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AGRICULTURAL TECHNOLOGY IMPROVEMENT PROJECT (ATIP)

TRADING ESTABLISHMENTS IN THE CENTRAL AGRICULTURAL REGION
FINDING ON AGRICULTURAL INPUTS AND COMMODITIES TRADE

NUMBER: ATIP WP - 18

BY

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AGRICULTURAL TECHNOLOGY IMPROVEMENT PROJECT

(ATIP)

WORKING PAPER

TRADING ESTABLISHMENTS IN THE CENTRAL AGRICULTURAL REGION
FINDING ON AGRICULTURAL INPUTS AND COMMODITIES TRADE

NUMBER: ATIP WP-18

BY

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PREFACE

ATIP working papers consist of methodological and empirical material which has been reviewed internally by ATIP. Working papers are prepared and circulated to make ATIP research findings easily available to GOB personnel and researchers interested in Botswana farming systems. Any interpretations or conclusions presented do not necessarily reflect the views of the Department of Agricultural Research, USAID or MIAC.

This paper gives information on the network of trading establishments in the Palapye, Serowe, Mahalapye East and Mahalapye West Districts of the Central Agricultural Region. The paper is based on a regional survey administered in 1985 to 173 trading establishments. Partial results from the 1985 Trader Baseline Survey were presented in ATIP Research Report Number 1 [ATIP, 1986]. This paper presents a more comprehensive analysis of stocks and pricing patterns, as well as additional data on trading activities and management practices.

The paper shows that there was an effective system for distributing agricultural commodities, ensuring food access even in the smallest villages. There was small variation in the prices charged for commodities, reflecting the influence of a price control system. Few traders purchased either grain or livestock from farmers, suggesting a potential marketing constraint for commercially oriented farmers. Input distribution is shown to be a problem, particularly for farmers living in small villages.

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TRADING ESTABLISHMENTS IN THE CENTRAL AGRICULTURAL REGION:

FINDINGS ON AGRICULTURAL INPUTS AND COMMODITIES TRADE

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Local trade in Botswana historically has been dominated by informal exchanges between households. Informal trades are made for labour, traction, gathered items and household products on both a cash and barter basis. Exchanges often are made without specified terms, although there is an internalized sense of relative value and it is expected that trades will balance out over time [Duggan, 1979]. During the drought of the 1980s, the importance of informal trade decreased. Households had few products to exchange and many types of cooperative arrangements gave way to custom hire services. General traders and cooperatives certainly were the main source of food and production inputs between 1982 and 1988, if not before.

Trading establishments can be found in nearly all Botswana villages. Villages without permanent traders usually are served by traders from nearby villages, who provide free round-trip transport on one or two days a week. The primary function of traders is to distribute imported agricultural commodities and other household goods to rural areas. Most of the items sold are either processed or manufactured, and therefore are of (nearly) standardized quality. Prices are subject to a price control system based on wholesale prices and transport costs. Traders also are the main source of production inputs. Cooperatives are a major source of inputs as well, particularly for traction implements and livestock requisites.

Because of the general trader network, many standard issues investigated in relation to local trade in Africa are not particularly important in Botswana. In most of Africa, informal markets, involving multiple levels of intermediaries, primarily serve to evacuate agricultural products from rural to urban centres. The key issues are inadequate infrastructure, barriers to entry, exploitive pricing practices and excessive variability in quality and quantity of supply [Eicher and Baker 1982].

In Botswana, several important marketing issues stem from the potential impact of general traders and cooperatives on food security and production incentives. One issue is the prices farmers receive for their products relative to the prices of commodities available through the traders. Inexpensive food grain imports can provide improved food access but also can discourage attempts to increase production. A second issue is the availability of food. Even if prices are low, food security is not enhanced if commodities are not available on a regular basis. A third issue is the availability of inputs. It does little good to recommend use of new implements or chemicals if they are not available.

1.1 RELATED RESEARCH

Despite the importance of general trading in Botswana, few recent studies are available which shed insight into the trading network. Best [1970] gave a valuable historical profile of the development of the trading network through 1968. Best reported that the main focus of trade through the 1950s was cattle purchases. In addition, traders often bought surplus grain, to sell back later at a profit. By the 1960s, nearly all trading shops carried a range of goods, including food, blankets, cooking wares, and hardware. Best said that the greatest demand was for food and clothing, and that the volume of sales depended on surplus grain production, cattle sales, and remittances from South African mines. Most merchandise sold originated in South Africa or Zimbabwe. Best identified several problems affecting the trading network, including undercapitalization, dependence on relatively few wholesalers, and the susceptibility of the volume of trade to yearly fluctuations.

According to Best, data on local trade by value and kind were not available for the pre-independence period. A preliminary attempt at generating such data was made by the Division of Planning and Statistics in 1970 [DPS, 1971]. In a study by G. Cole, 23 of 56 traders in the Ngwaketse and Barolong area were interviewed. The survey covered the quantity and value of agricultural commodity trade, including the source and destination.

The 1970 DPS survey showed that more than half the traders purchased crops from local producers. Sorghum and maize were the main products bought. Both were resold to wholesalers, with little grain being resold locally. Forty-three percent purchased livestock. Only 35 percent sold any implements, principally plough shares. No trade was reported in fertiliser, pesticides, animal feed or veterinary requirements. Several trading problems were identified. For example, few traders kept records, storage facilities were inadequate, and transport was costly and unreliable.

Aside from the 1971 DPS report, there seem to be no published studies on the volume and composition of local agricultural inputs and commodity trade. Three unpublished papers characterize the trading network in particular parts of the country, but none specifically addresses agricultural inputs and commodity trade. Mahoney [1977], Kjaer-Olsen [1980] and Letshwiti [1980] discussed the sociology of rural traders. Selitshena [1978] gave a brief historical review and characterized relationships between trading and settlement patterns.

More information is available on the volume of cattle trade than is available on agricultural inputs and food grains marketing, mainly because most cattle trade is oriented toward the export market and is channeled through BMC. McDonald [1978] prepared a comprehensive summary. McDonald showed that only a small share of cattle trade goes through the regional network of traders. Most offtake from the traditional sector goes through livestock agents and cattle buyers -- who generally buy cattle at local village auctions. Cooperatives also became a major outlet starting in the 1970s. Trading establishments, however, were reported to be an important outlet only in remote areas. McDonald noted that traders were proscribed from soliciting cattle purchases outside their immediate locality. Additional information on the export-oriented cattle marketing channels can be found in Carl Bro [1982].

Duggan [1979] prepared a useful discussion of the relationships between markets, technology impact and employment but presented no empirical data on agricultural inputs and commodity trade.

The most recent empirical study of local trade in agricultural inputs and commodities appears to be S. Miller's investigation of formal and informal markets in the Tutume Agricultural District. In an unpublished paper, Miller [1985] synthesizes the results from a household survey and a survey of around 100 trading establishments. The available paper describes patterns of household participation in informal and formal trade, and characterizes the local market for goats. Unfortunately, no information is presented on trading patterns, grain purchases or sales, or inputs availability.

Consequently, there continues to be a lack of recent information about trading establishments in Botswana, what role traders play in agricultural inputs and commodity marketing, and how the traders impact on food security and production incentives.

1.2 OBJECTIVES

This paper presents findings from a regional survey of trading establishments carried out in 1985. The survey covered the Serowe, Palapye, Mahalapye East and Mahalapye West Districts of the Central Agricultural Region. Following a description of the methods used for the 1985 survey, Section 2 gives a profile of the trading establishments, including the spatial distribution of traders, supplies acquisition, credit practices and business problems. Section 3 covers agricultural commodities purchases and sales. Section 4 addresses agricultural inputs distribution.

The purpose of the paper is to determine the impact of the trading network on crop production incentives in the Central Agricultural Region. There are four specific objectives:

- (a). To assess differences in trading activities by village size
- (b). To identify constraints on the performance of trading establishments
- (c). To examine the availability of agricultural commodities and production inputs by village size
- (d). To determine price levels and analyse pricing strategies

1.3 METHODS

The regional survey covered trading activities, major business problems, items sold, and prices. A total of 173 trading establishments were interviewed in 49 different villages. All traders were enumerated in 46 villages, while a subset of around 15 traders per village were randomly selected from the three major villages. A summary of the villages covered and the number of traders per village is given in Appendix A.

The survey instrument was a multiple schedule questionnaire. The master schedule covered trading activities and trading establishment characteristics. There were eight follow-up schedules: sales of agricultural commodities, purchases of grain and other crop products, seed sales, implements and hand tools sales, fencing materials sales, livestock requisites sales, livestock sales, and livestock purchases. Each follow-up schedule was administered only if the respondent said the establishment had engaged in the specified trading activity. The follow-up schedules focused on prices, stocks and the volume of trade.

To the extent possible, the trading establishment manager was interviewed. In several cases, the manager also was the owner. In cases where the manager was not present and could not be located, the most senior employee was interviewed.

For purposes of data analysis, two sample stratifications were used, one based on district location and the second on village size. District location corresponds to the four covered Agricultural Districts, with one exception. Palapye District was divided into two sub-districts, Palapye South and Palapye North. Palapye South includes villages south of the Tswapong Hills while Palapye North includes villages north of the Tswapong Hills. For logistical reasons, traders in villages north of the Tswapong Hills often look to Bobonong or Francistown for supplies, rather than Mahalapye, Serowe or Palapye.

Villages were divided into three size categories on the basis of the number of households in a village. The division points were set so that the number of trading establishment in each category were approximately equal. Thus, the number of villages in each category is different. The "small villages"

category includes 21 villages, all having less than 175 households. The "medium villages" category includes 15 villages, each having between 175 and 290 households. The "large village" category covers ten villages, ranging in size from 290 households to 961 households. All analyses based on size of village exclude results from traders located in Mahalapye, Palapye and Serowe, or present results in a special category labelled "major villages."

Data were collected on trading activities and prices in Shoshong and Makwate in 1984 and 1986, as well in 1985. Shoshong and Makwate trading establishments were first contacted during a 1984 Village Institutions and Services Survey. All items sold and their sale prices were recorded. Trading establishments in Shoshong and Makwate were contacted a second time during 1985, as part of the regional survey, and again in 1986 in order to update information on trading activities and prices. The supplementary findings from Shoshong and Makwate are given in Appendix B.

2. PROFILE OF FORMAL TRADE

This section covers five topics: (a) the number of traders by location and village size, (b) trading establishment characteristics, (c) sources of items sold, (d) credit given and received, and (e) business problems.

2.1 NUMBER OF TRADERS

There was an average of 2.7 traders per village, as seen in Table 1. (The discussion of results excludes the major villages unless otherwise stated.) The number of traders per village was about the same in the different parts of the region. As would be expected, there were more traders in the large villages than in the small villages. However, the average number of households per trader was actually the lowest in the small villages.

TABLE 1: NUMBER OF TRADERS IN THE CENTRAL REGION
BY LOCATION AND SIZE OF VILLAGE

	NO. OF VILLAGES	NO. OF TRADERS	TRADERS/ VILLAGE	HHS/ VILLAGE	HHS/ TRADER
LOCATION:					
Mahalapye West	7	19	2.7	244	90
Mahalapye East	14	43	3.1	202	65
Palapye South/a	11	28	2.5	240	96
Palapye North/a	8	21	2.6	228	88
Serowe	6	14	2.3	207	90
POPULATION:					
Small Villages	21	41	2.0	94	48
Medium Villages	15	41	2.7	239	89
Large Villages	10	43	4.3	468	109
SUB-TOTAL	46	125	2.7	223	83
MAJOR VILLAGES	3	48	---	3786	--
ALL	49	173	---	441	--

2.2 TRADING ESTABLISHMENTS CHARACTERISTICS

Selected trading establishment characteristics are summarized in Table 2. Ninety percent of the trading establishments were general traders. There were only 15 cooperatives in the 46 villages. Most of the cooperatives were located in Serowe and Mahalapye West Districts. In the 21 small villages, there were only three cooperatives.

TABLE 2: TRADING ESTABLISHMENTS CHARACTERISTICS

	PERCENT GENERAL TRADERS	PERCENT OWNER MANAGED	-EMPLOYEES-	
			FULL TIME	PART TIME
LOCATIONS:				
Mahalapye West	74	58	3.3	0.3
Mahalapye East	93	70	2.5	0.2
Palapye South	93	68	2.4	0.5
Palapye North	90	52	2.3	0.3
Serowe	71	57	2.9	0.4
POPULATION:				
Small Villages	93	72	2.0	0.2
Medium Villages	83	51	2.8	0.5
Large Villages	88	61	3.0	0.3
SUB-TOTAL	89	63	2.6	0.3
MAJOR VILLAGES	89	63	6.2	0.2
ALL	89	63	3.6	0.3

Most trading establishments were owner managed (63%). The establishments had been in operation for an average of eight years. Around ten percent of the establishments had been in business for more than twenty years.

The establishments employed an average of 2.6 full-time employees but few part-time employees. Traders in the small villages only employed an average of two employees, compared to about three in the large villages. Cooperatives employed two to three times as many employees as did general traders. Traders in the major villages had an average of 6.2 employees.

As would be expected, most customers were from the village where the establishment was located. The proportion of traders who considered lands dwellers to be a large share of their customers was greater in the small villages than in large villages (56% of establishments versus 23% in the large villages).

2.3 SOURCES OF ITEMS SOLD

Table 3 shows where the items sold were obtained. Essentially all traders in the Central Region relied on wholesale depots in Mahalapye, Palapye or Serowe for the items sold. In addition, nearly half obtained some supplies from businesses in towns in Botswana, a quarter from businesses in other countries, and a quarter from parastatals (primarily BAMB). BAMB played a

West and Serowe, than in the eastern districts. Relatively more traders in Palapye North and the Mahalapye districts obtained some supplies from towns in Botswana than was true in the other districts. Neither farmers nor businesses in the same village were sources of supply for more than three percent of the traders.

TABLE 3: SOURCES OF ITEMS SOLD

LOCATION:	FARMERS	SAME VILLAGE	ANOTHER VILLAGE	IN A TOWN	ANOTHER COUNTRY	PARA-STATAL
	(Percent of Establishments)					
Mahalapye West	5	11	100	63	21	37
Mahalapye East	2	0	93	56	23	23
Palapye South	7	7	96	29	39	29
Palapye North	0	0	86	57	24	14
Serowe	0	0	100	29	7	43
SUB-TOTAL	3	3	94	48	25	27
MAJOR VILLAGES	6	85/a	40/a	65/a	46/a	31
ALL	4	26	79	53	31	28

a. Differences between traders in major villages and other villages significant at >.95 confidence level.

Traders in the major villages relied primarily on wholesalers in the same village. In addition, a significantly greater proportion of traders in the major villages obtained supplies in Botswana towns and from other countries than did traders from the other villages.

2.4 CREDIT RECEIVED AND GIVEN

An overview of how traders paid for their supplies is shown in Table 4. A majority of traders paid for all their supplies with cash. The remaining traders were able to obtain some of their supplies on credit. A significantly greater proportion of traders in the major villages were able to obtain supplies on credit compared to traders in the other 46 villages.

TABLE 4: HOW PAID FOR SUPPLIES

	46 VILLAGES	MAJOR VILLAGES	ALL
	(Pct of Establishments/a)		
Cash	56	33	52
Credit	39	65	45
Cash & Credit	5	2	4

a. Does not include nine establishments which received supplies from wholesale depots owned by the same person who owned the trading establishment.

Table 5 shows which customers were given credit. Most traders made sales on credit but who got credit was generally limited to those that were well-known or who had permanent wage employment. No trading establishment gave credit to all its customers.

TABLE 5: CREDIT GIVEN

	46 VILLAGES	MAJOR VILLAGES	ALL
	(Percent of Establishments)		
MAKE SALES ON CREDIT	79	75	78
TO WHOM GIVE CREDIT:			
To All Customers	0	0	0
If Well-Known	7	6	7
Only Wage Earners	12	11	12
Wage Earners & Well-Known	78	75	77
Other/a	3	8	4

a. Includes government institutions (eg. schools) and members of cooperatives.

2.5 BUSINESS PROBLEMS

Business problems were investigated in order to identify whether there were opportunities to reduce trader margins by addressing the major problems facing traders. To assess business problems, respondents were asked which out of a set of ten potential problems were problems faced by that establishment. Findings are presented in Table 5.

TABLE 6: BUSINESS PROBLEMS BY VILLAGE SIZE

	SMALL	MEDIUM	LARGE	MAJOR	ALL
SHORTAGES OF:					
Supplies	66	66	67	58	64
Cash	68	46	51	40	51
Buildings	34	49	30	35	37
Skilled Labour	42	24	30	27	31
Water	42	34	30	21	31
MANAGEMENT:					
Too Much Competition	46	54	58	65	56
Unaccounted Losses	49	44	60	60	54
Poor Transport	44	32	28	29	33
Prices Too Low	37	20	21	27	25
Poor Record Keeping	27	20	23	15	21

The most frequent business problems were lack of supplies, too much

competition, unaccounted losses, and lack of cash for supplies. Unaccounted losses and competition were more frequently cited by traders in the major villages while lack of cash and supplies were cited more frequently by rural traders. When the traders were asked to rank their most important problems, too much competition was ranked overall as the greatest problem.

3. AGRICULTURAL COMMODITY TRADE

This section summarizes findings on commodity trade patterns and prices. The emphasis is on food grains since trading establishments are only marginally involved in livestock trade.

The percentages of establishments selling and buying agricultural commodities and livestock is shown in Table 7. Essentially all establishments sold agricultural commodities (including canned and processed foods as well as grains and other crop products). Few establishments had bought crops or livestock from farmers during the years preceding the survey, and very few establishments had sold livestock.

TABLE 7: AGRICULTURAL COMMODITY TRADE PATTERNS

	GENERAL			
	COMMODITIES/a		---LIVESTOCK---	
	SELL	PURCHASE	SELL	PURCHASE
	(Percent of Establishments)			
LOCATIONS:				
Mahalapye West	90	11	16	0
Mahalapye East	98	5	7	5
Palapye South	96	11	0	4
Palapye North	91	0	5	0
Serowe	100	0	7	0

POPULATION:				
Small Villages	98	7	5	0
Medium Villages	95	5	7	5
Large Villages	93	5	7	5

SUB-TOTAL	95	6	6	2
MAJOR VILLAGES	90	4	0	0
ALL	94	5	5	2

a. Includes canned and processed goods and all crop products.

The lack of crop product purchases may or may not indicate a marketing outlet problem for farmers. Due to drought, there had been little surplus crop production during the few years preceding the survey. While many respondents said that their establishment did not normally buy crop products from farmers, the 1970 DPS survey in the southern part of the country gave a different picture [DPS, 1971]. During 1970, the rains were good and most traders said they did purchase sorghum, maize and cowpeas from local farmers. Future research, therefore, will be needed to determine whether traders commonly buy crop products from local farmers in years when there are substantial amounts of surplus production.

3.1 AVAILABILITY AND PRICES OF FOOD COMMODITIES

Because of the effects of food access on production incentives, additional analysis was carried out on the availability and prices of maize meal and grain, sorghum meal and grain, cowpeas, bread flour and loafs, and rice. It was hypothesized that the availability of items would be less in smaller villages, prices would be higher, and the standard deviations of prices greater (due to less competition and more variable transport costs). No significant differences were expected by location. In general, the hypothesized relationships were found to hold.

Table 8 shows the percentages of trading establishments which sold the various food grains, and the percentages having the items in-stock on the day of the survey. The percent of traders selling most items was somewhat less in small villages compared to the medium and large villages. The differences by village size were greater when comparing how many traders actually had items in stock. Nevertheless, even in the smallest villages, most items not only were sold, but were in stock.

TABLE 8: AVAILABILITY OF MAJOR FOOD GRAINS

	BY SIZE OF VILLAGE			MAJOR	
	SMALL	MEDIUM	LARGE	VILLAGES	ALL
PERCENT SELLING:					
Maize Meal	97	89	93	96	93
Maize Grain	79	98	85	96	90
Sorghum Meal	44	71	68	73	65
Sorghum Grain	44	58	35	46	46
Cowpeas	12	31	38	48	33
Bread Flour	85	87	85	93	88
Bread	44	38	50	75	52
Rice	82	84	95	89	88

PCT. WITH IN-STOCK:					
Maize Meal	74	87	90	91	86
Maize Grain	56	84	68	82	74
Sorghum Meal	32	51	43	66	49
Sorghum Grain	24	40	15	30	28
Cowpeas	6	18	15	39	20
Bread Flour	65	71	80	93	78
Bread	21	24	33	75	39
Rice	56	73	88	73	73

The items which were most consistently in stock were those obtained from wholesalers. Cowpeas, sorghum grain, sorghum meal and bread (obtained from millers or local growers and bakers) were available on a more ad hoc basis. Thus, despite national concerns about vulnerability, imported food grains (and meal) probably were a more certain source of supply in 1985, if cash was available to buy food, than were locally supplied items.

Data on average prices and the standard deviations of prices are given in Table 9. It can be seen that imported maize meal was the least expensive, followed by sorghum meal, wheat flour and rice. Cowpeas and other beans were two to three times as expensive.

TABLE 9: PRICES OF MAJOR FOOD GRAINS (PULA)

	BY SIZE OF VILLAGE			MAJOR	ALL
	SMALL	MEDIUM	LARGE	VILLAGES	
AVERAGE PRICE:					
Maize Meal (kg)	.56	.51	.53	.49	.52
Maize Grain (kg)	.65	.59	.61	.57	.60
Sorghum Meal (kg)	.71	.67	.70	.65	.68
Sorghum Grain (kg)	.43	.38	.38	.38	.39
Cowpeas (kg)	1.25	1.49	1.55	1.58	1.53
Bread Flour (kg)	.87	.79	.82	.75	.80
Bread (loaf)	.77	.76	.80	.74	.76
Rice (500 gms)	.86	.81	.86	.78	.83
PRICE STANDARD DEVIATIONS:					
Maize Meal	.16	.04	.09	.04	.09
Maize Grain	.12	.10	.13	.10	.11
Sorghum Meal	.11	.13	.22	.06	.14
Sorghum Grain	.11	.06	.05	.06	.07
Cowpeas	.91	.43	.54	.58	.53
Bread Flour	.10	.06	.09	.05	.09
Bread	.06	.05	.07	.04	.06
Rice	.12	.09	.09	.09	.10

There was a relatively narrow range of prices for any given agricultural commodity. The coefficients of variations of most prices were under 15 percent. The narrow range of prices can be attributed to the trading margins set by the Price Control Unit of the Ministry of Commerce and Industry. Since the Control of Goods Act was passed in 1973, maximum trading margins have been set for all goods sold by all traders -- both wholesalers and retailers. An overview of the price control system is given in Appendix C.

TABLE 10: T-TESTS OF PRICE DIFFERENCES BY SIZE OF VILLAGE

	SMALL VS. MAJOR	SMALL VS. MEDIUM & LARGE	MEDIUM & LARGE VS. MAJOR
MAIZE:			
Meal - 1 kg	-2.65 a	-1.75 b	-2.41 a
Meal - 5 kg	-4.35 a	-1.35 c	-3.89 a
Meal - 12.5 kg	-4.85 a	-3.42 a	-2.32 a
Grain - 1 kg	-2.99 a	-1.76 b	-1.64 c
SORGHUM:			
Meal - 1 kg	-2.45 a	-0.62	-0.98
Grain - 1 kg	-1.76 b	-2.33 b	0.05
COWPEAS - 1 kg	0.73	0.73	0.38
BREAD:			
Flour - 1 kg	-5.31 a	-3.12 a	-3.70 a
Loaf	-1.46 c	0.30	-2.77 a
RICE - 500 grams	-3.00 a	-1.17	-2.82 a

Significance confidence levels: a = 0.99; b = 0.95; c = 0.90.

Table 10 presents t-statistics for price comparisons between traders in different villages. The analysis by village size shows that prices did tend to be higher in the small villages, and lowest in the major villages. The largest and most significant differences were for the items obtained through wholesalers in the major villages.

3.2 PRICING STRATEGIES

Four pricing strategy issues were examined, in an attempt to better understand the reasons why different price levels might be observed. One issue was whether traders normally gave reductions in per unit prices for purchases of larger quantities. To examine this issue, prices were compared for differing quantities of maize meal and sugar, two of the most frequently sold items. In general, there was a price discount for purchasing larger quantities, but only when going from the smallest quantities to medium quantities. For example, the single kilogram price for maize meal was significantly higher ($t = -4.26$) than the per kilogram price for 5 kgs. However, per kilogram prices for 5 kgs versus 12.5 kgs, and for 12.5 kgs versus 25 kgs were not significantly different. The same basic pattern held for sugar.

The second pricing strategy issue was whether some traders consistently priced items high (looking for greater trading margins), while others priced low (hoping for greater volume). This issue was examined on a case study basis during a series of revisits to one wholesaler and 11 general traders in Mahalapye and Shoshong. It was found that traders generally did not set high or low prices, in a purposive pricing strategy. Most traders said they followed the specified trading margins for staple foods, and used somewhat less than the maximum allowable margins for other items.

The third issue was whether traders try to obtain discounts when buying supplies in order to reduce their selling prices. Several large volume traders said that they often do arrange for cash discounts or lower charges on credit purchases because of their large volume. Both large and small volume traders said that they try to find bargains in order to reduce their cost. In general, however, traders only passed part of any cost saving on to the consumers. A major objective in securing for cost reductions was to make higher trading margins while retaining competitive prices.

The fourth issue was what costs generally are included in the price mark-up. Some traders said they included rentals, workers wages, taxes, electricity or gas charges, handling, and packaging costs, as well as transportation. Most traders, however, only took into account transportation. Some traders (who used their own transport) said it was too difficult to allocate transport costs and, therefore, they did not even include transport costs.

In general, the price control system was just one factor influencing observed prices in the Central Region. There was great latitude in the way the pricing regulations were interpreted. The main effect of the price control system stems from specifying reasonable trading margins, and relying on competition to enforce the margins.

4. AGRICULTURAL INPUTS SUPPLY

This section turns to agricultural inputs supply. An overview of the percent of trading establishments which sold various categories of inputs is shown in Table 11. As can be seen, many establishments sold some implements

and/or hand tools, but less than a quarter sold fencing material, livestock requisites or even seed. These findings correspond closely to the 1970 DPS survey.

TABLE 11: OVERVIEW OF INPUTS SALES

	SEED	CHEM- ICALS	IMPLEM. & TOOLS	FENCE MATER.	LIVES. REQUI.
(Percent of Establishments)					
LOCATIONS:					
Mahalapye West	26	0	53	26	32
Mahalapye East	23	0	42	23	23
Palapye South	11	0	21	21	21
Palapye North	19	0	38	28	38
Serowe	29	7	43	0	29
POPULATION:					
Small Villages	22	0	27	12	17
Medium Villages	27	7	44	20	29
Large Villages	27	7	44	20	29
SUB-TOTAL	21	1	38	22	26
MAJOR VILLAGES	19	10	31	19	23
ALL	20	3	36	21	25

The percent of establishments selling seeds did not differ by location or size of village. Most of the other inputs were more readily available in the larger villages. For example, fewer traders in the small villages sold implements, fencing materials and livestock requisites than in the larger villages. The differences by village size resulted from the presence of cooperatives in the larger villages, since few general traders stocked any inputs except selected hand tools and, in a few cases, seeds.

Follow-up data on the availability and prices of various inputs are summarized in Tables 12 to 16. Table 12 covers seed sales; Table 13, implements; Table 14, hand tools; Table 15, fencing materials; and Table 16, livestock requisites.

TABLE 12: SEED SALES AND PRICES

	SORGHUM	MAIZE	COWPEAS
PERCENT SELLING:			
1984-85 Season	10	11	11
Within 5 Seasons	11	13	14
PRICE (thebe/kg):			
Mean	31	30	41
Standard Deviation	08	08	11
PCT WITH ENOUGH TO SELL	18	21	24
POCKETS SOLD IN 1984-85	107	108	81

Table 12 shows that only 11 percent of trading establishments sold maize or cowpea seed during the 1984-85 season, and only ten percent had sold sorghum seed. Only a few additional traders reported that they had sold any seed within five years preceding the survey. Thus, even fewer traders had been selling seed during the years immediately preceding the survey than was indicated in Table 11.

Sorghum and maize seed sold for nearly the same price, while the average price for cowpea seed was one-third higher. The prices for seed, normally sold in 10 kg pockets, were consistently less than the prices charged for grain which was to be eaten. The traders which did sell seed, sold substantial quantities -- 80 to 100 pockets for each type of seed sold. Most traders reported that they did not have enough seed to sell to meet existing demand.

TABLE 13: IMPLEMENTS SALES AND PRICES

	PCT. SELL	PCT. WITH IN-STOCK	-----PRICES/a-----			
			LOW	HIGH	MEAN	S.D.
IS Single Plough	10	7	67	270	141	50
IV Single Plough	12	9	40	195	109	32
Double Plough	4	4	334	482	380	46
Row Planter	4	4	203	303	256	32
Plough Shares	21	14	3	13	6	3
Donkey Cart	4	1	315	610	456	108

a. Rounded to nearest Pula.

Table 13 shows that only a small share of the traders who reported they sold implements, sold anything but plough shares. Only five to ten percent of the traders in the entire region sold ploughs, planters, or carts. Even a smaller proportion sold harrows or cultivators (not included in the table). There were large ranges of prices observed, mostly due to differences in the features of the items being sold. One problem faced by farmers is that so few shops carry the various "large expenditure" implements that there is little opportunity for comparing prices and features at different traders. As a result, many farmers prefer to go to one of the major villages to compare prices before buying. This further discourages the development of input distribution in rural areas.

Table 14 shows that more traders sold hand tools than other agricultural inputs, but that the percentages selling even basic tools such as spades and hoes were quite small. While spades, hoes and axes were on sale in nearly all the medium and large villages, there were several small villages where no hand tools were being sold. Wheel barrows were in stock at less than ten percent of the establishments despite their usefulness for hauling water and firewood.

The prices for most hand tools were quite low, usually less than ten pula. There was large variation for axes, however, related to differences in size and quality. For most hand tools, the coefficients of variation for prices were reasonably small, ranging from 20 to 30 percent.

TABLE 14: HAND TOOLS SALES AND PRICES

	PCT. SELL	PCT. WITH IN-STOCK	-----PRICES/a-----			
			LOW	HIGH	MEAN	S.D.
Wheel Barrow	14	9	35	72	48	11
Spade	23	15	7	15	10	2
Hand Hoe	23	17	1	6	4	1
Pick	18	15	6	16	11	2
Axes - Small	27	21	4	17	10	3
Axes - Large	b	b	18	29	21	3

a. Rounded to nearest Pula.

b. The question did not distinguish by axe size.

Less than 15 percent of the establishments sold any type of fencing wire, as is shown in Table 15. Even fewer traders sold gates or posts. Most producer cooperatives sold various types of fencing wire but, as mentioned above, there were only 15 cooperatives in the 46 villages (other than the major villages). Barbed wired, binding wire and galvanized wire all sold for about the same prices even though barbed wire is more expensive to produce.

TABLE 15: FENCING MATERIALS SALES AND PRICES

	PCT. SELL	PCT. WITH IN-STOCK	-----PRICES/a-----			
			LOW	HIGH	MEAN	S.D.
Galvanized Wire	15	13	47	96	65	11
Anchor Wire	8	7	35	90	48	16
Binding Wire	16	12	43	75	63	11
Barbed Wire	10	10	49	80	64	9
Gates	9	6	22	80	51	21
Posts	9	8	4	15	11	2

a. Rounded to nearest Pula. Prices for wire are for 50 kg rolls, the standard unit of sale.

Table 16 shows that the only livestock requisite which was widely available was various types of tick dip. Nearly one-quarter of the establishments carried tick dip. In comparison, ten percent sold livestock antibiotics and even fewer sold bonemeal, salt or any other feed supplement. Cooperatives were, again, the main source for livestock requisites -- along with the Livestock Advisory Centres located in the Region. Several traders who did not sell livestock medicines said they did not do so because the medicines too often expired before they could be sold.

No prices are given in Table 16 because of the small number of observations. In addition, there was tremendous variability in prices for different brand names and quantities. Determining a best type of medicine, and a best price, certainly was a problem faced by farmers.

TABLE 16: LIVESTOCK REQUISITES SALES

	SOLD IN 1984-85	SOLD IN 5 YEARS	HAD IN STOCK
	(Pct of Establishments)		
FEED SUPPLEMENTS:			
Bonemeal	4	5	0
Dicalcium Phosphate	1	2	1
Rumevite Blocks	2	4	1
Salt	6	6	4
MEDICINES:			
Antibiotics	10	10	10
Internal Parasite	8	8	7
Dips	23	23	18

5. SUMMARY AND CONCLUSIONS

The regional survey of trading establishments revealed an effective and relatively efficient system for providing food and other consumption items to rural households. The government should be extremely cautious when considering any policy or institutional change which might adversely affect the effectiveness of the local traders.

The main intervention point with reference to the trading network would appear to be input supply. Few traders provided agricultural implements, fencing materials, seed, fertiliser, or livestock requisites. Input availability particularly was a problem in the small villages. The problem of input availability might be addressed as follows.

First, the Ministry's Department of Cooperative Development could encourage member cooperatives to establish schedules for visiting near-by small villages. Farmers could be picked-up, taken to shop, and then returned with their purchased items. This is a practice general traders use to increase their coverage.

Second, since few shops carried the major implements, farmers had little opportunity for comparing prices and features at different traders. To increase competition among suppliers and reduce the information costs to farmers, the Department of Agricultural Field Services could begin monitoring prices of inputs at the large traders and cooperatives, compile a list, and have ADs post it in each of their extension areas.

Third, the Ministry could encourage BAMB to provide seed to traders on credit, overcoming the traders' cashflow problem, and saving BAMB the expense of setting up mobile seed distribution teams. If the model works, it could eventually be extended to agricultural implements.

The severity of the problem of product evacuation was difficult to assess due to the lack of production. A top priority for the Ministry will be to monitor production utilization patterns and trader behaviour during good seasons. If product evacuation problems are identified, the Ministry could set-up grain selling days in each village, analogous to the current cattle auction days. BAMB could then develop mobile purchasing units to circulate to the village selling days.

Finally, while the local trading network was functioning reasonably well,

there were business problems which affected the service traders provided to farmers. Many problems stemmed from the fact that most traders, whether in the major or other villages, kept a wide range of items in stock in order to attract customers, but could only charge small margins due to the price control system. This left many traders with a cashflow problem that was aggravated by poor (or no) book keeping and unaccounted losses. The Ministry of Commerce and Industries might provide training courses in business management at the rural training centres in order to improve business management skills.

Despite business problems, operating a general trading establishment (or a bottle store) is one of the few investment opportunities in rural Botswana, outside of agriculture. It is likely that the availability of food commodities, if not production inputs, will increase in the coming years rather than decrease.

APPENDIX A: VILLAGES COVERED

	TRADERS	HHS./a		TRADERS	HHS.
SMALL VILLAGES:			MEDIUM VILLAGES:		
Majwaneng	4	22	Makwate	3	181
Ikongwe	1	26	Mosolotshane	1	183
Dibetwe	1	40	Mokobeng	2	206
Bonwapitsi	1	56	Pilikwe	4	208
Moremi	1	57	Machaneng	5	232
Sekgweng	1	62	Paje	3	233
Dovedale	3	75	Mabeleapodi	3	236
Kodibeleng	2	75	Kgagodi	4	240
Motshegaletau	1	85	Gootau	1	241
Maape	2	88	Tlhabala	3	253
Shakwe	2	95	Mogapi	3	254
Mhalapitsa	1	98	Lecheng	2	270
Mmutlane	2	111	Lesenepole	3	278
Mmaphashalala	3	116	Makoro	1	282
Kudumatse	2	120	Moiyabana	3	288
Pallaroad	2	125			
Matlhokola	1	133	LARGE VILLAGES:		
Tamasane	1	138	Kalamare	4	293
Mogorosi	1	145	Chadibe	3	327
Mogapinyana	3	150	Ratholo	3	333
Radisele	6	151	Mookane	4	342
			Ramokgonami	3	447
MAJOR VILLAGES:			Maunatlala	5	462
Palapye	13	2230	Lerala	4	463
Mahalapye	18	4084	Seleka	3	515
Serowe	17	5045	Sefhare	6	535
			Shoshong	8	961

a. Number of households is based on 1981 Census.

APPENDIX B: FORMAL TRADING IN SHOSHONG AND MAKWATE

Essentially all households in Shoshong and Makwate buy food from general dealers on a regular basis. Most households purchase seed and implements, but few have ever purchased other production inputs such as fertilisers. Aside from occasional cattle sales, few products are sold through trading establishments.

There are two days a week in Shoshong and one day a week in Makwate when there is an informal cattle auction at the village kgotla. There is free access by both sellers and buyers. Prices are set through bargaining. The resulting prices generally are somewhat below prices paid by BMC, but the farmers receive their cash immediately and do not have to take the time or risk of trekking their animals to a BMC purchase point (located at train sidings).

The numbers of formal traders in Shoshong and Makwate, and their primary trading activities, are summarized in Table A.1. In 1986, there were eleven traders in Shoshong compared to only two in Makwate. All the traders, except a cooperative in Shoshong, sold food and other household goods but did little else. Implements were sold by seven traders, but most only sold hand tools and plough shares. Only one general dealer and a cooperative, both in Shoshong, sold ploughs and fencing materials. Tick dip was the only livestock requisite which was regularly available. The cooperative in Shoshong also had animal salt, bonemeal, and antibiotics. In general, access to production inputs was a greater problem in Makwate than in Shoshong. Most farmers in Makwate either did not know where to go to find inputs or felt they had to go to another village.

TABLE A.1: TRADERS AND TRADING ACTIVITY
IN SHOSHONG AND MAKWATE

	SHOSHONG		MAKWATE	
	1985	1986	1985	1986
NUMBER OF TRADERS	10	11	3	2
ACTIVITIES:				
Sell Agr. Commodities	9	10	3	2
Purchase Agr. Commodities	1	1	0	0
Sell Seed	1	3	1	0
Sell Fert. or Insecticide	0	0	0	0
Sell Agr. Implements	5	5	2	2
Sell Fencing Materials	3	2	0	0
Sell Livestock Requisites	3	1	0	0
Purchase Livestock	2	1	0	0
Sell Livestock	0	0	0	0

Prices for the items sold were recorded in 1984, 1985, and 1986, in order to identify trends. Prices for ten of the most commonly consumed items are listed in Table A.2. During the three years, prices went up, reflecting general price inflation in Botswana. Increases in food grain prices and Botswana products, such as Ecco beef, were relatively modest. Prices of imported items such as tea and cooking oil increased above the rate of inflation. Real and nominal prices for the main product sold, cattle, went down over the same period.

TABLE A.2 : PRICES FOR MAJOR FOOD EXPENDITURE ITEMS;
SHOSHONG AND MAKWATE, 1984 TO 1986

	UNIT	1984	1985 (Pula/a)	1986
MAIZE MEAL	5 kgs	2.16	2.38	2.54
	12.5 kgs	5.26	6.15	6.29
SORGHUM MEAL	1 kg	0.62	0.61	0.66
BREAD FLOUR	1 kg	0.77	0.77	0.84
RICE	500 gms	0.75	0.89	1.05
TEA	50 gms	0.47	0.52	0.66
SUGAR	1 kg	0.66	0.66	0.66
	12.5 kg	7.69	7.88	9.29
COOKING OIL	750 ml	2.00	2.32	2.63
YEAST	125 gm	0.70	0.71	0.86
NESPRAY POWDER MILK	250 gm	2.10	2.56	2.38
ECCO CANNED BEEF	340 gm	1.33	1.45	1.53

a. Based on an enumeration of all trading establishments carried out between February and April of each year. There were an average of ten shops in Shoshong and two in Makwate. Prices are based on 8-9 observations each. Makwate prices were consistently higher than Shoshong prices.

APPENDIX C: OVERVIEW OF THE PRICE CONTROL SYSTEM

During the Trader Baseline Survey, it became apparent that prices-setting by traders was dominated by government price control regulations. Consequently, a visit was made to the Price Control Section of the Ministry of Commerce and Industry in order to collect information on how the price control system functions. This appendix summarizes the information gained during that visit.

The Price Control Section had three main offices which are based in Lobatse, Gaborone and Francistown. The Central Agricultural Region, including Mahalapye and Serowe, fell under the Price Control Office in Gaborone.

Under the Control of Goods Act, prices are not specified for either wholesalers or retailers. Rather, maximum trading margins (or mark-ups) are set for all goods sold by wholesalers and retailers. The maximum allowable mark-up is ten percent for uncooked grains and meals, tea, candles, gas, milk and matches. Other foodstuffs have a maximum mark-up of 25 percent. The prices of implements can be increased by 25 percent, as can most household goods. Somewhat higher margins are allowed for clothing, books and stationary, cosmetics, and furniture.

The mark-up percentage is based on the trader's cost price plus any insurance, freight, delivery, processing and packaging costs. The "cost price" is defined to be the price paid by the trader excluding any discounts not exceeding ten percent, and excluding insurance, freight and delivery charges. Since many items often are transported in bulk, the proper procedure for adding in charges for insurance, freight, delivery and packaging costs is to figure out a percentage of the value of any given shipment which was paid for these services. For example, it might have cost five percent of the value of a shipment to get it delivered to the trading establishment. In this case, five percent is to be added to the cost price of each item in the shipment before the maximum allowable mark-up is

calculated.

After the mark-up has been calculated, the trader can charge any price up to the maximum. All prices are supposed to be marked on all items in a position which is clearly visible to prospective purchasers. Once prices are marked, they are not supposed to be changed unless approval is obtained from an officer of the Price Control Section.

Two potential problems were identified during the informal survey. First, there is uncertainty about the appropriate range of percentages to be used for transport and other service charges. At one point, it was expected that the Ministry of Works and Communication would determine an appropriate percentage taking into account distance from the supplier and condition of the road. However, at the time of the informal survey, the matter was still pending. At that time, the Price Control Section generally was using two percent for local transport and five percent for transport from outside Botswana when reviewing trader mark-ups.

The second problem was regulation. Because of staff shortages, it was reported that shops were not inspected very often. In general, trading establishments in remote areas were inspected about once a year. Shops in areas near the main officers were inspected more often, perhaps two or three times a year.

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