

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 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 customary system of land tenure. This was done by examining the experience of participants in the Ministry of Agriculture and Cooperatives' Advanced Farmer Scheme.

A random sample of fifty advanced farmers was drawn and a questionnaire covering homestead demographics; landholdings, acquisition, and security; crop production and sales; marketing; farming methods; tribute labor; fencing; and irrigation was administered.

Some of the potential constraints examined in this research were found to be of little or no restriction 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 plow the chief's land before your own.

Other potential constraints were found to be real impediments 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 labor.

In addition, nontenure-related constraints such as transportation, marketing, and access to labor and other inputs were examined. It had been expected that marketing problems, especially low producer prices, would be found to be major impediments to increased commercial production. However, very few advanced farmers seemed to experience these as problems. Instead, difficulties in obtaining transportation and labor and other inputs were often cited as serious nontenure-related constraints.

Subdivision 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 area smaller than those of nonsubdivided homesteads.

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 that 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 by 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 the twelve farmers who had never borrowed money cited the lack of collateral as the reason for not borrowing.

Fencing has become widespread among advanced farmers and there seems to be little or no 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 their reason for not fencing.

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

Although there was little problem with the time when cattle are allowed onto fields after the harvest period, many of the advanced farmers reported that they are prevented from plowing as early in the spring 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 plowed earlier had the chief set the date earlier.

Prior research had concluded that insufficiency of land is a major constraint for farmers who want to farm commercially on Swazi Nation Land while labor is no impediment. Just the opposite was found to be the case for many advanced farmers. Over two-thirds of the farmers interviewed had insufficient homestead labor for weeding and/or harvesting. While many of them were able to overcome this constraint through hiring labor or inviting lilima, over half said that they were unable to get enough outside labor.

The study found evidence that the practice of tribute labor for the chief or king can worsen an advanced farmer's labor constraint at critical times of the cropping season. However, as perceived by the farmers themselves, the effect of tribute labor 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 constraints to commercial agriculture. The advanced farmers were found to have some problems with

marketing, but low producer prices was 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 his crops were assigned too low a grade.

The most common marketing problem concerned transport. Half of the farmers who sell their crops said that they had problems with transporting their crops to market. Some complained that hiring transportation is too expensive while others said that they did not like being dependent on hired conveyance, mostly because it was not available when needed. 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. Sixty-four percent reported some sort of problem with obtaining seed, fertilizer, and insecticides and/or farm equipment. Half of these problems stemmed from the farmers' not having enough money to buy the inputs, but over half of the complaints dealt with the difficulty of getting the inputs, the distance that had to be traveled, or the late arrival of the inputs at the RDA shed.

The delay involved in hiring a tractor was also a major source of complaint. About three-quarters of the advanced farmers hire tractors to plow. Forty percent of these reported that they must wait from between two weeks to a month or more from the time they request that their fields be plowed until the job is completed.

These problems in obtaining inputs do not seem to have prevented most farmers from relying on them to some extent. All but one advanced farmer uses hybrid seeds and, similarly, all but one uses fertilizer. However, the problems can limit the use of inputs and hence reduce their effectiveness. Over a quarter of the farmers said that they could not afford to buy the recommended amount of fertilizer and hybrid seed. Other farmers said that 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 is due to the assistance and cooperation of people at all levels within the Ministry of Agriculture and Cooperatives. Many senior administrators and department heads at the ministry's headquarters in Mbabane were 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 regional extension coordinator in each district gave permission to meet with their extension staff and helped make 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 areas.

It was the front-line extension workers, however, of which the most was asked. They made arrangements with the advanced farmers to meet with us, accompanied us to the homesteads, and introduced us to the farmers. 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 making introductions. This was an essential part of the fieldwork and their willing assistance is truly appreciated.

Finally, without the cooperation of the advanced farmers themselves, this survey would have been impossible. Each farmer 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 the advanced farmers.

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I. INTRODUCTION

The Advanced Farmer Survey is part of a larger research effort, entitled "Changes in Agricultural Land Use: Institutional Constraints and Opportunities," undertaken by the Ministry of Agriculture and Cooperatives (MOAC) with the assistance of the University of Wisconsin's Land Tenure Center. The purpose of this study is to identify constraints to commercial agriculture on Swazi Nation Land (SNL), with special attention paid to potential impediments that may be related to Swaziland's customary system of land tenure. This was accomplished by examining the experience of participants in the Advanced Farmer Scheme, run by the MOAC between 1961 and 1972.

A. The Advanced Farmer Scheme

Begun in 1961, the Advanced Farmer Scheme was designed to encourage the adoption of modern agricultural techniques among farmers on SNL. Because of limited extension resources, it was decided that the scheme should be aimed at those Swazi farmers who would be most receptive to adopting its recommendations, that is, 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 leaders and good examples for the majority of Swazi farmers.

The primary activities of the Advanced Farmer Scheme were to enlist qualified 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 had to meet certain standards, including:

- cooperating with extension staff and following their instructions;
- being adequately equipped to pursue farming;
- making a good living from farming;
- keeping basic farm records;
- being an active member of the local farmers' association.

Upon becoming an advanced farmer, a farmer received a badge and a certificate. Besides the recognition that came with these emblems, advanced farmers 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:

- the suitability of crops for a particular area;
- the desirability of winter plowing;
- the advisability of early plowing and planting;
- the use of planters to plant seed in rows rather than broadcasting;
- the importance of timely weeding;
- the use of certain methods of crop storage.

Since the scheme was aimed at the better farmers, it was unable to avoid the appearance of elitism and was discontinued in 1972. At that time, there were 919 advanced farmers and 2,700 pupil farmers, or those who had joined the scheme but had not yet qualified for advanced farmer status. (A complete description and evaluation of the Advanced Farmer Scheme is contained in appendix A.)

B. 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 plow, graze their cattle, and build their homesteads, they are not all interested in making their living from farming. Many Swazi homesteads hold agricultural land which they use only to grow subsistence crops at minimal effort or which they may not cultivate at all but keep as security for the future or to pass on to their children. These homesteaders are not interested in producing a surplus to sell commercially or in 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 achieve a higher return on their labor by working in the wage sector than by staying home and farming (Low 1982).

There are, however, some Swazi homesteaders who are interested in commercial farming and who depend on farming as a major, if not primary, source of income. The purpose of this research is not only to learn why people choose to become commercial farmers but also to identify the most binding constraints faced by those who are already involved in commercial farming.

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

C. Commercial Farmers Defined

An assumption incorporated into the design of this survey was that most advanced farmers are involved in commercial agriculture. Was this assumption justified? Data from the survey indicate that it was. Also, data from Testerink's (1984) survey of all rural households and the advanced farmer survey are compared. The definition of commercial farming used by Testerink (1984, pp. 1-5) and the definition adopted by this research project were both used. Testerink's definition is based on (1) farmer production of a significant amount of nonedible cash crops such as cotton or tobacco and/or (2) farmer plans to produce a surplus for market above and beyond that required either for subsistence or as a hedge against uncertain growing conditions. As can be seen in table 1, 65.5 percent of Testerink's sample of Swazi households fall into the noncommercial category, 16.1 percent are semicommercial farmers, and 18.4 percent are commercial farmers. In contrast, only 10.9 percent of the advanced farmers are not involved in commercial activity while 19.6 percent are semicommercial farmers and 69.6 percent are commercial farmers. It can be concluded that advanced farmers do represent a different type of farmer than

TABLE 1

Distribution of Homesteads (Households^a)
across Commercialization Categories

	HOUSEHOLDS		A D V A N C E D F A R M E R S			
			Definition 1 ^b		Definition 2 ^b	
	#	%	#	%	#	%
Noncommercial	414	65.5	5	10.9	11	23.4
Semicommercial	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

- a. Testerink (1984) 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.
- b. Advanced farmer homesteads are categorized using (1) Testerink's (1984) definition of commercial farmers and (2) the definition of commercial farmer used in this study.

the average rural resident; almost 90 percent of the advanced farmers are engaged in commercial or semicommercial farming as compared to just over 34 percent of the rural population as a whole.

Although Testerink's (1984) 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; landholdings; 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 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 more than twice as many noncommercial farmers than under Testerink's (1984) definition and the percentage of full-fledged commercial farmers has fallen from 69.6 to 59.6 percent. Still, over three-quarters of the advanced farmers surveyed are either commercial or semicommercial 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 more than half again as large for advanced farmers, with 15.3 members per homestead compared to the national average of 10. One-third of advanced farmer homesteads have more than one household.

Landholdings of advanced farmers are much larger than those of most of their neighbors. Past surveys have indicated that the average area of landholdings on SNL has been 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 across the different ecological zones except for the lowveld, where the average was 13 hectares. This figure was between 3.4 and 4.4 hectares for the highveld, the wet and dry middlevelds, and the Lubombo.

Some interesting comparisons can be made with the 1983/84 Swaziland Census of Agriculture (Swaziland 1986). According to the census, only 16 percent of all Swazi homesteads produce enough maize to feed themselves. The same question was asked in the advanced farmer survey with very different results. Fifty-one percent of the advanced farmers said that they always produced enough maize to feed their homesteads and only 4 percent said they never did.

There is also quite a difference in farming practices between the two groups. Advanced farmers are almost four times more likely to irrigate than the average rural homestead (34 percent compared to 9 percent). Almost half of the homesteads on SNL use no fertilizer on their fields as compared to only 2 percent of the advanced farmers. While 27.8 percent of Swazi homesteads were reported in the census to use tractors for all or part of their plowing, 87.2 percent of the advanced farmers use tractors. Despite their widespread use of tractors, advanced farmers also have on average twice as many oxen

(4.5 versus 2.4*) and cattle (20.5 versus 9.1*) as their neighbors. 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 fifty farmers was drawn from this list. A questionnaire was designed covering homestead demographics, landholdings, 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 selected, the final sample consisted of only forty-seven of the fifty farmers. (The data collection methodology is described more fully in appendix D.)

D. Potential Constraints to Commercial Agriculture

Potential constraints to commercial agriculture on SNL were identified through a review of the literature on Swazi agriculture in combination with interviews with agricultural officers of the MOAC. These constraints became the focus of the survey questionnaire which was designed to determine which of the impediments were perceived by the advanced farmers and which were not.

The collection of potential constraints was divided into two categories: (1) those related to Swaziland's customary system of land tenure, and (2) those not related to tenure. The potential constraints related to land tenure are analyzed in section II of this report. They have been grouped into the following broad categories:

- 1) shortage of land and inability to acquire enough land to farm at the desired scale;
- 2) lack of secure tenure;
- 3) inability to obtain credit because land is not mortgageable;
- 4) lack of farmer control over production decisions.

Section III covers potential nontenure-related constraints to commercial agriculture. The primary areas of concern are marketing and access to labor and other inputs. The summary and conclusions regarding the major constraints faced by commercial farmers on SNL are presented in section IV.

* These averages include homesteads with no cattle.

II. TENURE-RELATED CONSTRAINTS TO COMMERCIAL AGRICULTURE

A. Land Shortage

1. Subdivision and Fragmentation

One reason that a farmer may not have enough land is that when he inherited land from his father, the paternal 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 landholdings can be broken down into units too small to be cultivated efficiently.

Fragmentation often follows subdivision since farmers try to obtain enough land to make farming worthwhile. They may acquire additional land by asking the chief for a land allocation or other members of the community for land gifts, by borrowing, or occasionally by purchasing a title deed for individual tenure land (ITL). However, this land may often be located a distance away from the homestead. Managing many small, dispersed fields imposes several costs on a farmer. First, there is the time lost traveling from the home to a 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 the fields 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 the 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.

a. Subdivision. Is subdivision taking place on SNL? Evidence from this survey shows that it is. Out of the sample of forty-seven advanced farmers, twenty-four (51 percent) inherited all or part of their present landholdings. Sixteen of these (66 percent) shared their inheritance with other family members (or, in two cases, with the chief) while only eight (33 percent) inherited all of the fields of the original homestead.

The more interesting question is whether this subdivision results in smaller fields or reduced total landholdings. 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. In the second

example, the sizes of the fields as production units have not been changed. Only the number of fields held by a homestead has been reduced.

Two methods were therefore used to test whether subdivision has resulted in smaller landholdings. 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. The average field size for sole heirs was actually a little smaller than the average size of fields held by those who shared their inheritance (1.86 hectares and 2.11 hectares, respectively), though this small difference in the means was not statistically significant.

In fact, despite the great variability in field size, 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.

TABLE 2

Field Size by Type of Acquisition and Distance from Homestead
(hectares)

HOW ACQUIRED/DISTANCE	MEAN	STANDARD DEVIATION	MINIMUM	MAXIMUM	NUMBER
All fields	1.98	3.17	0.032	26.00	151*
Inherited fields, not shared	1.86	1.64	0.049	5.31	19
Inherited fields, shared	2.11	2.19	0.065	9.61	40
Allocated fields	1.89	3.13	0.032	22.46	70
Fields received as gifts	0.78	0.50	0.127	1.62	7
Borrowed fields	2.83	6.72	0.088	26.00	14
Purchased fields	1.02	--	--	--	1
Fields beyond 500 meters	2.11	4.02	0.049	26.00	46
Fields within 500 meters	1.92	2.75	0.032	22.46	105

* Of the 161 fields in the survey, 10 were not measured.

One possible interpretation of these results is that fields are generally not split up during the process of subdivision. Rather, holdings made up of two or more fields may be divided 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 for sole heirs.

One fact which may help explain these numbers is that advanced farmers are not representative of Swazi rural residents as a whole. When a landholding is sectioned at inheritance, it may not be divided equally. The principal heir may often receive the lion's share while other family members receive smaller portions. It is possible that the principal 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 principal heir who was contacted for the survey. In fact, seven of the sixteen farmers interviewed who had shared their inheritance reported that they had received a larger than equal share. Only one said that 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 land through other means. This is supported by the fact that among the twenty-three farmers in the survey who acquired no land through inheritance, thirteen (56.5 percent) said that this 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 an average field size or total field area smaller than those of nonsubdivided 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.

b. Fragmentation. This study tried to answer several questions about fragmentation: What is the extent of fragmentation among advanced farmers on SNL? How many farmers have fields located away from their homesteads? What 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 requires, first, a definition of the phenomenon. Fields adjacent to the homestead or within 500 meters were considered to be nonfragmented while fields 500 meters 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: from 500 to 999 meters, from 1 to less than 2 kilometers, from 2 to less than 5 kilometers, from 5 to less than 10 kilometers, from 10 to less than 20 kilometers, and 20 kilometers or more.

There are several ways of interpreting the extent of fragmentation among advanced farmers. Out of the 47 farmers surveyed, 53 percent (25) had at least one field located more than 500 meters away from the homestead. However, in terms of number of holdings, 68 percent (109 out of 160) of all fields were located at or within 500 meters of the homestead. Distances vary dramatically depending on how the field was acquired. Of fields received as gifts, only 12.5 percent (1 out of 8) was located more than half a kilometer away from the homestead. Inherited fields and fields allocated by the chief were also mostly located near the homestead. Just 21 percent (13 out of 62) of the inherited fields and 30 percent (22 out of 73) of the allocated fields were more than 500 meters away from the homestead. At the other extreme were borrowed fields, 81 percent (13 out of 16) of which were located away from the homestead, and purchased fields, which were located more than 20 kilometers away from the homestead, farther than any of the other fields. Another pattern that emerges is that not only is a higher percentage of borrowed and purchased fields located beyond 500 meters from the homestead but also the distances involved are greater. A full 60 percent of the inherited fields located more than 500 meters away are still within 2 kilometers of the homestead and all are less than 5 kilometers away. For borrowed fields, 60 percent are located

TABLE 3

Distance of Fields from Homestead, by Means of Acquisition

DISTANCE FROM HOMESTEAD	INHERITED		ALLOCATED		GIFT		BORROWED		PURCHASED	
	#	%	#	%	#	%	#	%	#	%
Next to homestead	37	60	43	59	5	63	1	7	0	0
Less than 200 m and not next to homestead	10	16	4	5	0	0	0	0	0	0
200 to 499 m	2	3	4	5	2	25	1	7	0	0
500 to 999 m	0	0	8	11	0	0	3	20	0	0
1 km to less than 2 km	8	13	5	7	0	0	2	13	0	0
2 km to less than 5 km	5	8	5	7	1	12	5	33	0	0
5 km to less than 10 km	0	0	2	3	0	0	3	20	0	0
10 km to less than 20 km	0	0	2	3	0	0	0	0	0	0
20 km or more	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>100</u>
Total	62	100	73	100	8	100	15*	100	2	100

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

more than 2 kilometers away from the homestead, with several in the 5-to-10-kilometer range of distance.

There are many causes of fragmentation among advanced farmers on SNL but most do not correspond to the usual conception of fragmentation as a problem, that is, the landholder's needing additional land but being unable to find it close to the homestead. This situation represents less than a third of the total cases of fragmentation. Of the twenty-five farmers with fragmented holdings, only eight (32 percent) seem to have been motivated by a shortage of land in obtaining their distant fields. Table 4 indicates why and how fragmented fields were obtained.

TABLE 4
Reasons for Obtaining Fragmented Fields

REASON	HOW OBTAINED	NUMBER OF FARMERS	PERCENT OF FARMERS	NUMBER OF FIELDS
Wanted to expand cultivation	borrowed	3	--	10
	given as gift	1	--	1
	chief allocated	<u>4</u>	--	<u>6</u>
	Total	8	32	17
To establish new homestead	chief allocated	6	--	6
	inherited	<u>7</u>	--	<u>13</u>
	Total	13	52	19
Resettlement	chief allocated	<u>3</u> (5) ^b	<u>20</u>	<u>3</u> (9) ^b
To join a scheme	chief allocated	4	--	6
	borrowed	<u>3</u>	--	<u>3</u>
	Total	7	28	9
Wanted land at another location	purchased	2	8	2
		—	—	—
Total		23 (25) ^b		50 (56) ^b

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

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

A surprising number of farmers received fragmented holdings as inheritance or when they were first allocated land by the chief. In most of the thirteen cases, it was not established why the inherited or originally allocated land was fragmented. The exceptions were two female household 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 landholdings, it has sometimes resulted in fragmentation since homesteads and fields are placed away from each other. This seems to have been the cause of the fragmentation for three advanced farmers (five 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 percent of the advanced farmers have at least one fragmented field, 75 percent of those who have been moved during resettlement have at least one fragmented field. While only 22 percent of all fields not acquired through resettlement are located over 1 kilometer away from the homestead, over half of the fields received through resettlement are at least that far away.

Another reason farmers obtain fields located at a distance from the homestead is the opportunity of joining an irrigation scheme. Seven farmers have fragmented fields which they either borrowed or were allocated in an irrigation scheme.

Two advanced farmers purchased ITL to expand their farming, and both of these fields were located farther away, over 20 kilometers, than their other holdings. However, the distant location 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 versus middleveld) in which to grow maize. The other farmer wanted land where he could "plow freely because on SNL, cattle trouble me."

The classic case of fragmentation resulting from subdivision was not found among the advanced farmers. Of the sixteen farmers who shared their inheritance, six had no fragmentation of their holdings and the other ten had fragmented fields for reasons other than not being able to find additional land nearby. Four of these advanced farmers inherited land already fragmented. Two received 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 SNL. 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 found to be a cause of fragmentation.

How much of a problem is fragmentation as perceived by the advanced farmers themselves? Of the farmers with fragmented fields, 60 percent said that the distance to the fields caused them no problems. The other 40 percent, however, complained about the time and expense involved in getting labor, implements, and crops to and from the fields as well as the inability to watch over the fields properly. 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 or not a farmer considered fragmentation to be a problem: distance (as would be expected), and attributes of the fragmented field. 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 far away from their homesteads. Farmers who received fragmented fields without any special characteristics were more likely to complain as the distance of these fields from their homesteads increased.

2. Obtaining Additional Land

If a farmer does not have as large an area to farm as he wishes, can he obtain more land? The answer appears to be yes. Nineteen (40 percent) of the advanced farmers sought and obtained additional land after they had already acquired their initial inheritance or allocation. In order of frequency, twelve (26 percent) asked their chiefs for more land, nine (19.1 percent) borrowed land, three (6 percent) asked someone other than their chiefs for gifts of land, and two (4 percent) purchased title deeds for ITL; some did more than one of these activities. Fifteen (32 percent) of the farmers said that they were looking for more land right now, and most of these were doing so by approaching their chiefs (six) or potential lenders (four).

Only six farmers reported that they had ever tried and failed to get more land. However, all of these respondents had been successful at obtaining land at some other time. The failures were not failures to get any land but just an inability to obtain a particular piece of land at a particular time. In one case the person was told by his chief that there was no more land.

The next question to 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 receive their additional landholdings many years ago, or has it been possible for them to obtain new fields in recent years as well? Survey data displayed in table 5 imply that it is still possible to augment one's holdings on SNL. There seems to have been no decrease over time in the number of farmers who have acquired new allocations of land from their chiefs. The twelve farmers who possessed allocated land were spaced evenly over time, with four receiving land in each period. The table seems to indicate that borrowing fields has become more common recently, but that may not in fact be true. The figures do not include farmers who had borrowed fields earlier but were no longer borrowing; as discussed in the next section, there are fifteen farmers in this category.

3. 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 operations but are unable to find any available area. At the same time, much of what is already claimed by others is either underutilized or not being farmed at all. Homesteaders with more land

TABLE 5

Period during which Advanced Farmers Obtained Additional Fields

MEANS OF ACQUISITION	BEFORE 1972		1972 TO 1979		SINCE 1980		TOTAL	
	# of Farmers	%	# of Farmers	%	# of Farmers	%	# of Farmers	%
Allocated	4	57	4	57	4	33	12	46
Borrowed ^a	0	0	2	29	7	58	9	35
Gift	3	43	0	0	0	0	3	12
Purchased	<u>0</u>	<u>0</u>	<u>1</u>	<u>14</u>	<u>1</u>	<u>8</u>	<u>2</u>	<u>8</u>
Total	7	100	7	100	12	100	26	100

a. This category does not include farmers who had borrowed fields earlier but were no longer borrowing.

than they presently need, however, are reluctant to give it up. They may plan to use it in the future, give it to their children, or just keep it in case of emergency.

Borrowing is a means by which land can be temporarily put in the hands of a person who would use it productively yet still allow it to be reclaimed by the owner. There are both benefits and costs to lending land from the point of view of the potential lender, and, depending on the relative weights, the lender may or may not actually lend his land. The benefit comes from avoiding the risk of the chief's taking the land away and giving it to somebody who would use it productively. Hughes (1972, p. 150) mentions this as a possibility under the customary tenure system and cites it as a reason why a person may lend land to a relative to cultivate with the least effort necessary to retain claim to it.

Data from the survey seem to confirm this eventuality, at least in some chiefdoms. Nineteen (40 percent) of the advanced farmers said that they felt there was a definite risk that the chief might give land to somebody else if the owner left it fallow for too long. In most of these cases, however, this was a rule that the chief had announced but never implemented. There were five farmers who said that such a thing had actually happened.

There is risk involved in leaving land idle, but 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 period of time may begin to feel that he has claim to it. If the chief who originally allocated the field dies or if the children of the original borrower are now farming the land, there is great 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 the problems associated therewith from both the borrower's and the lender's point of view. Twenty (43 percent) of the advanced farmers reported that they currently borrow and/or have in the past borrowed fields. Nine (19 percent) are presently borrowing. Of those who used to borrow land, about half returned the fields by choice because they no longer desired them. The other half returned their borrowed fields because the lender wanted them back.

Several (13 percent) of the advanced farmers reported that they lend or used to lend land. Four of these are currently lending land while the other two no longer do so. Of the latter, one farmer reclaimed the land so that he could use it himself, and in the other case, 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 suggest that borrowing is extremely rare. Only about 2 percent of rural homesteads were found to borrow fields. However, the fact that so many advanced farmers borrow or used to borrow land seems to show that borrowing is an accepted practice and that those who want additional land are able to borrow it.

About half of the advanced farmers who borrow or lend 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 lent to nonrelatives, less than half of the lenders require some kind of payment. When they do ask for recompense, the borrower is usually expected to plow the lender's fields. There is one instance in which the borrower was asked to pay with a portion of his harvest.

Few people reported problems with borrowing or lending. Three (15 percent) of the farmers who borrowed land said that they had difficulties with the lender's becoming jealous or acting unfairly. For example, one farmer complained that the lender waited until he had plowed before coming to reclaim the land. None of the farmers who now lend or used to lend land reported difficulties. However, one man, who neither borrows nor lends land, said that the big problem with lending 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 neighbor was later reclaimed. Apparently there was some disagreement over whether the land was actually his to keep or had just been lent to him.

The unpredictable nature of random sampling is demonstrated by the results of the questionnaire pretest on eight advanced farmers around the country. Three of these farmers, a much larger proportion than in the survey itself, said that reclaiming lent land was a big problem. 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."

B. Insecurity of Tenure

1. Banishment

One feature attributed to the customary land tenure system in Swaziland is the lack of secure tenure. A 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. This line of thought would suggest that 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 rather to witchcraft. An advanced farmer, therefore, may feel pressure not to rise above the crowd or to work too hard for fear of community ill will and increased danger of banishment.

According to Hughes (1972, pp. 148-49), "if a man becomes too rich, he may arouse the envy of his chief, and be banished. If he antagonizes his neighbors, 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."

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

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

In how many of these twelve cases was the person really banished because he had adopted commercial farming methods at odds with customary practices? Or had he simply become so prosperous in his farming that he aroused the jealousy and envy of his neighbors and chief? In five of the cases, the matter seemed to be unrelated to farming, such as a murder or having had 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. One banishment case, in fact, turned out to be a classic case of a successful farmer being accused of witchcraft and finally 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 did not particularly encourage farming and that, furthermore, he was not on good terms with the chief. When asked, he said that he thought that what had happened to the priest who grew mangoes could happen again and maybe to him. So, out of the forty-seven farmers surveyed, at least one was found to know of a case in which a man was banished because the chief and others were envious of his success.

In terms of position and security in the community, an advanced farmer must worry about the attitudes toward commercial farming of not only the chief but also the community, though the two are certainly related. The advanced farmers in the survey were asked how they thought their neighbors felt about farmers who used SNL to grow a surplus of cash to sell. Thirteen (27.7 percent) said that their neighbors approved of such farming, but five (10.6 percent) said that their neighbors disapproved. The bulk of the respondents said either that their neighbors did not care about cash-cropping or that they did not know how their neighbors felt (34.0 percent and 27.7 percent, respectively). Farmer response to this question did not seem to be related to status. For example, two of the five farmers who said that their neighbors disapproved of cash-cropping were commercial farmers, one of whom was quite prosperous (two of the five farmers were semicommercial farmers and one was a noncommercial farmer).

There are actually two separate issues involved in banishment: negative attitudes toward commercial farming as an improper use of SNL, and 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 reflects only the first of these issues. Magagula (1978), in his dissertation on Swaziland rural development, included 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 neighbors will bewitch you." Of his respondents, 60 percent either agreed or strongly agreed with the statement, most being in the "strongly agree" category.

The relevant question is, What kind of dampening effect do these 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 different chiefs and different communities have varying attitudes toward commercial farming. Some chiefs encourage it by clearing cattle from the fields early in the spring, by giving blanket permission to fence, or by 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 SNL for anything but subsistence farming. Certainly the farmer who told us about the banishment case

felt threatened and insecure. The banishment served as a warning to him and to any other aggressive farmer living under a chief with like attitudes. However, this and similar banishment cases would be expected to have much less deterrent effect on successful commercial farmers who lived in areas with "progressive" chiefs. A few other advanced farmers reported that their neighbors "grumbled among themselves" about some of their commercial practices.

In the opinion of the author, the threat of banishment and chiefly and community disapproval of commercial 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 may be nonexistent.

Such motives for banishment have been reported by many observers, at least since Hilda Kuper (1947) described them in the 1940s. There are not sufficient data from the survey to say whether these motives 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 are much more likely to create envy and ill will in a community than are fencing, irrigating, or selling cash crops.

2. Resettlement

Like banishment, the threat of resettlement could reduce a farmer's willingness to make improvements on his land. 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 of the survey were unexpected, starting with the number of advanced farmers who said that their communities had already been resettled. Thirty-four (72.2 percent) 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, twenty-two (64.7 percent) of those who had been resettled said that neither their homestead nor their fields had been moved. The explanation for this 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 that the chief was using resettlement to try to replace him with somebody he liked better. Only one farmer said that resettlement had made farming easier, but this man had had only his house moved and not his fields.

Of the thirteen farmers who have not been resettled, only four expect to be resettled in the future and two of these are worried that they will be given smaller fields. One farmer, though, is 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. Forty-three (91.5 percent) of them have either already been resettled or do not expect to be affected. Furthermore, resettlement seems to have been relatively painless for most of those who experienced it. Only seven (20.6 percent) of the resettled farmers actually had their fields moved. Although resettlement may have been an unpleasant experience, it is over, and the farmers do not have to worry about it again. That is probably the most fundamental aspect of resettlement as it relates to security of tenure: before it takes place, it can 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 the security of tenure. For the four (8.5 percent) who still expect to be resettled, however, this uncertainty, until it is resolved, may create a serious disincentive to making improvements on the land.

C. Credit Constraints

One of the most common criticisms of customary Swazi land tenure as opposed to private property is the lack of immovable assets available to pledge as collateral for loans. Others have argued, on the other hand, that this is one of the strong points of the customary system. Russell (1985, p. 34), for instance, 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."

Yet, there is still the possibility that because farmers are unable to use their land as collateral for loans, commercial agriculture in Swaziland is constrained by lack of credit. Previous research (Guma and Simelane 1982; Mercey 1983; and de Vletter 1984) found that about 10 percent of SNL homesteads have borrowed from Swazi Bank, and only a quarter of those who were denied credit failed to qualify because of lack of collateral. In addition, only 5 percent 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 to obtaining credit. There has also been a suspicion that credit has little effect on increasing expenditures on agricultural inputs because much of the borrowed money is spent on nonagricultural purchases. De Vletter (1984), however, suggests that while credit may not be a problem for the average SNL homesteader, 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 are suggest that credit is not a major problem. Compared to the just cited 10 percent of SNL homesteads which borrowed from Swazi Bank, thirty-five, or fully 75 percent, of the advanced farmers in the sample reported that they have borrowed money. The vast majority of them (thirty, or 86 percent) took out seasonal loans for seed, fertilizer, and other inputs. The other major type of loan, granted

to three (23 percent) of the farmers, was for tractors or farm equipment. Twenty-nine, or 83 percent, of the farmers borrowed from Swazi Bank; one borrowed from a cooperative; and one borrowed through the People's Participation Project. Cattle were the collateral of choice for thirty-one farmers (89 percent), though one farmer used his car and two others used both cattle and their wages as collateral. Of the twelve farmers who had never tried to borrow money, only one said that lack of collateral was the reason. Half of those who had never borrowed said that they had no need for extra money. Fourteen farmers (30 percent) had at some time been denied a loan but twelve of these had in fact borrowed money at other times. Half of the failed attempts to borrow money were due to insufficient collateral.

None of the advanced farmers in the survey listed not being able to get collateral as a matter of concern, though two of them did complain about high interest rates. This is not to say that lack of capital is not a constraint. 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 since they would be expected to pay it back.

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

D. Farmer Control over Production Decisions

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

Under customary tenure, a farmer temporarily loses the right to exclude others from his fields after harvest, when livestock are allowed to roam freely to graze on crop residue. It has been suggested that this practice restricts early planting required by some maize hybrids and that it makes double-cropping difficult or impossible to complete during the winter season.

1. Fencing

In the past, fencing--which would allow a farmer to control cattle movement over his fields--has been strongly opposed by many Swazis. Fencing has negative associations for many persons because it is a symbol of Swazi loss of land to the Europeans during the concessionary period. Also, customary authorities and many rural people regard fencing as a potential interference with communal use rights after harvest as well as a device that makes the rights of individuals over land too exclusive, hence 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 winter plowing, irrigation, and early planting in the spring easier to perform. Hughes (1972) reported that fencing had begun to gain limited approval in Swaziland and that fencing off one's own residential area, including a few small cultivated patches, was generally accepted. However, Hughes (p. 226) goes on to say:

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 neighbors. 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.

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

Many questions about fencing were addressed in the advanced farmer survey: How many people actually fence and why? To what extent do customary attitudes toward 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 provides to manage the movement of people's livestock through one's fields. Does this aspect of fencing cause problems with neighbors?

The number of advanced farmers who fence was even greater than expected. Only three (6 percent) of the forty-seven farmers surveyed had no fencing at all. Of the forty-four farmers with fences, twenty-three had enclosed their entire holding or had every field fenced. The other twenty-two fenced some but not all of their fields and had, on average, about half of their fields fenced.

Without exception, the reason for fencing was to protect crops from livestock at various times of the year. The demarcation of boundaries was never cited by an advanced farmer as the purpose for erecting a fence. Possibly, then, the intent to define boundaries or strengthen claims to a piece of land is a motivation for fencing which a farmer is reluctant to acknowledge.

Only eighteen farmers said that they fenced in order to plant or plow during the winter, when livestock are otherwise allowed to roam freely through the fields. The fact that 93 percent of the advanced farmers fenced in order to keep livestock out of their fields during the normal cropping season indicates that the supervision of cattle during that time is apparently inadequate for protecting crops from damage. One farmer admitted that fencing enabled

TABLE 6

Reasons for Fencing*

REASON FOR FENCING	NO. OF FARMERS	% OF FARMERS
To protect crops from livestock:		
- during cropping season	41	93.2
- during winter	16	36.4
To winter plow	2	4.5
To control my own livestock	1	2.3

* Some farmers gave multiple responses.

him not only to keep other people's cattle out of his field but also to keep his own cattle out of his neighbors' fields.

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

TABLE 7

Attitudes about Fencing

ATTITUDE	OF NEIGHBORS		OF CHIEFS	
	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

There are several different ways of assessing whether customary anti-fencing attitudes of the chief and/or the community act to prevent fencing. By just the number of advanced farmers who fence and the extent of their fencing, such attitudes are suspected to be of little constraint. Are farmers who fence ignoring these attitudes or have the feelings against fencing disappeared? Data from the survey suggest the latter.

Table 7 shows the attitudes toward fencing of chiefs and community members as perceived by the advanced farmers. Of the advanced farmers surveyed, 78.7 percent reported that their neighbors either approved of or did not care about fencing. An even larger majority, 85.1 percent, said that their chiefs felt the same way, that is, either approved of or did not care about fencing, and no one thought that their chiefs disapproved of fencing. In fact, twenty-one (45 percent) of the advanced farmers reported that their chiefs had fenced all or part of their own holdings. Fencing is done not only by advanced farmers. Twenty-six (55.3 percent) of the farmers reported that most of their neighbors fence as well.

One other way a "customary attitudes" constraint on fencing might be detected is by looking at why some people have not fenced more than they have or, as is the case for three of the advanced farmers, have not fenced at all. The reasons given in the survey had nothing to do with either chiefly or community opposition. All three nonfencing farmers cited lack of money as their reason for not fencing. This was also the most common reason given (by 73 percent of the farmers surveyed) for not having fenced all of their fields; another 14 percent said simply that it was not necessary to fence all of the fields.

The advantages and disadvantages of the custom of winter grazing on stover of cultivated fields have been summarized by Hughes (1972, pp. 225-26):

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 plowed back to maintain the fertility and structure of the soil. . . . If 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.

By fencing and keeping his neighbors' cattle out of his fields during the winter for winter plowing, for irrigated winter cropping, or for early planting, the farmer is reducing his neighbors' "Right of Stover." Can a farmer keep his neighbors' cattle out of his fields without creating ill will? How do neighbors feel about a farmer's excluding them from grazing their cattle on his stover by plowing under his crop residue, by harvesting the residue, or by

allowing only his own cattle to feed in the fenced fields? 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 the stover after harvest. The act of fencing is not, in itself, necessarily a violation of the right of stover. Of the forty-four farmers surveyed who fence, twenty-five (57 percent) do not prevent their neighbors' cattle from grazing in their fields after harvest. These farmers allow their neighbors' cattle to graze by leaving the fences open on all or part of their fields, by keeping only a small garden fenced, or by enclosing the irrigated fields year-round. Some of these farmers winter plow but do so only late in the season, after livestock have already browsed in the fields.

The remaining nineteen (43 percent) of the advanced farmers who fence violate their neighbors' right of stover in several ways. They may keep all cattle out of their fenced areas, they may allow only their own cattle in to feed, or they may let their neighbors' cattle in only after the stover has been harvested or plowed under. As perceived by these farmers, however, the neighbors mostly do not care. Only two farmers reported that there is some disapproval, saying that their neighbors "grumble amongst themselves but there is nothing they can do." Eight farmers said that nobody cares about their use of stover, one farmer admitted that he did not know how his neighbors felt, and one farmer observed that his neighbors usually approve of his actions. (Unfortunately, this question was not asked of the seven farmers who left their stover standing but allowed only their own cattle to feed on it.)

This is consistent with Sibisi's (1981) study of "keen" farmers, in which she found (p. 55) that most of the farmers surveyed had succeeded in getting their communities to accept their fencing and harvesting of stover. However, she stressed that there seemed to be conditions to this acceptance. First, only a few farmers could use these practices so that the customary system would not be overturned. Second, those few farmers who did exclude other people's cattle from their stover should keep their own cattle out of their neighbors' fields. No evidence of this latter condition was found in the advanced farmer survey. Without exception, all of the farmers who cut their stover or plowed it under, thus making it unavailable for their neighbors' livestock, reported that there was no problem if their cattle browsed in their neighbors' fields.

The existence of the first condition is more difficult to judge. Although 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 of stover the exception to the rule, practiced by only a few advanced farmers, as Sibisi (1981) concludes? Or are these practices becoming more widely adopted on SNL and do they therefore represent a fundamental change in Swazi customary land tenure rules? The answers to this question will have to await the results of the traditional sector survey based on a random sample of all homesteads on SNL and not just on the sample of advanced farmers.

Rose (1987) made the point that the problem may not be with fencing per se but with fencing before the particular boundary 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. . . . Such action would prevent 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 neighbors or seek the permission of the chief before they fenced. Of those who fenced, only eighteen (40.9 percent) consulted their neighbors and twenty (45.5 percent) sought out permission of their chief; seventeen (38.6 percent) consulted neither neighbors nor chief, though a few farmers reported that it was not necessary to ask the chief for permission because he had announced that anybody could fence. Of the farmers who did consult their neighbors, only two did so in order to discuss boundaries.

Despite the claim by most of the advanced farmers that fencing was approved by the community or was a matter of indifference, fourteen (32 percent) of those who fenced reported that they sometimes found their fences cut. While one of these farmers explained that his fence was cut by kids making wire cars, the others might suspect that at least one community member does not approve of the fence and the fact that it restricts the movement of cattle. Although 66 percent of the farmers who live in communities which disapprove of fencing experienced cut fences, 30 percent of the farmers who reside in approving and/or indifferent communities have had their fences cut, too.

2. Obligatory Services Provided to the Chief

It has been suggested that some of the obligations to a chief can interfere with the actions of a dedicated farmer. Customarily, the chief announces both when cattle are to be allowed onto the fields after harvest and when they are to be removed from the fields in the spring so that plowing can begin. The timing of these events may not coincide with the plans of the advanced farmer, who could follow a different cultivation schedule than his neighbors. Early plowing, for example, which was strongly encouraged during the Advanced Farmer Scheme, is difficult to achieve if the chief does not order the cattle removed from the fields until later in the season. Have advanced farmers actually experienced problems of this nature?

In terms of opening the fields to grazing, the chief did not announce a specific date in twenty-six (55 percent) of the cases. People in the communities "just know" when the time has come to let the cattle graze in the fields, so the chief does not have to specify a date. Of the twenty-one farmers who live in areas where the chief does pronounce an exact date, only two thought that the cattle entered the fields too early. In one instance, people had in fact let their cattle into the fields before the specified date; in the other case, the farmer herself had planted very late so was not finished with harvesting before the chief's announcement.

Although there is little problem with the time cattle are allowed onto the fields, many of the advanced farmers report that they are prevented from plowing as early as they would like because their chief waits too long to call for the cattle's removal. Thirty-three (70 percent) of the farmers said that

the chief in their area announces when livestock must be taken from the fields. The deadline for the cattle removal varies widely, however. In one area, the cattle must be removed in July; in three other places, the cattle need not leave the fields until December.

Table 8 shows the distribution of dates of the chief's announcement to remove cattle from the fields. Just over 20 percent of the chiefdoms have cattle cleared out of the fields by the end of August. Another 20 percent do not remove the cattle until November or December. The majority of chiefs call for the cattle to be taken out during September and October, a time when many people want to start plowing. Thus in over 70 percent of the chiefdoms, there are varying degrees of potential for farmers to be delayed in their plowing. This is confirmed by the responses to two other questions on the subject. Twenty-nine (87.9 percent) of the advanced farmers who live in areas where removal dates are set claim that they would have plowed earlier had the chief set the date earlier. Twelve (36.4 percent) of these farmers said that they had plowed immediately after cattle removal and an additional sixteen (48.5 percent) claimed to have plowed before that date. Thus, twenty-eight (84.8 percent) of the farmers surveyed plowed before or immediately after the date set for cattle removal.

TABLE 8

Distribution of Dates of Chief's Announcement
to Remove Cattle from the Fields

ANNOUNCEMENT DATE	# OF CHIEFDOMS	% ^a	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	--	--
Doesn't announce	13	--	--
Don't remember	2	--	--

a. Calculated as the percentage of chiefdoms in which the date is known and announced.

All of these facts raise some additional questions about fencing. The two farmers who complained about cattle being released into the fields before they were ready in the fall both have fences around all of their fields. Many of the farmers who said that they would plow earlier if the chief set the removal date earlier have fenced all or most of their fields. Why do they all not plow before that date (as sixteen of them have done)? Part of the answer is that fences do not seem to be totally effective in keeping cattle out of the fields. This can be seen in table 9, which shows that forty-two (89.4 percent) of the advanced farmers have problems with other people's livestock damaging their crops. What is surprising is that fencing does not seem to help, since twenty-one (91.3 percent) of the farmers who have fenced all of their fields still have experienced livestock damage to their crops. This damage is due not only to goats, which have no trouble slipping through wire fences; most of the farmers reported that the damage was by cattle, as shown in the last column of the table.

TABLE 9

Farmers Experiencing Crop Damage Caused by Livestock

	NUMBER IN EACH CATEGORY	LIVESTOCK DAMAGE		CATTLE DAMAGE	
		Frequency	%	Frequency	%
All advanced farmers	47	42	89.4	36	76.6
Those who fence:					
- some fields	44	40	90.9	34	77.3
- all fields	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 not at all. Of the farmers with fences around all of their fields, 78.3 percent (18 out of 23) report crop damage by their neighbors' cattle.

Before concluding that fences are totally ineffective in achieving their stated purpose--that is, protecting crops from livestock damage--the possibility should be considered that crop damage in fenced fields is less than in non-fenced fields. Unfortunately, the magnitude of crop damage was not determined in the survey. The slight evidence, however, does not support this hypothesis. That is, one of the three farmers with no fencing was also one of five farmers who reported no livestock damage to crops.

The data on the incidence of cattle damage to crops suggest that fencing 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 can feel constrained not to plow before the cattle have been removed from the cultivated areas.

3. Tribute Labor

Another customary practice which could hinder the work of a dedicated farmer is tribute labor. Does the chief require people to help him plow his fields before any other fields in the community are plowed? Are farmers called to help the chief or the king plow, weed, or harvest at the very time when they need the homestead's labor resources on their own fields for those same tasks? If so, how significant are these conflicts and how do farmers feel about them?

The requirement that the chief's fields be plowed before those of his subjects could impose a serious constraint on an advanced farmer who wants to plow and plant early. Before the survey, a number of Swazis suggested that this was a common practice on SNL. The survey results, however, show otherwise. Only four (8.5 percent) of the respondents said that they are not permitted to plow their own land before the chief's fields have been plowed. One of these farmers explained that he would not plow before the chief because he was on poor terms with the chief and did not want to offend. He implied that the restriction did not apply to his neighbors. Another two of these farmers described what we had been told was the customary practice:

Every year before plowing, 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 plowed first is no longer common, it may pose a serious constraint to early plowing in those few areas in which it is practiced.

Data from the survey suggest that the practice of contributing labor to the chief is almost universal on SNL and that it may exacerbate a labor constraint of some advanced farmers. All of the advanced farmers--except two who are from areas where there is no chief--reported that the chief calls them to work in his fields. In thirty-five (78 percent) of the chiefdoms, subjects are called for plowing, weeding, and harvesting. In the remaining ten chiefdoms, the people are called to help with only one or two of these tasks. Most of the advanced farmers obey the chief's call. One farmer said that he was exempted because of poverty and failing health while another that said that he had helped the chief sometimes but not this year. Thus, forty-three (91.5 percent) of the farmers surveyed contributed labor to the chief.

This contribution might impose a drain on the homestead work force. The possible labor depletion was measured in two ways: the number of homestead members sent to work, and the number of days spent working. As shown in table 10,

TABLE 10

Number of Homestead Members Participating in Tribute Labor

NUMBER OF PEOPLE	CHIEF'S FIELDS		KING'S FIELDS	
	Frequency	%	Frequency	%
1	24	55.8	22	57.9
2	8	18.6	9	23.7
3	5	11.6	3	7.9
4	3	7.0	4	10.5
6	1	2.3	0	0.0
All members	<u>2</u>	<u>4.7</u>	<u>0</u>	<u>0.0</u>
Total	43	100.0	38	100.0
Average number per homestead	2.0		1.8	

a majority of the homesteads (55.8 percent) send just one representative to work in the chief's fields. Only two farmers reported that everybody at the homestead participates when the chief calls for assistance.

All of the homesteads contributing labor to the chief also donate the use of their tractors, oxen, and other farming implements. But plowing, weeding, and harvesting are not the only tasks for which homesteads are required to supply labor to the chief. Thirty-four (almost three-quarters) of the advanced farmers said that they are also required to help with such tasks as building the kraal or other structures, cutting and thatching grass, shearing maize, and running errands. In addition to these obligations to the chief, homesteads must also respond when the king calls for labor contributions, usually for weeding or harvesting and other nonagricultural tasks. Thirty-eight (80.9 percent) of the advanced farmers said that they send homestead members when the king calls. As with helping the chief, a majority of the homesteads send just one representative.

Perhaps the number of person-days involved is more indicative of the labor costs to the homestead imposed by tribute labor. The number of person-days devoted to agricultural tasks for the chief and king ranged from 0 to 105 per homestead per annum, with an average of 34.4 days. Although some homesteads spend a lot time in the chief's fields and not much time in the king's, and others do just the opposite, the average time devoted to working for the chief and the king is about equal.

TABLE 11

Number of Worker Days^a of Tribute Labor

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 ^b	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		

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

b. 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 labor contribution of each homestead. The number of worker days for a homestead was calculated by multiplying the number of homestead members participating in tribute labor by the number of days worked. (The time spent working on nonagricultural tasks could not be included.) The results are shown in table 11. The average advanced farmer donated 62.4 worker days of labor to the chief and king. One farmer claims to have contributed 348 worker days a year, the equivalent of donating the full-time labor of one homestead member.

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

TABLE 12

Does Sending Labor to the Chief's or the King's Fields Affect Homestead Work?

RESPONSE	CHIEF'S FIELDS			KING'S FIELDS		
	Fre- quency	Total %	% of Those Who Send	Fre- quency	Total %	% of Those Who Send
Has no effect	28	59.6	65.1	25	53.1	69.4
Delays homestead work	15	31.9	34.9	11	23.4	30.6
Don't send workers	<u>4</u>	<u>8.5</u>	<u>--</u>	<u>11</u>	<u>23.4</u>	<u>--</u>
Total	47	100.0	100.0	47	99.9	100.0

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

Other data which were collected in the survey could indicate the existence of a labor constraint. (Labor as a constraint is discussed more fully in section III.B.) Farmers were asked whether they invited lilima or hired workers, and whether or not they had enough labor to do the necessary work in

the fields at all times of the year. Inviting *lilima* was taken as a sign that there was insufficient homestead labor when the additional labor was sought, usually at times of weeding or harvesting. Thirty-two farmers (68.1 percent) hired labor. In the group of sixteen farmers who said that providing tribute labor delayed their work, hiring labor was even more common. All but one (93.8 percent) of these farmers hired labor. More difficult to explain is that while twenty-one farmers stated that they faced labor shortages and sixteen said that providing tribute labor delayed their own work, only six reported both labor shortages and work delays. Similarly, the expected relationship between the perceived burden imposed by tribute labor and the actual number of worker days spent in such labor did not materialize. Although the two highest contributors of tribute labor said that it delayed their own work, as expected, eleven (or 68.8 percent) out of the sixteen who claimed to be delayed by tribute labor contributed 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 desires to do so and has sufficient labor or does he give more labor because a larger donation is expected in his chieftom? The fact that 92.9 percent of the farmers who provided tribute labor said that they contributed about the same as their neighbors suggests the latter explanation.

While there is evidence that the practice of tribute labor can impose a labor constraint at a critical time, the farmer who chooses not to contribute labor 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 which ranged from E10 to E100* 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 is transgressing some of the customary rules of behavior by fencing, denying the right of stover, or using SNL to grow a marketed surplus and thus having "more land than he needs." If an advanced farmer decides that he cannot afford to send workers to help the chief and opts to pay the fine, he may be seen as withdrawing from the community or starting to think of himself as above his neighbors or as equal to the chief. Thus, tribute labor 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 the advanced farmers may feel compelled to do more for the chief than their neighbors because of their success in farming, their wealth, or their ownership of a tractor. However, as stated above, virtually all of the respondents said that they thought that they contributed neither more nor less than their neighbors. Only one farmer claimed to contribute more.

Tribute labor was not perceived as a major problem by most of the advanced farmers surveyed. When asked, some admitted that it did delay their work but many quickly added, "but that is our custom," or "that is just the way of things," implying that they did not think it was an unjust burden.

* In 1987, 1.93 emalangeni were equivalent to \$1.00 (U.S. dollars).

Funerals may be more of a problem for farmers than tribute labor or the apparently little practiced rule that the chief's fields must be plowed first. Unfortunately, this was not anticipated so no question about funerals was asked. Several respondents brought up the subject on their own, however. One farmer explained, "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 can tribute labor. While tribute labor does not bring all work to a halt since homesteads need send only 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 which funerals may impose on advanced farmers because no data were collected on the topic. However, it is significant that two farmers spontaneously identified funerals as a problem. It is reasonable to expect that other advanced farmers in the survey would have shared these opinions had they been asked.

III. NONTENURE-RELATED CONSTRAINTS TO COMMERCIAL AGRICULTURE

A. Transportation and Marketing

Many researchers have concluded that problems related to marketing, such as lack of transportation, undependable markets, and low prices, are the most serious constraints to developing commercial agriculture on SNL. Harriet Sibisi (1981) strongly emphasized this point in her research on "keen farmers." She reported (p. 3) that:

The greatest constraint on maize production is marketing. Farmers consider the Swaziland Milling Company price 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 [author's emphasis].

In anticipation of marketing problems being high on the list of farmer grievances, the advanced farmer survey included many questions about marketing. However, responses differed in both content and number from what was expected. Maize was sold by thirty (64 percent) of the advanced farmers, and thirteen (43 percent) of them reported problems with marketing. Most of the complaints concerned transportation. Five farmers complained that hiring transport was too expensive. Four more said that they did not like being dependent on hired transportation, mostly because they could not sell when they wanted to. One farmer, who owned his own bakkie, complained that the truck was too small and that he had to make multiple trips to the market.

Of the thirty farmers who sell maize, only five (17 percent) reported problems with selling. Two complained that the local markets were small and unreliable and that they were not always able to sell all of their produce before it spoiled. Another two objected to waiting in the long queue at Swaziland Milling Company (SMC) before their sales transaction. Only one farmer complained about getting too low a price for his maize; he felt that the milling company had undergraded his grain.

Why are the results of the present research on the issue of marketing maize so different from those of Sibisi's 1981 report? Sibisi's "keen farmers" felt strongly that the SMC price they received for their maize was much too low. Yet only one of the survey farmers complained about that price and his objection was more about the SMC grading process than about its general price level.

One factor contributing to the difference in results is the change in the price of maize since Sibisi conducted her research in 1980 and 1981. At that time, the government price for maize was E8.55 per 70-kilogram bag. By May 1986, at the end of the cropping season about which the advanced farmers were queried, the official price of maize had risen to E23.45 per bag, an increase of 175 percent. This increase represents a much lower increase in purchasing power, however. Due to inflation, Swazi prices have more than doubled since 1980. When the 1986 price of maize is converted to the equivalent of 1980 emalangeni (using the Swaziland Retail Price Index for low-income groups), it equals only E10.67. Thus in real terms, there has been a 25 percent 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 1980s, especially since farmers in many countries have been faced with declining real (inflation adjusted) producer prices. However, would this 25 percent increase in the price of maize in six years, the equivalent of a 3.2 percent annual increase, satisfy all of the farmers who complained so vehemently of low prices in 1980? Were they not at least partially fooled by the inflation-induced appearance of a much larger price rise?

Sibisi (1981) 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 confirm this pattern. Only nine (31 percent) of the farmers who sell maize deal with the National Maize Corporation, which now operates the Swaziland Milling Company. The rest sell the maize from their farm to local people and residents. A few farmers also take it to local markets. The average selling price for maize reported by the advanced farmers was E23 per bag, ranging from E20 to E26. There was no difference in the average price received by those who sold to the SMC and those who sold at the farm gate. The reason why some farmers choose to send their maize to the milling company while others decide to sell at home or locally is not related to price or geographical location. Farm size seems to be the determining factor. Primarily the larger maize farmers sell to the milling company, and average gross maize sales for this group are over three times the average for those who sell at home (E1,905 versus E582).

Sellers of cotton, legumes, fruits, and vegetables expressed very similar marketing concerns. They mentioned their problems with transportation most frequently, being pretty evenly split between those who thought hiring transport was too expensive and those who did not like the inconvenience, delays, and unpredictability involved in hiring transportation. In addition, two out of twenty-three sellers of legumes, fruits, and vegetables said that they had problems with their produce's spoiling before they could get it to market.

While almost half of the farmers who sold crops complained of problems with transportation, only 20 percent said that they had difficulties in selling their crops. In addition to the problems of selling maize, described above, three vegetable sellers said that they did not know where to sell their produce and three said that they were not always able to vend all of the produce before it spoiled.

In summary, marketing did not seem to be a serious problem for the advanced farmers, contrary to what had been expected. The majority of farmers, in fact, reported no marketing problems. Those who did mention difficulties were concerned mostly with transporting their crops to market. The transport constraint was not overwhelming, however, since no farmer reported that he was simply unable to get the necessary transportation. Farmers tended to focus their marketing problem on the difficulty of hiring transport, some feeling that hired transport was too expensive while others complaining that it was not available when needed. This availability problem was most critical for two vegetable farmers who said that their produce sometimes spoiled before they could get it to market. Out of nine farmers who reported some kind of problem with marketing their crops, only one complained of low prices.

B. Acquisition of Inputs

Obtaining farm inputs is another potential constraint to commercial agriculture. The advanced farmer survey examined the use of certain inputs and whether or not the farmers experienced difficulties in obtaining them. The majority of farmers (64 percent) reported some sort of trouble in their acquiring seed, fertilizer, insecticides, and/or farm equipment. About half of these (53 percent) said that they simply lacked sufficient money to purchase the inputs, but most (80 percent) complained about the physical difficulty involved in obtaining them--the distances that had to be traveled to get them or the fact that they arrived too late at the Rural Development Area shed to be used; a few (17 percent) specifically mentioned that no tractors in the area were available for hire.

Despite these reported difficulties in obtaining inputs, one significant finding of the survey was the widespread use of modern inputs among advanced farmers. Hybrid maize seed is a good example. All but one of the advanced farmers (98 percent) use hybrid seeds. A majority of them (62 percent) use hybrid seeds exclusively while others (36 percent) use a mixture of hybrid and local seeds. Most of those who use a combination of hybrid and local seeds do so because of the positive attributes of the local seeds--they cited better taste, higher resistance to drought, and better storability; many said that they planted both hybrid and local seeds as a general strategy to reduce risk.

The use of fertilizer was almost universal among the advanced farmers surveyed (98 percent). Several respondents, however, complained about the expense of this input. One farmer said he could not afford to use fertilizer at all, and eleven said that they used less than the recommended amount because it is too expensive.

Tractor use was also found to be very high. Of the advanced farmers surveyed, 25 percent own tractors (though a third of this group reportedly had inoperative vehicles), and 74 percent (including a few who own tractors) hire them for one or more tasks during the year. In total, 87.1 percent of the advanced farmers use a tractor, either hired or owned, for all or part of their plowing activities. Despite these high proportions of tractor-using farmers, 10 percent said that they were either sometimes or always unable to get a

tractor because none in their area was available for hire. The major source of complaint over tractor-hiring was the long delay involved between the time the tractor is requested and the time it is delivered. The vehicle arrives from two weeks to over a month after the time the farmer had planned on plowing for 40 percent of those who hire tractors.

The problems reported in obtaining inputs do not seem to have prevented most farmers from using them to some extent. All but one advanced farmer use hybrid seeds and, in like manner, all but one farmer use fertilizer. Of those responding to the survey, 87 percent either own or hire a tractor. Some of the problems described in the survey, however, may limit the farmers' use and hence reduce the effectiveness of the inputs. Twelve (26 percent) of the farmers said that they could not afford to buy the recommended amount of fertilizer and hybrid seed (and the same number of farmers reported insufficient funds to buy as much hybrid seed as they would like). Four farmers (9 percent) responded similarly about hiring tractors. Overall, sixteen (34 percent) 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 obtaining them when they are needed is a serious problem for some farmers. Six farmers (13 percent) complained that inputs do not arrive at the RDA shed until too late in the season while ten farmers (21 percent) said that the tractors they hire come too late.

C. Labor

The Advanced Farmer Survey found numerous indications that labor may be a constraint for many farmers at critical times during the cropping season. Some of these indicators have already been discussed in section II.D, above, in relation to tribute labor.

Looking at the advanced farmers' homestead labor force in relation to their landholdings provides a broad picture of their use of labor. Homestead labor was defined as the number of people, 15 years of age or older, who either reside at the homestead or return from outside employment to help with the plowing, planting, weeding, and harvesting operations. The number of homestead members available for labor use ranged from 2 to 19, averaging 6.3 persons per homestead; 77 percent of all advanced farmer homesteads had an available labor force of 7 homestead members or less.

The number of workers per hectare is obtained by dividing the number of homestead workers by the total field area of the homestead. There was a wide variation among the advanced farmers in this regard, as can be seen in table 13.

The average number of homestead workers per hectare was 1.57, but most of the farmers had fewer than this. Some of the variation is explained by the ecological zone of the homestead. Since holdings in the lowveld are on average three to four times larger than elsewhere, the labor available per hectare in that region should be less than the average. Seven of the eight homesteads

TABLE 13

Homestead Labor per Hectare

HOMESTEAD LABOR PER HECTARE	# OF HOMESTEADS	%	CUMULATIVE %
<0.5	8	17.4	17.4
>0.5 but less than 1	9	19.6	37.0
>1 but less than 2	20	43.5	80.5
>2 but less than 5	7	15.2	95.7
5 or more	<u>2</u>	<u>4.3</u>	<u>100.0</u>
Total	46	100.0	--

having fewer than 0.5 homestead workers per hectare, as a matter of fact, were in the lowveld, and no lowveld homestead had more than 1.7 workers per hectare. As would be expected, homestead workers per hectare was highly correlated with other indicators of homestead labor shortage.

As mentioned in section II.D, inviting *lilima* or hiring labor were taken as indications that there was insufficient homestead labor at the times for which more labor was sought. Thirty-two (68.1 percent) of the responding farmers hired labor. Nine (19.1 percent) of the farmers invited *lilima*, but only two of these did not also hire additional labor. Thus, thirty-four (72.3 percent) of the farmers augmented their homestead labor with outside labor. Table 14 displays the very strong correlation between hiring labor and having low levels of homestead labor per hectare.

While all of the seventeen farmers who have less than one unit of labor per hectare hire additional labor, only eleven (55 percent) of those with one-to-two homestead workers per hectare and three (43 percent) of those with two-to-five homestead workers per hectare hire labor. Neither of the two homesteads with more than five workers per hectare hires labor.

Although hiring labor or inviting *lilima* indicates the existence of a homestead labor shortage, the homestead may overcome that constraint by obtaining outside labor. The relevant question becomes, How many homesteads are short of labor after hiring workers or inviting *lilima*?

Twenty-one farmers (45 percent of the total) said that they did not have sufficient labor to do all of the farm work during certain times of the year. Eighteen of these respondents hired labor and/or invited *lilima*. Two factors

TABLE 14

Relationship between Hiring Labor and Homestead Labor per Hectare

FREQUENCY (row #) (column %)	HOMESTEAD LABOR PER HECTARE					ROW TOTALS
	<.5	≥.5 & <1	≥1 & <2	≥2 & <5	≥5	
Hire labor	8 100.0%	9 100.0%	11 55.0%	3 42.9%	0 0.0%	31 67.4%
Do not hire labor	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%	

constrained their hiring additional workers: available money and available labor. Ten of the farmers who hired workers but still did not have sufficient labor said that they did not have the money to hire more. The other eight said that they would have liked to hire more workers but none were to be found. One farmer claimed that he had traveled the country looking for additional labor but that he could find few individuals willing to work. This is somewhat surprising considering the high unemployment rate in Swaziland and the relatively small number of workers that the farmers do hire (91 percent of those hiring labor employed ten workers or less).

Lilima is the customary alternative to hiring labor. Rather than paying wages, a farmer invites his neighbors to 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 is not what it used to be. Many farmers complained that the people who come for lilima do little work, and poor work at that. Worse, they sometimes damage the crops. As one farmer said, "Lilima spoiled my work. When they weeded, they also uplifted the maize plants, so I stopped inviting them."

Other farmers reported that either lilima is no longer practiced in their areas or few people come when it is invited. People in rural areas are perhaps less willing to put in a day's work just for the chance to meet with friends and drink home-brewed beer. Some of the advanced farmers said that they could not afford to invite lilima because participants expected to be paid wages as well as receiving food and beer. Therefore, lilima may no longer be an institution on which farmers can rely to relieve seasonal shortages of homestead labor.

In summary, some, but not all, advanced farmers face a labor constraint in their farming. Although over two-thirds of the farmers interviewed had insufficient homestead labor for weeding and/or harvesting, many were able to overcome that constraint by hiring labor or inviting lilima. Over half of this group, however, said that they were unable to get enough outside labor at critical times. Eleven farmers said that they lacked the money to do so while eight said that they could not find more persons who were willing to work. A small group of farmers said that they were short of labor but they neither hired workers nor invited lilima; all three of these respondents said that they were prevented from obtaining more labor by their lack of money.

IV. SUMMARY AND CONCLUSIONS

A number of potential tenure-related constraints to commercial agriculture were investigated through the advanced farmer survey. Some were found to be of little or no significance. These include:

- subdivision and fragmentation of holdings;
- the inability to acquire additional land, including the ability to borrow land;
- the inability to use land as collateral for credit;
- chief and community opposition to fencing;
- having to plow the chief's land before your own.

Other potential constraints were found to be real impediments 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 labor.

In addition, nontenure-related constraints such as transportation, marketing, and access to labor and other inputs were examined. It had been expected that marketing problems, especially low producer prices, would be considered as major impediments to increased commercial production. Few advanced farmers, however, felt that these were real difficulties. Instead, problems with obtaining transportation, inputs, and labor were cited as more serious nontenure-related constraints.

A. Some Nonbinding Constraints

Subdivision 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 an average field size or a total holding size smaller than that of nonsubdivided homesteads.

About half of the advanced farmers had at least one field located over 500 meters away from the homestead and thus could be defined as fragmented. One in five advanced farmers, or 40 percent of those with fragmented fields, said that the distance to their fields cost them time and money and made it difficult to supervise the fields 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 being able to find it only far away from the homestead. None of the cases of fragmentation resulted from subdivision.

Shortage of land did not seem to be a problem for most advanced farmers. Only six farmers said that they had tried and failed to get more land and all of these farmers had succeeded in obtaining additional land at other times. Forty percent of the advanced farmers reported that 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 by borrowing.

Borrowing was found to be a common method for obtaining additional land. Forty-three percent of the advanced farmers borrow land or used to borrow land. Despite the potential for disputes at the time the land is reclaimed, no advanced farmer who lends or used to lend land reported any problems.

The inability to use land as collateral did not prevent access to credit. Three-quarters of the advanced farmers use credit, mostly for seasonal loans to buy inputs and less frequently for major purchases such as tractors and other farm equipment. Only one of the twelve farmers who had never borrowed money cited lack of collateral as the reason. Although seven farmers had had credit denied them because of insufficient collateral, all had obtained loans at other times. Finally, no advanced farmer said that not being able to get collateral was a problem, though two did complain about high interest rates.

The requirement that the chief's fields be plowed before the farmers' own fields was seen as a potentially serious constraint to early plowing and planting. However, very few chiefs still demand that their fields be plowed first. Only three advanced farmers (6.4 percent) said that members of their communities were not permitted to plow their own fields before helping the chief.

Fencing has become widespread among advanced farmers and there seems to be little or no chief or community opposition. All but three of the advanced farmers who fence all or part of their holdings and the three who do not fence cited lack of money, not community opposition, as the reason for not fencing. Only 6 percent of the advanced farmers thought that their neighbors disapproved of fencing and none felt that their chief disapproved. Of the farmers who used their fences to restrict the foraging movement of their neighbors' cattle during winter (and thus denying them their "right to stover"), only two (16 percent) felt that their neighbors disapproved. Finally, although advanced farmers overwhelmingly believe that their community as a whole does not oppose fencing, almost a third of the farmers experience problems with having their fences cut. Apparently, even pro-fencing communities contain some individuals who do not approve.

B. Fencing and Cattle

The findings regarding fencing and cattle involve a paradox. Farmers who depart from the customary schedule for plowing and harvesting by plowing early, growing long-maturing varieties, or irrigating and winter cropping face the problem of having cattle destroy their crops when their neighbors' fields stand idle and the animals are allowed to roam freely. Fencing is supposed to be a solution to this problem, because a fence should protect the fields of a farmer who grows crops during the winter or plows and plants before the chief announces that the cattle are to be removed from the fields.

An unexpected result of the survey was that late removal of cattle from the fields in spring was felt to be a constraint to early plowing despite the widespread use of fences among the advanced farmers. All but three of the advanced farmers fence all or part of their landholdings. Yet in the areas where the chief determines the date that cattle are to be removed from the fields, 88 percent of the advanced farmers said they would have plowed earlier had the chief set the date earlier.

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

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

C. Land, Labor, and Banishment

Another unexpected result of the survey was that many advanced farmers are constrained by labor availability but not by land availability. Prior research had concluded that insufficiency of land is a major constraint for farmers wishing to farm commercially on SNL while labor is not a restriction. In an analysis of agricultural commercialization in Swaziland, Testerink (1984, p. 28) states that "comparing the resource bases of the farms, we can conclude that the main bottleneck is land. . . . Labor is abundantly available [though] more so with noncommercial farmers than commercial farmers." De Vletter (1986, p. 33) reports that "for the highest crop income earners, labor did not appear as an important constraint. Instead, marketing emerged as a serious problem in addition to land shortage and lack of water." Funnell (1982) likewise argues that land rather than labor is the limiting factor for maize production.

Just the opposite seems to be true for the advanced farmers surveyed. These farmers, even including the noncommercial operators, have over twice as much land as Testerink's (1984) group of commercial farmers. While just over half of Testerink's commercial farmers have access to more than 2 hectares, only two (4.5 percent) of the advanced farmers have less than 2 hectares and these two are both noncommercial farmers. Over a third of the advanced farmers have over 5 hectares. Another indication of the lack of a land constraint is the fact that seventeen (36.2 percent) of the advanced farmers have left land lie fallow for at least two years. This not to say that none of the advanced farmers wants more land. However, as reported in section II.A, many

TABLE 15
Landholdings Compared

LANDHOLDING	ADVANCED FARMERS	COMMERCIAL ^a	AVERAGE RURAL RESIDENTS
Average (in hectares)	6.5	3.0	1.5 ^a
% with <0.5 ha	0	1.7	26.5 ^b
% with <2 ha	4.5	43.1	-
% with >5 ha	34.8	12.1	-

a. Testerink (1984).

b. Swaziland (1972).

seem to have no trouble acquiring additional land by either asking the chief or borrowing.

At the same time, advanced farmers have fewer homestead workers per hectare than the commercial farmers in Testerink's (1984) sample, as is shown in table 16. The disparity is even greater if nonresidents who return to work in homestead fields are excluded, as they are in Testerink's sample.

The constraint imposed by tribute labor can be understood in light of this situation. Tribute labor is not a burden since most rural homesteads have surplus labor. Though less abundant for the many homesteads which meet Testerink's (1984) definition of commercialization, labor still seems to be so sufficiently plentiful that several workers can help the chief or king without much impact on homestead agricultural production. Therefore, for the community as a whole, tribute labor as a customary institution which helps maintain cultural values and social relationships has little cost in terms of forgone agricultural output. However, for the minority of commercial farmers represented by the advanced farmers, tribute labor can impose a constraint on how much they produce. These farmers are apt to have expanded their landholdings in order to increase their production and therefore no longer have a labor surplus from which they can donate several workers without affecting their own farm work. A majority of the advanced farmers had insufficient homestead labor at critical times during the cropping season. Sixty-eight percent of them, in fact, augmented their homestead labor with hired labor, and over half of this group was still unable to get enough outside labor for weeding and/or harvesting. Farmers who admitted that their work was delayed by tribute labor, 94 percent of whom hired labor, were already facing a labor constraint.

TABLE 16

Homestead Labor Units per Hectare

LABOR UNITS PER HECTARE	ADVANCED FARMERS		COMMERCIAL FARMERS ^a	
	%	Cum. %	%	Cum. %
<0.5	17.4	17.4	8.8	8.8
≥0.5 but <1	19.6	37.0	21.1	29.9
≥1 but <2	43.5	80.5	36.8	66.7
≥2	19.5	100.0	33.3	100.0

a. Testerink (1984).

The costs imposed by tribute labor may be less than the costs these farmers would face if they did not send labor to the chief or king. Survey evidence indicates that the threat of banishment is a matter of concern for some advanced farmers in some areas. Only one farmer out of the forty-seven surveyed knew of a case in which a man was banished because his chief and others were envious of his success. Other cases of banishment were reported which may have involved jealousy of a person's property or disapproval of his farming practices, but insufficient detail was gathered to determine the exact reason for banishment. It was concluded that some advanced farmers may risk banishment, though it is very infrequent, and community disapproval to the extent that their style of farming and level of prosperity differ from those of their neighbors. An advanced farmer who does not contribute labor may find himself more isolated from the community. His unwillingness to participate may substantiate his neighbors' impression that he regards himself as being above them or as equal to the chief. Contributing his fair share of labor and gifts to the chief may help the advanced farmer maintain good relations within his community.

Tribute labor may not be resented as an unjust burden by advanced farmers because it is seen as a normal part of life. It was not perceived as a major problem by most of the farmers surveyed. Although some did admit that tribute labor delays their work, many quickly added, "but that is our custom" or "that is just the way of things."

D. Marketing and Access to Inputs

Many researchers have concluded that problems related to marketing, especially low producer prices, are the most serious constraint to developing

commercial agriculture. Although the advanced farmers did have problems with selling their products, they did not cite low producer prices as one of them. Only one farmer complained that the price he received for his crops was too low and that complaint stemmed from an objectionable grading process.

The most common marketing problem was transport. Half of the farmers who sell their crops said that they had problems with transportation to market. Some complained that hiring transport is too expensive while others said that they did not like being dependent on hired conveyance, mostly because it was not available when needed. This latter problem was 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 venders sell their produce locally. Less than a third of the commercial maize farmers sell to the Swaziland Milling Company. About 10 percent of those who sell at home or locally complained that local markets are small and unreliable and that they cannot always sell all of their produce before it spoils. In addition, three (13 percent) of the vegetable producers said that they did not know of a good place to sell their products. Overall, marketing was less of a constraint for the advanced farmers than had been expected. Most reported no problems; those who did were concerned primarily with transportation.

Obtaining inputs posed difficulties for a majority of the advanced farmers. Sixty-four percent reported some sort of problem with getting seed, fertilizer, and insecticides and/or farm equipment. Half of these problems stemmed from the farmers' not having enough money to buy the inputs, but over half concerned the difficulty of getting the items, the distance that had to be traveled, or the late arrival of inputs at the RDA shed.

The delay involved in hiring a tractor was a major source of complaint. About three-quarters of the advanced farmers hire tractors to plow. Forty percent of these respondents reported that they must wait between two weeks to a month or more from the time they request that their fields be plowed until the job is done.

The problems of acquisition do not seem to have prevented most farmers from relying on these inputs to some extent. All but one advanced farmer use hybrid seeds and, similarly, all but one farmer use fertilizer. However, the problems can limit the use and hence reduce the effectiveness of the inputs. Over a quarter of the farmers said that they could not afford to buy the recommended amounts of fertilizer and hybrid seed. Other farmers said that they depended on the RDA shed for their inputs and were often seriously delayed because seed and fertilizer tend to arrive late or not 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 successful projects in Botswana and Lesotho. As outlined by former Chief Agricultural Officer G. Munyua Maina (1974, p. 10), the goals of the Advanced Farmer Scheme were:

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, other related goals can be found in various Ministry of Agriculture and Cooperatives documents written during the time of the scheme. One of the major motivations behind the Advanced Farmer Scheme was to counter rural-urban migration and resulting urban unemployment in Swaziland. This was articulated in a ministry discussion paper on master farmers (Richardson 1971):

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.

The target group of the Advanced Farmer Scheme originally was a minority of Swazi farmers--those who were, or intended to become, full-time commercial farmers. It was hoped that the scheme would expand as the first advanced farmers served as leaders and examples for the majority of Swazi farmers to follow. According to Maina (1974, p. 9), "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 nonprogressive farmers wish to join the 'club'." Another objective, reported in the 1966 Ministry of Agriculture and Cooperatives 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" (MOAC 1966, p. ??).

These last objectives reflected a definite and perhaps controversial extension philosophy. At the time, Swaziland's extension resources were spread even more thinly than they are now. It was thought necessary to concentrate extension efforts on a particular subset of Swazi homesteads. But which group should be chosen as the target? One approach would be to concentrate on those who needed the extension advice the most--the poorest farmers who used the worst techniques and who therefore had the most room for improvement. The opposite approach--and the one actually adopted by the Advanced Farmer Scheme--was to target those farmers who would be the most receptive. These would be the farmers who had already committed themselves to improving their farming practices and perhaps to becoming commercial farmers. This, it was thought, would be the target group through which extension could have its greatest effect in increasing national agricultural output and attaining self-sufficiency in food production. The problem was that these farmers might already be the wealthiest members of their communities so that the Advanced Farmer Scheme would apparently be helping the (relatively) rich get richer and ignoring the poorer farmers. In fact, this belief seems to have been the major reason that the scheme was abandoned in 1972, for some policymakers thought that the Advanced Farmer Scheme was promoting an elite group. Thereafter, all efforts were rechanneled into the Rural Development Areas Program which was in its ascendancy at that time.

The primary activities of the Advanced Farmer Scheme were to enlist qualified farmers for membership, to assure that members were receiving extension advice, and to promote member attendance at short courses on agricultural subjects. To join the scheme, farmers were to meet certain standards. At first, the requirements were laid out only in general terms, but by 1969, a revised set of standards had been codified. By this time, the name of the scheme had changed, too. The original term, "progressive" farmer, had been changed to "advanced" farmer, and a new apprentice category was added--the "pupil" farmers. The requirements for scheme 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 in 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, the farmer received a badge and a certificate to that effect. (The Advanced Farmer Scheme never reached the stage of graduating advanced farmers to master farmers because the scheme was abandoned before the requirements for becoming a master farmer had been established.) Besides receiving the recognition that came with the badge and certificate, advanced farmers 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 plowing;
- encouraging early plowing and planting;
- switching from broadcasting to the use of planters to plant in rows;
- encouraging timely weeding;
- methods of crop storage (later in the scheme).

In order not to divert the farmers' time from their farming activities, classes were held during the winter at the farm training centers in three out of four of the administrative districts. Each session of the classes was conducted for up to one week. Several different sets of classes covering different topics were held each season. Many of the topics covered were area-specific; for example, classes on tobacco growing were held in Nhlanguano or classes on cotton pesticides were held in the lowveld. The plan called for the farmers to be picked up by an MOAC bus and 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. During the period of the scheme, several MOAC annual reports make reference to some districts having great difficulty in 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 scheme that elitism and the appearance of elitism must be avoided. 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, as is the case in the Rural Development Areas Program. However, one of the explicit requirements of the Advanced Farmer Scheme was that participant farmers join the local farmers' association, which was supposed to improve a farmer's access to inputs. Still, membership in the associations, enrollment in 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 to identify those farmers with the interest in doing 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 time the scheme ended, there were 919 advanced farmers. Enrollment statistics are shown in Table A.1.

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	1,735	566
1968	2,214	606
1969	2,214	745
1970	2,785	745
1971	2,629	877
1972	2,700	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 too unrealistic to be used as performance measures. For example, national self-sufficiency in food supply had not been achieved by the end of the scheme nor has it been attained today. Does that mean the scheme was a failure? And, assuming that there has in fact been an increase in commercialization of Swazi agriculture or an improvement of the general standard of living in 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 determine whether or not 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 make 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. The questions were not asked, however, at the eleven homesteads in which the original advanced farmer had died or at the one homestead which housed the only surviving advanced farmer who was working in South Africa.

Overall, most of the advanced farmers had a positive opinion of the Advanced Farmer Scheme. Thirty-two (91.4 percent) of them said that their participation in the scheme had helped them in their farming. Only three said that it was no help. When asked to specify how they were helped by the scheme, about half of the farmers gave examples of the good advice they had received, 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 confused. One-fifth of the farmers who said that 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 that the scheme was supposed to help the participants was to see that they received frequent attention and advice from the extension workers. Twenty-four (68.6 percent) of the advanced farmers, in fact, said that the extension worker did visit them more often after they joined the scheme (23 percent said that they did not visit more frequently and 8.6 percent could not remember).

The advanced farmers in the survey were asked not only if they were visited more often by the extension worker but also about how frequently those visits occurred. Table A.2 displays the frequency of advanced farmer contact with extension workers 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 had with the extension workers in the 1983/84 cropping year (see Swaziland 1986).

It would seem that advanced farmers see their extension workers more infrequently today than they did at the time of the scheme. Whereas 65.7 percent

TABLE A.2

Frequency of Extension Visits per Year

	<u>DURING THE SCHEME</u>		<u>CURRENTLY</u>		<u>AG. CENSUS</u>
	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

of the advanced farmers said that they saw their extension worker six or more times a year during the scheme, only 25.5 percent said that they see them that often now. Only one advanced farmer reported that he was never visited by an extension worker after he joined the scheme. Currently, over half of the advanced farmers (53.2 percent) say that they never see an 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 percent 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 do their neighbors.

Data from the advanced farmer survey also show that the Advanced Farmer Scheme succeeded at encouraging its participants to attend short courses on agricultural subjects. Twenty-eight (80 percent) of the advanced farmers said that they had attended farmer training courses during the scheme, and most went to at least two or three different sessions.

The more important question to be addressed is whether or not all of this effort to make extension advice and training courses available to advanced farmers paid off in terms of getting them to adopt the agricultural practices recommended. These practices include winter plowing, early plowing and planting, the use of planters, and timely weeding. The suitability of crops for particular areas and methods of crop storage were also taught. The extent to which some of these practices have been adopted by the advanced farmers can be gleaned from the results of the survey.

Winter plowing was an important part of the Advanced Farmer Scheme and now, fifteen years after the end of the scheme, over half of the advanced farmers say that they still practice winter plowing. Twenty-one (44.7 percent) of the farmers said that they always winter plow and an additional nine (19.1 percent) said that they winter plow in years in which there is some rain during the winter. Two-thirds of those who always winter plow do so in June or July while the other third plows in April or May. When asked why they winter plow, all thirty of the farmers responded with the textbook answer: "Turning stover over improves the soil and helps it retain moisture during the winter." Two of the farmers added that winter plowing also makes it easier for the oxen to plow in the spring.

On closer questioning, it was discovered that twenty (60 percent) of the farmers who winter plow do not plow all of their fields. The most common reasons given for this were lack of money to hire a tractor to plow all of the fields and insufficient time. Only two farmers said that they purposely left some of their fields unplowed so that their cattle could feed on the stover.

The reasons for not winter plowing all of one's fields were very similar to those given by the seventeen farmers who do not winter plow. About half of these farmers said that they do not winter plow because it was too much work or because they did not want to spend the money to hire a tractor. Three other farmers said that they wanted to keep the stover in the field for their cattle and two said that their chief was against the practice.

Prior to conducting the survey, the researcher had been led to believe that winter plowing is a very uncommon activity on Swazi Nation Land. If this is so, then the Advanced Farmer Scheme had a tremendous impact on its participants in the area of winter plowing, assuming that the 64 percent of advanced farmers who practice winter plowing now were not more inclined than their neighbors to winter plow before they joined the scheme. However, a 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 plowing found in the two surveys, it will be possible to document the extent, if any, to which advanced farmers winter plow more than the average rural homestead.

Plowing 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 forty-three 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, thirteen (30.2 percent) of the advanced farmers plowed 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, in a few cases, January, to plant--can be divided into two groups. One group was anxious to plant as soon as possible and so plowed and prepared the soil for planting early in order that when the rains finally did come,

they could plant immediately. The other group was in less of a hurry and did not begin to plow until they felt there had been sufficient rain. Fourteen (32.5 percent) of the farmers who plowed in September or October and then waited until the rains came fell into the first group.

One must be cautious about the conclusions that can be drawn from these data about farmer intentions to plant early. During the survey farmers often had difficulty reporting the time of plowing and planting except in vague and general terms. Therefore, there is sure to be a significant amount of error in the "month of plowing" and "month of planting" variables. Still with that caveat in mind, it appears that twenty-seven (62.8 percent) of the advanced farmers have adopted the practice of planting their maize as early as possible.

Two of the requirements for becoming an advanced farmer were to join the local farmers' association or cooperative and to keep simple farm records. Most advanced farmers met the first requirement. Forty-three (91.5 percent) of the farmers surveyed said that they joined the farmers' association or cooperative, though nine of them are no longer members, often because the cooperative itself was dissolved. The scheme was not as successful in getting the advanced farmers to keep records which showed inputs and expenses, dates of operations, and yields. Thirty-six, or over three-quarters, of the advanced farmers said that they do not keep any farming records. 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 recommended practice about which the survey gathered information is the use of mechanical planters rather than planting by hand. Data on this point, however, is very incomplete. Twenty-eight (60 percent) of the advanced farmers own planters. This should be considered a minimum figure for planter use because other farmers probably borrow the planters.

It would be 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 recommended practices promoted during the scheme, and they are still using 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 from a different class of farmer before they joined the scheme. Therefore, all of the differences in wealth and farming practices observed between advanced farmers and the average rural homestead cannot be attributed only to their participation in the scheme. However, some of these differences, it can safely be assumed, are indeed due to the scheme. Some of the advanced farmers, in fact, 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 farmer 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 fifteen years since the scheme ended as well as noting 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 in which commercial farming can be defined. Definitions can be based on farm size, the proportion of income derived from farming, whether certain nonfood cash crops are grown, the cash income received 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, pp. 1-2)] 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, labor, 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.

Production of both nonedible cash crops and surplus food crops is 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 by the production of either nonedible cash crops or food crops in excess of that needed for subsistence. The second criterion involves some ambiguity because a subsistence farmer 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 a surplus grown in order to reduce the risk of shortfall in the event of a poor harvest. For a staple crop such as maize, Testerink chose a

production goal of 200 percent or more of the homestead subsistence requirement as an indication that a farmer intended to sell maize commercially and that the overproduction was not just a buffer against adverse growing conditions. For nonstaple food crops such as legumes, the observed production goal was set at 150 percent or more of the homestead subsistence requirements before a producer was considered to be a commercial farmer. The specific definitions used by Testerink (1984, p. 5) were as follows:

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

1. 50 percent or more of his arable land, or more than 2.5 hectares under cotton;
2. 25 percent or more of his arable land, or more than 1 hectare under tobacco;
3. maize output goal 200 percent or more of the output needed for subsistence;
4. legumes output goal 150 percent or more of the output needed for subsistence;
5. meeting two or more of the criteria for semicommercial farming (defined below).

Testerink (1984, pp. 4-5) recognized an intermediate class of semicommercial farmers who fall between the serious commercial farmer, on the one hand, and strictly subsistence farmers, on the other:

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 percent of his arable land;
2. grows tobacco on less than one hectare which is also less than 25 percent of his arable land;
3. maize output goal is 125 percent or more but less than 200 percent of maize output needed for subsistence.
4. legumes output goal is 125 percent or more but less than 150 percent 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 percent 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.) Using these ratios plus data on the area of land devoted to cotton or tobacco, the advanced farmers were classified as commercial, semicommercial, or noncommercial 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 percent) as measured in the Testerink survey are noncommercial farmers. Only 18.4 percent are commercial farmers with the remaining 16.1 percent falling under the semicommercial classification. In contrast, only 10.9 percent of the advanced farmers are noncommercial. Commercial farmers make up 69.9 percent of the sample population while semicommercial farming is practiced by 19.8 percent of the advanced farmers.

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

TABLE B.1

Number and Percentage of Homesteads (Households)*
in Each Category of Commercialization

	(1)		(2)	
	HOUSEHOLDS (random sample)	%	ADVANCED FARMERS	%
Noncommercial	414	65.5	5	10.9
Semicommercial	102	16.1	9	19.5
Commercial	116	18.4	32	69.6
Total	632	100.0	46	100.0

* Testerink (1984) 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.

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 percent to almost three times the "expected" output. Only 38 percent of the output measures were within 50 percent 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; marketing intentions of farmers; and gross sales of maize, legumes, cotton, tobacco, vegetables, and fruit have been used to re-classify advanced farmers as commercial, semicommercial, or noncommercial farmers. The definition of commercial farming based on nonedible cash crops (cotton and tobacco) is the same as in the Testerink formulation.

One of the standards to be met for a pupil farmer to graduate to an advanced farmer status 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, when the standard was defined, and June 1986, when the sales reported in the survey were made, prices have increased by 642.1 percent. That means that the R300 in gross sales necessary to be considered an advanced farmer is equivalent to E1,926 in 1986. Since there can be great variability in gross sales from year to year and the 1985/86 cropping season is known to have been poor for some parts of the country, the cutoff 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 1986 may have had gross sales even less than E963. Four out of the twelve commercial cotton farmers had gross sales less than E963. Therefore, a combination of other factors was examined to determine the status of a 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 sale of

agricultural goods as the most important source of income were also considered when classifying a farmer as commercial.

Another indication of the farmer's 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 would otherwise have been ranked as semicommercial resulted in a noncommercial classification.

The new definition of commercialization resulted in seventeen cases of reclassification from Testerink's definition. In twelve of these cases, farmers had been classified as commercial or semicommercial on the basis of their "expected" maize surplus but their actual harvest was much less. Dependent upon actual production, gross sales, how often market surplus was 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 noncommercial producers.

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

The last two columns in Table B.1 show that using the revised definition, there are somewhat fewer commercial farmers and more noncommercial farmers among the advanced farmers. Still, about 60 percent are commercial farmers and over 75 percent are either commercial or semicommercial farmers.

TABLE B.2

Selected Variables on which the Definition of Commercial Farming Is Based

ID	ESTIMATED MAIZE PROD. OVER REQUIREMENT (%)	REPORTED MAIZE HARVEST OVER REQUIREMENT (%)	MAIZE SALES	COTTON SALES	TOBACCO SALES	VEGETABLES	TOTAL GROSS SALES	HECTARES CULTIVATED	PERCENT OF MAIZE SOLD	YEARS MAIZE SOLD
	LEGUMES & OTHER 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	-	-	2,702	3,077	7.7	38	always
5	213	33	100	-	-	-	100	9.2	29	most
6	47	140	1,250	4,000	-	1,900	7,150	13.3	56	most
7	205	38	-	-	-	-	0	4.4	0	some
8	255	361	2,500	954	-	150	3,604	7.8	50	always
9	288	108	300	-	80	135	515	3.4	48	always
10	7	13	-	4,000	-	-	4,000	11.6	0	some
11	16	0	-	162	-	-	162	7.7	-	some
12	539	181	2,500	9,350	-	1,500	13,350	46.0	45	most
13	41	24	-	1,870	-	1,000	2,870	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	-	1,705	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	1,000	-	-	-	1,000	6.9	67	most
24	58	56	-	-	-	-	0	1.3	0	most

continued

[Table B.2, Selected Variables, cont.]

ID	ESTIMATED MAIZE PROD. OVER REQUIREMENT (%)	REPORTED MAIZE HARVEST OVER REQUIREMENT (%)	VEGETABLES				TOTAL GROSS SALES	HECTARES CULTIVATED	PERCENT OF MAIZE SOLD	YEARS MAIZE SOLD
			MAIZE SALES	COTTON SALES	TOBACCO SALES	LEGUMES & OTHER SALES				
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	-	-	-	13,500	13,500	3.5	0	some
29	260	181	400	-	-	-	400	2.2	n/a	some
30	84	115	446	-	-	890	1,336	1.6	47	most
31	n/a	n/a	n/a	-	-	n/a	n/a	n/a	n/a	most
32	208	809	5,400	-	-	1,004	6,404	3.1	62	always
34	50	27	-	3,150	-	500	3,650	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	1,130	1.9	43	always
38	332	467	1,150	-	-	1300	1,450	2.6	50	some
39	303	149	336	-	-	-	336	2.7	50	some
40	183	88	480	-	-	-	480	3.7	48	some
41	136	n/a	-	600	-	-	600	9.7	-	some
42	0	0	-	3,200	-	-	3,200	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	4,928	-	-	1,500	6,428	4.7	83	always
47	401	395	2,414	-	-	120	2,534	4.5	73	always
48	181	224	1,100	-	-	55	1,155	3.1	63	some
Mean	199	150	E 992	E2,250	E77	E 919	E 1,626	6.1	29	-

TABLE B.3

Homesteads Growing and Selling Crops^a

CROP	ADVANCED FARMER HOMESTEADS				ALL RURAL HOMESTEADS	
	Growing Crops		Selling Crops		Growing	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)

- a. From Fion de Vletter, The Swazi Rural Homestead (Kwaluseni: Social Science Research Unit, University of Swaziland, 1983); or, if in parentheses, Swaziland Census of Agriculture, 1983-1984 (Mbabane: Central Statistical Office, 1986).

APPENDIX C

ADVANCED FARMER DEMOGRAPHICS

Demographic information on the advanced farmers is displayed in table C.1 through table C.7. For comparative purposes, demographic data for the "average" Swazi rural homestead are also reported where available.

TABLE C.1

Homestead Size, Absentees, Off-Farm Employment, and Labor Force

HOMESTEAD CHARACTERISTICS	ADVANCED FARMER HOMESTEADS				ALL RURAL HOMESTEADS	
	Mean	Min- imum	Max- imum	Mean as % of Total Homestead Population	Mean	Mean as % of Total Homestead Population
Homestead population	15.3	5	48	100.0	10.0 ^a	100.0
Resident ^c population	11.7	0	45	76.5	8.0 ^{a,b}	80.0
Nonresident population	3.6	0	18	23.5	2.0 ^a	20.0
Off-farm wage earners	2.5	0	9	16.3	-	-
Wage earners contrib- uting to homestead income (resident and nonresident) ^d	1.9	0	9	12.4	-	-
Nonresident wage remitters	1.7	0	9	11.1	-	-
Homestead labor force ^e	6.3	2	19	41.2	-	-
Labor force younger than 15 years of age	6.7	0	28	43.5	-	-

Sources: Swaziland, Swaziland Census of Agriculture, 1983-1984 (Mbabane: Central Statistics Office, 1986); Swaziland, Swaziland Sample Census of Agriculture, 1971 (Mbabane: Central Statistics Office, 1972); Fion de Vletter, The Swazi Rural Homestead (Kwaluseni: Social Science Research Unit, University of Swaziland, 1983).

a. de Vletter, Swazi Rural Homestead.

b. Swaziland Census of Agriculture, 1983-1984.

c. Residents are members who sleep at the homestead at least five nights per week.

d. Excluding nonresident wage earners who do not send back remittances.

e. The homestead labor force consists of resident members 15 years of age or older plus employed nonresidents who return to help with at least three of the following activities: plowing, planting, weeding, and harvesting.

TABLE C.2
Homestead Characteristics

HOMESTEAD CHARACTERISTIC	ADVANCED FARMER HOMESTEADS		AVERAGE RURAL HOMESTEADS (%)
	(#)	(%)	
Nonresident homestead head	7	14.9	-
Female homestead head	4	8.5	28.0 ^a
Nonresident members	42	89.4	78.3 ^a
Wage earners employed outside the homestead	41	87.2	82.0 ^a
Wage earners contributing to homestead income	37	78.7	-
Nonresident wage remitters	32	68.0	-
Number of households per homestead:			
One household	31	66.0	-
Two households	10	21.3	-
Three households	6	12.7	-
Average	1.6		

a. Fion de Vletter, The Swazi Rural Homestead (Kwaluseni: Social Science Research Unit, University of Swaziland, 1983).

TABLE C.3

Advanced Farmer Homestead Educational Status

EDUCATIONAL STATUS	AVERAGE	(#)	(%)
Homestead heads:			
With no formal education	-	12	25.5
Average years of formal education	4.3	-	-
Homestead members over 6 years of age:			
With no formal education	-	-	8.1
Average years of formal education	6.3	-	-

TABLE C.4

**Residence and Employment Status
of Advanced Farmer Homestead Heads**

STATUS	(#)	(%)
Resident	40	85.1
Nonresident	7	14.9
Returns weekly	2	4.3
Returns monthly	4	8.5
Returns yearly	1	2.1
Full-time farmer	33	70.2
Employed off-farm*	11	23.4
Unemployed	3	6.4

* Includes 3 self-employed.

TABLE C.5
Advanced Farmer Homestead Fields
(hectares)

HOMESTEAD FIELDS	MEAN	MINIMUM	MAXIMUM	% <.5 HA	% >5 HA
Total area	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 residence*	1.5-2.6	-	-	26.5	12.2

* Various surveys have reported different average landholding sizes for Swazi rural homesteads. The figure of 1.5 hectares was obtained from J. Testerink, "Agricultural Commercialization in Swaziland Farmers Compared," Social Science Research Paper no. 11 (Kwaluseni: University of Swaziland, 1984). The figure of 2.6 hectares as well as the percentages of homesteads having less than 0.5 hectare or more than 5 hectares come from Swaziland, Swaziland Sample Census of Agriculture, 1971 (Mbabane: Central Statistics Office, 1972).

TABLE C.6

Number of Fields by Acquisition

HOW ACQUIRED	(#)	(%)
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	<u>2</u>	<u>1.2</u>
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 borrowed at least one field.
 4 (8.5%) advanced farmers loaned 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 (4.3%) advanced farmers have loaned out fields they are not loaning out now.

TABLE C.7

Ranking of Income Sources for Advanced Farmers

INCOME SOURCE	FARMERS HAVING THIS AS MOST IMPORTANT SOURCE OF INCOME		FARMERS HAVING THIS AS SECOND MOST IMPORTANT SOURCE OF INCOME	
	(#)	(%)	(#)	(%)
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 memorandums from the 11 subdistricts of Swaziland announcing the names of the advanced farmers and the numbers they were assigned. Many lists were incomplete because they had been compiled in the late 1960s. In those cases, there were almost always memorandums from later years which gave the names of farmers who had joined the scheme after the original lists had been compiled. The compiled list contained the names of 892 advanced farmers along with their advanced farmer numbers 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--were 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. If a farmer could not be located, he would be replaced by the farmer with the next number in the sample order. The first 65 farmers on the list were used to obtain interviews with a specified 47 farmers. Time constraints prevented the attainment of the full sample size of 50 advanced farmers.

A questionnaire was designed covering homestead demographics, landholdings, acquisition and security, crop production and sales, marketing, farming methods, tribute labor, 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. Part II covered all other issues.

The questionnaire was written in English and translated into siSwati. The siSwati version was then translated back into English to check for translation errors. This proved to be an important step since many cases were found in which the translator had not really understood the original English or in which a literal translation had obscured the intended meaning. This exercise also convinced us of the importance of translating the questionnaire into siSwati beforehand rather than depending on the enumerator for translation as he was conducting the interview. During this process many mistakes in translation were found which would never have been caught in the field.

After being translated into siSwati, the questionnaire was 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 questionnaire. The results

of the pretest were used further to revise the questionnaire--rewording some questions, dropping some, 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 resided. An extension worker who knew one or more of the advanced farmers accompanied the research team to the advanced farmer's homestead and introduced the team to the farmer.

The fields of each advanced farmer were measured while administering the first part of the survey. A field was defined as a piece of land that is plowed or could be plowed and that 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 subfields were called panels.

A measuring wheel was used to measure each panel and each grass strip. Top and bottom length measurements were made of each panel or grass strip as well as 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 area was obtained by summing the areas of the panels and grass strips.

GLOSSARY

ITL	individual tenure land
MOAC	Ministry of Agriculture and Cooperatives
RDA	Rural Development Area
SMC	Swaziland Milling Company
SNL	Swazi Nation Land

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