May. When asked why they winter plough, all 30 of the farmers shot back the textbook answer, "Turning stover over improves the soil and helps it retain moisture during the winter." Two of the farmers added that it also makes it easier for the oxen to plough in the Spring.

On closer questioning, it was discovered that 60% (20) of the farmers who winter plough do not plough all their fields. The most common reasons given were lacking the money to hire a tractor for the entire job and not having enough time. Only two farmers said that they purposely left some of their fields unploughed so that their cattle could feed on the stover.

The reasons for not winter ploughing all of one's fields were very similar to those given by the 17 farmers who do no winter ploughing. About half of these farmers said they didn't winter plough because either it was too much work or they didn't want to spend the money to hire a tractor. Three more farmers said they wanted to keep the stover in the field for their cattle and two said their chief was against the practice.

Before embarking on the survey, this researcher had been led to believe that winter ploughing is a very uncommon activity on Swazi Nation Land. If this is so, then the Advanced Farmer Scheme has had a tremendous impact on its participants in the area of winter ploughing, assuming that they were not more inclined to winter plough than their neighbors before they joined the scheme. 64% of the advanced farmers now do some winter ploughing of their fields. However, the definitive answer will have to await the completion of the Traditional Sector Survey which at the time of this writing is still in progress. By comparing the frequency of winter ploughing found in the two surveys, it will be possible to document the extent, if any, to which advanced farmers winter plough more than the average rural homestead.

Ploughing and planting early were also strongly encouraged during the Advanced Farmer Scheme. This does not mean that farmers were advised to plant on a specific date but rather to plant as soon as possible given sufficient rain. There is evidence from the survey data that many of the 43 advanced farmers who grow maize have taken the idea of planting early to heart. Despite the extreme lateness of the rains in the 1986-87 cropping season, 30.2% (13) of the advanced farmers ploughed and planted during the month of September or October. In some cases, these farmers planted before they felt there had been enough rain in the hope that the rains would come shortly. They usually lost this gamble and sometimes had to replant later in the season.

The majority of farmers, those who waited until November, December, and/or a few cases, January, to plant can be divided into two groups. One group was anxious to plant as soon as possible and so, ploughed and prepared the soil for planting early so that when the rains finally did come they could plant immediately. The other group was in less of a hurry and so did not even begin to plough until they felt there had been sufficient rain. 32.5% (14) of the farmers fell into the first group who ploughed in September or October and then waited until the rains came to plant.

One must be cautious about the conclusions that can be drawn from this data about farmer intentions to plant early. During the survey farmers often had difficulty reporting the time of ploughing and planting except in vague and general terms. Therefore, there is bound to be a significant amount of error in the "month of ploughing" and "month of planting" variables. Still with that caveat in mind, it appears that 62.8% (27) of the

advanced farmers have adopted the practice of planting their maize as early as possible.

Two of the requirements of becoming an advanced farmer were to join the local Farmers' Association or Cooperative and to keep simple farm records. The first requirement was met by most advanced farmers. 91.5% (43) of the advanced farmers surveyed said they joined the Farmers' Association or Cooperative although 9 of them are no longer members, often because the cooperative itself has dissolved. The scheme was not as successful in getting the advanced farmers to keep records showing inputs and expenses, dates of operations, and yields. Over three quarters (36) of the advanced farmers said they do not keep any farming records at all. One particularly unhappy cotton farmer suffering from ill health and drought explained, "I don't keep records since I'll feel sorry about the money that is wasted."

The last practice recommended during the Advanced Farmer Scheme about which the survey gathered some information is the use of mechanical planters rather than planting by hand. However, the data on this point is very incomplete. 60% (23) of the advanced farmers own planters. This should be considered a minimum figure for planter use because it is probable that other farmers borrow planters.

It would appear that the Advanced Farmer Scheme was, for the most part, successful at achieving its specific objectives. Most of the participants in the scheme did receive frequent visits from the extension service and did attend one or more farmer training courses. Furthermore, to the extent that it can be ascertained, the advanced farmers did adopt many of the recommendations promoted during the scheme, and they are still practicing them.

This judgment regarding the positive performance of the scheme should be tempered with the knowledge that many of those who became advanced farmers were probably a different class of farmer before they joined the scheme. Therefore, it is not suggested that all of the differences in wealth and farming practices observed between advanced farmers and the average rural homestead be attributed to their participation in the scheme. However, it can safely be assumed that some of these differences are due to the scheme. Some of the farmers specifically credited the Advanced Farmer Scheme for getting them to make improvements in their farming practices.

APPENDIX B

COMMERCIAL FARMERS DEFINED

One of the primary goals of the Advanced Farmer Scheme was to encourage commercial farming on Swazi Nation Land. Those who joined the scheme and graduated to advanced farmers status were presumably already involved to some extent in commercial farming or, at least, interested in doing so. By documenting the experience of these farmers over the 15 years since the scheme ended as well as their present status, it was thought that a better understanding could be gained of the constraints facing commercial farmers on SNL.

It was assumed in the design of this research that advanced farmers were more involved in commercial agriculture than the average rural homestead in Swaziland. Now that the survey has been completed, it is possible to determine whether that assumption was justified.

There are many ways commercial farming can be defined. Definitions can be based on farm size, the proportion of income derived from farming, whether certain non-food cash crops are grown, cash income from sale of agricultural goods, the proportion of food crops produced as a surplus compared to the quantity consumed or even the intention of growing crops for the market. One definition of commercial farming given by Hinderink and Sterkenburg [1980] (as quoted in Testerink [1984]) emphasizes intent:

"Agricultural commercialization involves a deliberate action on the part of the agricultural producers - of their own free will or by means of coercion - to use the land, labour, implements and annual inputs...in such a way that a greater or smaller part of the crops produced...is for exchange or sale. Incidental sales due to emergencies or accidental surpluses that are marketed should not be considered as a form of agricultural commercialization."

Both production of non-edible cash crops and surplus food crop production are considered to be commercial farming.

In his study of agricultural commercialization in Swaziland, Testerink [1984] used this concept of commercial agriculture to construct his own definition of commercial farming. Intent to farm commercially could be detected in two ways. (1) The production of non-edible cash crops was taken as a sure indication of commercial intent. (2) Secondly, the production of food crops in excess of that needed for subsistence also qualified a farmer as commercial. This second criteria involves some ambiguity because subsistence farmers will often plan to produce a surplus in normal years in order to cope with the risk of variable rainfall. Therefore, it is necessary to distinguish

between a surplus produced for the express purpose of marketing and the surplus grown to reduce the risk of a food shortfall in the event of a poor harvest. For a staple crop such as maize, Testerink chose a production goal of 200% or more of the homestead subsistence requirement as an indication that a farmer intended to sell maize commercially and that the over production was not just a buffer against adverse growing conditions. For non-staple food crops such as legumes, the observed production goal was set at 150% or more of the homestead subsistence requirements before a farmer was considered to be commercial. The specific definitions used by Testerink were as follows:

Commercial farmers must fall within one or more of the following categories:

- 1) 50% or more of his arable land, or more than 2.5 hectares under cotton.
- 2) 25% or more of his arable land, or more than 1 hectare under tobacco.
- 3) Maize output goal 200% or more of the output needed for subsistence.
- 4) Legumes output goal 150% or more of the output needed for subsistence.
- 5) Meeting two or more of the criteria for semi-commercial farming (defined below).

Testerink recognized an intermediate class of farmer who falls between the serious commercial farmer on one hand and strictly subsistence farmers on the other. These he called semi-commercial farmers.

Semi-commercial farmers fall under one of the following categories. (A farmer meeting two or more of these requirements is classified as a commercial farmer):

- 1) Grows cotton on less than 2.5 hectares which is also less than 50% of his arable land.
- 2) Grows tobacco on less than one hectare which is also less than 25% of his arable land.
- 3) Maize output goal is 125% or more but less than 200% of maize output needed for subsistence.
- 4) Legumes output goal is 125% or more but less than 150% of legume output needed for subsistence.

Non-Commercial farmers meet none of the above criteria. They grow neither cotton nor tobacco and their intended production of maize and legumes is under 125% of their subsistence requirements.

For additional explanations of and justifications for these definitions see Testerink [1984, pp. 1-5].

These definitions were applied to the sample of advanced farmers with interesting results. The survey provided the necessary data on homestead composition, and land area devoted to each crop to compute the annual homestead consumption requirements for maize and legumes and the projected maize and legume harvests. These computations were based on the area planted, ecological zone, inputs used and farming methods. The ratios of projected production to annual homestead consumption requirements are expressed in terms of percentages. (See Table B.2 at the end of this appendix.) Using these ratios plus data on the area of land devoted to cotton or tobacco, the advanced farmers were classified as commercial, semi-commercial or non-commercial based on Testerink's definitions.

The numbers of advanced farmers that fall into each category are very different than in Testerink's survey which was conducted on a random sample of homesteads on SNL from enumeration areas selected through a spatial cluster sampling process. As can be seen from Table B.1, the bulk of rural Swazi homesteads (65.5%) as measured in the Testerink survey are non-commercial farmers. Only 18.4% are commercial farmers with the remaining 16.1% falling under the semi-commercial classification. In contrast, only 10.9% of the advanced farmers are non-commercial. Commercial farmers make up 69.6% of the sample population while semi-commercial farming is practiced by 19.8% of the advanced farmers.

TABLE B.1

NUMBER AND PERCENTAGE OF HOMESTEADS (HOUSEHOLDS*)
IN EACH CATEGORY OF COMMERCIALIZATION

	(1)				(2)	
	HOUSEHOLDS (RANDOM SAMPLE)	%	ADVANCED FARMERS	%	ADVANCED FARMERS	%
NON-COMMERCIAL	414	65.5	5	10.9	11	23.4
SEMI-COMMERCIAL	102	16.1	9	19.5	8	17.0
COMMERCIAL	116	18.4	32	69.6	28	59.6
TOTAL	632	100.0	46	100.0	47	100.0

* Testerink used the household rather than the homestead as his unit of analysis. However, since most homesteads have only one household and subsistence production was estimated based on the number of household or homestead members, this should not affect the comparability of these statistics.

It appears that advanced farmers do differ from their neighbours in that they are by in large, engaged in farming on a commercial basis. The assumption made in choosing the advanced farmers to learn about commercial farming on SNL has been confirmed.

Testerink's definition of commercialization was limited by the data he was able to collect in his survey. Specifically, he had no data on farm income, actual crop production and the quantity sold, or vegetable production. These and other data related to commercial farming were gathered in the Advanced Farmer Survey. Thus we are able to refine the definition of commercial farming and evaluate the effectiveness of Testerink's definition.

One possible weakness of the original definition of commercial maize and legume farming is the reliance on the expected output of these crops based on hectares planted multiplied by average yields per hectare adjusted for different ecological zones, farming practices, and inputs. It was found in this survey that the actual production levels of maize and legumes varied widely from these expected output estimates.

Actual reported output of maize ranged anywhere from 5% to almost 3 times the "expected" output. Only 38% of the output measures were within 50% of each other. In almost half of the cases, actual production was much less than "expected" output. Finally, actual production exceeded "expected" output by a wide margin in one out of seven cases. The large disparity between the two measures of output raises some doubt about the validity of using "expected" maize output as the sole determinant of whether or not a farmer is a commercial maize producer.

In addition to reported harvests of maize and legumes, data on percent of maize harvest sold, frequency of maize sales, importance of agricultural sales as a source of income, the marketing intentions of farmers and gross sales of maize, legumes, cotton, tobacco, vegetables and fruit have been used to reclassify advanced farmers as commercial, semi-commercial or non-commercial farmers. The definition of commercial farming based on non-edible cash crops (cotton and tobacco) are the same as in the Testerink formulation.

One of the standards that were supposed to be met before a pupil farmer graduated to an advanced farmer was to make a "good" living from farming. This was defined as having gross sales of at least R300 in a good year. To apply that same standard today, an adjustment for inflation must be made. Using the Swaziland Retail Price Index for low income groups compiled by the Central Statistics Office, it was calculated that between 1969, the year the standard was defined, and June 1986, the date the sales reported in the survey were made, prices have increased by 642.1%. That means that the R300 in gross sales necessary to be considered an advanced farmer is equivalent to E1926 in 1986. Since there can be great variability in gross sales from years to year and the 1985-86 cropping season is known to have been poor for some parts of the country, the cut off point was reduced by half so that farmers making at least E963 in gross sales from all crops were considered to be commercial farmers.

It was recognized that commercial farmers having a bad year in 1966 may have had gross sales even less than E963. Four out of the 12 commercial cotton farmers had gross sales less than E963. Therefore, a combination of other factors was examined to determine the status of the farmer. Having sufficient land for commercial production, selling legumes and/or vegetables in addition to or instead of maize, whether the farmer had a surplus of maize to sell every year or most years instead of just occasionally, and lastly sale of agricultural goods as the most important source of income all contributed to a farmer being classified as commercial.

Another indication of the farmers' status was the answer to a dual question about his or her commercial intent. Each advanced farmer was asked, "Is one of your major objectives in farming to grow crops for the market each year?" A negative answer to this question from a farmer who might otherwise have made it into the semi-commercial category resulted in a non-commercial classification.

The new definition of commercialization resulted in 17 reclassifications from Testerink's definition. In twelve of these cases, farmers had been classified as commercial or semi-commercial on the basis of their "expected" maize surplus but their actual harvest was much less. Dependent upon actual production, gross sales, how often and market surplus is produced, the importance of farming as a source of income and the existence of a marketing objective, these farmers were reclassified as either semi or non-commercial farmers.

In the other 5 cases, farmers originally classified as non or semi-commercial farmers were actually commercial farmers. These were primarily farmers who specialized in vegetable production and marketing. Since Testerink was not able to collect data on vegetables, commercial vegetable farmers slipped through his definition. Some other farmers reclassified as commercial were those who produced and marketed much more maize than their "expected" output based on Testerink's formulation. These farmers used more intensive farming methods and sometimes irrigation to obtain large harvests from land seemingly too small for commercial agriculture.

The last 2 columns in Table B.1 show that using the revised definition, there are somewhat fewer commercial farmers and more non-commercial farmers among the advanced farmers. Still, about 60% are commercial farmers and over three quarters are either commercial or semi-commercial farmers.

TABLE B.2

SELECTED VARIABLES ON WHICH THE DEFINITION OF COMMERCIAL FARMING IS BASED

ID	ESTIMATED MAIZE PROD. OVER	REPORTED MAIZE HARVEST OVER	MAIZE SALES	COTTON SALES	TOBACCO SALES	VEGETABLE LEGUMES & OTHER	TOTAL GROSS SALES	HECTARES CULTIVATED	PERCENT OF MAIZE SOLD	YEARS MAIZE SOLD
	REQUIREMENT	REQUIREMENT				SALES				
1	287%	305%	E 100	E -	E -	E -	E 100	1.6	7%	ALWAYS
2	254%	N/A	-	-	-	-	0	3.3	0	NEVER
3	368%	86%	156	-	-	725	881	3.1	30%	MOST
4	641%	243%	375	-	-	2702	3077	7.7	38%	ALWAYS
5	213%	33%	100	-	-	-	100	9.2	29%	MOST
6	47%	140%	1250	4000	-	1900	7150	13.3	56%	MOST
7	205%	38%	-	-	-	-	0	4.4	0	SOME
8	155%	361%	2500	954	-	150	3604	7.8	50%	ALWAYS
9	288%	108%	300	-	80	135	515	3.4	48%	ALWAYS
10	7%	13%	-	4000	-	-	4000	11.6	0	SOME
11	16%	0	-	162	-	-	162	7.7	-	SOME
12	539%	181%	2500	9350	-	1500	13,350	46.0	45%	MOST
13	41%	24%	-	1870	-	1000	2870	8.6	0	NEVER
14	172%	119%	200	-	-	-	200	6.7	8%	MOST
15	370%	98%	120	-	70	N/A	1190	3.3	21%	MOST
16	196%	N/A	40	-	-	-	40	2.0	N/A	SOME
17	200%	N/A	200	-	-	-	200	2.0	N/A	SOME
18	118%	97%	-	-	-	-	0	2.2	0	SOME
19	132%	126%	653	972	80	-	1705	4.4	64%	MOST
20	6%	9%	-	-	-	N/A	N/A	14.7	0	SOME
21	202%	1160%	945	-	-	-	945	4.0	N/A	ALWAYS
22	155%	35%	-	-	-	N/A	N/A	3.5	0	SOME
23	72%	129%	1000	-	-	-	1000	6.9	67%	MOST
24	58%	56%	-	-	-	-	0	1.3	0	MOST
25	287%	100%	255	-	-	144	399	2.4	40%	MOST
26	87%	31%	-	-	-	-	0	.8	0	NEVER
27	216%	65%	21	-	-	-	21	3.5	4%	NEVER
28	130%	15%	-	-	-	13500	13500	3.5	0	SOME
29	260%	1181%	400	-	-	-	400	2.2	N/A	SOME
30	84%	115%	446	-	-	890	1336	1.6	47%	MOST
31	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	MOST
32	208%	809%	5400	-	-	1004	6404	3.1	62%	ALWAYS
34	50%	27%	-	3150	-	500	3650	8.0	0	SOME
35	130%	75%	-	-	-	1300	1300	2.1	0	SOME
36	210%	261%	400	-	-	-	400	2.0	29%	ALWAYS
37	46%	91%	750	255	-	125	1130	1.9	43%	ALWAYS
38	332%	467%	1150	-	-	1300	1450	2.6	50%	SOME
39	303%	149%	336	-	-	-	336	2.7	50%	SOME
40	183%	88%	480	-	-	-	480	3.7	48%	SOME

TABLE B.2 (continued)

ID	ESTIMATED	REPORTED	MAIZE SALES	COTTON SALES	TOBACCO SALES	VEGETABLE	TOTAL GROSS SALES	HECTARES CULTIVATED	PERCENT OF MAIZE SOLD	YEARS MAIZE SOLD
	MAIZE PROD. OVER REQUIREMENT	MAIZE HARVEST OVER REQUIREMENT				LEGUMES & OTHER SALES				
41	136%	N/A	-	600	-	-	600	9.7	-	SOME
42	0	0	-	3200	-	-	3200	26.5	-	SOME
43	340%	17%	-	640	-	-	640	4.2	0	NEVER
44	0	0	-	100	-	-	100	3.4	-	NEVER
45	332%	185%	258	-	-	-	258	2.3	28%	SOME
46	389%	657%	4928	-	-	1500	6428	4.7	83%	ALWAYS
47	401%	395%	2414	-	-	120	2534	4.5	73%	ALWAYS
48	181%	224%	1100	-	-	55	1155	3.1	63%	SOME
MEAN:	199%	150%	E 992	E2250	E 77	E 919	E1626	6.1	29%	-

TABLE B.3

PERCENT OF HOMESTEADS GROWING AND SELLING CROPS

CROP	NUMBER GROWING	ADVANCED FARMERS		ALL RURAL HOMESTEADS*		
		PERCENT GROWING	NUMBER SELLING	PERCENT SELLING	PERCENT GROWING	PERCENT SELLING
MAIZE	44	93.6%	30	63.8%	96.1%	12.2%
COTTON	13	27.7%	13	27.7%	13.5% (8.0%)	13.5% (8.0%)
LEGUMES	23	48.9%	8	17.0%	-	-
FRUIT AND VEGETABLES	20	42.6%	15	31.9%	(8.0%)	(8.0%)

* From The Swazi Rural Homestead or if in parentheses, the 1983-1984 Swaziland Census of Agriculture.

APPENDIX C

ADVANCED FARMER DEMOGRAPHICS

Demographic information on the advanced farmers is displayed in table form below. For comparison purposes, demographic data for the "average" Swazi rural homestead is also reported when available. Sources for the comparative data are the 1983-1984 Swaziland Census of Agriculture [Central Statistics Office, 1986], The Swazi Rural Homestead [de Vletter, 1983] and the Sample Census of Agriculture, 1971 [Central Statistics Office, 1972].

TABLE C.1

HOMESTEAD SIZE, ABSENTEES, OFF-FARM EMPLOYMENT AND LABOUR FORCE

	ADVANCED FARMERS				ALL RURAL RESIDENTS ¹	
	MEAN	MIN	MAX	% OF TOTAL HMSTD POP.	MEAN	% OF TOTAL HMSTD POP.
HOMESTEAD POPULATION	15.3	5	48	100.0%	10.0 ²	100.0%
HOMESTEAD RESIDENT* POP.	11.7	0	45	76.5%	8.0 ^{1,2}	80.0%
HOMESTEAD NON-RESIDENT POP.	3.6	0	18	23.5%	2.0 ²	20.0%
MEMBERS EMPLOYED AWAY FROM HMSTD	2.5	0	9	16.3%	-	-
NUMBER OF INCOME* EARNERS (RESIDENT AND NON-RESIDENT)	1.9	0	9	12.4%	-	-
NUMBER OF NON-RESIDENT REMITTERS	1.7	0	9	11.1%	-	-
HOMESTEAD LABOUR FORCE*	6.3	2	19	41.2%	-	-
MEMBERS LESS THAN 15 YEARS OLD	6.7	0	28	43.5%	-	-

¹ 1983-1984 Swaziland Census of Agriculture.

² The Swazi Rural Homestead.

* Residents are members who sleep at the homestead at least 5 nights per week.

† i.e. excluding non-resident wage earners who do not send back remittances.

* i.e. resident members age 15 or older plus employed non-residents who return to help with ploughing, planting, weeding and harvesting (at least 3 of 4).

TABLE C.2

NUMBER AND PERCENT OF HOMESTEADS HAVING CERTAIN CHARACTERISTICS

NUMBER AND PERCENT OF HOMESTEADS HAVING:	ADVANCED FARMERS		AVERAGE RURAL RESIDENTS	
	NUMBER	%	NUMBER	%
NON-RESIDENT HOMESTEAD HEAD	7	14.9%	-	-
FEMALE HOMESTEAD HEAD	4	8.5%	28.0% ²	-
NON-RESIDENT MEMBERS	42	89.4%	78.3% ²	-
MEMBERS EMPLOYED OUT- SIDE THE HOMESTEAD	41	87.2%	82.0% ²	-
MEMBERS CONTRIBUTING TO HOMESTEAD INCOME	37	78.7%	-	-
NON-RESIDENT INCOME REMITTERS	32	68.0%	-	-
ONE HOUSEHOLD	31	66.0%	-	-
TWO HOUSEHOLDS	10	21.3%	-	-
THREE OR MORE HOUSEHOLDS	6	12.7%	-	-
AVERAGE NUMBER OF HOUSEHOLDS PER HOMESTEAD:			1.6	-

² The Swazi Rural Homestead.

TABLE C.3

EDUCATIONAL STATUS OF ADVANCED FARMER HOMESTEAD HEAD

	AVERAGE	NUMBER	%
HOMESTEAD HEADS WITH NO SCHOOL	-	12	25.5%
AVERAGE YEARS OF SCHOOL-HOMESTEAD HEADS	4.3 YEARS	-	-
HOMESTEAD MEMBERS OVER AGE 6 WITH NO SCHOOL	-	-	8.1%
AVERAGE YEARS OF SCHOOL-MEMBERS OVER AGE 6	6.3 YEARS	-	-

TABLE C.4

RESIDENCE AND EMPLOYMENT STATUS OF ADVANCED FARMER HOMESTEAD HEAD

	NUMBER	%
RESIDENT	40	85.1%
RETURNS WEEKLY	2	4.3%
RETURNS MONTHLY	4	8.5%
RETURNS YEARLY	1	2.1%
TOTAL NON-RESIDENT	7	14.9%
FULL TIME FARMING	33	70.2%
NON-FARM EMPLOYED*	11	23.4%
UNEMPLOYED	3	6.4%

* Includes 3 self-employed

TABLE C.5

TOTAL AREA OF ADVANCED FARMER HOMESTEAD FIELDS
IN HECTARES

	MEAN	MINIMUM	MAXIMUM	% < .5 HA	% > 5 HA
TOTAL SAMPLE	6.5	.9	47.5	0	34.8%
HIGHVELD	3.5	.9	7.1	0	9.1%
WET MIDDLEVELD	3.4	2.0	8.9	0	9.1%
DRY MIDDLEVELD	4.4	2.1	8.2	0	28.6%
LOWVELD	13.0	3.4	47.5	0	85.7%
LUBOMBO	3.4	2.4	4.2	0	0
AVERAGE RURAL RESIDENT*	1.5-2.6	-	-	26.5%	12.2%

* Various surveys have reported different average land holding sizes for Swazi Rural homesteads. The figure of 1.5 hectares was obtained from Testerink [1984]. The figure of 2.6 hectares as well as the percentages of homesteads having less than half a hectare or more than 5 hectares come from the Sample Census of Agriculture, 1971.

TABLE C.6

NUMBER OF FIELDS BY ACQUISITION

HOW ACQUIRED	NUMBER	%
INHERITED	62	38.5%
ALLOCATED (73: 100.0%)	73	45.3%
- ORIGINAL (47: 64.4%)	-	-
- ADDITIONAL (26: 35.6%)	-	-
RECEIVED AS GIFT	8	5.0%
BORROWED	16	10.0%
PURCHASED	2	1.2%
TOTAL	161	100.0%

- 24 (51.1%) ADVANCED FARMERS INHERITED AT LEAST ONE FIELD.
 27 (57.4%) ADVANCED FARMERS WERE ALLOCATED AT LEAST ONE FIELD.
 5 (10.6%) ADVANCED FARMERS WERE GIVEN AT LEAST ONE FIELD.
 9 (19.1%) ADVANCED FARMERS BORROW AT LEAST ONE FIELD.
 4 (8.5%) ADVANCED FARMERS LOAN OUT AT LEAST ONE FIELD.
 2 (4.3%) ADVANCED FARMERS PURCHASED ONE FIELD.
 15 (31.9%) ADVANCED FARMERS HAVE BORROWED FIELDS THEY ARE NOT
 BORROWING NOW.
 2 (8.5%) ADVANCED FARMERS HAVE LOANED OUT FIELDS THEY ARE NOT
 LOANING OUT NOW.

TABLE C.7

RANKING OF INCOME SOURCES FOR ADVANCED FARMERS

INCOME SOURCE	NUMBER OF FARMERS HAVING THIS AS MOST IMPORTANT SOURCE OF INCOME		NUMBER OF FARMERS HAVING THIS AS 2ND MOST IMPORTANT SOURCE OF INCOME	
	NUMBER	%	NUMBER	%
CROP SALES	36	76.6%	3	6.4%
WAGES AND REMITTANCES	5	10.6%	13	27.7%
SALE OF LIVESTOCK	2	4.3%	11	23.4%
SALE OF HANDICRAFTS	2	4.3%	6	12.8%
OTHER	1	2.1%	2	4.3%

APPENDIX D

DATA COLLECTION

Before a sample of advanced farmers could be drawn, it was necessary to have a list of all of the farmers who had joined the Advanced Farmer Scheme. Such a list was not immediately available but after some searching, it was found that a list could be compiled from Advanced Farmer Scheme documents now stored in the National Archives. The relevant documents consisted mostly of memos from the 11 subdistricts announcing the names of the advanced farmers and the advanced farmer numbers they were assigned. Many times the lists of names were incomplete because they had been compiled in the late 1960's. In those cases, there were almost always memos from later years giving the names of farmers who had joined the scheme after the original lists had been compiled. Out of all of these documents, a single list was constructed containing the names of 892 advanced farmers along with their advanced farmer number and the subdistrict in which they resided. Since there were reported to have been 919 advanced farmers by the end of the scheme, only 27 farmers, less than 3 percent of the total are missing from this list.

Each farmer on the list was assigned a number between 1 and 892. A sample size of 50 was chosen for the survey. However, since it was suspected that there might be some difficulty in locating some of the advanced farmers, a random sample of 100 farmers was drawn. They were then arranged in the order in which they were drawn so that if a farmer could not be located, he would be replaced by number 51 in the sample order. The next farmer who could not be located would be replaced by number 52 and so on. The first 65 farmers on the list were used to obtain interviews with 47. Time constraints prevented the attainment of the full sample size of 50.

A questionnaire was designed covering homestead demographics, land holdings, acquisition and security, crop production and sales, marketing, farming methods, tribute labour, fencing and irrigation. Because of its length, the questionnaire was split into two parts. Part I dealt with land questions, homestead demographics and field measurements. All other issues were covered in Part II.

The questionnaire was written in English and then translated into siSwati. The siSwati version was then retranslated back into English to check for translation errors. This was an important step as many cases were found in which the translator did not really understand the original English or in which a

literal translation had been made but the meaning had been totally lost. This exercise also convinced us of the importance of translating the questionnaire into Siswati beforehand rather than depending on the enumerator to translate as he was conducting the interview. Many mistakes in translation were found during this process which would never have been caught in the field.

After being translated into siSwati, the questionnaires were pretested on a group of 8 advanced farmers who had not been selected in the sample of 100. The pretest identified many more problems in the questionnaires. The results of the pretest were used to further revise the questionnaire; rewording some questions, dropping some and adding others.

The questionnaire was administered between February and June 1987. The farmers were located by contacting the extension workers in the subdistricts in which the farmers were known to reside. Each extension worker who recognized one or more of the advanced farmers accompanied us out to the homestead of the advanced farmer and introduced us.

During the administration of the first part of the survey, the fields of each advanced farmer were measured. A field was defined as a piece of land that is ploughed or could be ploughed and is separated from the land next to it by a fence, trees, river, road, or other boundary. Most fields were divided into smaller areas by grass strips which ran horizontally across the fields perpendicular to the slope. These sub-fields were called panels.

A measuring wheel was used to measure each panel and each grass strip. Top and bottom length measurements were taken of each panel or grass strip and three width measurements; one on either end and one in the middle. The area of each panel and grass strip was then calculated by means of a formula provided by researchers at the Malkerns Agricultural Research Station. Total field areas were obtained by summing the areas of the panels and grass strips.

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