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IN ASHANTI REGION (GHANA)

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INFORMATION PROVISION AND USE IN MAIZE MARKETING
IN ASHANTI REGION (GHANA)

By

David Kwabena Amponsah

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ABSTRACT

INFORMATION PROVISION AND USE IN MAIZE MARKETING IN ASHANTI REGION (GHANA)

By

David Kwabena Amponsah

The main objective of this study is to examine information provision and use in maize marketing in Ashanti Region, Ghana. The study focuses on information development and dissemination activities of the public and private sectors of Ghana's economy to support the marketing activities of maize growers, wholesalers and retailers in the region. Research questions developed for the study of information development processes, transmission, and use in maize markets in Ashanti Region were: (1) what kind of information (in qualitative and quantitative terms) are channel participants in the various marketing institutions exposed to, (2) how do maize marketing channel participants interpret and use information they receive, and (3) how does information in the maize market system facilitate decision making processes of maize marketing channel participants in the performance of their marketing functions?

Research data was obtained through personal interviews of 130 maize growers, 30 maize wholesalers, 70 maize

retailers, and 25 public policy makers and government officials. Additional data consisting of national average wholesale prices for maize, regional maize outputs, government minimum guaranteed prices for past years and consumer price indexes were collected from relevant public organizations.

The study found that although public agencies and organizations had been established by the Ghana government to provide food producers and distributors with relevant market information, the majority of public organizations failed to perform their information development roles. The study found that maize marketing channel operators in Ashanti Region lacked accurate and timely information from public sources.

Maize wholesalers and retailers, in the absence of essential information from public sources, through the integration of channel functions and the organization of close-knit trade associations which provide forums for formal and informal interpersonal communications, did provide their members with critical market information. Maize growers, on the other hand, were widely dispersed over wide geographic areas in rural communities. They operated loosely organized and inactive trade associations. Their trade associations were therefore not able to provide critical market information as corporate bodies. Maize growers in the region relied mainly on informal

interpersonal communication from friends and trade associates. Such information sources were sometimes inadequate or unreliable.

The study found maize wholesalers and retailers satisfied with financial gains from their maize marketing efforts. Maize growers, on the other hand, were greatly dissatisfied with their financial gains from their maize production and marketing activities. Maize growers inability to effectively market their maize outputs was mainly due to their lack of knowledge about markets.

It was concluded that although all maize marketing channel operators in Ashanti Region could improve their decision-making processes with the provision of accurate and timely public information about market conditions, maize growers should be the prime focus of public information development programs, due to their acute information deficiency.

To

Daniel and Victoria Amponsah (my parents)

Florence, Kwabena, Charity, and Daniel Amponsah
(my wife and children)

and

The Farmers of Ghana

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CHAPTER ONE

INTRODUCTION

Information is an important attribute of an efficient market system. Effective marketing management requires current, reliable information before it can function efficiently (Peter and Donnelly, 1986). Information is defined in this study as the communication of facts and knowledge relevant to decision-making. This broad definition is used in this study to cover information transmitted between buyers and sellers, and also refers to information produced and disseminated in the market environment by other parties interested in market transactions. Market information, as used in this study, refers to the communication of facts and knowledge about a market system.

Information's value is embedded in decision-making. Both the seller and buyer need accurate and timely information to help them make effective decisions. Information is essential in decision-making because most business decisions are made under conditions of uncertainty, and information reduces uncertainty. It is true that reliable and timely information cannot guarantee the formation of accurate decisions, however, a decision based on such information has a better chance of bringing about

desired results than a decision made without relevant information.

From an individual decision maker's viewpoint, the absence of relevant information forces the decision-maker to make suboptimal decisions. Converse (1958) observed that better decision-making means fewer costly errors, and decisions guided by better analyzed factual information means less trial and error and consequently less inefficiency. Similarly, from societal viewpoint, the absence of relevant market information results in market imperfections, such as inefficient price formation and inept distribution of goods and services.

Despite the importance of market information in an exchange process, academicians have not paid much attention to the element of information in the study of marketing systems. Stigler (1961) observed that:

One should hardly have to tell academicians that information is a valuable resource: knowledge is power. And yet it occupies a slum dwelling in the town of economics. Mostly it is ignored; the best technology is assumed to be known; the relationship of commodities to consumer preferences is a datum. And one of information producing industries, advertising, is treated with hostility that economists normally reserve for tariffs and monopolists.

Maize Marketing Information Sources in Ashanti Region:

Information available to maize marketing institutions in Ashanti Region could be classified into two broad categories: internal information and external information,

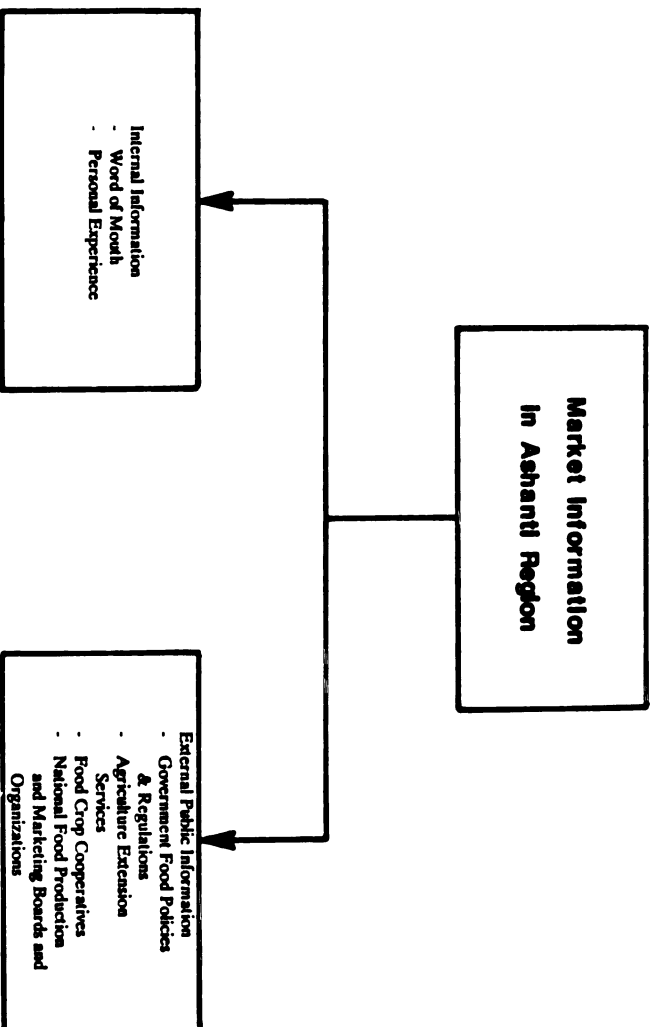
as shown in Figure 1. Internal information includes word-of-mouth information from friends and business associates, and personal experiences of the market operator. External information, on the other hand, refers to information compiled and disseminated by public and private organizations such as the Ministry of Agriculture, government regulatory agencies, agriculture extension services, food production and distribution co-operative associations, public food marketing companies and boards and other organizations.

Internal Information Sources:

Word of Mouth and Personal Experience: The major source of internal information available to maize marketing channel participants in Ashanti Region is word-of-mouth information. Maize growers, assemblers, wholesalers and retailers exchange information about the marketplace in the normal course of trading. Word-of-mouth information can also come from family members and friends not engaged in maize production and marketing activities. Information coming through these sources include market price information, demand and supply information and information about general market practices and activities of maize marketing channel participants.

Word-of-mouth information constitutes an important source of information for maize marketing channel

Figure I
Market Information Sources
In Ashanti Region



participants in Ashanti Region. In the absence of relevant and timely external information, word-of-mouth information is sometimes the only major source of information available to maize marketing channel participants in the region. Word-of-mouth information is therefore a very useful source of information to the extent of its accuracy.

Personal experience, as a source of information, refers to personal observations and knowledge gained about the marketplace. The major shortcoming of such information is that it is parochial in nature. Personal experiences are limited to events occurring in the immediate geographic environment of the marketer or the markets he or she has visited. Personal experiences, if adequate, however, provide useful sources of factual information for decision making.

External Information Sources: Information outputs of public agencies and organizations also constitute an important source of information for marketing channel operators in Ashanti Region. Public organizations offer market information support services for three reasons. First, Ghana as a developing country is in its infancy in the development of the private sector of its economy. The majority of entrepreneurs in the country are small operators and cannot financially support market information production activities needed for decision making.

Second, the dominant positions of state enterprises in the economy put the government in situations requiring it to offer information services to state enterprises for decision making. This includes provision of minimum guaranteed price information to guard the operations of the Ghana Food Distribution Corporation and other marketing institutions, price and food supply sourcing information for public schools and institutions that shop for food commodities in the marketplace, and information for the development of national food policy.

Third, the government is interested in the production and dissemination of market information to support the production and marketing activities of food growers who constitute an important part of the national economic development program.

This study therefore will investigate an information system in which the public sector plays a dominant role in information acquisition, processing and dissemination.

In Ghana, external food marketing information services are provided by the following organizations:

1. Ghana Food Distribution Corporation (GFDC)
2. Committee on Agricultural Commodity Prices
3. Ministry of Agriculture Field Extension Services
and Information Units
4. Radio Ghana Programs for Farmers and Food
Distributors

5. Maize Growers and Distributors Cooperative Associations, and
6. Services of Agricultural Development Banks and Farmers Cooperative Banks.

A brief discussion of market information services provided by these public agencies and organizations will also be presented.

Ghana Food Distribution Corporation (GFDC): The Ghana Food Distribution Corporation is a state corporation charged with the marketing of major food crops produced in Ghana. In this respect, GFDC is charged with the responsibility of making sure food growers throughout Ghana find markets for their outputs. In the case of maize production, the corporation is charged with the responsibility of providing maize growers with information concerning the location of GFDC maize buying depots, minimum guaranteed price information of the government, and the actual buying of farmers' maize output.

Discussions with maize growers in the field show that these important market information services generally are provided by GFDC.

Services of the Committee on Agricultural Commodity

Prices: Maize marketing institutions in Ghana receive an important price information annually from the Committee on

Agricultural Commodity Prices. This committee is assigned a yearly task of studying food production and marketing costs and advising the Ghana government on remunerative prices for major food and industrial crops produced in Ghana. The end product of this Committee's studies is the recommendation of minimum guaranteed prices for major food crops.

The basic goal of the Committee is to offer positive incentives to farmers. From the farmers' point of view, "appropriate" or incentive support producer price is:

- i) the price which yields revenue from the sale of the produce that exceeds the cost of producing that product
- ii) the price which yields profit margin adequate to support his/her family and induce the producer to adopt new techniques of production to increase productivity and production, and
- iii) the price which yields profit that exceeds the levels of profits to be earned from the production of other commodities; otherwise even though the profits from producing a particular commodity may be positive, the producer will redirect his/her resources into the production of the more profitable alternatives (CACP Report, 1985, p. 3).

Table 1 shows recommended maize prices of the Committee from 1980-1986. "Recommended price" is the price recommended for purchasing a product from producers. This price may vary from the producer price in an upward or downward direction; or may be the same (CACP Report, 1985, p. 3).

An important information problem that arises out of the setting of the minimum guaranteed price by the Committee is

the interpretation of the term "minimum guaranteed price."

Table 1

Guaranteed Minimum Price for Maize
for Periods 1980-1985

<u>Year</u>	<u>Minimum Guaranteed Price</u> (per 220 lb/100 kg bag of maize)	<u>% Change</u>	<u>Inflation (%)</u>
1980	¢100	---	50.1
1981	¢165	65	117
1982	¢500	203	22
1983	¢1,000	100	122
1984	¢1,800	80	40
1985	¢2,000	11.1	-20
1986	¢2,600	30	

Source: Ministry of Agriculture; Accra, January, 1986.

Government administrators in the Ministry of Agriculture interpret minimum guaranteed price as the willingness on the part of the government to buy, through the marketing activities of GFDC, maize that farmers are unable to sell on open markets at the government guaranteed price, to the extent that the financial resources of GFDC would permit. Farmers, on the other hand, interpret it as the Government's guarantee to purchase all crops produced at the guaranteed price. This issue poses a real problem in maize markets. The minimum guaranteed price information sends confusing

signals to food marketing channel participants in the country. The important question is how this misinterpretation affects the remuneration and morale of maize growers and distributors. Furthermore, how does the misinterpretation affect the overall goal attainment of the Committee on Agricultural Commodity Prices and the Ghana Government?

Maize marketing channel operators also believe the credibility of the minimum guaranteed price information is undermined by the poor representation of food growers and distributors on the Committee. This information problem will be discussed fully in Chapter Five of this study.

Ministry of Agriculture Field Extension Services: The Ministry of Agriculture's Field Extension Services and Information Units provide useful technical and practical information for maize production activities. Maize growers over the years, have come to trust and work effectively with agriculture extension officers. The Ministry of Agriculture's field officers could be effective sources and medium of communication in developing and transmitting food policy and market information. These field officers, however, do not provide marketing services to maize marketing channel operators. Their job description cover only production activities. What happens to the farmer's output after harvest is therefore none of their business.

It is the business of the Ghana Food Distribution Corporation (GFDC). Field discussions with maize growers, however, show that the GFDC does not provide maize growers with market demand and supply information they generally need. Thus, agriculture field officers' knowledge about food markets are not utilized in the field.

Radio Ghana Programs for Farmers and Food

Distributors: Government owned Radio Ghana broadcasts weekly farmers and food distributors forums taking the form of questions and answers and sometimes lectures on food production and marketing in the major local languages of Ghana. Food production and marketing programs directed at maize growers and distributors in Ashanti Region are broadcast in Twi, the major language of the region. The programs are designed to improve the production and distribution functions of food producers and distributors. The radio programs are quite informative and useful. They, however, have scheduling problems that affect their usefulness.

The programs are scheduled in time periods when most maize growers and distributors are busy at work on farms or in markets; or scheduled at night when they are asleep. Useful information disseminated through the radio programs therefore often miss their target audiences.

Another problem that plague the effective utilization

of radio information about food marketing is the inability of most food producers and distributors to purchase radios. Radios in developing countries are expensive items, and the majority of people do not have the discretionary income to purchase them. Furthermore, people who are able to purchase radios may not have additional money to regularly buy batteries for the equipment. At times, the batteries are not even available for sale on markets. It would therefore be useful to determine whether the programs directed at maize producers and distributors in Ashanti Region do achieve their desired goals.

Information Services of Maize Growers and Distributors

Cooperative Associations: Maize growers, assemblers, wholesalers and retailers in Ashanti Region have organized themselves into cooperative associations or market unions. Although these co-operative associations are in their early developmental stages and lack adequate financial and other operating resources, they do provide useful information services for their members.

Cooperative associations provide social and market information support services. These information services include information about misfortunes of association members, local council market regulations regarding food marketing activities, and information about other community matters that are relevant to maize marketing activities.

Other information services include dissemination of government minimum guaranteed price information, buying and selling practices of other maize marketing institutions, and maize supply information. A large portion of these information services are transmitted informally by word-of-mouth.

The value attached to cooperative association market information is a function of the degree of trust that association members have for one another. The accuracy of such information also may vary across marketing institutions.

Services of Agricultural Development Banks and Farmers

Cooperative Banks: The government of Ghana has developed an extensive network of Agricultural Development Banks and Cooperative Banks in the ten regions of Ghana. The basic function of these banks is to provide financial services to rural communities. The Agricultural Development Bank and Cooperative Banks specialize in offering financial services to farmers and agriculture related business activities. Ashanti Region has many such banks. Maize growers and distributors in the region therefore have financial services at their disposal.

Notwithstanding, most maize growers and distributors in Ashanti Region do not take advantage of the financial services available to them. Discussions with maize

marketing channel participants in the field show that there seem to be an information gap between the banks and the local business communities. Farmers and food distributors are either afraid to approach the banks for financial services for fear of failure to repay loans, or do not know the requirements of the banks' loan programs.

This study will examine the effects of information provision problems of the commercial banks on the decision making processes of maize marketing channel operators in the region. Food Production and Marketing in Ghana

Agriculture is the dominant sector of Ghana's economy. Table 2 shows the value of Ghana's agricultural output in relation to other domestic products of the economy. Agriculture accounts for an average of 45.8% of Ghana's Gross Domestic Product (GDP). The total agricultural labor force in 1980 was estimated at about 2.4 million, i.e. 69% of the total labor force of 3.46 million. Nearly 70% of the population in Ghana is rural and derives its income from agriculture and related activities (Djang, 1984, p. 3).

Ghana's major agricultural outputs consist of cocoa (cultivated mainly for export), livestock and food crops, timber and fishing. The majority of Ghana's agricultural community are food crop producers. The most important food crops produced in Ghana are maize, rice and cassava. These food crops constitute the major portion of food supply of

Table 2

GDP BY INDUSTRIAL ORIGIN
AT CONSTANT 1980, GHANA (Million Cedis)
1980-1985

	1980	1981	1982	1983	1984	1985 a/
Agriculture	<u>21,589</u>	<u>21,036</u>	<u>20,352</u>	<u>19,187</u>	<u>21,151</u>	<u>21,974</u>
Agric. & Livestock	<u>14,723</u>	<u>14,607</u>	<u>13,990</u>	<u>12,938</u>	<u>14,880</u>	<u>15,106</u>
Cocoa	3,979	3,805	3,613	3,322	3,256	3,585
Forestry & Logging	2,216	1,945	2,097	2,263	2,336	2,570
Fishing	672	679	652	664	679	713
Industry	<u>6,533</u>	<u>5,489</u>	<u>4,554</u>	<u>3,986</u>	<u>4,278</u>	<u>4,863</u>
Mining & Quarrying	517	479	439	394	409	467
Manufacturing	4,197	3,388	2,694	2,555	2,811	3,234
Electricity & Water	314	351	323	197	183	241
Construction	1,505	1,270	1,099	840	876	920
Services	<u>12,886</u>	<u>13,315</u>	<u>12,826</u>	<u>13,490</u>	<u>13,987</u>	<u>14,686</u>
Transport & Communications	1,211	1,292	1,307	1,402	1,446	1,518
Trade & Hotels	4,060	3,982	3,569	3,745	3,972	4,170
Banking, Insurance, Real Estate	2,715	2,836	2,923	3,028	3,115	3,271
Government Services	4,446	4,746	4,549	4,819	4,928	5,175
Other Services	455	459	479	486	526	552
Imputed Service Charges	<u>-890</u>	<u>-1,080</u>	<u>-1,213</u>	<u>-1,285</u>	<u>-1,373</u>	<u>-1,453</u>
Import Duties	<u>589</u>	<u>388</u>	<u>250</u>	<u>314</u>	<u>365</u>	<u>383</u>
GDP at Market Prices	<u>40,708</u>	<u>39,149</u>	<u>36,770</u>	<u>35,689</u>	<u>38,409</u>	<u>40,453</u>
Per Capital GDP (Cedis)	3,667	3,437	3,145	2,977	3,125	3,208
Population (Million)	11.10	11.39	11.69	11.99	12.29	12.61

Note: Totals may not add up due to rounding.

a/ Estimated

Source: Kwesi Botchway: Progress of the Economic Recovery Programme 1984-1986 (Accra: Ministry of Finance and Economic Planning, October 1985), p. 54. Figures have been verified with World Bank published data.

*US \$1 = c 90 (1985 official rate)

most Ghanians. During a drought and ensuing famine in 1983, maize, rice and cassava became rare commodities in the country. A West African market report records that in 1983, maize, the major staple diet of the people living in Accra sold on the open market at ₵200 for 8Lb, approximately one week's wages (Consumer Markets in West Africa, 1984, p. 84).

A major economic development policy objective of the Ghana Government is to be able to feed the Ghanaian population through the country's agricultural efforts. Ghana Agricultural Policy: Action Plans and Strategies 1984-1986 stated that the Government of Ghana commits itself to an agricultural program that will provide:

- 1) adequate and well-balanced diet for every Ghanaian, and
- ii) sufficiency buffer to meet unforeseen food deficit resulting from adverse climate conditions or natural disaster (Djang, 1984, p. 4).

In more specific terms, the national agricultural policy was aimed at achieving the following objectives:

- 1) Self sufficiency in the production of cereals, starchy staples and animal protein to ensure adequate nutrition for every Ghanaian.
- 2) Maintenance of adequate levels of buffer stocks of grain particularly maize and rice to ensure:
 - 1) availability of food during the lean season (March-July)
 - ii) to support price stability, and
 - iii) provide maximum food security against unforeseen crop failure and other natural hazards.

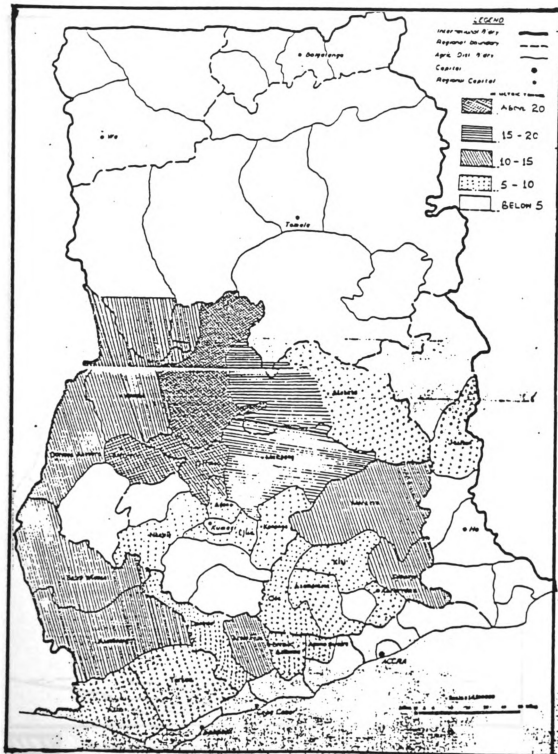
- 3) Self-sufficiency in the production of industrial raw materials such as cotton, oil palm, tobacco and groundnuts to feed installed and future agro-based industries.
- 4) Promotion of increased production of exportable agricultural crops, including cocoa, pineapples, coffee, sheanuts, ginger and kola, and
- 5) Promotion and provision of improved storage, processing and distribution systems to minimize post harvest losses (1984-1986 Agric. Policy, p. 4).

Maize, rice and cassava were selected as top priority crops in the Government's agricultural program. The stated reasons for selecting these food crops were:

- i) maize, rice and cassava are among the foremost staples consumed in Ghana
- ii) the major food items imported into the country with Ghana's limited foreign exchange to make up for short falls in food production have been maize and rice
- iii) Ghana has the land, water, technical know-how and other resources to attain self-sufficiency in the production of these three crops
- iv) the three crops were adequately cater for the requirements of the livestock industry if production is increased, and
- v) maize and rice are crops which can easily be preserved and stored. Hence it is possible to build up buffer stocks against lean seasons (Djang, 1984, p. 8).

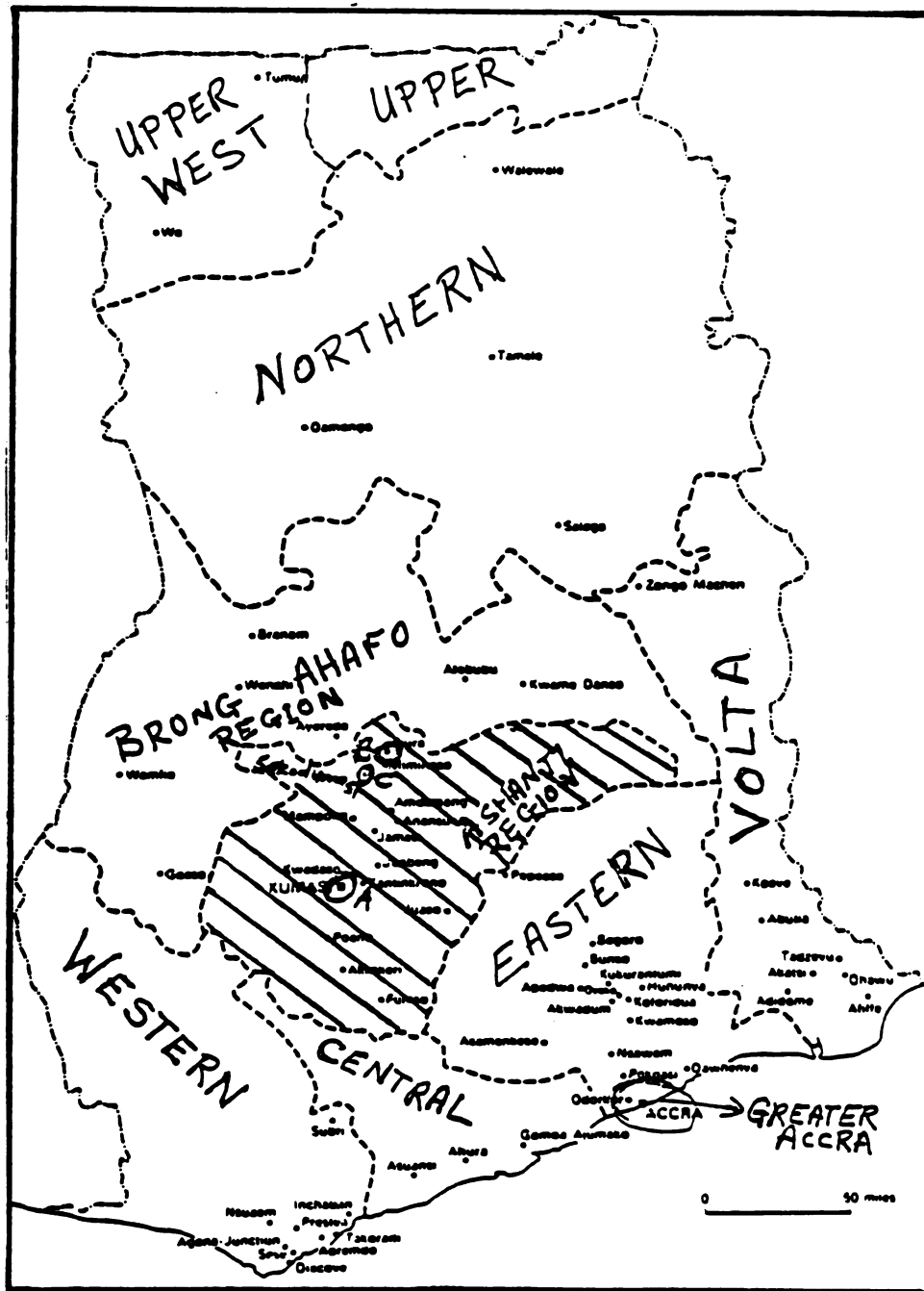
Maize production and distribution are important business activities in Ghana. Maize is grown in all ten regions of Ghana. Figure 2 shows the geographic regions in which maize is grown in Ghana. Heavy maize production activities occur in the southern part of the country which enjoys adequate rainfall needed to sustain the crop. The

FIGURE 2
MAP OF GHANA
MAJOR MAIZE PRODUCTION CENTERS



Source: Dr. P.A. Kuranchie; (Director) Ghana Food Distribution Corporation, Accra., 1985

Figure 3
Map of Ghana
Showing Ashanti Region



 - Ashanti Region

Source: A New Geography of Ghana by Dickson, K.B. and Benneh. p.89.

Table 3
Regional Maize Output: 1980-1984
(Thousand Metric Tons)

Region	1980	1981	1982	1983*	1984
Western	21.0	15.1	13.2		22.8
Central	30.6	32.2	26.7		97.9
Eastern	39.5	41.8	34.4		63.0
Gt. Accra	8.0	6.6	4.4		9.0
Volta	24.1	29.5	24.4		90.0
Ashanti	59.9	59.1	43.8		119.9
Brong Ahafo	71.1	68.8	50.8		138.8
Northern	74.3	44.9	33.9		28.5
Upper	25.5	36.0	32.7		5.1

*1983 - No regional breakdown is available. Famine year.

**Upper Region -- comprised of Upper East and Upper West.

Source: Ministry of Agriculture, Accra, Ghana (1985)

volume of maize output decreases as one moves northwards of the country beyond Brong Ahafo Region and the amount of annual rainfall decreases.

Maize Production and Marketing in Ashanti Region

Ashanti Region, positioned in the southern part of the country, as shown in Figure 3, is the second largest producer of maize in Ghana. Table 3 shows that Ashanti Region produced 119.9 thousand metric tons of maize in 1984. The region ranked second to Brong Ahafo Region which produced 138.8 thousand metric tons of maize in the same year. Ashanti Region was, however selected as the focus of this study for several reasons.

First, although Ashanti Region is positioned to the south of Ghana as shown in Figure 3, it is a "central market" (i.e. food sourcing center) for the other regions of the country. Ashanti Region is linked with other regions by a large network of motorable roads. It therefore constitutes an interesting and useful market center for a marketing research.

Brong Ahafo Region, on the other hand, lies between the sparsely populated northern regions of Ghana and the Ivory Coast which do not constitute major markets for Ghana's domestic food trade. Brong Ahafo Region food markets could be important external trade centers, but such trading activities were prohibited by the Ghana Government at the

time of this study. The major portion of Brong Ahafo Region's surplus maize output therefore is shipped through Ashanti Region food markets to the large population centers in the southern parts of Ghana. Brong Ahafo Region is linked to other Regions of Ghana by very poor roads, which discourage trading activities.

Second, although Ashanti Region ranks second to Brong Ahafo Region in maize output, it has a higher density in acreage under maize production. Figure 3 shows that Brong Ahafo Region is almost twice the size of Ashanti Region, however, Ashanti Region produces 86% of Brong Ahafo's maize output. One reason for this phenomenon is the fact that Ejura Farms, the largest maize producing company in Ghana is located in Ashanti Region. This company cultivates 2,156 hectares (5,390 acres) of maize land, and produces over 2,200 metric tons of maize annually (1985 Ejura Farms Bulletin, p. 1).

Third, the heavy production of maize in Ashanti Region is due to the fact that maize production is the principal business of several rural communities in Ashanti such as Sekodumasi, Asempanaye and villages around Mampong. Many maize farmers in these communities are semi-mechanized farmers who cultivate large acreages of maize land.

Maize growers in Brong Ahafo Region, on the other hand, are mostly mixed-crop farmers. They produce other important food crops such as yams, beans, and groundnuts in addition

to maize. These other crops are as important as maize to most food growers in this region. Brong Ahafo Region does not have as many semi-mechanized and fully mechanized farms as Ashanti Region, but its large number of maize farmers help it produce more maize than Ashanti Region.

Finally, Ashanti Region was selected as the focus of this study because its land mass is small and permitted adequate coverage in the study, given the limited time and financial resources of the researcher.

Maize Marketing Institutions in Ashanti Region

Maize marketing institutions that conduct maize marketing functions in Ashanti Region include maize growers, assemblers, wholesalers, the Ghana Food Distribution Corporation and maize retailers.

Maize Growers: Maize growers in Ashanti Region fall into three major groups: fully mechanized growers, semi-mechanized growers and traditional non-mechanized growers.

Fully mechanized maize producing companies and farms are large-scale maize producers. They generally cultivate over 2,000 acres of maize land. Fully mechanized maize farms can further be divided into two sub-groups: farms that do not perform marketing functions and commercial farms that perform marketing functions.

Fully mechanized maize farms that do not perform

marketing functions are farms that are owned by livestock companies. Maize produced on these farms become direct raw materials of livestock feed plants. This study recognizes the existence and economic importance of such farms but will not evaluate their operations since their maize outputs are not marketed through traditional channels of distribution for maize.

Fully mechanized commercial maize farms, on the other hand, operate well developed marketing departments that perform most basic marketing functions, i.e. accumulation, bagging, storage, transporting, warehousing and selling of maize. Some farms in this group maintain field personnel that provide the companies with information support services needed for making marketing decisions. There are only four fully mechanized maize producing companies in Ashanti Region. Interviews with the Ministry of Agriculture field officers show that the four companies produce about 4% of Ashanti Region's maize output (1986 Officers' Interview).

The second group of maize growers are the semi-mechanized maize producers. These farms cultivate on the average, 10-50 acres of maize land. Growers use tractors in preparing the maize fields and sometimes also in planting, spraying and weeding the farms. Maize harvesting, and other production functions, however, are done through manual labor. Information gathered from Ministry of Agriculture's Ashanti Region extension officers show that about 20% of

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maize growers in Ashanti Region are in this category. They produce close to 40% of Ashanti Region's maize output (1986 Officers' Interview). Farms in this group generally have no field marketing staff. The owners of the farms perform all marketing functions. Their knowledge about maize markets are generally limited to their experiences and what they are able to learn about the marketplace from public information sources and other channel operators and friends.

The third group of maize growers is the traditional non-mechanized maize growers. They cultivate, on the average, 1-10 acres of maize land. Close to 80% of maize growers in Ashanti Region fall into this group. They produce approximately 56% of the region's maize output (1986 Officers' Interview). The size of the farms of maize growers in this group is a function of the capital of the farmers (which generally is very small) and physical strength (i.e. manpower) of the farmers to provide manual labor. These farmers use human labor for all production, harvesting and marketing activities. They perform limited marketing functions. Interviews with Ministry of Agriculture field extension officers (1986 Officers' Interview) show that the surplus maize output of these farmers is sold on local markets of their rural communities. The majority of farmers in this group perform their marketing functions with little market information. They rely mostly on word-of-

mouth information from friends and trade associates.

Maize Assemblers and Wholesalers: Assembling and wholesaling activities of the maize industry in Ashanti Region is highly integrated. These two marketing functions are often performed by the same independent maize wholesaler or assembler. Full-time assemblers are often hired to work for wholesalers. Assemblers also sometimes maintain market stalls in city and urban markets where their children or family members wholesale maize.

The assembling activities of maize involve purchasing supplies of maize from rural farmers, bagging the raw dry maize, and transporting it to large population centers in truck loads to be sold to wholesalers or retailers. Maize assemblers maintain close ties with maize growers and wholesalers and therefore informally obtain information about the marketplace.

Maize wholesalers in Ashanti Region are resident central market operators. They have stalls or selling spaces in large open markets in the major city, Kumasi or local towns. Maize wholesalers purchase maize directly from maize growers, through hired assemblers, or from independent assemblers who transport maize to city or urban markets. Prior arrangements or business relationships must have developed between a wholesaler and an independent assembler before an assembler ships a truckload of maize to a

wholesaler.

Sometimes a wholesaler, upon receiving direct information from farmers about the presence of large quantities of maize in a particular farming community will send his or her agent to the farms to purchase quantities of maize. Farmers also sometimes bring in truck loads of maize to city markets to be sold to wholesalers. The Ashanti Region maize Wholesalers Association does not maintain records of total volume of maize handled by its members, but officers of the Ministry of Agriculture (Ashanti Region) believe maize wholesalers in the region handle 60-70% of the surplus maize produced in Ashanti Region (1986 Officers' Interview).

Wholesalers generally operate with better market information than maize growers and retailers. This is because they operate in central markets and do receive direct information from assemblers and farmers on the one hand, and retailers and other maize buyers on the other.

Ghana Food Distribution Corporation: An important maize assembler and wholesaler organization in Ghana is the Ghana Food Distribution Corporation. This state enterprise was established in 1971 to perform the following marketing functions:

- a) to purchase, store, preserve, sell and distribute foodstuffs including meat, fish and meat preparations.

- b) to export foodstuffs to overseas markets.
- c) to buy and sell agricultural machinery and implements to farmers.
- d) to organize grocery shops, and
- e) to carry out such other activities as are incidental to the attainment of the foregoing objects.

Over the years, however, time and circumstances have altered the corporation's role to that of largely a service organization which functions primarily--

- a) to provide a ready, regular and stable market for producer farmers as incentives for them to produce more food, and
- b) to buy and distribute (locally produced) foodstuffs so as to make same readily available to all Ghanaians at reasonable prices all year around (1985 GFDC Brochure, p. 2).

The Corporation is charged to conduct its affairs on sound commercial lines. This sets up the company in direct competition with private wholesalers and retailers of food commodities in the country. The company conducts its marketing activities nationally. In 1985, the company purchased 25,750 metric tons of maize, about 6% of Ghana's maize output (1985 GFDC Brochure, p. 2).

The company has, besides its administrative departments, four operational departments--marketing, research and development, transportation and workshop, and storage/infestation departments. A network of field support staff provide the company with relevant market information. Field officers of the corporation travel to maize farms and rural market centers to purchase and transport maize to

district and regional company warehouses.

The company's fleet of trucks and vans support its purchasing and transportation activities. At storage centers maize is properly dried, fumigated, bagged and stored.

The company uses two main sales outlets:

- i) sales are made directly to consumers through the corporations own retail outlets strategically located in residential and public places in all the major urbanized centers in the country, and
- ii) the corporation also acts as a wholesaler to many commissioned retailers (1985 GFDC Brochure, p. 2).

In addition to the above, the company makes bulk sales directly to institutions which depend upon government subvention for feeding. These institutions include the correction institution, secondary schools and colleges, hospitals, the armed forces, etc.

Field personnel of the corporation provide relevant information (through monthly and quarterly reports) needed to make important marketing decisions such as:

When to purchase maize
Where to purchase it from
How much to purchase
Where to move and store maize, and
When to sell maize

The Food Distribution Corporation is therefore a well-organized marketing company. It is supported by strong financial backing from the government, and has access to government market information and statistics. The corporation is also able to provide maize producers with

essential commodities like soap, kerosene, machetes, cloth, etc. to entice maize producers to sell their output to the corporation rather than to private wholesalers and retailers.

The Director of the corporation also has the enviable privilege of serving on the very important Committee on Agricultural Commodity Prices which will be discussed later.

Surprisingly however, the corporation does not dominate the maize market in Ashanti Region. Private wholesalers and retailers are also able to give maize growers cash advances (without interest) and other gifts to neutralize the incentives that the Ghana Food Distribution Corporation gives to maize growers. The efforts of private wholesalers and retailers are effective since they market approximately 90% of the national maize output.

Maize growers who are unable to sell their stock of maize on open markets are advised by the government to sell their maize to the Ghana Food Distribution Corporation at the government's minimum guaranteed price. This marketing arrangement does not always work. Sometimes the Food Distribution Corporation runs out of trading capital, and other times, the corporation purchases maize at less than the guaranteed minimum price, especially during bumper harvests. GFDC's marketing problems will be discussed in depth in Chapter Five of this study.

Maize Retailers: Maize retailers, like wholesalers, also operate on open markets. They purchase maize in small volumes (usually one 220 Lb. bag of maize at a time) from urban wholesalers or directly from farmers or assemblers who bring the maize to local markets. The majority of retailers generally cannot afford the cost of transporting few bags of maize from distant farms to urban markets, nor can they afford the time to travel out of their market centers to visit farms and purchase maize.

Since maize is a staple food for many Ghanians, the retailer's market is generally stable. Almost the same quantities of maize can be sold on any particular market day. The maize retailer in Ashanti Region therefore just sits on an open market and waits for customers to walk over and buy his or her maize. A retailer's ability to attract a particular customer usually depends on the quality of her maize on any particular day, and on past business relationships with the customer.

Retailers' sources of maize supply are generally assured, except in times of great scarcity. Most retailers establish loyal business relationships with the wholesalers who assure them of continuous supply. Maize retailers generally operate with little information about demand and supply factors of the marketplace. Their major source of market information is word-of-mouth information from maize

growers, assemblers, wholesalers, and other retailers.

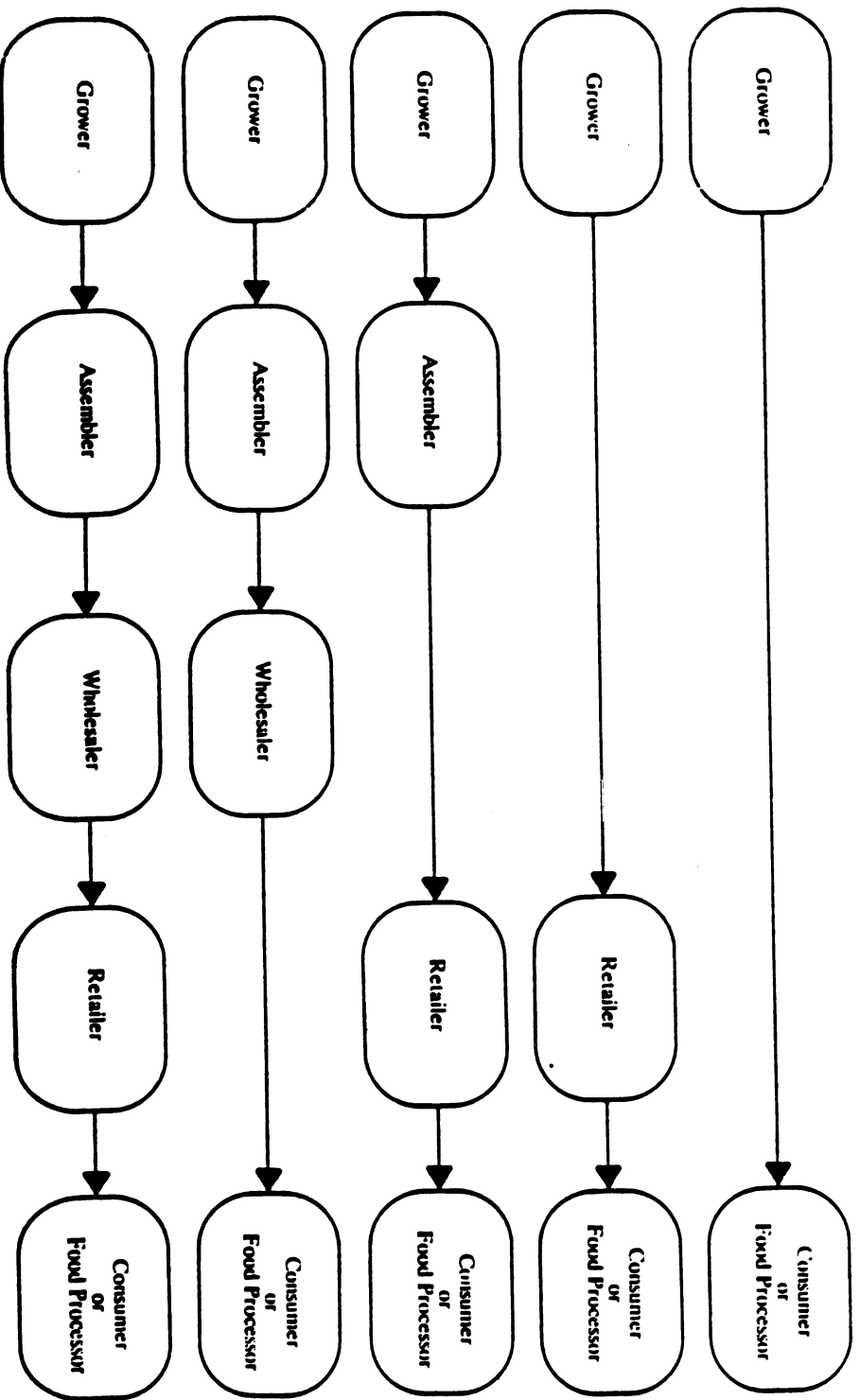
Maize Marketing Channels of Distribution in Ashanti Region:

Maize produced in Ashanti Region reach markets by different channels of distribution. Figure 4 shows the different distribution channels that move maize from growers to final consumers or users. Maize moves directly from the grower to consumers or through several market intermediaries.

The shortest distribution channel for maize in the region involve maize growers direct sale of maize to consumers or food processors. Ministry of Agriculture field officers believe about 10% of maize produced in Ashanti Region reach markets along this channel (1986 Officers' Interview). Maize growers who use this type of channel are mostly small-scale farmers. They sell their maize outputs directly to consumers and food processors on local markets in their communities. A major reason for the use of a short distribution channel is the maize growers' inability to move their maize to distant markets. Often these farmers sell on local markets because they cannot pay transportation costs or their maize outputs are so small that it is not worth the time and cost to move the maize to markets outside local communities. Small-scale maize farmers also often lack knowledge about demand for maize on markets outside their communities.

(Summer) — (Assembly) — (Winter) — (Summer) — (Grand Old Time)

Figure 4
Maize Channels of Distribution
in Ashanti Region



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Maize growers can also move their maize through assemblers or retailers to final consumers or users. Market intermediates in these two distribution channels consolidate small volume purchases into truckloads to achieve cost efficiencies in transporting maize to urban markets. Since most final consumers of maize and food processors cannot finance or store large volumes of maize purchased through these channels, the volume of maize distributed along these channels are usually small.

The longest channel of distribution for maize in Ashanti Region involve the movement of maize from growers through assemblers, wholesalers and retailers to final consumers or users. This is the distribution channel used by the majority of maize wholesalers in Ashanti Region. Maize wholesalers generally have more operating capital than do maize assemblers and retailers in Ashanti Region and have adequate storage places in open markets in the urban centers. They are therefore able to purchase maize in large volumes and do benefit from the economies of scale. Ministry of Agriculture officers believe over 60% of maize produced in Ashanti Region moves along this distribution channel.

Maize assemblers, wholesalers and retailers in Ashanti region are mostly independent operators. They generally buy and take title to the stock of maize they handle. On some occasions, however, when a maize assembler,

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wholesaler or retailer does not have adequate funds to pay for maize purchased from a supplier, the channel operator is able to work out credit arrangements with his or her business partner. Credit arrangements are possible because of mutual trust that develops between members of the distribution channels after years of doing business together.

Maize distribution channels perform important information functions in the marketing of maize. Channel participants gather and transmit information about the marketplace by word-of-mouth, as they move grain along the channels. In Ashanti Region, this source of information often constitutes the only source of market information for many channel operators.

Maize Marketing Decisions and Market Information Network in Ashanti Region

Tactical Maize Marketing Decisions

Maize growers, assemblers, wholesalers and retailers make important tactical maize marketing decisions that require the use of accurate and timely market information.

Maize Growers: Discussions and interviews with local maize growers cooperative executive committee members (1986, Coop. Interview) showed that maize growers make important tactical decisions such as:

when to sell maize
finding markets for maize output
pricing, and

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finding financing services.

The majority of maize growers interviewed felt the issue of when to sell maize was the single most important marketing decision facing maize growers annually. Factors influencing this decision included the maize grower's immediate need of cash and anticipated favorable or unfavorable government guaranteed floor price announcement.

The government's minimum guaranteed price announcement is usually made in early August, about four weeks after the first maize crops have been harvested. At that time of the year, the supply of maize on food markets in the country is at its lowest level and food prices are high. Maize growers who are risk averters usually take advantage of the high food prices and sell off large portions of their maize crops soon after they are harvested. The majority of maize growers, however, prefer to wait in anticipation of a good government minimum guaranteed price announcement to give them better bargaining position than prevailing market prices would allow.

In the past five years the government has consistently raised the floor price of maize as shown on Table 1. One might think maize growers would be smart in holding back on the sale of maize early in the harvest season, wait for government price announcement, and then take advantage of a better floor price announcement. The problem however is not that simple. The government generally raises

the minimum guaranteed price based on the level of inflation, anticipated volume of maize output nationally and other factors. Thus a new floor price might be set higher or lower than anticipated by maize growers. A small price increase in floor price of maize sends signals to maize assemblers and wholesalers that the government anticipates a bumper crop that year and maize distributors would begin to lower their offering prices right away. Market price of maize could therefore fall well below the price level that existed before the floor price announcement. The timing of the government minimum guaranteed price announcement is therefore critical to maize growers time-of-sale decision making process. Maize assemblers, wholesalers, retailers and consumers are also directly affected by the timing of this announcement since the majority of maize growers hold back from selling maize early in the harvest season as they wait for government price announcement. Maize assemblers, wholesalers, and retailers generally do not find adequate supply of maize until the minimum guaranteed price information is announced.

Maize growers in Ashanti Region also have the perennial problem of finding customers and markets for their maize outputs (except in a famine year like 1983). This problem arises partly because most maize growers in the region lack knowledge about demand factors of the marketplace, and also

due to lack of financial resources needed to transport maize outputs to markets outside farming communities.

For many maize growers in Ashanti Region, the search for loans to finance production and marketing activities is a formidable task. Maize growers in the region generally have little or no knowledge about services offered by financial institutions in their communities. They therefore finance their business activities with private savings and loans taken from friends.

Maize Assemblers and Wholesalers: Maize assemblers and wholesalers have a longer list of important tactical marketing decisions which require the use of accurate and timely market information. These decisions include:

- finding maize supply sources
- determining market demand for maize
- purchase price determination
- selling price determination
- storage and movement of maize, and
- finding financial services.

Most of the above tactical marketing decisions are interrelated. Determination of purchase price and selling price are related to supply and demand factors of the marketplace. For a majority of maize assemblers and wholesalers, the two most important marketing decisions in the above list are demand estimation and finding financial services. Maize assemblers and wholesalers in Ashanti Region generally receive no external information about the demand for maize. Neither the Ghana government nor any

other organization compile statistics on demand for maize. Maize assemblers and wholesalers' knowledge about market demand for maize is obtained mainly through friends and other maize marketing business partners.

Maize Retailers: Maize is a staple food crop in Ashanti Region. There is therefore a stable consumption and use of the grain all year round. Maize retailing decisions are therefore routine. Important maize retailing decisions include finding:

maize supply sources, and
financing services.

Maize wholesalers in Ashanti Region are generally reliable in the supply of maize to maize retailers. However, in seasons when rainfall fails and production is poor, the supply of maize becomes a major problem for maize retailers. In such situations, maize retailers have to visit maize farms and production centers in search of maize. Since the tropical climate of Ghana experiences occasional rainfall failures, this market condition does occur infrequently.

Maize retailers, like other maize marketing channel participants, have little or no information about external financing services in their communities. They are generally ignorant about the services of financial institutions in their communities. The volume of their marketing activities

are generally small due to lack of adequate funding. Maize retailers purchasing decisions are often difficult, since they must enter into complicated credit agreements with maize growers, assemblers, and wholesalers in order to obtain an adequate supply of maize.

The Problem

Market information is essential for effective decision making. The use of relevant and timely information improves the quality of marketing decisions. A desire to improve the performance of market systems therefore requires serious study of the effectiveness of information systems that support markets.

In a developing country, such as Ghana, due to the small size of individual private business operations and financial constraints of entrepreneurs, most businesses are unable to effectively produce or acquire external market information necessary for decision making in the marketplace. Internal information gathered by market participants such as word-of-mouth information, although very useful, are often inadequate.

Owing to the importance of market systems in Ghana's national economic development programs and the desire to have markets operate efficiently and effectively, the government of Ghana plays important roles in the development and dissemination of market information. It allocates money, technology and manpower resources to the development

and dissemination of market information. The government has set up marketing institutions, trade and price advisors boards and other facilitating organizations to help provide market information support services for domestic food markets.

The important questions however are:

1. what kinds of public and private information systems exist in the marketplace?
2. what are the goals and functions of these information systems?
3. what information outputs are generated and how are they transmitted to end users?
4. how credible are the information outputs? and,
5. how do marketing channel operators use existing information?

There is a need for a systematic analysis and evaluation of market information systems in maize markets with emphasis on the quality and value of information produced.

A food market system was selected as the frame of references for this study for four reasons: First, it is a market system that enjoys a fair amount of freedom. Most business activities involving wholesaling and retailing of essential products and services are tightly controlled by governments of most developing countries. Food marketing, in the case of Ghana, is one of few business activities that thrive in a free market environment. This kind of environment is essential for the study of information

because it provides the motivation for the acquisition and use of information. The effect of information on marketing activities can be fully felt in a free market system where differences in marketing operators' abilities to acquire and use information can give marketing operators competitive urge.

Second, food production and marketing constitute the livelihood of nearly 70% of Ghana's rural population. Maize is an important segment of Ghana's food production industry. Improvement in the operating efficiency of Ghanaian food market systems would therefore benefit a large percentage of Ghanaians who depend on the industry.

Third, food production constitutes an important portion of Ghana's gross domestic product. The growth of the food industry therefore would make an important contribution to Ghana's economic development program. On the other hand, food deficit situations drain Ghana's limited stock of foreign currency reserves, as such funds are used to import food to supplement Ghana's domestic food output.

Finally, since self sufficiency in food production is an important national economic development goal, the Ghana government would be willing to commit resources to help improve the food production and marketing industry. The findings of this study will therefore not fall on deaf ears, but will make a direct contribution toward the achievement of this national economic development goal.

Research Objectives

The overall objective of this study is to understand information systems and use in maize markets in Ashanti Region, Ghana. Specific objectives of the research include:

1. Provide in-depth description of the structure and marketing functions of maize marketing institutions in Ashanti Region.
2. Identification and qualitative evaluation of market information systems that serve maize marketing institutions in the Region.
3. Determine the usage of market information by maize marketing channel operators, and
4. Suggest changes in policy and administrative practices in the development and dissemination of market information needed to improve maize marketing decision-making.

Research Process Overview

The first part of Chapter Two presents the conceptual framework for the study of market information. This is followed by a review of literature pertinent to this study. Research questions are developed at the end of the literature review.

Chapter Three discusses the research methodology of the study. The chapter describes in detail research instruments, field study program, sampling plan, and data collection methods and processes.

Chapter Four gives a detailed description and qualitative evaluation of maize marketing channel

participants demographic factors and information resources.

Chapter Five evaluates the quality of information support services of public organizations. This is followed by Chapter 6 which evaluates information services of trade cooperative associations.

Chapter Seven summarizes the strengths and weaknesses of present information systems that serve the maize marketing institutions, and offers recommendations that will help improve the quality and usefulness of maize market information systems.

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CHAPTER TWO

CONCEPTUAL FRAMEWORK AND THEORY

Introduction:

Market information facilitates marketing decision making. It influences and shapes marketing plans, policies and strategies. The capacity to acquire and apply such information is called marketing intelligence (Lazer and Culley, 1983, p. 213).

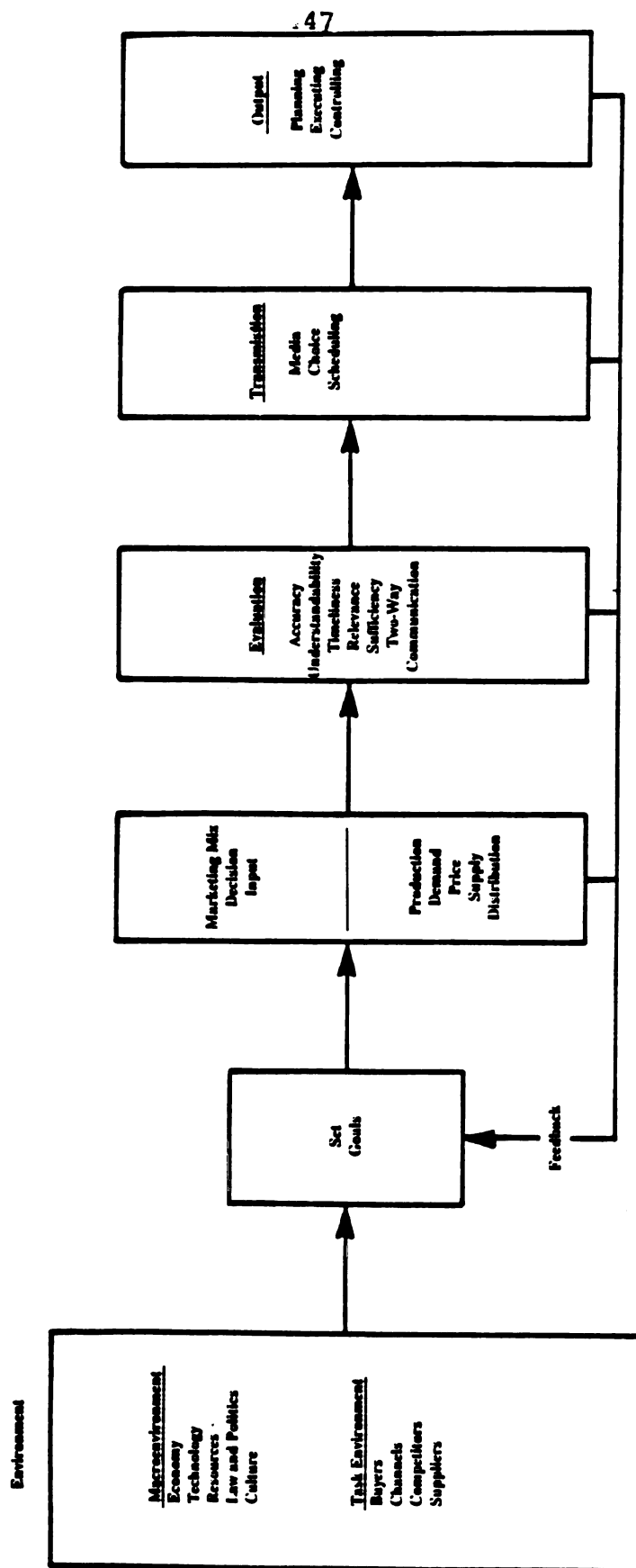
Market information is obtained from systematic collection, organization and analysis of internal and external data and events about the marketplace. Such information must be developed and made available to marketing decision makers on routine basis. A firm's arrangements to systematize market information flows constitutes the firm's marketing information system (MIS).

CONCEPTUAL FRAMEWORK

Several information system models have been developed in marketing literature that emphasize specific management goals. In this study, a marketing information system will be examined from a perspective that considers the goals of both the information developer and user.

Figure 5 presents a conceptual framework for the

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Marketing Information System
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development of a marketing information system that can help provide qualitative and relevant information for marketing decision makers.

The development of an effective marketing information system begins with a thorough study and evaluation of an information system and information needs in the macro-environment environments of the firm and the economy under consideration. At the macro level, relevant considerations would include the society's level of economic development, technology, laws and politics, culture and other relevant resources of the economy. Another important factor would be a study of the level and the extent to which private enterprise is permitted to develop, and has developed in the economy. Thus existing information systems should be studied and evaluated in the historical, political, economic and social setting of the firm to permit objective diagnosis and prescription of information needs of a particular firm or industry.

The goal of the macroenvironment analysis of a firm's information systems is to determine the quality of existing market information systems, a study of agencies and organizations that impact the development and functioning of information systems, and to determine the extent to which information developed and disseminated by the society meets the needs of marketing decision makers and the economic goals of the society.

Information networks of the firm or the task environment must also be carefully studied at the macro level. Relevant factors to be studied in this area include producers, buyers, channel competitors, suppliers, government and other private agencies operating as information users and transmitters. A thorough study of information networks and needs of the task environment would help provide insight into levels of information flow within the firm or industry, marketing decision makers analytical abilities and information use habits. This will help determine information deficiencies in the task environment.

The next stage in the development of a marketing information system, after a thorough study of the macro environment of the economy is the development of goals for information systems. A marketing information system requires clearly defined goals. Since the primary purpose for developing marketing information is to help the decision maker improve marketing decisions, it is essential to identify the user and the purpose for a particular piece of information or information network. Developing an information network without first knowing the purpose of such a network is a futile but all-too-common practice (Bellenger and Greenberg, 1978, p. 12). Clearly defined information goals help direct information development efforts toward the needs of information developers and

users.

At the firm's level, the usefulness of market information lies in its ability to form the basis for formulating marketing mix tactical and strategic decisions. A marketing information system should therefore provide market intelligence on production, pricing, demand, distribution and other marketing mix elements.

It is also useful to subject a market information system to an internal qualitative and quantitative evaluation. An evaluative criteria of accuracy, understandability, timeliness, relevancy, sufficiency and the assurance of a two-way communication process between information developers and users could be used to determine the quality and relevancy of information developed and disseminated to decision makers.

Attention should also be paid to information transmission. Media choice, formal or informal information transmission, and the scheduling of information dissemination should be carefully analyzed and implemented to assure maximum utilization of information resources by information users. Failure on the part of information producers to develop proper mix of information transmission factors can render an information system ineffective or sometimes useless.

Information output is useful to the extent that it facilitates planning, executing and controlling of marketing

management activities. At the output level, plans of marketing decision makers are implemented and results are monitored by collecting and assessing feedback. Feedback from an information system users should be used to modify and improve the quality of information output of the system. In the dynamic market environment, an information system's ability to respond to changes in the market environment must be a prime goal.

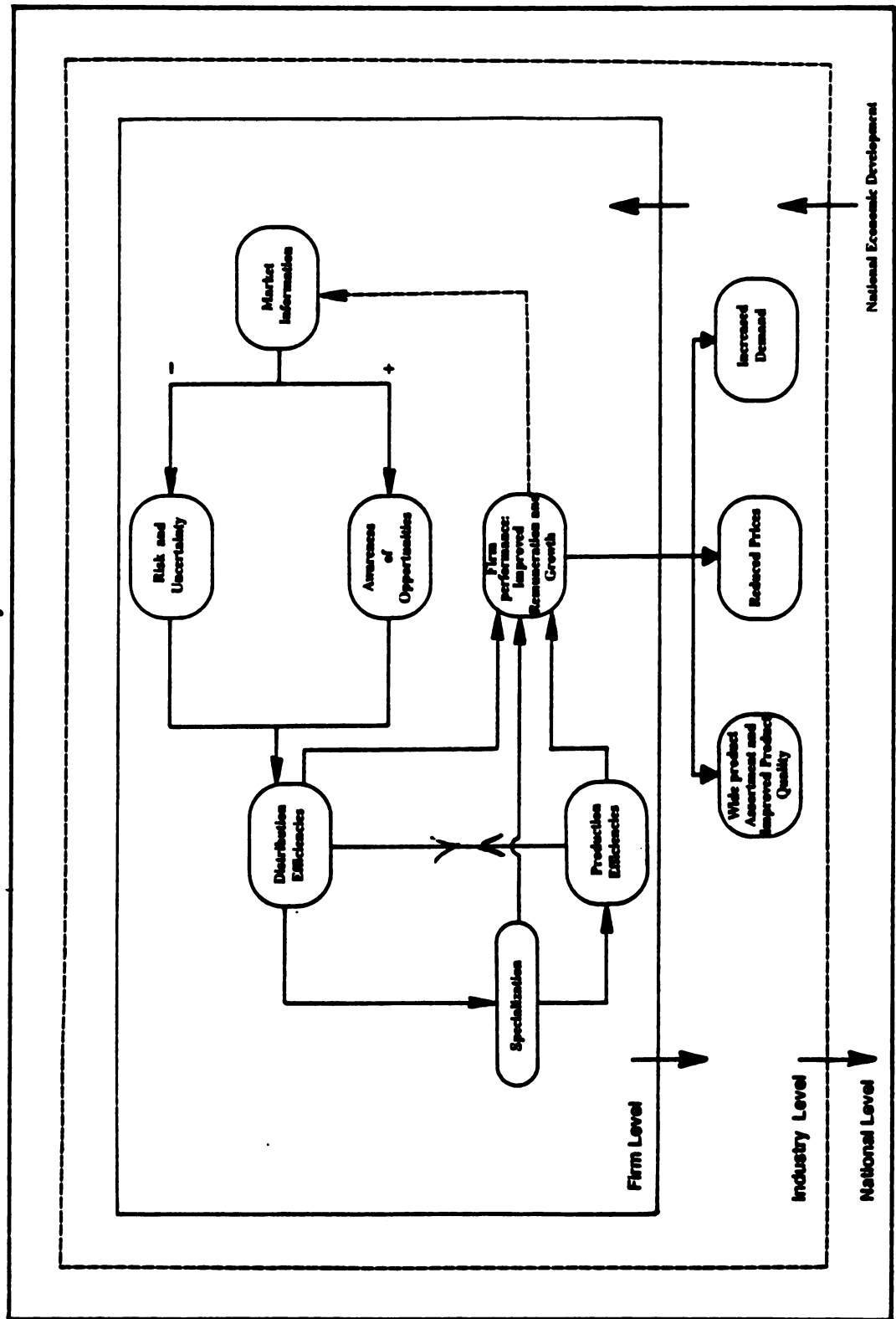
Market Information Benefits In a Market System:

Market information has a facilitating effect on decision-making, which in turn influences a market system's performance. Figure 6 presents a conceptual framework of the benefits of market information on a market system. A study of the model should begin with "Market Information" and move in the direction of "Risk and Uncertainty."

At the individual channel operator's level and the firm level, market information reduces uncertainty and risk. It also helps to increase awareness of marketing opportunities. These operational conditions help improve distribution functions of marketing operators. Knowledge about the marketplace also facilitates market specialization.

Improvement in distribution functions has direct effect on production functions. When distribution functions are performed efficiently, assemblers, wholesalers, and retailers are able to effectively carry through exchange

Figure 6.
Market Information Benefits
In a Market System



processes with food producers. Under such market conditions, marketing functions are effectively coordinated by the use of relevant and timely information. Food distributors are therefore able to provide guidance to producers in their production activities. Improvement in production and marketing functions improves the overall performance of a market system at the firm level.

The firm's efficient market performance, resulting from production and distribution efficiencies, can help improve channel operators remunerations. It can also facilitate growth. Growth at the firm level in turn, can help improve the firm's market information resources.

Individual firms' efficient market operations could result in the market system's provision of wide product assortment, improved product quality, reduced prices and increased demand at the industry level. Growth and progressiveness of the food production and marketing industry, in the end analysis, would have positive effects on a nation's economic development.

The theoretical basis for this conceptual framework will be presented in the Theory section of this study.

Theory

The study of the effect of information on market systems has its foundations in information theory. The basic economic theory of information states that information

reduces uncertainty and risk. The fundamental concepts around which Shannon developed his theory of information are choice and uncertainty (Lamberton, 1971, p. 84). He investigated the degree of uncertainty that is removed by the act of specifying a particular symbol or message from a group of such messages. In theory, economic decisions regarding alternative choice of actions are generally made without complete knowledge of future outcomes. The decision maker therefore benefits from information that can facilitate formulation of decisions that would increase the certainty of future outcomes.

Kerin and Peterson (1981) observed that:

A prerequisite for successful decision making is the effective management of information. Put simply, the better the information, the better the decision, because decisions are made in an environment of uncertainty and information reduces uncertainty. Hence, the less uncertainty, the less risky a decision (p. 85).

An important assumption in the development of information theory is that people make rational decisions in an attempt to achieve expected outcomes. Peter Drucker (1956) observed that the burden of decision-making can be lessened and better decisions can result if a manager recognizes that decision making is a rational and systematic process and that its organization is a definite sequence of steps, each of them in turn rational and systematic. Decision makers therefore needed relevant information to

enable them to make rational decisions.

The economic importance of information is seen in the operation of competitive markets. Traditional microeconomic theory, in the development of the model of pure competition, assumes perfect knowledge, no lags or friction, large number of firms, standardized or homogeneous products and no exercise of monopolistic power (Bressler & King, 1970, p. 84). Perfect knowledge in the model means both buyers and sellers are endowed with perfect information; the buyer to discriminate perfectly between all offerings and the seller to judge perfectly consumers needs (Mazis, et al., 1981, p. 12).

In theory, in the uncomplicated world of the idealized competitive economy, there are two kinds of information that market participants need to enable them to make effective decisions in the marketplace: information as to prices of goods and information as to timing of receipts. Perfect information about prices in the economic model implies perfect information on the specification of goods (Preston, 1970, p. 133). The free interplay of suppliers and consumers leads to the establishment of a unique market price, such that the marginal cost of suppliers are balanced against marginal benefits of buyers, and no market participant can be made better off without making another worse off. Information, in the economic model of pure competition, thus sets efficient price levels and revenues

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are maximized on markets.

In the homogeneous market of perfect competition, therefore, price performs the economic function of matching demand and supply. The market is thus cleared by price, and market information is an attribute of price (Alderson, 1965, p. 30)

Marketing theorists and economists differ in their assumptions, in the study of information and market systems. In the study of competitive market systems, economists assume perfect knowledge about the marketplace. Marketers, on the other hand, believe the economic model of a perfectly homogeneous market with perfect information has no counterpart in the real world. Alderson is of the view that this assumption is only a convenient fiction adopted by economists who want to think about the economic problem of price, rather than the marketing theorist who wants to think about the marketing problem of information (Alderson, 1965).

In marketing literature, therefore, Alderson assumes:

- i) a heterogeneous marketplace, and
- ii) imperfect levels of market information.

In his view, market imperfections result from failure in market communications. Furthermore, his heterogeneous market model lies closer to the facts of the marketplace than what economists have assumed over the years (Alderson, 1965, p. 30). Mitchell (1978) has observed that research in

economics of information has demonstrated quite clearly that information imperfections exist in the marketplace (p. 104). Stigler (1961) states further that "price dispersion is a manifestation--and, indeed, it is a measure of ignorance in the market" (p. 62). Arrow believes the theory of optimal allocation of resources under uncertainty should be linked to the critical notion of information (Lamberton, 1971, p. 141).

Alderson's heterogeneous market model thus views the marketing activity as a problem solving process, and searching, which pertains to the movement of information between market participants is a major function in the marketing process. Accordingly, the heterogeneous market is cleared by information. Either consumers must find the goods they want or suppliers must find the consumers who will accept the goods offered. Confusion of signals in the marketplace results in a mismatch.

Functions of Information:

Economic and marketing literature have identified several important functions of information within the market system. These functions can be grouped into two general categories: market structure and managerial functions.

Market Structure Functions: Market structural functions of information refer to information attributes influencing the physical structure of market systems. Information

functions in this category include:

- a) formation of efficient market price
- b) product differentiation
- c) better product selection
- d) improved product quality, and
- e) market specialization.

Information's role in the development of efficient market price was partially examined in the discussion of the economic model of perfect competition. In theory, an efficient market resulting from the presence of perfect market information establishes optimal prices that are interrelated through space by transportation costs, and through time as a consequence of the costs of storage (Bressler and King, p. 413). Shaffer (1983) has observed that markets provide mechanisms for collecting and summarizing enormous quantities of idiosyncratic information about production possibilities and preferences in the easily understood form of prices, which at the same time carry incentives to produce or conserve (p. 6).

Market information facilitates product differentiation in the marketplace. In the economic model of perfect competition, where market participants are fully informed of available product choice alternatives, only normal profits can be made. To make above normal profits, therefore, a market participant must use market information to

differentiate products or services being offered in the marketplace (Alderson, 1965, p. 104). The effective use of market information on competitive markets, therefore, help move market participants toward product differentiation.

Similarly, effective use of market information encourages specialization in marketing functions. Alderson (1965) has observed that perhaps the most essential function of a marketing firm is handling information and acting as a kind of switchboard, connecting the consumer with specialized need with the specialized product which satisfies the need: that there are firms at the intermediary stages of distribution, such as brokers and wholesalers without stocks, who handle information and do not handle goods at all (p. 75).

The effective use of market information facilitates improvement in product quality and also offers better consumer choice in service variety. Mazis, et al. (1981), have observed that improved product quality usually occurs whenever new information allows some consumers to alter their choices, thus providing a signal to sellers to change their products (p. 12). Product variety offered to consumers improves consumer choice alternatives in the marketplace. Consumers and product users are, therefore, able to make decisions which enhance their well-being.

Finally, information facilitates product comparisons thereby encouraging competitive market forces. Price

reduction which often results from competitive market activities is an important benefit of effective use of information that characterizes an efficient market system.

Managerial Functions: The managerial functions of information include the use of information for planning, executing, controlling and coordinating marketing activities.

Market information is critical to short- and long-range planning. Information helps an organization to assess the environment, forecast it, develop strategies for taking advantage of it, and to the degree possible, to alter the environment (King and Cleland, 1974, p. 35). By the establishment and use of accurate and timely information system, a firm can create and maintain a dynamic program of policy formation, along with appropriate actions and necessary controls.

Duddy and Revzan (1953) have observed that communication (defined here as the flow of information within the organization) in its application to business organizations, is an integrating force and an instrument of control. Through the system of orders, records, and reports, the manager exercises control over the internal operations of the business. Through a variety of forms of communication, the business is brought into contact with sources of labor and materials, with the buyers of its

products, with other business units and through its public relations, with society (Duddy and Revzan, 1953, p. 104). Effective coordination of business activities therefore require an adequate amount of relevant information. Shaffer is of the view that the central economic problem of any firm or society is the organization and use of knowledge to direct economic activity, given the dispersed nature of essential information (Shaffer, 1983, p. 6).

In the production and distribution of food commodities, Harrison et al., in their Latin American studies concluded that information is not only necessary but also critical for the coordination of marketing functions. They observed that inadequate market information results in poorly coordinated market channels, which in turn, increases market uncertainties and risk. In the view of the researchers, improved market coordination may reduce physical distribution costs because stable market arrangements permit more efficient scheduling of transportation, handling, processing, and storage facilities (Harrison, et. al., 1974, p. 102).

Quality and Quantity of Information:

The quality and and quantity of market information needed by consumers and information users have received attention in studies of consumer information search, acquisition, processing and usage. Marketing scholars

believe there is a need to improve our understanding about these information issues, to be able to develop effective information systems and programs. The findings and conclusions of these consumer information studies are relevant to the general study of information and its usage by marketing participants.

Although we live in an "information age" today marketing decision makers still complain they have insufficient information on which to base marketing decisions. According to Peter and Donnelly (1986) most complaints about the quality and quantity of information available in the marketplace fall into the following categories:

1. There is too much marketing information of the wrong kind and not enough of the right kind.
2. Marketing information is so dispersed throughout the company that great effort is usually needed to locate simple facts.
3. Vital information is sometimes suppressed by other executives or subordinates for personal reasons.
4. Vital information often arrives too late to be useful, and
5. Information often arrives in a form that provides no idea of its accuracy, and there is no one to turn to for confirmation (Peter and Donnelly, p. 38).

Marketing decision makers therefore require timely and reliable information before they can function effectively. Howard (1972) has suggested that the criteria of timeliness,

truthfulness, intelligibility, relevance and completeness should be applied for information to be adequate.

Furthermore, an effective information system should be dynamic. Bonnen (1975) has observed that when conditions and questions change with time, it will almost always be found that the conceptual base of some information data, especially secondary data, is not appropriate representation of actual conditions. When normative or positive change occur either in the objective being represented by data or in the environment of the subject, conceptual obsolescence is almost certain to follow (Bonnen, 1975, p. 154). Information collected for decision making, therefore, should reflect the changing environmental conditions of decision subjects. This condition is especially critical in the case of policies that affect food marketing systems; since changes in weather, seasonal productions, and several other environmental factors can make existing data and policies obsolete.

Bellenger and Greenberg (1978) suggest that since the basic objective of an information system is to improve the decisions which are outputs of the decision making system, the raw data input and the structure of the functional parts of the information system must be designed to meet the informational needs of decision makers (Bellenger and Greenberg, 1978, p. 10). They therefore suggest that in the development of an information system:

- 1) information about various aspects of the decision situation is needed, and
- 2) information is needed relative to the useful frameworks for organizing and understanding relationships between variables.

It is therefore not sufficient to make information available; it should also be processable to facilitate usage. Information format determines to a great degree, its processability. Information must be presented in a format congruent with those methods of processing. For example, if processing by attribute is thought to be effective, then information be presented by attributes to facilitate information processing. On the other hand, if the product or service has "image" advantage that can facilitate information processing, then information on brand image should be presented (Bettman, 1977, p. 240). Information producers and public policy makers interested in consumer information environments should therefore focus their attention not only on the content and quality of information made available, but also on the format in which information is structured and presented.

The issue of how much information should be made available to information users is also an important matter of concern in marketing literature. Behaviorists are of the view that human beings have definite cognitive limitations. These limitations are primarily due to the limited capacity of short-term memory which places constraint on the amount

of information that an individual can process at any given time and the limited ability of human beings to retrieve previously stored information. Hence motivation is not the only determinant of performance in the use of information in a particular task situation (Mitchell, 1978, p. 104).

Several information overload studies have investigated the possibility that there could be dysfunctional consequences resulting from providing consumers or information users with "too much" information (Jacoby, 1984, p. 432). Two major questions that the stream of research on information overload have attempted to answer are:

- 1) Can consumers or information users be overloaded?,
and
- 2) Will consumers be overloaded?

The studies have shown that there is a widely accepted belief that information processing and decision making are selective. That consumers or information users use a variety of information processing strategies to limit the amount of information that they permit to enter into their decision making. However, there is a general agreement among information overload researchers that consumers operating under experimental conditions, can be overloaded with too much information (Malhotra, 1984).

On the second question; "Will consumers be overloaded?", Jacoby believes that consumers, under normal conditions use their information selective abilities to

shut off excess information or information that they cannot process. Consumers and information users therefore would not permit themselves to be overloaded. Malhotra (1984), on the other hand, contended that there is the distinct likelihood that consumers will be overloaded. He believes overload could occur by way of imposed information load exceeding the processing capacity of the consumer, and/or by producing dysfunctional consequences in decision making (Malhotra, 1984, p. 439).

Although information overload stream of research have been inconclusive, due to the difficulty in developing research models that would effectively represent real-world decision making situations, the findings of the studies have important managerial implications that are worth noting. First, since consumers are selective in the use of information, the issue is not how much information they are provided with, but just which information they access that should be the focus of both information policy makers and marketing/advertising managers attention.

Second, to the extent that the amount of information available in the external environment makes it more difficult or more time-consuming to reach a decision or--more importantly--makes it less likely that the consumer will attend to some critical information, such amounts of information can be said to be dysfunctional (Jacoby, 1984,

p. 435).

Alderson has observed that for any information load which exceeds the capacity of the channel, the excess is lost or wasted. Market information producers should therefore carefully study the information needs of a distribution channel and be efficient in its production both in quality and quantity, since irrelevant information utilizes the scarce channels, thus increasing decision time (Alderson, 1965, p. 67). In short, "too much" and irrelevant information is expensive.

Information Environment:

The environment of an information system can facilitate or hinder the use of information. Sarel (1983) has suggested the need for information developers to examine carefully consumer perception, understanding and use of information programs, as well as effects of programs on consumer welfare. In his opinion, misperceptions of true meaning and the effects of a program on consumer decisions ought to be considered by policymakers in the development of information policy, guidelines and actions. Such issues should be examined on a segment specific basis, considering the needs and behavior of special groups in terms of education, age, income, cultural background, and other relevant variables (Sarel, 1983, p. 106). Thus a good understanding of how an information program affects market

behavior and participants is critical to effective information program development.

Furthermore, the use of grades and standards on a market have direct effects on understandability and usefulness of information that is transmitted in the marketplace. Riley et al. (1974) have observed that a major barrier to effective communication of market information in developing economies is the lack of a uniform and accepted system of grades and standards for market communities. When price information, for example, is unrelated to quality, it is of little value. In the view of the researchers, a grading system with price differentials known by many possible producers improves market effectiveness in directing activity consistent with consumer demand (Riley, et. al., 1974, p. 330).

Similarly, standardization of products also facilitates the exchange of goods. When goods are of known quality, they can be bought and sold by grade, name, or description. Standards thus save the labor of repeat inspections. Furthermore, standard goods can be held with less risk: prices are more accurately known and middlemen can handle standard goods on narrower margins than they can on non-standard goods (Converse, 1936, p. 43).

Cost of Information:

Closely related to the issue of the quality and quantity of information is the issue of cost of information.

In a direct way, the cost of information influences the quality and quantity of information that is developed and made available to decision makers.

Conceptually, the value of information in most economic literature is assumed to be zero (Knowles, 1984, p. 726). Economists assume this cost position because of the basic characteristics of information: that information is infinitely divisible. In theory, once information is acquired, it may be passed on to a large number of individuals. Since it is often difficult to identify persons who have benefited from a specific piece of information, it is generally difficult to apportion cost to information users.

Secondly, the value of information is affected by its source, reliable or unreliable. An individual who finds a piece of information reliable would attach some value to that information, while unreliable information is generally deemed useless. Since information reliability is a subjective and relative matter, it is difficult, in economic terms, to predetermine the value of information. Reliability of information becomes a critical issue.

Finally, most information in the marketplace is provided for a purpose and therefore, may be biased (Mitchell, 1978, p. 104). For example, a seller of a product might provide buyers information that will only

enhance the value of his or her product. These characteristics of market information make economists view information as a public good. Market information, therefore, in the view of economists, has zero economic value.

In real life situation, however, market information is not a free commodity. It costs money to produce and disseminate information. The zero value assumption of economic theory, according to Knowles (1984), can therefore be a problem at both the individual decision maker level and at the market level. Alderson (1965) has observed that since it cost money to develop and transmit information, an individual cannot indulge the luxury of information for its own sake. Information therefore had to be efficiently produced and efficiently used.

The public good nature of market information raises the question of who should pay for the production and dissemination of market information. It is perhaps safe to state that the production of information needed for solving a specific problem of a firm or an individual be the responsibility of that firm or person. Such information should therefore be produced and paid for by that firm or person.

On the other hand, the issue of who should pay for general information needed for the efficient and effective operation of a market system in an economy would need

further consideration.

Mazis et al. (1981) have suggested that since the free market economy is based on accurate transmission of signals between buyers and sellers, some government intervention may be appropriate when any informational market failure exists: That is, when consumer decisions (signals) are based on false or limited information. Arrow's discourse on information and efficiency led him to conclude that for optimal allocation to invention and dissemination of information, it would be necessary for the government or some other agency not governed by profit-and-loss criteria to finance research inventions of information (Demsetz, 1971, p. 161).

Mazis et al. have suggested market conditions under which government intervention in information provision might be necessary:

- 1) for product classes where sellers do not rely on repeat purchases or when outcomes are not directly observable.
- 2) When there is lack of incentive for any seller to provide relevant information, and
- 3) where there are substantial "external" benefits of information availability which are not fully accounted for in individual decisions, i.e., in cases where benefits accrue to the general welfare of the economy or the people (Mazis et. al., p. 12).

These criteria for government intervention in the production and dissemination of market information are very

applicable to market conditions in most developed and developing countries. In many developing economies, private firms and market participants are financially and technically incapable of developing information systems needed to help local market systems function efficiently. Martin has observed that in both developed and developing countries, the public sectors are important sectors in grain marketing through pricing, trade food aid, transportation policy as well as grading, provision of market intelligence and research (Martin, 1980, p. 889).

It is also essential, from a systems perspective, that government and private information development efforts be properly coordinated to achieve effective and efficient results.

Market Information Systems in Developing Countries:

Market information has received attention in the study of marketing systems in developing economies. Most market studies that have attempted to evaluate the quality and effectiveness of structural elements of market systems in developing countries have attempted to identify information systems, flows, and use in the market systems studied. In general, the level of structural and managerial development of market subsystems such as assembly, storage, transportation, wholesaling, retailing, information and market coordination, is closely linked to the level of

economic development of developing economies (Shaffer, 1983, p. 4). Studies of market systems in developing countries have generally shown that markets lack adequate and reliable information.

Food marketing systems in many developing countries are characterized by high levels of service outputs, high marketing costs, high prices to consumers and rural assembly markets that are hampered by poor information and transportation network (El-Ansary, 1983, p. 4). Harrison, et al. (1974) in their Latin American studies found market systems were characterized by limited market information, unstable prices, uncertain markets, and weather uncertainties. Such market conditions, in their view, make diversified subsistence production and trading activities a rational behavior. Traders, including channel intermediaries of many DC markets, are caught in situations of great uncertainty and risk. They sell on uncertain markets and should be compensated for the high risk. This, coupled with inefficient management practices explain the high gross margins on markets of many developing economies (Harrison, et. al., 1974).

Studies of market systems in many developing countries have shown that subsistence farmers, small wholesalers and retailers do not have the ability and also see the need to invest in knowledge about the marketplace. Staatz (1984) has observed that farmers, in many instances, are put at a

bargaining disadvantage relative to assemblers because it is not worth the farmer's time, given the small size of his marketed surplus, to investigate or take advantage of prices in alternative markets.

In Haye's (1979) study of Staple Food Grains Marketing System in Northern Nigeria, he observed that lack of adequate dissemination of information on prices and supply on the various markets and lack of specialization in trade often results in price differentials. Similar food marketing studies in Puerto Rico (1965), Bolivia (1966), Losotho (1977), and other developing countries have shown serious weaknesses in the information support services of market systems. Most of the studies found market information to be very sparse in the food marketing systems.

Governments in many developing economies do provide varying degrees of market information to facilitate the smooth functioning of their market systems. The objectives of such public information services are often to help educate food producers and distributors, facilitate production and distribution efforts, regulate marketing activities to meet specific public objectives, or facilitate the efficient operation of market systems. Often public market information is provided to supplement market participants private information gathering efforts.

Studies have shown that in some developing countries

public market information and statistics are often totally lacking or highly inaccurate (Cundiff, 1982, p. 17). In the market coordination study of the Cauca Valley Region (Colombia), Riley et al. (1974) found that the problem in communicating market information was not the lack of information channels; but rather the messages themselves: relevant market and production data were not being systematically collected, organized, and presented in a timely and useful manner (p. 328). Information users in the region, therefore, had little confidence in public market information that was being provided.

Radio and newspapers are communication medium that can be effectively used to disseminate information to market participants in developing countries. However, studies do show that while radio and newspapers could communicate market information to food producers and distributors at all levels, these media are rarely employed; and when they are used are not very effective (Riley, et. al., 1974). Slater et al. (1969) in a study of market systems in N.E. Brazil, found that farmers were not well integrated into modern society through mass communication media. Less than one-half had read newspapers or magazines recently; 59% had functioning radios, and 28% attended one extension meeting in the year (Slater et al., 1969, pp. 7-27).

Many developing economics also lack appropriate information media technology, transportation facilities and

manpower that are needed to develop and disseminate relevant market information.

In the absence of accurate and relevant information from the public sector, most marketing participants depend principally on interpersonal channel communications (Riley, 1974, p. 329). In the study of Cauca Valley Region (Colombia), researchers found dependence on interpersonal channel of communication to predominate among assemblers, food processors, wholesalers, retailers and consumers.

Staatz has observed that some channel members are able to acquire better levels of market information than others. He observed in his study that small scale farmers and assemblers may not have had as much market information as large-scale traders. Open flows of market information are sometimes further hindered by a lack of well-defined grades and standards. This lack of information, combined with markets that are sometimes too small to support many traders, in his view, could lead to an imbalance in market power (Staatz, 1984, p. 4).

Staatz (1984) believes reducing marketing costs and improving small farmers access to markets often require improved infrastructure and better information flows, two areas where governments can play important roles. The use of interpersonal single channel information networks make farmers dependent on other channel members for many

decisions and often subject farmers to market exploitation (Slater, et. al., pp. 12-6).

Large scale channel operators, however, generally have better access to market information because they have greater interactions with large numbers of channel participants and are also able to visit several markets.

Riley et al. (1974) suggested some specific information benefits that accrued to food producers and distributors.

These are:

- 1) producers are provided with objective information to assist them in obtaining the best possible prices for their products.
- 2) marketing firms are given an objective base on which to negotiate trades.
- 3) storage and transport costs are reduced by more effective spatial and temporal market coordination.
- 4) problems involving local market gluts, scarcities and back hauling are reduced, and
- 5) reliable price, production and stocks information discourage economically undesirable speculation and encourages economically desirable storage (Riley et al., p. 336).

These benefits are good ingredients for economic development, and if they could be achieved, could help many developing economies attain the goal of self sufficiency in food production.

Research Questions:

Economic and marketing literature support the view that relevant and timely market information is critical to

effective decision-making and the attainment of an efficient market condition. Effective flow of relevant market information, among other things, facilitates:

- 1) formation of optimal market price on competitive markets;
- 2) coordination of supply and demand factors of market systems;
- 3) product differentiation of market offerings;
- 4) product (quality) improvement on competitive markets;
- 5) market specialization, and
- 6) improves bargaining positions of market channel participants.

Furthermore, to the extent that market information helps to improve earnings of market participants, benefits derived from production and marketing activities could serve as motivation for involvement in production and marketing activities.

Notwithstanding all the benefits derived from the free flow of market information in the marketplace, food market systems in many developing countries are generally deficient in the production and dissemination of information needed to support their market systems.

Ashanti Region Maize Market Information:

Maize markets in Ashanti Region, as described earlier in this study, are not different from market systems of most developing economies--in information gathering and

dissemination. Maize markets in the region lack adequate and relevant information. Although the Ghana government, through various public agencies, does gather and transmit some market information to maize producers and distributors, such information is generally viewed as being inaccurate and untimely.

Information deficiencies of maize markets in Ashanti Region pose many important questions that are worth investigating. Specifically,

- 1) What kind of information (in quantitative and qualitative terms) are channel participants in the various maize marketing institutions exposed to?
- 2) How do maize marketing channel participants interpret and use information that they receive? and,
- 3) How does information in the maize markets help facilitate decision-making processes of maize marketing channel participants?

A systematic analysis and evaluation of market information systems and usage should provide some answers to these important questions that influence the efficiency and economic contributions of maize marketing institutions. Answers to these questions would also be useful in the formulation of policies and structural changes that will help improve the quality of information that support maize markets in Ashanti Region and Ghana as a whole.

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CHAPTER THREE

RESEARCH METHODOLOGY

Agricultural Marketing Studies in Developing Countries:

Agricultural marketing researchers have used different approaches to study food production and marketing problems in developing countries. Riley and Weber (1979) have classified these research approaches into three broad categories: descriptive studies, feasibility studies, and broader diagnostic assessment studies (p. 7).

Descriptive Studies:

Descriptive studies, which are often conducted by geographers, anthropologists, and social scientists, provide valuable descriptive information about market systems. These studies provide factual information about existing market arrangements for specific commodities or selected marketing functions. These streams of research provide knowledge on how traditional market institutions function.

Riley and Weber (1979) have observed that the usefulness of descriptive studies are very limited for some reasons: First, the studies are seldom goal-oriented. They do not often carry policy recommendations for market development strategies (Riley and Weber, 1979, p. 8).

Second, many descriptive studies conducted by economists and agricultural economists are based upon conceptual perspectives of market organization dominated by perfectly competitive theoretical model of economics. Much of these research involve the testing for conditions of structure, conduct and performance predicted by the perfectly competitive model. The major problem with this relatively static framework is that it fails to recognize the dynamic impacts of marketing institutions in achieving development goals regarding efficiency, equity, growth, and employment (Riley and Weber, 1979, p. 7).

Third, descriptive studies of anthropologists and sociologists concerning rural household behavior relative to combinations of production, consumption, storage and sales decisions have provided valuable information about rural populations and economic processes. These studies, however, rarely contain analyses which lead directly to policy recommendations (Riley and Weber, 1979, p. 8).

Feasibility Studies:

Feasibility studies have often been conducted in developing countries to provide information needed by government agencies, international financial institutions and private sector investors regarding capital investments in marketing infrastructures. These studies generally focus on economic feasibility of a proposed project involving a

large capital investment. Although these studies have provided useful information for the specific projects for which they were conducted, like descriptive studies, they have shown some serious problems in their orientation.

First, there has been a tendency toward unrealistic optimism regarding the transferability of technologies from the more developed to the less developed economies. The analyses have tended to endorse capital-intensive technologies in situations where labor-capital costs are such that more labor intensive technologies would be more appropriate (Riley and Weber, 1979, p. 9).

Second, feasibility type studies occasionally misguide the compatibility of new capital-intensive infrastructure with existing patterns of production, distribution and consumption. As a result, there is serious underutilization of newly constructed facilities, e.g., grain storage (Riley and Weber, 1979, p. 9).

Third, lack of trained labor force and management in developing countries are often underplayed in feasibility study reports or not taken seriously by those responsible for project implementations. For this reason, there is a growing demand for better preparation of professionals conducting feasibility type studies (Riley and Weber, 1979, p. 9).

Broader Diagnostic Assessment Studies:

This research approach provides broad diagnostic assessment of food market system organization in developing countries. Research in this area carry out broad-based studies of agricultural marketing processes in countries studied. A major attribute of this research approach is its policy orientation. Studies using this approach generally have, as a major goal, the recommendation of policy and organization changes to improve the marketing systems that were studied.

Researchers in various U.S. universities have used this approach to study the food market systems of many developing countries. Mellor et al. (1968) of Cornell University used this approach to study market systems in India. On the basis of extensive field surveys, they challenged the validity of several widely held views regarding the exploitive and unproductiveness of rural traders.

Lele (1976), in her diagnostic assessment studies, also found little evidence to support the view that the monopolistic nature of private traders lent to excessively high marketing margins or that wide, seasonal price variations were caused by speculative hoarding and profiteering practices of traders. She found price differentials at the wholesale level to be closely related to expected price patterns based upon transportation cost

differentials.

Jones and his colleagues at Stanford University also have conducted extensive studies of agricultural marketing in several African countries using the diagnostic assessment approach. They compared the characteristics of existing marketing systems with the requirements of purely competitive models and actual pricing relationships were checked against what was expected in a perfect market. Jones and his colleagues found that average seasonal price movements corresponded well with the cost of storage; that inter-market price correlations were somewhat less than might be hoped for; and that yearly price movements were generally in accord with supply and marketing conditions. The researchers concluded that "the invisible hand" could not be trusted completely to guide economies in socially acceptable direction nor could the state rely on the marketing system to perform the tasks assigned it without appropriate facilitating services best provided by the government.

Although broader diagnostic assessment research has produced useful insights into agricultural marketing systems and recommended solutions to market system problems have helped improve the marketing systems studied, Riley and Weber have observed that many of the studies have shown some serious problems. Some of these problems are:

1. Lack of concern for the dynamic impacts which marketing services can have both on production and consumption. That the studies made little effort to better understand how the effectiveness of marketing services influence supply and demand functions, especially for small scale farmers and low-income consumers.
2. The studies had the tendency to utilize secondary and usually macro-level data in testing for conditions of structure, conduct and performance predicted by the perfectly competitive model. Commodity studies of market flows, margins, elasticities, concentration, competition, and policies are generally based on industry or regional-level data which do not permit focusing on the micro-level behavior of marketing agents, including farmers' marketing decisions in the rural areas, and
3. The studies focus on few, if any, of the levels of interaction in the vertical marketing channels between farmers and ultimate consumers, whether they be located within rural areas themselves or in large cities (Riley and Weber, 1979, p. 11-13).

Pritchard (1969) had emphasized the importance of developing a broad analytical framework for studying and solving agricultural marketing problems of developing countries. He had cautioned against using a narrowly defined market structure framework which limited an analysis to "those characteristics of the organization of a market that seems to influence strategically the nature of competition and pricing within the market." He suggested the use of an eclectic set of analytical procedures, bound together into a useful framework by the concept of agricultural marketing as an organized, operating behavioral system within the economy. He emphasized the need to use the framework to search for basic economic, technological

and social constraints in the environment in which the marketing systems function and change.

Some agricultural marketing university researchers have approached the broader diagnostic assessment framework from Pritchard's perspective. Goldberg (1974) and his colleagues at Harvard University have extended their "Agribusiness Commodity Systems" approach to problems of export market development in Central America and other areas.

Phillips (1973) and his associates in Food and Food Grain Institute of Kansas State University have conducted a number of diagnostic assessments of grain marketing systems in some developing countries using a broad food chain conceptual approach. In their studies, physical handling at all stages in the farm-to-consumer chain were explained, and recommendations for improvement programs were presented to government agencies.

Researchers at Michigan State University have developed a "food system" approach to conducting diagnostic studies of agricultural and food marketing systems linking large urban centers in selected Latin American countries with their rural supply areas. The researchers conducted field studies in northern Brazil, Bolivia, Columbia, and Costa Rica. The market system diagnosis research technique developed by the MSU researchers will be described in the section that follows.

Market System Diagnostic Research Approach: This research technique involves a systematic diagnosis of agricultural marketing system performance in relation to development goals. The research process involves:

- 1) an examination of the food production-distribution-consumption system in a selected market area.
- 2) a description and analysis of the urban food distribution system and related commodity supply subsystems to identify potential opportunities for improvements.
- 3) preparation of similar diagnostic studies directed toward farm input and consumer goods distribution, and selected public aspects of marketing concerned with laws and regulation information systems and credit policies, and
- 4) an evaluation of marketing system performance that is both normative and reactive (Harrison et al., 1974, p. 8).

The thrust of the Michigan State University research was toward the use of a descriptive diagnostic procedure for identifying constraints and unexploited opportunities as perceived by marketing system participants, local political leaders, and as identified through the use of a wide array of standard economic analysis tools. The approach is pragmatic and eclectic, and emphasizes the need to identify managerial, technological, and institutional innovations which are unavailable to individuals in existing marketing channels, but if adopted across all stages of interrelated production and marketing processes, could lead to substantial, channel-wide improvements (Riley and Weber,

1979, p. 14).

Riley et al. (1970) used the market system diagnostic approach to study market coordination in the development of the Cauca Valley Region, Columbia. The primary objective of the study was to conduct diagnostic studies of market coordination in the Cauca Valley and to formulate recommendations to improve resource use efficiency and stimulate economic growth. A secondary objective was to train Colombian personnel in the technical aspects of economic studies and to contribute to a better understanding of market coordination processes in economic development (p. 1).

The study covered three levels of marketing operations: farm level activities, marketing channel activities, and the performance of the food system as a whole. On the basis of the analyses, recommendations were made to help improve efficiency in the production-distribution process and to stimulate production and consumption. The underlying goal of process changes recommended was to achieve greater productivity in food production and distribution as a means of raising per capita incomes. Immediate subgoals were to identify marketing improvements to reduce food prices to consumers, and/or improve marketing services by reducing market uncertainties for farmers and marketing firms (Riley et al., 1970, p. 346).

Slater, et al. (1969) also conducted a diagnostic assessment study of the marketing system linking a large urban center in northeast Brazil with the rural area providing most of its food supply. The two major processes of the study were: (1) to describe and analyze the existing marketing system in northeast Brazil as a basis for formulating improvement recommendations that would contribute to regional development goals; and (2) to contribute to a more useful conceptualization of market processes in economic development (p. 1-1).

The study focused on marketing activities in the Recife area of northeast Brazil. The research approach developed for the study included four entry points into the existing market system: (1) a description of the urban food distribution system; (2) rural markets for assembly of agricultural products; (3) the distribution of agricultural inputs; and (4) the urban industrial system (Slater, et al. 1969, pp. 1-11).

The study identified four classes of problems requiring solutions so the market system could function effectively.

These problems were:

1. low knowledge levels among rural people and highly traditional attitudes and actions growing out of illiteracy and poor education;
2. limited agricultural research which could help provide guidance for decision-making. This includes research both in the physical and social or economic sciences;

3. inadequate or costly distribution systems for the kinds of farm inputs necessary to support the desired technological revolution, such as improved seeds, fertilizer and insecticides; and
4. unstable and poorly coordinated marketing channels through which agricultural products are assembled and distributed to consumers (Slater, et al. 1969, pp. 10-3 & 4).

The researchers offered solutions to these problems and discussed the potential impact of reform programs recommended on the economic development of the region studied.

Channel Mapping Analysis:

Channel mapping is a special kind of market system diagnostic assessment research technique. This market research technique was developed as a result of research experiences from the Michigan State University Latin American studies (Slater, 1979, p. 6). Channel mapping is a technique designed to investigate and provide a complete description of a food system, from production through processing and distribution to consumption. Channel mapping is a positive, descriptive research with a policy orientation (p. 15).

The technique involves detailed and comprehensive description of the channel system from the initial inputs to end use. It attempts to develop a comprehensive integrated view of the food system that is detailed enough to provide

information that will facilitate policy formation (Slater, et al., p. 15). It provides a closed system description of the channel being studied.

The essential element of channel mapping technique consist of surveys of all channel participants at all levels of the channel system. In the context of an industry study, channel mapping traces the flow of the product from production on commercial farms, through processing to the final consumer. It evaluates the organization, policies, and practices of institutions in the channel system. In the aggregate, channel mapping provides a description of the organization, practices and performance of the entire industry (Slater, et al., p. 13).

Objective measures of the channel system's performance are also taken and the measures are assessed in conjunction with the description to give evaluation of how the food system is performing.

Slater et al. have suggested that a channel mapping process should consist of:

- 1) Development of survey instruments, designed to derive maximum information from channel participants, and translation of survey instrument into the local language.
- 2) Pilot studies of survey instruments with the objective of reducing language difficulties and assuring coverage of relevant areas that need investigation.
- 3) Revision of survey instruments.

- 4) Administration of survey instruments (including selection of a representative sample), and
- 5) Analysis of channel participants problems and shortfalls, and suggestion of possible policies to alleviate inadequacies and enhance the performance of the system (Slater et al., 1969, p. 15).

Slater et al. used channel mapping to study how the food system in Lesotho functioned. The objective of the research was to study the entire food system of Lesotho and how it affected the nutrition of the people; and to suggest possible strategies for improvement.

The operation of the food system was investigated by means of four surveys: a Consumer and Household Survey, Farm Survey, Retail Survey, and Industrial Organization Study. In addition to the survey data collected, anthropometry in the study was used to quantify malnutrition among the children (Slater et al., 1969, p. 25).

The Consumer and Household Survey sought to present a total picture of the food marketing system as used and perceived by the consumer, including farmers.

The Farm Survey measured the small farmer's degree of market sophistication, his exposure to market channels, and the types and amounts of food available to the farm family.

The Retailer Survey investigated the attributes and functioning of the market channel from the perspective of the retailer. It asked questions concerning store type, size, location, and products carried. It sought information about sources of products, mode of transportation,

wholesaler credit, product line, and storage space adequacy. Retailers were also asked to discuss perceived problems in retailing business (Slater et al., 1969, p. 23).

The Industrial Organization Study investigated the importation and wholesaling of food in Lesotho. The importers and wholesalers were asked questions concerning business structure including size, number of outlets, and management practices. Pricing policies, competition, and perceived obstacles to improved efficiency were also investigated (Slater, et al., 1969, p. 24).

Slater et al. observed that channel mapping, as a research technique, has several unique attributes:

- a) Channel mapping provides information that is particularly critical to policy information in severe tension situation (e.g., under conditions where accurate critical information cannot be obtained without direct in-depth investigation).
- b) provides a firm data base for policy formation function of evaluating situations which exist and analyzing the extent and location of problems. It suggests points of intervention and possible strategies for improvement.
- c) provides data base in the form of comprehensive description that can facilitate evaluation of broad range of factors to determine the feasibility of specific policies, and strategies to implement such policies, and
- d) channel mapping is neutral with regard to life support system analysis. That is, the procedures and techniques used is applicable to other life support systems research in other nations. Issues for each life support sector will differ, but the methods of research can be similar (Slater, et al., pp. 11, 39).

In the Lesotho Food System Study, the researchers observed that, by its very nature, channel mapping analysis suggested points of intervention and possible strategies for improvement. The researchers were able to observe attitudes and perceptions of channel participants and consumers. They were also able to ask for perceived problems and their causes. In this process, the researchers were able to identify areas where change would be most effective (Slater, et al., 1969, p. 33).

Channel mapping analysis is thus an effective research technique for identifying and studying market factors that do not easily lend themselves to quantitative measures and evaluation.

Research Method:

The study of information provision and use is a study of how information systems are organized in a market system and how information produced is used in decision making processes. It is an attempt to understand information systems and their use in a market system. The goals of such a study are to identify marketing institutions and their functions, information systems, and the use of information by marketing channel participants in decision-making processes, and to make appropriate policy recommendations to help improve the quality and use of information in the market system. .pl 66

Channel mapping, as described in this chapter, is an effective research method for such a study. Channel mapping helps identify information systems in the market system and provides a framework for a qualitative evaluation of information in the market system. By the use of evaluative criteria of accuracy, relevancy, timeliness, sufficiency, and marketing institutions' fair access to information, information provided in the market system would be analyzed. Deficiencies in the information systems would be determined, and appropriate policy changes necessary for the improvement of the information systems and their use made to interested parties of the market system.

Research Process:

The channel mapping research process used in this study involved:

- 1) Identification of maize marketing institutions, marketing channels, channel functions and processes, and information systems that support the maize market system;
- 2) Development of survey instruments designed to derive maximum information from channel participants concerning information systems in the market system, and translation of survey instruments into the local language.
- 3) Pilot test and revision of the survey instruments.
- 4) Administration of survey instruments, and
- 5) Analysis of information problems of the market system and recommendation of policy and system changes in the production and dissemination of information to facilitate marketing decision making.

Identification of Marketing Institutions and Information Systems:

The researcher, in this phase of the study spent 12 weeks in the field studying the operations of the maize production and marketing business in Ashanti Region. The study helped identify the organizational structure of the maize marketing institutions in the region, and the business practices of the marketing channel participants. The structure and management of maize marketing trade associations, their functions, and leadership were also identified in this phase of the study.

Similarly, maize marketing information support services and their organizational structures were also identified, and their functions documented. National food production and marketing boards, and officers of the boards were identified and requested to provide information on their relevant functions in public policy decision-making and the effects of their decisions on maize production and marketing business. These public officials also helped describe the operations of the maize marketing system in Ghana from their perspective, and the importance of the maize production and marketing industry in the economic development of Ghana.

Information gathered in this phase of the study served two functions: first, it provided detailed description of the maize marketing system in Ashanti Region, and Ghana as a

whole. Second, it provided the relevant information used in the development of the survey instruments of the study.

Useful market data, including regional wholesale prices for maize, annual government minimum guaranteed prices for maize, and national consumer price index were also collected in the descriptive phase of the study.

Finally, and perhaps most importantly, the researcher developed positive acquaintances with some operators of the maize market system in Ashanti Region and at the national level which proved very useful in the survey administration phase of the study. The acquaintances formed earlier in the study helped break the ice and paved the way for a successful survey administration.

Survey Instruments Development:

Four separate questionnaires were developed for the field survey as shown in Appendix A of this study. The survey instruments comprised of a Maize Growers Questionnaire, Maize Assemblers/Wholesalers Questionnaire, Maize Retailers Questionnaire, and Maize Marketing Public Policy Makers Questionnaire. Separate instruments were developed to permit the researcher to ask relevant questions which were institution specific in the research process.

The Maize Growers Questionnaire investigated the number of years the grower had been in the maize business, the size of maize production operations, maize marketing functions

performed, and the portion of the grower's annual income that came from maize production and marketing activities. The instrument also investigated grower's education level, sources of market information for the various marketing mix decision factors--including market demand, supply, market prices, storage facilities, markets, transportation facilities and the level of market specialization.

Maize growers were also asked questions about grower perceptions on the adequacy, timeliness and effects of the government's minimum guaranteed price information transmitted to the general public. Information received from newspaper sources, radio, maize production and marketing trade associations and agricultural extension services were also investigated. Maize growers were asked to suggest necessary changes in information structure and administration that would help improve marketing activities in the maize industry. Open-ended questions were used in the research instrument to permit respondents to fully express their views.

An important source of market information to maize marketing channel participants in Ashanti Region is information from market "queens" and "kings." A market queen or king is the traditional head of the trade association of a maize marketing institution. Maize growers usually call their trade association head "chief farmer."

In Ashanti Region, each local association of maize growers, assemblers and wholesalers, and retailers has a chief farmer, market queen or king. These traditional heads of maize production and marketing institutions are elected by trade association members, and are accountable to their specific trade associations. Chief farmers, market queens and kings are generally selected on the basis of the size of their private trade outputs, years of experience in the business or their abilities to speak in public and effectively represent their organizations.

Chief farmers, market queens and market kings are spokespersons for their trade associations. They serve as liaison officers between marketing institutions and local/national socio-political organizations. They transmit incoming and outgoing information for the various trade associations. Survey instruments developed for this study investigated the information role of chief farmers, market queens and kings of maize marketing institutions in Ashanti Region.

One questionnaire was developed for Maize Assemblers and Wholesalers. This was done because the initial market structure study showed that the majority of maize assemblers in Ashanti Region were also maize wholesalers or employees of urban wholesalers. The Descriptive Phase of the study showed that about 90% of urban wholesalers in Ashanti Region did perform their own assembling functions. It was

therefore deemed appropriate to develop one survey instrument for assemblers and wholesalers.

The Maize Assemblers/Wholesalers Questionnaire investigated similar market factors as the Maize Growers Questionnaire. Market information sources, information development processes and value of information were examined. Respondents in this category were also given the opportunity to fully describe their marketing functions and the extent to which information influences their marketing activities. They were also allowed to suggest information system changes that would help facilitate decision-making in the marketing process.

The Maize Retailers Questionnaire investigated marketing factors similar to those examined by the Maize Growers Questionnaire. Maize retailers were asked open-ended questions that allowed them to describe and evaluate information sources that influence their marketing mix strategies. The respondents were also asked to suggest market information structural and administration changes that would help improve their marketing decisions and overall performances.

The Maize Marketing Public Policy Makers Questionnaire was designed quite differently from the other survey instruments. The questionnaire for public policy makers was designed as guideline to indepth interviews to investigate

information development and transmittal functions of public organizations. The questionnaire investigated the different kinds of information provided by the various public organizations. It also requested the respondents to evaluate the quality and value of the information that was provided and to suggest possible structural and administrative improvements deemed necessary.

Study Population Characteristics:

It is essential to discuss at this point some important characteristics of the study population. Among the important attributes of the study population are the unique marketing management practices of maize marketing channel operators in Ashanti Region, and the importance of co-operative association or market union membership to the marketing activities of the channel operators.

Maize Marketing Management Practices: Maize marketing management in Ashanti Region is quite unique in some ways. Maize marketing channel operators in the region are mostly private entrepreneurs who perform full marketing functions. Often, however, these entrepreneurs would delegate some of their marketing functions to other individuals. For example, the wife of a maize grower would often be required to perform the selling functions of the business while the husband performs the production and harvesting functions; or in the case of a wholesaler, the

wife would sell maize in the marketplace while the husband performs assembling and other marketing functions. The husband and wife, therefore, in such situations are partners in business. Unmarried marketing operators also often delegate some marketing functions to members of their families, who then become their business partners.

Wives and family members of maize-marketing channel operators who are partners to maize marketing entrepreneurs do acquire and develop appropriate knowledge and skills necessary to effectively perform their marketing functions. This unique partnership condition creates a situation in which one business partner could be more knowledgeable in some functional areas than the other partner. The business partners usually share market information with one another. In interviewing such business partners, therefore, it sometimes becomes necessary to direct certain questions to the more knowledgeable partner in a specific functional area. Most of such business partners usually live in the same house in Ashanti Region. Often one partner will request the partner with adequate knowledge about the question being asked to help answer the question.

Importance of Co-operative Association Membership: Co-operative association membership in the maize production and marketing industry in Ashanti Region facilitates field research activities in a positive way. Maize marketing channel operators in Ashanti Region are free to join or stay

out of co-operative associations. The majority of major maize growers, wholesalers and retailers, however, have joined trade co-operative associations or market unions for some important reasons.

First, the Ghana government strongly encourages farmers, food distributors, and other market operators to organize themselves into co-operative associations or market unions. This is because such associations help the government, financial institutions and other public and private organizations to identify industry operators and to offer them essential support services. In this situation, farmers who join co-operative associations could have easy access to government subsidized fertilizer, tractors, pesticides, and other essential operating inputs. Similarly, maize wholesalers and retailers who join co-operative associations on some occasions have access to bank credit facilities, could easily be allocated stores and plots on open markets in the region and could also have easy access to public administrators to discuss trade problems.

Co-operative association membership thus provide operating resources that could give a marketing operator a competitive edge over an individual who chooses not to join a co-operative association or market union.

The majority of full-time non-subsistence maize growers in Ashanti Region chose to join co-operative associations

for the benefits discussed. The marketing operations of subsistence maize growers in the region were very small in volume. In the case of maize wholesalers and retailers in Ashanti Region, there seemed to be an unwritten rule that an operator should join his or her respective cooperative association in order to operate in the marketplace. This rule was privately enforced on most food markets in Ashanti Region. Over 95% of maize wholesalers and retailers identified in the region were therefore co-operative association or market union members. Notwithstanding the "closed shop" market rules and the many benefits that a co-operative association membership could bring to maize marketing channel participants, there were still maize marketing channel operators who chose not to join co-operative associations. These individuals were mostly small-time market participants who often operated on a part-time basis or intermittently. The marketing operations of these operators were generally insignificant.

In the questionnaire administration of this study, therefore, co-operative association members, who transacted over 80% of maize production and marketing business in Ashanti Region (1986 Regional Agric. Officers Interview), constituted the population from which the research samples were drawn. In few instances, large-scale growers who managed government maize production and marketing companies were also identified and interviewed. This was because the

companies that these managers represented were important segments of the industry.

Questionnaire Translation:

The study subjects interviewed in the field study were classified into three distinct groups in terms of their abilities to understand the research instruments prepared for the study.

The first group consisted of public officials who were heads of public corporations or executive members of public organizations. These people had high levels of formal education. They spoke English fluently and had good understanding of the English language. These people therefore could read and respond to questions in the questionnaires without problems.

The second group of the research instruments respondents were marketing channel operators who had had over ten years of formal education. People in this category generally had completed secondary education, professional teachers' college or post-secondary education. Unlike the public officials in the first group, these people had occasional difficulty understanding English.

The third group of the study subjects were people with no formal education, or had less than ten years of elementary education. These people were considered functional illiterates.

With such wide variation in levels of education of the study subjects, the translation of the research instruments into Twi, the major local language in Ashanti Region, became a necessity. Maize growers', wholesalers', and retailers' research instruments were therefore translated into Twi. The "back translation" technique was used in this exercise (Green and White, 1976, p. 84). Each research instrument was first translated from English to Twi by skilled translators. A second group of translators were also requested to translate the Twi versions of the research instruments back into English. Discrepancies in the translations were determined and reconciled.

Research Area and Sampling Plan: Table 4 and Figure 7 show the distribution and size of samples in study areas for the research project. The descriptive phase of the study helped identify major towns and communities in which maize production and marketing business in Ashanti Region take place. Information obtained from Ministry of Agriculture field officers (1986 Interview) and marketing channel operators in the region indicated that the city and towns identified on the table produced approximately 80% of the surplus and marketed maize in Ashanti Region. The study areas were therefore selected on the basis of volume of

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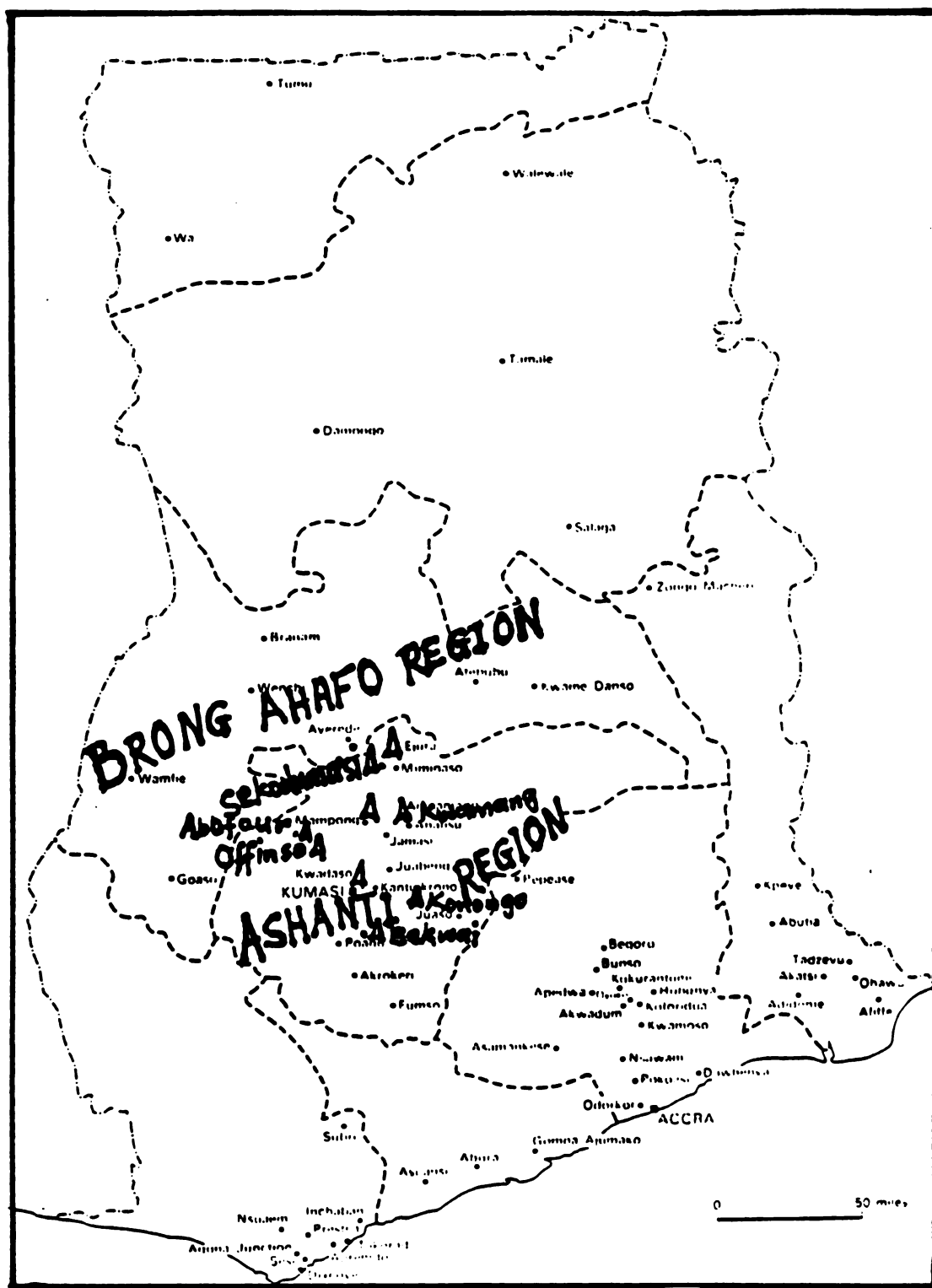
Table 4
Distribution of Samples in Study Areas

Towns or City	Growers		Wholesalers		Retailers	
	Number Ident.	Sample	Number Ident.	Sample	Number Ident.	Sample
Sekodumasi	150	45			26	8
Ejura	61	18	3	3	21	6
Mampong	70	21	2	2	15	5
Kwamang	54	16			8	2
Offinso	40	12	1	1	7	2
Abofour	51	15			11	3
Kumasi			21	21	129	39
Konongo					12	4
Bekwai					4	1
Ejura Farms	3	3				
GFDC (officials)			3	3		
Total	429	130	30	30	233	70

Source: 1986 Field Study Data

Figure 7

Regional Map of Ghana Showing Study Areas
in Ashanti Region



Maize Growing and Marketing Communities.

Source: A New Geography of Ghana by Dickson, K.B. and B. Benneh, 1970, p. 89

maize output and marketing transaction that took place in the selected city and towns. Most of the maize-producing towns selected for the study were "dead-end road" farming communities. All classes of maize growers were therefore well-represented in the selected samples.

It was explained earlier in the study that local co-operative association members made up the study population from which samples were selected. Explanation for this cause of action was also discussed.

Simple random sampling was used to select the study samples of maize growers and retailers. All maize wholesalers identified were interviewed because they were few in number. The selection followed the following processes:

- 1) Co-operative association membership lists for each local association was obtained from the association's management and brought up-to-date.
- 2) A single number was assigned to each name on the association membership list. No name was skipped in the process, and
- 3) A table of random numbers was used to select elements for the sample. Each association member had the chance of being selected (Babbie, 1979, pp. 177-178).

Sample Size: Differences in population sizes for the various maize marketing institutions in the different towns and city created a need to develop a criteria for determining sample size for each town and city. Sample sizes for maize growers and retailers had to be limited for

several reasons. First, the limited financial resources of the researchers necessitated limiting to a manageable size study subjects to be interviewed. Second, the socio-economic environment of Ashanti Region necessitated the scaling down of the study samples. Transportation services were difficult to obtain in rural parts of Ashanti Region, and when such services were found, were very expensive. Besides, some farming communities had so few resources to support a visitor that it was difficult for the researcher's hosts to support him physically for any length of time.

The researcher therefore determined a minimum of 30% of maize growers and retailers identified would be interviewed. Table 4 shows only 30 maize wholesalers operated in Ashanti Region maize markets in the study period as compared to 429 maize growers and 233 maize retailers. All the wholesalers identified in the study were therefore interviewed.

Thus a total of 130 maize growers, 30 wholesalers, and 70 retailers were interviewed. The general manager, production manager, and director of Ejura Farms, the largest maize production company in Ghana, were interviewed. The regional manager and two district marketing managers of the Ghana Food Distribution Corporation (Ashanti Region) were also interviewed.

In addition, 25 public policy makers whose activities

and decisions provide market information to maize production and marketing channel operators in Ashanti Region were also interviewed. The public policy makers included the director and executive officers of the Ghana Food Distribution Corporation (Accra), senior officers of the Ministry of Agriculture (Research Division), Ministry of Agriculture (Ashanti Region Extension Services), Ghana Grains Development Board (Ashanti Region), Ghana Seed Company (Kumasi), Ghana Co-operative Association (GAFA-Cop.) Ashanti Region, local Agriculture Development Banks, local Cooperative banks, and some members of the Committee on Agricultural Commodity Prices.

Survey Instrument Pilot Test: All survey instruments of the study were pilot-tested. Ten potential questionnaire respondents whose composition reflected both urban and rural orientation, large and small-size operations, and varying levels of education were carefully selected for the pilot test. Five public policy makers representing different public organization that offer information services to the maize production and marketing industry were also selected for the pre-test. These study subjects were served with appropriate questionnaires for the institutions in which they function. The respondents were requested to verify adequate coverage of the information environment of their respective institutions, understandability and relevancy of

the research instruments.

Suggestions of the respondents were used to revise the research instruments to assure adequate coverage of subject areas being studied and research instrument understandability.

Survey Instrument Administration: The researcher personally administrated each questionnaire. Study subjects who could read and write English fluently were permitted to complete the questionnaires on their own. The researcher was always on hand to answer respondents' questions whenever the need arose.

For semi-illiterate and illiterate respondents, the researcher read translated versions of the questionnaires to them and recorded their responses.

In situations where a husband and wife or two business partners were in the immediate vicinity of the interviewer, and where an interview respondent wished to have the other business partner answer a specific question (due to the fact that the partner had better knowledge of the marketplace), such arrangements were permitted. The researcher believed such interviewing process was healthy since the basic purpose of the study was to discover the true operating environment of the industry and practices of its channel operators. Each field interview lasted between 30-45 minutes and the administration of the research instruments took 12 weeks.

Research instrument respondents were permitted to give additional information that did not relate directly to information development and dissemination, but were of importance to the general area of maize production and marketing. This information gave the researcher a clearer understanding of the overall operations of the maize industry.

The remaining chapters of the study will present analyses and evaluations of the field data collected for the study. Conclusions will be drawn from the study findings and appropriate policy recommendations made to interested parties of the maize market system.

Channel mapping will be used as the framework for presenting the study data. Chapter Four presents demographic factors of the channel operators that facilitate information acquisition and use, marketing functions, and marketing mix decisions of channel operators. Chapter Five identifies and evaluates information production efforts of public organizations. Chapter Six evaluates information services of cooperative associations and market unions while Chapter Seven offers conclusions and recommendations from the study.

The value of information in the marketing system will be evaluated on the basis of accuracy, relevance, timeliness, sufficiency, and equitable distribution of information among maize marketing institutions.

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CHAPTER FOUR

MAIZE MARKETING CHANNEL PARTICIPANTS: DEMOGRAPHIC CHARACTERISTICS, MARKETING FUNCTIONS AND MARKETING MIX DECISIONS

This chapter presents demographic characteristics of maize marketing channel participants in Ashanti Region with the purpose of identifying personal attributes of marketing operators that facilitate information acquisition and usage in the market system. The chapter will also identify marketing functions and marketing mix decisions of the maize marketing channel operators to help determine their information resource and needs.

Demographic Characteristics:

A critical analysis of demographic factors such as sex, age, marital status, level of education and number of years maize marketing channel operators in Ashanti Region had been in the maize business will help in understanding information development and transmission opportunities and problems in the region.

Sex of Channel Participants

Both males and females are well represented in the maize production and marketing business in Ashanti Region. Table 5 shows the distribution of males and females in the maize production, wholesaling and retailing business in the region. The chi-square test of independence shows that there is sufficient evidence that type of marketing institution an operator participates in is not independent of the sex of the marketing operator. That is, the sex of a marketing operator varies with the type of marketing institution an operator participates in.

A close study of Table 5 shows that the role of males in the maize production and marketing business becomes less dominant as one moves from grower to retailer. 67% of the growers are males while only 33% are females. Among the wholesalers, 53% are males and 47% are females. There is greater female participation in maize wholesaling than in maize production. Females, however, show an overwhelming domination in maize retailing in the region. 94% of the maize retailers studied are females while only 6% are males.

Male and female ratios in the study data are explained by some Ashanti cultural practices. First, it should be noted that female participation in the maize production business is higher than the data really shows. In Ashanti culture, wives of farmers are regarded as helpers of their husbands. As such, husbands are recognized as "the farmers"

Table 5
Chi-Square Table Showing Gender of Maize
Marketing Channel Operators

Type of Marketing Institution	Female %	Male %	Sample Size
Maize Growers	33	67	130
Maize Wholesalers	47	53	30
Maize Retailers	94	6	70
	123	107	230

$\chi^2 = 69.16158$ with d.f. = 2, Significance = .0000

and not the wives. Although farmers wives are full-time farmers in their own rights only their husbands get registered as farmers. The females who are registered as

Maize growers on Table 5 are therefore mostly single women or women whose husbands are not farmers. Maize growers male-female ratio in this study would therefore be about equal in participation.

Second, food crop distribution in Ashanti culture is a "woman's business." Hence the strong female representation in the maize retailing business. The culture tends to look down on males who retail food crops in the marketplace. This explains the low participation of males in the maize retailing business. Maize wholesaling business, on the other hand, is regarded in the culture as challenging business activity involving the complexity of assembling functions, urban marketplace management, out-of-region wholesaler and retailer business interactions, and difficulties in raising operating capital, in contrast to unchallenging maize retailing. Hence the strong male participation in maize wholesaling.

The study found differences in information acquisition sourcing among male and female marketing channel operators. Table 6 shows marketing channel operators who listen to Radio Ghana's food production and distribution programs. The table shows that there is sufficient evidence that gender of marketing channel operators in the various

Table 6
Chi-Square Table Showing Marketing
Channel Operators Who Listen to Radio
Food Production and Distribution Programs
by Gender

Type of Marketing Institution	Once a Week %	Once a Month %	Never %	Sample Size
Female Grower	27	22	51	41
Male Grower	54	13	33	82
Female Wholesaler	29	7	64	14
Male Wholesaler	63	25	12	16
Female Retailer	24	5	71	66
Male Retailer	0	50	50	4
	85	30	108	223

$\chi^2 = 42.52254$ with d.f. = 10, Significance = .0000

marketing institutions are not independent of the operators' sources of information.

The table shows that on the average, a higher percentage of males listen to food production and distribution programs than their female counterparts. Among maize growers, 54% of male growers interviewed said they listen to the radio programs once a week whereas only 27% of female growers listen to the programs once a week. Weekly radio listenership among maize wholesalers is 63% of males to 29% of females. Among maize retailers, 50% of males interviewed listen to the program once a month while only 29% of females interviewed listen to the radio programs once a month.

Age of Marketing Channel Participants: Table 7 shows that age is not a significant factor in the type of maize marketing institution a marketing operator chooses to participate in. Age group distribution are very similar among maize growers, wholesalers, and retailers. 46% of the maize growers studied were between the ages of 1-40 years, 42% between 41-60 years and 12% over 60 years. The age distribution for maize wholesalers were 43%--between 1-40 years, 43% between 41-60 years and 14% over 60 years. There were more young people among the maize retailers than the other two marketing institutions. 62% of the maize retailers studied were between 1-40 years, 31% between 41-60

Table 7

Chi-Square Table Showing Age Groups of
Maize Marketing Channel Operators

Type of Marketing Institutions	1-40 years %	41-60 years %	Over 60 years %	Sample Size
Maize Growers	46	42	12	130
Maize Wholesalers	43	43	14	30
Maize Retailers	62	31	7	70
	115	90	25	230

$\chi^2 = 5.49034$ with d.f. = 4, Significance = .2406

years and 7% above 60 years.

One reason explaining why age was found not to be significant in this study could be the low sample size and the large age brackets developed for the study. Field study observations showed that people under twenty could operate more easily as maize retailers than as maize growers or wholesalers. This is due (from field study information) to the low capital requirement for getting into the maize retail business.

Field study interviews showed that the free flow of informal market information between channel operators across age groups diminishes the chance of one age group being more informed about the marketplace than the other.

Marital Status of Channel Participants: The majority of maize production and marketing operators in Ashanti Region are married. Table 8 shows that 82% of maize growers studied were married, 12 % single and 6% were widows or widowers. Among maize wholesalers, 74% were married, 23% single, and 3% widows or widowers. Similarly, 76% of the maize retailers studied were married, 14% single and 10% were widowers or widows.

Chi-square test of independence of Table 8 shows that marital status is not a significant factor in the selection of the kind of marketing institution an individual channel operator chooses to participate in.

Table 8

Chi-Square Table Showing Marital Status
of Maize Marketing Channel Operators

Type of Marketing Institution	Single %	Married %	Widow/ Widower %	Sample Size
Maize Growers	12	82	6	130
Maize Wholesalers	23	74	3	30
Maize Retailers	14	76	10	70
	32	182	16	230

$\chi^2 = 4.46242$ with d.f. = 4, Significance = .3470

Marital status, however, is a relevant factor in the study of information in Ashanti cultural setting. For a married couple in the maize business, each partner in the household can act as an opinion leader. It was explained in the previous chapter that both the husband and wife are equally knowledgeable in the maize business, and operate as partners in the business. Information transmission directed at a married marketing operator can therefore be directed at either partner. This phenomenon is still true even if one of the partners is not directly involved in maize production and marketing. Married couples in this culture pay close attention to, and have great interest in the business in which the other partner is engaged.

Level of Education of Channel Participants: Table 9

shows the level of education of maize marketing channel operators. The chi-square test of independence of Table 9 shows that there is sufficient evidence that type of marketing institution a marketing operator chooses to participate in is not independent of the level of education of the marketing operator. That is, the level of education of a marketing operator varies with type of marketing institution he or she participate in.

A close study of the table shows that the level of formal education decreases as one moves from maize growers to retailers. 53% of maize growers studied had had at least 10

Table 9

Chi-Square Table Showing Level of Education
of Maize Marketing Channel Operators

Type of Marketing Institution	No Formal Education %	Primary (6 yrs School %)	Middle (10 yrs School %)	Secondary and Above %	Sample Size
Maize Growers	36	11	33	20	130
Maize Wholesalers	37	13	30	20	30
Maize Retailers	63	17	14	6	70
	102	30	62	36	230

$\chi^2 = 21.62210$ with d.f. = 6, Significance = .0014.

years of formal education, 11% had had 6 years of formal education and 36% no formal education. Among maize wholesalers 50% had had at least 10 years of formal education, 13% - 6 years of formal education and 37% - no formal education. Maize retailers had much lower levels of education than maize growers and wholesalers. Only 20% of maize retailers studied had had at least 10 years of formal education. 30% of the retailers had had 6 years of formal education and 63% had no formal education.

An important finding of this study is the high percentage of educated people among maize growers. In a developing country such as Ghana, one would generally expect farmers to be mostly illiterates. This study shows otherwise. There is a high level of well-educated people among maize growers in Ashanti Region. This is explained by the large number of professional elementary school teachers living in farming communities who farm on part-time basis, and also by the large number of elementary and high school graduates and other professionals who have taken up full-time farming.

Maize wholesaling business in the region is performed by both literates and illiterates. Culturally, the two groups of people feel comfortable performing maize wholesaling functions. Maize retailing business in the region, on the other hands, is dominated by illiterates.

The level of education of marketing channel

participants of the various maize marketing institutions influence the methods by which they receive information from external sources. Literate channel participants are able to read newspapers, Ministry of Agriculture newsletters, Co-operative Association newsletters, and also listen to radio programs in English, in addition to programs transmitted in local languages.

Illiterate marketing channel operators, on the other hand, have limitations in their abilities to acquire information from external sources. Field study interviews show that direct information sources of these marketing channel operators are limited to radio programs in the local language, informal word-of-mouth information and translated information from their literate business associates. Effective transmission of information to illiterate marketing channel operators therefore would require careful choice of language and communication medium.

Number of Years in Maize Business: Table 10 shows the number of years maize marketing channel operators have been in the maize business. The chi-square table shows there is sufficient evidence that type of marketing institution a marketing operator participates in is not independent of the

Table 10

Chi-Square Table Showing Number of Years
Marketing Channel Operators Have
Been in Maize Marketing Business

Type of Marketing Institution	1-10 Years %	11-20 Years %	Over 20 Years %	Sample Size
Maize Growers	31	34	35	130
Maize Wholesalers	53	27	20	30
Maize Retailers	77	17	6	70
	111	64	55	230

$\chi^2 = 40.48441$ with d.f. = 4, Significance = .0000

number of years the marketing operator has been in the maize business. That is, the number of years a marketing operator has been in the maize business varies with type of marketing institution.

Table 10 shows that maize production and marketing business is a life-long vocation for some people in the maize business, and a short-term vocation for other operators. For most maize growers in Ashanti Region, maize production and marketing activities is a life-long vocation. 69% of the maize growers studied had been in the maize business for over 10 years, and 35% of the growers interviewed had been in the business for over 20 years. A possible explanation for this phenomenon is that either maize production activities are attractive to the operators or maize production is a "deadend" vocation. Field study discussions with maize growers show the latter condition is true for many growers. After maize growers have settled in farming communities for some years, it is usually difficult for them to move out of the rural communities to find new livelihoods.

Unlike maize growers, the majority of maize wholesalers and retailers studied had been in the maize business for shorter time periods. The study shows that only 47% of maize wholesalers and 23% of the maize retailers studied had been in the maize business for over 10 years. Field study

discussions with maize wholesalers and retailers indicate that, given the unpredictable nature of maize business (i.e. unpredictable yearly maize outputs) many maize distributors in Ashanti Region exit from the industry in times of maize scarcity into other retailing activities. In years of maize shortages, maize wholesalers and retailers search extensively through farming communities to assemble maize. The purchase price and assembling costs of maize in such low output seasons are usually very high. When such scarce maize is transported to urban markets, maize wholesalers and retailers are often instructed by government officials to sell the maize at some controlled price to the urban population. Thus instead of making fair profits in times of scarcity, some maize wholesalers and retailers operate at a loss. These wholesalers and retailers therefore exit from the industry when such problems arise. Notwithstanding these problems, maize growers interviewed believe their business activities are more risky than maize wholesaling and retailing.

Maize production and marketing institutional leaders in the region believe lack of effective communication between maize marketing operators and government officials bring about such adverse operating conditions. Maize marketing channel participants cannot effectively present their operating costs and margins to government officials who set minimum and sometimes maximum market prices. Even

when maize marketing channel operators are given the opportunity to present their case before appropriate public policy-making boards, their claims are often held in doubt and ignored.

Lack of long-term continuous operations for many maize wholesalers and retailers does hinder improvement of their market information systems. While there is a need to encourage continuity of operations in maize wholesaling and retailing, there is also an important information system implication in maize production being a life-long vocation for many maize growers. Maize growers continuous operations in the industry provide rich environment and opportunity for the development of effective and permanent communication systems. Such communication systems can help improve maize growers' decision making processes in the long-run.

Maize Marketing Functions and Marketing Mix Decision Information

Marketing Functions: Table 11 shows the major marketing functions of maize growers, wholesalers and retailers in Ashanti Region. Maize marketing operators in the three marketing institutions perform some unique marketing functions in addition to their basic functions.

17% of maize growers in Ashanti Region, in addition to growing, shelling, bagging, transporting, and wholesaling of maize also retail maize on local markets. Field study

interviews indicate that some female maize growers wholesale part of their maize outputs and retail the remaining maize stock (after setting aside what they would need for domestic consumption) on local markets. Several reasons help explain this market phenomenon. First, some maize growers, in order to improve their profit positions, choose to retail part of their maize outputs. Second, maize growers store part of their maize outputs in the harvest season and retail the stocks in the dry season to provide them with some useful employment while they wait for the rains and the next planting season. Third, some maize growers retail maize in the hope of higher market prices, as supply of maize on the market diminishes. Thus, they are able to benefit from daily or weekly market price changes.

Field study interviews indicate that male maize growers generally do not retail maize but sell their outputs to assemblers or wholesalers at farm-gate wholesale prices. A male grower who chooses to retail part of his maize output usually delegates the retailing activity to his wife or other females in his household.

The upward integration of marketing functions of some maize growers provide them with useful information about market demand.

Table 11
Maize Growers, Wholesalers and Retailers
Marketing Functions

Type of Marketing Institution	Grow Maize %	Shell Maize %	Assemble Maize %	Bag Maize %	Trans- port Maize %	Retail Maize %	Whole sale Maize %	Offer Credit %
Maize Growers	100	100	0	100	29	17	100	0
Maize Wholesalers	67	67	93	100	100	7	100	70
Maize Retailers	19	19	35	17	100	100	0	20

Source: 1986 Field Study data

It was noted early in this study that the assembling and wholesaling maize marketing functions in Ashanti Region are highly integrated. Field study information on Table 11 confirms this market condition. 93% of wholesalers studied perform maize assembling functions themselves or hire other people to perform the functions for them. Furthermore, 67% of maize wholesalers interviewed indicated that they grow maize in addition to their basic wholesaling functions. Thus maize wholesaling functions in the region show both downward and upward integration. This market condition greatly improves maize wholesalers information acquisition capabilities over maize growers and retailers. Maize wholesalers, through channel integration, gain access to relevant farm-gate information through the assembling process and they also obtain information about market demand from retailers and wholesalers from other regions who buy maize from them.

7% of the maize wholesalers interviewed indicated they retail maize on urban markets. This limited retail activity serves customers who lack sufficient funds to purchase a bag of maize, or who have limited need for maize.

70% of maize wholesalers and 20% of maize retailers interviewed indicated that they offer credit services to their business partners; namely, maize growers and retailers. These credit services link maize growers,

wholesalers, and retailers to an on-going business relationship. It helps maintain open communication between the business partners. It also facilitates constant visits and transmittal of supply and demand information between the marketing channel participants.

Maize retailing activities in Ashanti Region, like wholesaling, show a unique backward integration. 19% of maize retailers interviewed indicated they grow maize in addition to their maize retailing functions. 35% of the retailers also said they visit farm-gates to assemble maize. The retailers believe this market behavior is necessary due to the limited financial resources of some maize retailers in the region. The backward integration of marketing functions help retailers purchase maize at low farm-gate prices, thus stretching the purchase potentials of their limited capital. Some retailers also supplement their purchases with their own maize outputs.

Maize retailers ability to integrate backwards in the distribution channel enhances their knowledge about supply factors of the market system, just as wholesalers who operate in a similar manner.

In summary, the integration of marketing channel functions and the ability to offer credit services to some business partners help maize wholesalers and retailers improve their information positions and knowledge about the marketplace. Field study interviews indicate that channel

operators like most maize growers, and other channel participants who do not enjoy such channel function integration are at a disadvantage in information resources.

Marketing Mix Decision Information Sources:

An important research objective identified in the initial stages of this research project was to determine information sources for marketing mix decisions of maize growers, wholesalers and retailers in Ashanti Region. The study findings that address marketing channel participants information sources are most intriguing, and raise some important information development questions.

As stated earlier in this study, the basic purpose of market information is to facilitate marketing decision making to bring about desired goals. Marketing mix decision making framework was therefore used to study channel participants information sources. The study's research instruments thus asked information-source questions along the marketing mix framework covering product, price, place, and promotion strategies. Relevant research questions asked include information sources for the determination of:

- 1) market demand
- 2) market supply
- 3) marketing inputs and facilities
- 4) information about markets, and
- 5) information about purchase and selling prices.

Market Demand Information: 29% of maize growers, in response to the question inquiring about their sources of market demand information, said they look at the amount of rainfall received in the planting season, and its effect on maize output. 26% of the growers said the number of assemblers who visit farm-gates and general scarcity of maize help them determine general market demand for maize, and 45% of those interviewed said they had no idea about market demand. In the absense of formal public information about demand for maize, therefore, the majority of maize growers in Ashanti Region have no idea about market demand.

Maize assemblers and wholesalers, like maize growers, observe rainfall in the planting season and the resulting maize output to determine general demand for maize. 83% of maize wholesalers interviewed said they use these information sources. 4% of the wholesalers determine demand for maize from information passed on to them by friends or business associates, and 13% determine demand by observing the number of prospective buyers in the marketplace.

74% of maize retailers interviewed said they determine market demand by observing the number of customers in the marketplace and the other 26% by observing maize supply shortages on markets.

The use of rainfall and its effect on maize output to determine general demand for maize appears to be more

strategic than the use of supply shortages of maize. This is because whereas rainfall in the planting season gives a good lead-time for planning, market supply shortages give no time for anticipatory planning, but lends itself to reactive strategies.

Maize channel operators' use of weather conditions to forecast market demand for maize brings up the need for accurate weather forecast information. The quality of meteorological services in Ghana unfortunately is low. Field study discussions with officials of the meteorological department in Accra and Kumasi show that the department's equipment for studying weather conditions at both Accra and other regional stations are outdated and function poorly. The department therefore is often not able to accurately forecast local weather conditions. Farmers often plant maize in anticipation of rain, and are disappointed. Maize crop is often planted too early or too late for the rains. This situation results in crop losses and wastage of fertilizer and funds used in land preparation. Sometimes maize growers experience complete failure of a maize planting season due to poor weather forecast.

Maize distributors who depend on weather forecasts for maize purchasing and transporting activities also experience operating difficulties and losses due to their inability to accurately predict weather conditions. When maize

assemblers and wholesalers purchase maize in the rainy season, their stock of maize occasionally gets drenched by rain. The maize gets moldy and can only be sold at cheap prices for animal feed. Similar weather disturbances are experienced by maize growers, wholesalers and retailers whenever maize that is not fully dry is spread out in the sun to dry. When maize marketing channel participants incur such weather related losses, field interview information indicate that they raise the price of the remaining maize stock that was not destroyed by rain to help pay for the losses. Such losses thus are passed on to consumers. The importance of accurate weather forecasts cannot therefore be over-emphasized in the production and marketing of maize.

Market Supply Information: Maize wholesalers and retailers, in the study, were requested to state their sources of market supply information. 50% of maize wholesalers interviewed indicated they obtain information on maize supply conditions by visiting farms. The other 50% said they obtain market supply information from farmers, business associates and friends.

Maize retailers, like maize assemblers and wholesalers, obtain maize supply information by visiting farms and directly from farmers. 50% of retailers interviewed said they obtain maize supply information from friends. 31% of the retailers obtain supply information by visiting farms

and the remaining 19% obtain supply information from wholesalers.

It is clear from the responses of the maize marketing channel participants that they make concerted efforts to seek information on maize supply in the region. Any attempt by public food production and marketing boards and other public organizations to assist food marketing channel participants in providing them with accurate and timely maize supply information would therefore be very useful. Maize supply information that would be given to the marketing channel operators will help reduce the number of visits of marketing operators to farm-gates, reduce their operating costs and operating time spent in seeking maize supply sources.

Market Inputs and Facilities: Maize growers, in the study, were asked to state their sources of information for farm inputs, namely seed maize, fertilizer, agriculture machinery, farm loans, and maize drying and storage facilities. Responses to this question show that small-scale and large-scale maize growers differ in their information sources for finding essential farm inputs. Small-scale maize growers are farmers who generally cultivate less than 10 acres of land.

92% of small-scale maize growers interviewed in the study said they do not have access to public information

about where to find essential farm inputs. They therefore use their own inputs in maize production and marketing operations. These farmers indicated strongly that they would appreciate receiving external information about farm input sources.

Large-scale maize growers interviewed, unlike the small-scale growers, seemed to have some information about farm input sources. 96% of these maize growers said they obtain seed maize from the Ghana Grains Development Board and fertilizer from the Ministry of Agriculture's district depots. Farmers in this group, interestingly, are operators who regularly attend co-operative association meetings and farmers rallies. At these meetings, farmers are informed about farm input supply sources, modern farming practices, and the importance and use of improved seeds that are provided by the Ghana Grains Development Board. Maize growers who attend farmers rallies also receive instructions on grain preservation and storage, so maize stock can be sold in the lean food season when grain prices are high.

It is unfortunate that small-scale maize growers do not have access or avail themselves of such useful information. Their lack of exposure to such information may have resulted from two factors: lack of motivation to seek relevant information or lack of formal or informal organizational structures to provide essential information services. These information issues will be discussed fully when information

services of public organizations, cooperative and trade associations are evaluated.

Information About Markets: 45% of maize growers interviewed in the study sell their maize outputs to assemblers, wholesalers or retailers who visit growers local markets or farm-gates. 33% of the growers seek information from friends, business associates, and family members. 8% of the growers said they sell mainly to the Ghana Food Distribution Cooperation and the remaining 14% said they had no information about markets.

Field interview information indicate that all maize wholesalers and retailers have stalls or selling spaces on local markets where old and new customers visit them to purchase maize. Wholesalers and retailers who wish to sell maize mainly on their local markets therefore do not seek information about demand on other markets.

40% of wholesalers interviewed, however, said they seek information about demand and prices on other regional markets in the country. When they find that market prices are better on other regional maize markets, they transport some of their maize stock to those markets. Friends and trading partners of the wholesalers are the major sources of information about markets outside Ashanti Region. On rare occasions, some maize wholesalers read about demand and prices of maize on other regional markets from

newspapers.

Maize growers, wholesaler, and retailers who seek information about favorable markets could greatly benefit from timely and regular public information about demand conditions on major maize markets throughout the country. As noted earlier in this study, the Ministry of Agriculture does compile such information but does not make it available to food marketing channel operators. Field study interviews with public officials who compile this information give some reasons why the information is not made public: Some officials in the Ministry think if this information is made public, food distributors in the country may irrationally move food across regions, causing food surpluses in some areas and deficits in others. This view, however, is inconsistent with long-term market behavior in economic theory: That in the long-run an equilibrium market condition will develop if there is adequate information about demand and supply conditions on food markets. Withholding such important market information from channel operators, therefore, indirectly helps few sellers in the marketplace who privately have access to such vital market information, and use it to their advantage.

Purchase and Selling Price Information: Maize wholesalers in Ashanti Region determine their purchase price for maize through systematic analysis of several market factors. 60%

of maize wholesalers interviewed said they base their purchase price on expected margins. One wholesaler explained it this way: "I know the selling price of maize on the city market, so when I visit farm-gates, I offer a purchase price that takes into consideration my transportation costs, handling costs and my expected profit margin." These assemblers and wholesalers, although they may not have had formal education, show high degree of sophistication in the determination of purchase price for maize. By the use of intuitive cost accounting analytical processes and their knowledge about prevailing selling prices, are able to effectively determine purchase prices. 27% of the maize wholesalers interviewed base their purchase price on market demand for maize, and the other 13% on competitors prices.

34% of maize retailers interviewed said they offer purchase prices based on their expected selling prices. The majority of the retailers (66%) said they determine purchase price by observing maize supply conditions in the marketplace and making price offers accordingly.

Field study interview information indicates that maize assemblers and wholesalers are more sophisticated in the formulation of purchase prices than maize retailers. Maize retailers have fewer operating expenses, and with a generally stable market demand for maize, can easily sell

maize on local markets at reasonable profits. Hence their lack of sophistication in purchase price determination.

The study findings show that maize growers in Ashanti Region generally are price takers in the maize market system (except in times of famine). This is because most maize growers lack storage facilities and are sometimes in great need for money to pay for their business and domestic debts. They therefore are forced to sell their maize outputs to willing buyers after hard bargaining. Responses from field study interviews show 27% of maize growers interviewed do not have access to selling price information except the government's minimum guaranteed price information. 62% of the maize growers interviewed said they just accept the price of assemblers and wholesalers. The remaining 11% observe market demand and set selling price accordingly. One maize grower, when questioned about his source of selling price information, sadly remarked; "middlemen bring their prices to our markets and we take them or leave them."

Unlike most maize growers, maize wholesalers and retailers interviewed in the study said they base their selling prices on their costs and expected profit margins, just as they determine their purchase price. Others said their selling prices are based on demand and supply conditions in the marketplace, and on competitors' prices.

Product Standardization and the Use of Standard Measures:

There are no product standards on Ashanti Region markets. Field study interviews show that maize growers, wholesalers, and retailers do recognize different quality levels or grades of maize on maize markets but the maize market system in the region does not relate specific grades of maize to specific prices. Maize marketing channel operators recognize differences in size, dryness, and lack of mold on the grain. The Ghana government, in setting the minimum guaranteed price for maize, however, does not consider grades in maize. Maize marketing channel participants therefore bargain on maize prices; with maize sellers emphasizing quality of maize being sold and the buyers ignoring quality factors and desiring to pay the same price for all grades of maize.

Ashanti Region maize growers and wholesalers also do not use standard measures on maize markets. Different sizes of sacks are used for measuring maize at the wholesale level. Sack sizes are manipulated by maize wholesalers to take advantage of maize growers.

Maize retailers, on the other hand, have standard measures in the form of aluminum pans and tin cans for retailing maize. Some retailers, however, do not use "correct volume" pans or cans: Aluminum and tin measures are sometimes knocked-in to reduce the volume of the

measures. No public organization inspects retailers standard measures to ascertain their volume. Unsuspecting consumers could therefore receive inadequate volume in the use of retailers' standard measures.

In summary, maize marketing channel participants perform market functions with little information from external public sources. They however make marketing decisions by the use of information acquired through integration of marketing channel functions and with the use of informal information support services provided by friends, family members and business associates. They also use intuitive estimation of market demand and supply conditions, largely based on rainfall in maize growing seasons and expected maize output, to formulate their marketing mix strategies. Although these private information gathering efforts of the maize marketing channel operators are helpful for decision-making, it was observed in the early part of this study that these information sources are often inadequate, since they do not present complete pictures of the regional or national maize market systems. There is certainly a need for the public sector to assist in the development of a system-wide information service to augment information resources in the market system.

In the next chapter, an attempt will be made to

determine public information production efforts and how they influence maize marketing channel activities. The chapter will investigate why most maize market channel operators claim they have little or no access to public market information.

CHAPTER FIVE
INFORMATION SUPPORT SERVICES OF PUBLIC ORGANIZATIONS

The Ghana Government is interested in the success of food production and marketing programs in Ghana. This is seen in the establishment of the many public agencies and organizations commissioned to offer support-services to food production and marketing operators. Such major food production and marketing support-service organizations, as identified earlier in this study, include:

The Ministry of Agriculture

Ghana Food Distribution Corporation

Ghana Grains Development Board, and

Ghana Agriculture Development Banks and Co-operative Banks

Departments of these organizations that offer essential information services include:

- a) The Ministry of Agriculture - Economic Research and Planning Services
- b) Ministry of Agriculture - Information and Field Extension Services Units
- c) Ghana Food Distribution Corporation
- d) Ghana Grains Development Board
- e) Committee On Agricultural Commodity Prices
- f) Agriculture Development Banks and Co-operative Banks Loans Departments, and

g) Radio Ghana and Newspaper Information Services.

What information services are these organizations commissioned to offer? To what extent do they accomplish their stated information development and transmission goals? How do the successes or failures of these public organizations in their information development and dissemination programs affect the decision making processes of maize production and marketing channel operators in Ashanti Region? Analyses of field research data in this chapter will help answer these important research questions.

Twenty-five public officials, including chief executives, board chairpersons, department heads and other officials of public organizations were interviewed in the field study of this research project. The public officials were asked to identify information services that are developed and transmitted to maize marketing channel operators by the organizations they represent. They were also requested to evaluate the quality and usage of information outputs of their organizations. Similarly, maize marketing channel operators were also asked to indicate their awareness of information services produced by these public organizations, the perceived value of the information outputs and the extent of use.

The responses of the public officials and maize marketing channel operators will be discussed in the rest of this chapter.

Information Services of the Ministry of Agriculture:
Economic Research and Planning Services

The Economic Research and Planning Services Department of the Ministry of Agriculture conducts extensive market studies into food production and marketing in Ghana. Among the many activities performed by the department are:

- 1) compilation of prices of major food products in Ghana
- 2) compilation of statistics on movement of food products on Ghanaian food markets
- 3) announcement of government minimum guaranteed prices for major food commodities on radio, and
- 4) development of major local foods production forecasts.

Field officers of the department visit regional food markets to compile maize prices. From these price studies the department develops the National Average Wholesale Commodity Prices shown in Appendix B.

Officials of the department explained that the National Average Wholesale Commodity Prices and other market statistics developed by the department are used for, among other things:

- 1) national food production and policy planning, including identification of need areas and direction of food production efforts
- 2) research activities of FAO, World Bank, food research organizations, and such other organizations,
- 3) research activities of potential food growers, and

- 4) early warning signs about potential food problems.

It is important to note that the market price and food production forecast information developed by the department is used for planning activities of several public and private organizations, with the exception of present food producers and distributors. Officials of the research department were asked to explain why the information could not be made public to present food producers and distributors. Reasons offered to support the non-transmittal of the price information to the general public include:

- 1) fear that price announcement will lead to erratic behavior of food producers and distributors, causing food surpluses in some regions and deficiencies in others
- 2) misunderstanding of the purpose and meaning of the information outputs.
- 3) past price announcement had not been useful because they were untimely and lacked continuity, and
- 4) food prices on local markets change almost daily and such price information would confuse food producers and distributors rather than help them.

Maize growers, wholesalers, and retailers in the study were asked whether they would like to have the government make public regional wholesale prices of maize that are compiled by the Department of Economic Research and Planning. Table 12 shows the maize marketing operators' responses to this question. The chi-square test of independence shows that the responses of the marketing

Table 12

Chi-Square Test Showing Maize Marketing
Operators' Desire to Have the Ministry of
Agriculture Announce Regional
Wholesale Prices for Maize to the Public

Type of Marketing Institution	Would like to have Prices Announced %	Would not like to have Prices Announced %	Sample Size
Maize Growers	93	7	130
Maize Wholesalers	57	43	30
Maize Retailers	56	44	70
	177	53	230

$\chi^2 = 43.82641$, d.f. = 2; Significance = .0000

operators vary with the different marketing institutions. 93% of maize growers interviewed indicated they would like to have the wholesale prices announced. Among maize wholesalers, 57% said they would like to have the price information made public. Similarly, 56% of maize retailers interviewed were in support of announcing the price information to the public. The desire to have this price information announced is strongest among maize growers than the other two marketing institutions.

An important question that should be asked at this point is how would the public announcement of regional wholesale prices for maize help coordinate maize production and marketing activities? Maize marketing channel operators provided answers to this question in the field study: First, the regional wholesale price announcement, in their view, would show them on what maize markets they could take their maize to gain high market prices. Second, the price announcement would help them bargain effectively in the marketplace.

These responses are consistent with economic theories that have been discussed in this study. Regional wholesale price information are good indicators of demand and supply conditions in the marketplace. Second, such price information will make the channel operators knowledgeable and will put them in good bargaining positions. Third,

price information from regional markets would help marketing channel operators determine potential profitable operations and would again help direct distribution activities. Lack of this important market information therefore severely restricts the efficient operation of the market system.

Service of Ministry of Agriculture Information and Field Extension Services Units:

Both the Information Unit and Field Extension Services Unit of the Ministry of Agriculture provide food growers in Ghana with useful information services.

Among the many information services provided by the Ministry of Agriculture Information Unit are:

- 1) weekly T.V. programs called "The Agricultural Magazine"
- 2) print brochures and other literature
- 3) slide and movie programs
- 4) mass education, including farmers rallies
- 5) posters, and
- 6) radio programs.

The printed materials and TV programs of the department are used to instruct food growers in the use of improved seeds for better yields, correct use of fertilizer, proper land clearing methods, proper planting and harvesting methods and fumigation of maize crop against insects for safe storage. Field study discussions with officials in the Information Unit show that the department's mandate is to

offer assistance to food and other crops growers in the production, harvesting and storage processes and nothing more. The department had a marketing unit some years ago, but it was abolished.

The Field Extension Services Unit of the Ministry of Agriculture offers similar services to food growers as the Ministry of Agriculture's Information Department does. The primary function of an agriculture extension officer is to help the farmer improve his or her yield. Agriculture extension officers educate and encourage farmers to use improved seeds and fertilizer. They also instruct farmers on other modern methods of farming. The only marketing related service offered to farmers by this department is the crop preservation program which helps farmers to store maize outputs for good market prices later in the year. According to a senior officer of the department, the Ghana Food Distribution Corporation is the public organization with the sole responsibility to assist farmers market their food outputs.

An FAO project which has been proposed to the Ghana government and may be implemented in the near future will directly involve the Agriculture Field Extension Unit in the marketing of food crops in Ashanti Region. This project will provide farm equipment, land preparation, seed planting and harvesting services to co-operative farmers in the region. After harvesting maize outputs of farmers involved

in the program, the maize outputs will be stored in silos and later sold when market price is good. Production expenses will be deducted from the sale proceeds and the rest of the revenue given to the individual farmers. This program certainly will provide the much needed marketing support services to maize farmers in Ashanti Region. The program will, however, exclude farmers who do not join the co-operative program.

Officers of the Field Extension Services Unit are often very sympathetic to the plight of farmers in the marketing of their crops. Interviews with some officers in this department, however, show that they have been instructed to leave marketing support services to the Ghana Food Distribution Corporation. According to one officer, "GFDC is the marketing link between the Ministry of Agriculture and farmers. But GFDC has its own going concern objectives and does not work in the interest of farmers."

Field study discussions revealed officers in the Information and Field Extension Services Departments regret that not much consideration is given to the marketing of food crops after harvests. Agriculture officers in the field believe the Ministry of Agriculture should get more involved in the marketing of food outputs of farmers.

Services of the Ghana Food Distribution Corporation:

It is useful at this point to examine the kinds and quality of marketing services that GFDC offers to maize growers in Ashanti Region since both the Ghana government and the Ministry of Agriculture expect it to provide marketing services to farmers in Ghana.

The objectives for establishing the Ghana Food Distribution Corporation and the functions of the company were discussed fully in the first chapter of this study. The primary function of GFDC is to provide regular and stable market for food crop farmers as an incentive to produce more food, and to buy and distribute foodstuffs so as to make food readily available to all Ghanaians at reasonable prices all year round.

Senior officers of the corporation at the national, regional and field depot levels were interviewed during the field study of this research project. Officers of the company were requested to describe marketing support services they offer to farmers. Among the marketing services that the officers said the corporation offers include:

- 1) organization of farmers rallies to inform and explain to farmers the meaning of minimum guaranteed price information, product standards and purchasing practices of the company's field officers
- 2) company's field officers inform farmers about purchasing seasons and location of purchasing depots, and

- 3) field officers maintain a farmers' linkage program under which basic consumer requirements such as soap, wax-print, matchets, kerosene, etc. are sent to farmers to help make their lives a little more comfortable, and to entice farmers to sell their output to the corporation.

As stated earlier in this study, farmers are well informed about GFDC's marketing activities. The business relationship between maize growers and GFDC is, however, not very attractive. Maize growers and GFDC seem to maintain a cat and mouse relationship. In times of food scarcity, maize growers avoid GFDC field depot officers. Maize growers, in such food seasons, prefer to sell their outputs to private assemblers and wholesalers for prices far above what GFDC would offer them.

In times of food abundance and bumper maize harvests, however, when market price for maize is far below the government's minimum guaranteed price, farmers literally beg GFDC purchasing agents to buy their maize. This is because under such market condition, GFDC is required by the government to purchase maize at the minimum guaranteed price which is generally above market price. GFDC, in such heavy purchasing seasons, however, often runs out of funds (i.e., government grants) for maize purchases, and is forced to decline further purchases.

Discussions with maize growers in the field reveal other problems. GFDC field purchasing officers, in bumper harvest seasons, enjoy their "field days." With their

limited funds, some purchasing agents purchase first maize outputs of their friends and when the funds are exhausted, then that is it! Sometimes purchasing agents are permitted to purchase maize on credit when their funds are exhausted. In such situations, which occur occasionally, some farmers have to wait for weeks before they are paid. In the field study, a case was cited in which a farmer who had not been paid for weeks after the sale of maize reported the case in a letter to the superiors of the purchasing agent. This farmer got paid all right, but the following harvest season the purchasing agent would not buy his maize. GFDC field purchasing agents can also get caught between their corporate head office and farmers, when the delay in payment is caused by lack of funds from corporate headquarters.

The above problem is compounded by other practices of GFDC agents. In bumper harvest seasons, some purchasing agents refuse to buy the entire maize outputs of farmers in maize farming towns and villages close to purchasing depots. Instead, using corporate trucks, they visit remote farming communities and purchase maize at prices well below the government's minimum guaranteed price. Maize growers in such communities usually have no alternatives but to sell to the GFDC agents. Such purchases are also measured at the "bush weight," that is, almost ten kilos above the required

100 kilo weight, the government standard weight for the minimum guaranteed price. Maize growers in farming communities often complain about such buying practices.

Purchasing practices of GFDC field agents do not give GFDC a good image among many maize growers in Ashanti Region. These marketing and other food production problems usually discourage maize growers in Ashanti Region. Discussions with maize growers in the field reveal frustration from their inability to have an open dialogue with appropriate government agencies to discuss these marketing problems.

Senior officers of GFDC blame most of the company's marketing problems on the company's inherent operating problems. Some of these problems are:

- 1) insufficient operating funds
- 2) lack of adequate storage facilities, and
- 3) lack of adequate number of suitable vehicles and spare parts.

These problems, in the view of the officers, greatly limit the effectiveness of the company's marketing operations. One officer complained that "there is no use for establishing the minimum guaranteed price if the government cannot provide adequate funds to make the purchases." This statement shows the frustration of some GFDC officials. The root problem, in the view of some officials, seems to lie outside GFDC's operations. In many

maize harvest seasons, the Ghana government (through the activities of GFDC) does not have adequate funds to purchase all maize outputs that are not purchased by private channel operators. The government, however, has banned foreigners from operating in the Ghanaian maize market system. An official of the Ministry of Agriculture, speaking in support of this food policy, said the participation of foreigners from neighboring countries in the market system will bid up the domestic price for maize. Thus raising the cost of living for Ghanaians. This viewpoint, however, ignores the business interests of Ghanaian farmers.

Services of The Ghana Grains Development Board:

The Ghana Grains Development Board primarily develops and distributes improved seeds to maize farmers. The Board operates field depots from which seed maize sales are made to farmers. Most large-scale farmers acknowledge the benefits of using the Board's improved seeds. Small-scale maize growers, who traditionally have used seeds from their farm harvests for replanting, however complain about the high cost of the Board's improved seeds.

78% of maize growers interviewed said they do not receive any marketing support service from the Ghana Grains Development Board. The other 22% said the Board's field agents sometimes help farmers who cannot sell their maize outputs, sell to the Ghana Food Distribution Corporation.

The majority of maize growers interviewed were, however, displeased with the Grains Board's lack of concern about the marketing of farmers' maize outputs. According to one farmer, "the Grains Board sells its seed maize to you at high price so you will have better yield. The Board, however, does not care if you sold the yield after harvest."

Field study interviews indicate that in some harvest seasons, some farmers are unable to pay their bills on fertilizer and seed maize that they purchased during the planting season. This in the view of the farmers, is partly due to lack of marketing support services for farmers in harvest seasons.

It is useful to note that failures of the Ministry of Agriculture's Field Extension Services Unit, GFDC and the Grains Development Board in offering appropriate marketing support services hurt the maize grower the most. Field study interviews revealed mild adverse effect on the marketing activities of maize assemblers, wholesalers and retailers. Maize growers' basic problem in all these cases lie in their inability to coordinate their marketing activities during harvest seasons due to lack of relevant information about demand and supply market factors.

Services of the Committee On Agricultural Commodity Prices:

The Committee On Agricultural Commodity Prices studies expected maize output, inflation rate, production costs and

market prices for major food commodities, and annually recommends minimum guaranteed prices for the commodities to the Ghana government for adoption. Field study interviews show that the government usually adopts the recommendations of this committee. Minimum guaranteed prices have little meaning and use to food marketing channel participants in times of food scarcity. This is because food commodities are sold on markets at prices many times higher than minimum guaranteed prices. In such market conditions, demand and supply factors of the marketplace determine market price.

The Government's minimum guaranteed price, however, becomes very important in times of food abundance. This price offers support to farmers production costs. The Minimum Guaranteed price will also continue to play an important role in the future of Ghana's agriculture industry as the Ghana government and world organizations like FAO and the World Bank continue to push for self-sufficiency in food production in developing countries.

Field study interviews with maize growers indicate that maize growers in Ashanti Region believe the minimum guaranteed price is a necessary assistance to farmers. Farmers strongly support its maintenance. The important question in this study, however, is whether maize growers and distributors believe the minimum guaranteed price that is formulated annually, is usually fair, and whether maize marketing channel operators participate in the development

of this important price information.

Maize growers, wholesalers and retailers, in the study, were requested to evaluate the adequacy or fairness of the current government minimum guaranteed price for maize.

Fairness refers to the guaranteed price's ability to cover production cost and a fair margin. Only 1% of maize growers interviewed said the current (1985) minimum guaranteed price of the government was fair, 97% said it was understated and 2% had no idea about its fairness. Among maize wholesalers, 27% said the price was fair, 27% felt it was overstated, 43% said it was understated and 3% had no idea about its fairness. Maize retailers, in response to the same question, were divided as follows: 20% of those interviewed said the minimum guaranteed price was fair, 11% felt it was overstated, 29% said it was understated, and 40% had no idea about its fairness.

The responses of the maize marketing channel operators show varied perceptions. It is important to note, however, that there is general agreement among maize growers that the year's (1985) minimum guaranteed price was understated in relation to production cost and fair margin on production efforts.

Table 13 compares the government's minimum guaranteed price for maize in a seven year period (1980-1986) with actual national average wholesale maize prices and inflation

rates. Figures 8 also shows graphic relationships between the government minimum guaranteed prices, national average wholesale maize prices and inflation rates for the same period. Figure 8 shows that percentage change in government minimum guaranteed prices followed the consumer price index and the national average wholesale maize prices (NAWMP) closely between 1980 - 1982. Then the minimum guaranteed price shot up in 1983 (the famine year) beyond the percentage increases in inflation and NAWMP.

Figure 9 presents a graph of absolute minimum guaranteed prices and national average wholesale maize prices. The figure seems to confirm maize growers assertion that government minimum guaranteed prices, over the years have fallen behind actual market prices.

Table 14 presents a regression analysis showing effect of inflation and national average wholesale market prices on government minimum guaranteed prices. Inflation seems to be more important in explaining the variation in government minimum guaranteed prices than NAWMP.

Maize channel participants, in the study, were also requested to evaluate the timeliness of the minimum guaranteed price announcement, and the representation of their marketing institutions on the Committee On Agricultural Commodity Prices. Timeliness of price information was studied to determine the usefulness of the price information for marketing operators' planning

Table 13

Government Minimum Guaranteed Prices, Consumer Price Index
and Actual National Average Wholesale Prices for Maize
1980-1986

Year	Gov't Minimum Guaranteed Price	Actual Nat'l Avg. Wholesale Price	Consumer Price Index 1980 (100%)
1980	¢ 100	¢ 413.31	100
1981	165	773.59	217
1982	500	797.51	265
1983	1000	3857.59	587
1984	1800	2337.82	824
1985	2000	2037.91	660
1986	2600	3271.74	*

*Figure not available

Source: Ministry of Agriculture, Accra, Ghana, 1986.

Figure 8

Percentage Change in Government Minimum
Guaranteed Prices, National Average Wholesale
Maize Prices and Consumer Price Index

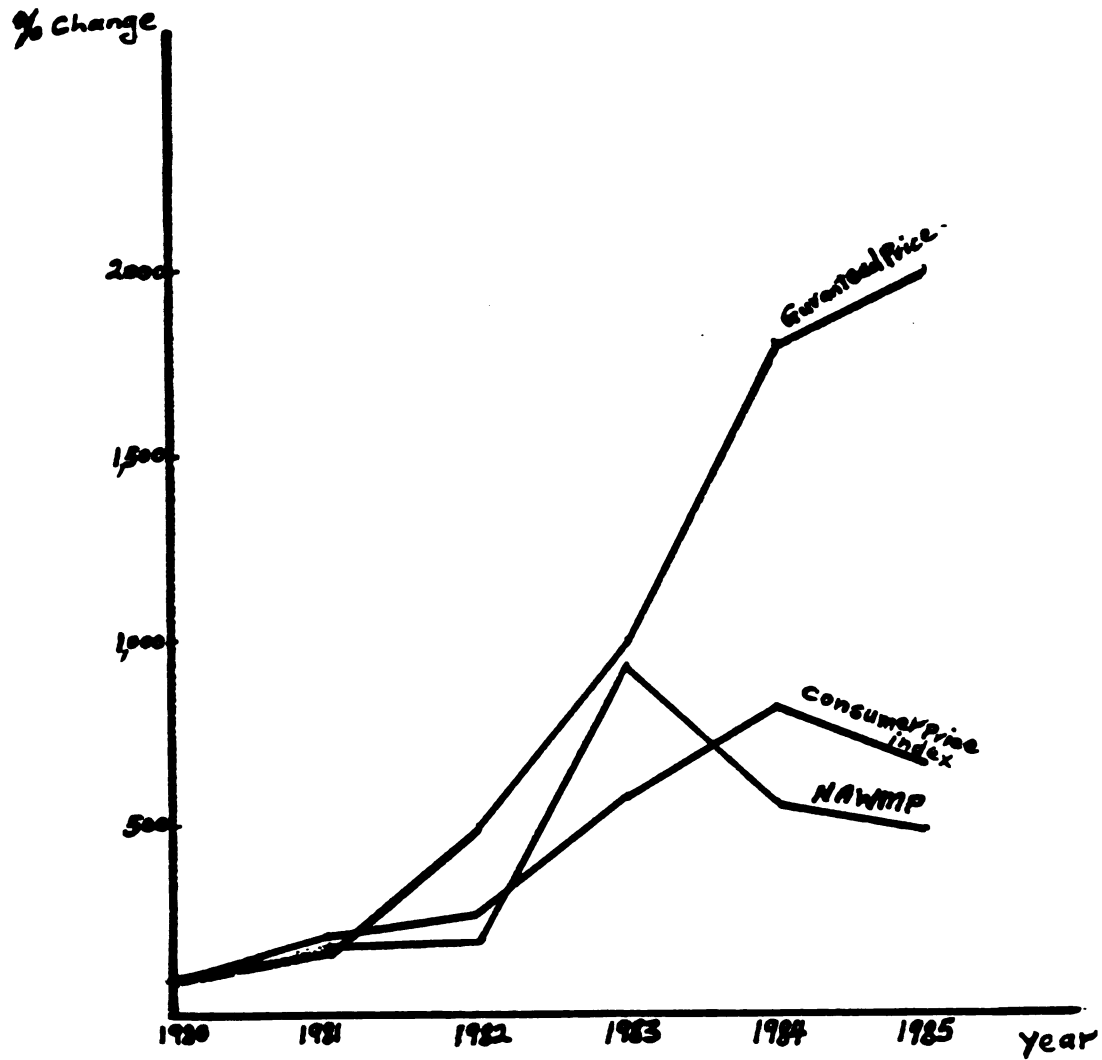


Figure 9

Absolute Increases in Government Minimum
Guaranteed Prices and National Average
Wholesale Maize Prices in Cedis

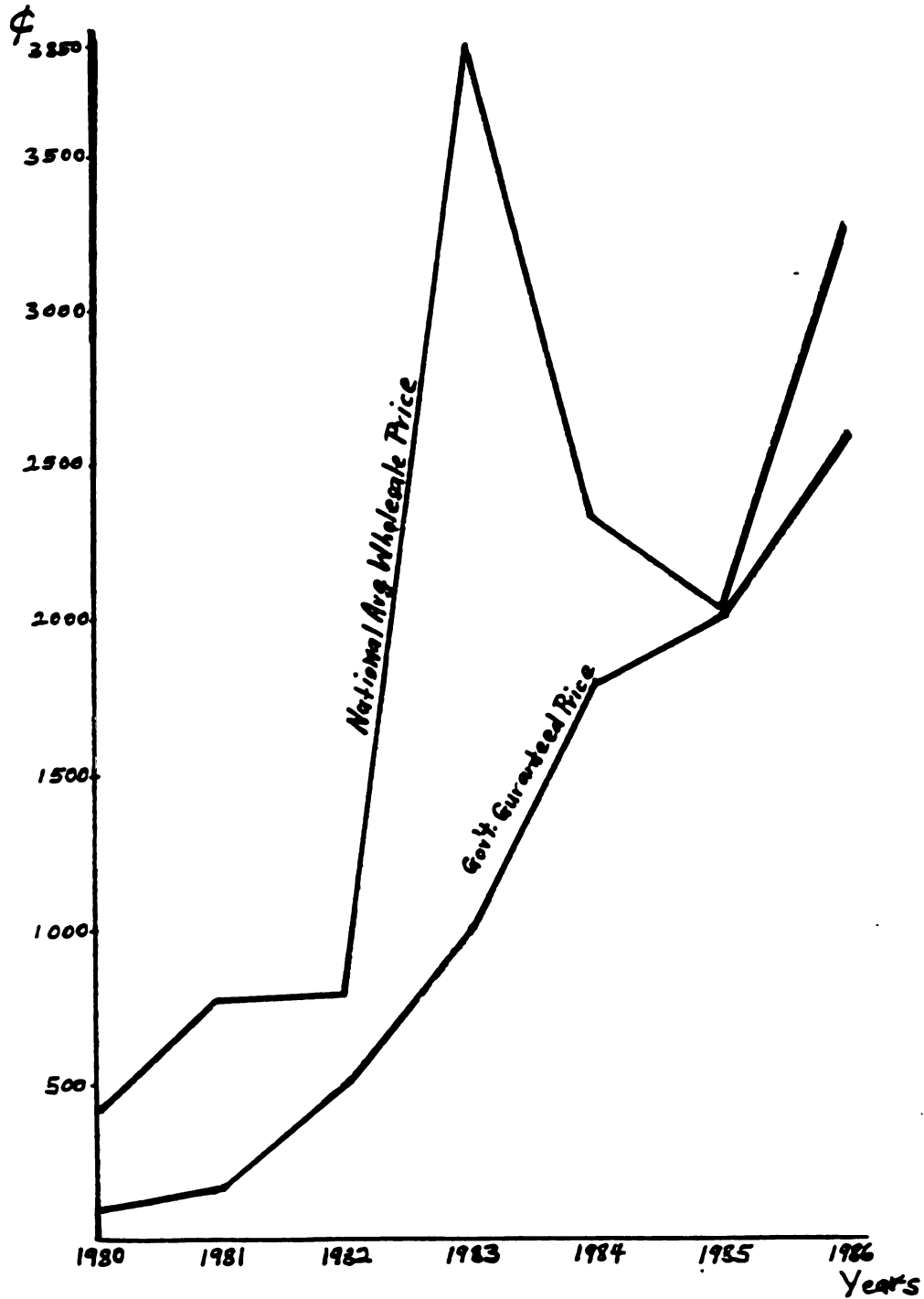


Table 14

**Regression Analysis Showing Effect of Inflation
and National Average Wholesale Market Prices
on Government Minimum Guaranteed Prices**

Variable	Standardized Regression Coefficient	Standard Error	t	Significance of t
inflation	1.16	.75	4.4	.0216
NAWMP	-0.29	.17	-1.1	.3567

$R^2 = .92$ $\text{adj } R^2 = .86$ $SE = 308.37$ $F = 16.197$
 Significance of F = .0247

activities. Representation of the various maize marketing institutions on the Committee was also studied to determine the extent to which the various maize marketing institutions participate in the development of the minimum guaranteed price information.

Tables 15 and 16 show the responses of the maize marketing institutions to the two questions, i.e. timeliness of the price information and representation on the Committee for setting the minimum guaranteed price. Table 15 shows that there is sufficient evidence that type of marketing institution an operator participates in is not independent of the operator's perception of the timeliness of the government's minimum guaranteed price information. Marketing operator's perceptions of the timeliness of the price information, therefore, varies with the type of marketing institution in which operators function.

A close study of Table 15 shows that 82% of maize growers perceived that the minimum guaranteed price information was released late in the maize production season and was not very useful for planning purposes. If growers could have the price information earlier, they would be able to determine the appropriateness of investing in the production of maize early in the farming season. Some farmers, if they could have this information early in the farming season, perhaps would switch to the production of

Table 15

Chi-Square Test Showing Maize Marketing Channel
Operators Perceptions of the Timeliness
of Minimum Guaranteed Price Information

Type of Marketing Institution	Timely %	Late Release %	No Idea %	Sample Size
Maize Growers	6	82	12	130
Maize Wholesalers	40	60	0	30
Maize Retailers	17	26	57	70
	32	143	55	230

$\chi^2 = 92.11135$, d.f. = 4, Significance = .0000

Table 16

Chi-Square Test Showing Maize Marketing
Channel Operators Perceptions About Their
Institution's Representation on the Committee
On Agricultural Commodity Prices

Type of Marketing Institution	Represented %	Not Represented %	No Idea %	Sample Size
Maize Growers	27	38	35	130
Maize Wholesalers	10	50	40	30
Maize Retailers	3	74	23	70
	40	117	73	230

$\chi^2 = 30.44421$, d.f. = 4, Significance = .0000

other crops or move into mixed crop farming.

40% of wholesalers interviewed said the price information was timely and useful, while 60% thought the information was released quite late. The differences in maize wholesalers' perceptions can be explained by the fact that some wholesalers are also maize growers. Maize wholesalers who are also growers, in the study, said they would like to receive the price information early in the farming season. The other group of wholesalers who do not grow maize, on the other hand, perceive the timing of the release of the price information to be right. They would like to have the price information in the harvest season when new maize is dry.

57% of maize retailers interviewed in the study had no idea of the timeliness of the minimum guaranteed price information. They did not seem to have much need for the price information for planning their marketing activities. However, maize retailers who also grow maize said the information was released quite late and would like to have it earlier. Field interviews with members of the Committee on Agricultural Commodity Prices indicate that the committee cannot make minimum guaranteed price recommendations until it is able to forecast maize outputs for coming maize seasons. Hence the delay in providing the price information.

Table 16 also shows there is sufficient evidence

that type of marketing institution an operator participates in is not independent of the operator's perception about the marketing institution's representation on the Committee On Agricultural Commodity Prices. Marketing operators' perceptions about their representation on the pricing committee, therefore, vary with the type of marketing institution in which they operate. A close look at the table shows that maize marketing channel operators become more certain about lack of representation of their marketing institution on the commodity pricing committee as one moves from growers to retailers. Maize growers seem to be quite divided on the question. 27% think maize growers are represented on the committee, while 38% think they are not represented, and a third group (35%) have no idea about the question. 50% of the maize wholesalers interviewed think they are not represented on the committee, 10% said they are represented, while the remaining 40% have no idea about the question. A much larger percentage of maize retailers (74%) responding to the question think they are not represented on the pricing committee.

In summary, the majority of maize marketing channel operators in Ashanti Region believe they have little or no say in the decisions of the Committee On Agricultural Commodity Prices. Channel operators interviewed in the field study expressed regret and frustration that as

operators in the industry, they are not consulted in such important pricing decisions that affects their livelihood. Most maize growers believe their cost of labor, land preparation (if mechanized system is used), farm inputs and operating expenses far exceed the cost estimates used by the commodity pricing committee. In their view, miscalculation of growers operating costs results in underestimation of the government's minimum guaranteed price for maize.

Maize assemblers and wholesalers also complain that when the government sets the minimum guaranteed price, it does not consider geographic locations and transportation costs. Maize growers in remote farming areas, therefore, ask for the minimum guaranteed price regardless of the location of their maize stock and the cost of transporting maize to urban centers. In their view, therefore, the minimum guaranteed price is often overstated for maize stock in rural areas. Accordingly, maize wholesalers would like to be represented on the commodity pricing committee to provide an input into the pricing decision.

Investigation into the make-up of the Committee On Agricultural Commodity Prices in 1985 shows that only one maize grower represented maize growers and distributors on the Committee on Agricultural Commodity Prices in 1985, on a committee of seventeen people. Discussions with the farmers' representative show that farmers are represented on the committee but are not listened to. In one maize growers

words, "the committee is dominated by bureaucrats and agropoliticians." A review of the Committee's membership as shown in Appendix C, clearly shows an over-representation of government officials and other interest groups.

Services of Agriculture Development Banks and Co-operative Banks:

Field study interviews indicate that the majority of maize growers, wholesalers and retailers do not have access to Agriculture Development Bank and Co-operative Bank loans. Barriers to bank loans for these maize marketing operators include:

- 1) complete lack of knowledge concerning how to obtain such loans
- 2) inability to post collateral required by the banks for the loans, and
- 3) fear of owing the government by taking the bank loans and not being able to pay back the loan.

In the latter case, most small-scale maize marketing operators fear that, given the risky nature of maize production and marketing, they might not be able to pay back the loans and might end up losing all their personal properties or end up in jail. Bank officials are also reluctant to give such business operators loans for these same reasons.

Large-scale maize growers, however, are able to use their farm lands and equipments as security for bank loans. Besides, they are well established in their business areas

that banks can easily locate them when the loans become due.

Agriculture Development Banks and Co-Operative Banks in Ashanti Region, therefore, do not offer much financial services to most maize marketing operators in the region since the majority of maize growers and distributors are small-scale operators. This situation also reduces maize assemblers, wholesalers and retailers ability to buy maize due to lack of adequate working capital. Low volume maize purchases by private maize distributors sometimes leave the Ghana Food Distribution Corporation the only viable buyer in the marketplace. This market situation results in depressed market prices and hurts maize growers. The banks certainly need to find an effective way to serve small-scale food producers and distributors, if they are to serve the essential business objectives for which they were established.

Radio and Newspaper Information Sources:

Radio and newspapers are two important sources of information in Ashanti Region, and Ghana as a whole. Unlike television (which is a luxury item for the urban population), radios and newspapers are affordable communication medium in many households in urban and rural Ghana. A large portion of information produced for the general public therefore reach the Ghanaian population through these communication medium. Government

food policies, control-prices, and other important food production and marketing programs are transmitted through radio and newspapers.

Among the many radio programs that Radio Ghana, in cooperation with the Ministry of Agriculture, had developed and did broadcast to food producers and distributors in Ashanti Region in 1986 were:

- 1) "Radio Badwa" (Rural Radio Forum in Akan);
Broadcast time: 6:45-7:15 p.m. - Sunday
- 2) "Kuayo Mu Adwen" (Questions and Answers from Farmers and Answered by Agriculture Experts);
Broadcast time: 7:45-8:00 - Sunday
- 3) "Adwuma, Adwuma" (Ministry of Agriculture Information and Discussion of Farmers Problems and New Farm Methods); Broadcast time: 6:30-7:00 p.m. - Saturday
- 4) "Obra ye Bona" (Women's Magazine - on how to help their husbands); Broadcast time: 6:15-6:45 p.m. - Tuesday.

These radio programs discuss, among other things, maize production and marketing issues and problems. An important objective of this study was to determine the size of newspaper readership, radio ownership, and useage by maize marketing channel operators in Ashnti Region. Table 17 shows the responses of maize growers, wholesalers and retailers to the question on the use of these information sources. Whereas radio is the most important source of external information (among the three mediums of communication, i.e. newspapers, trade association information sources and radio) for maize growers, trade

Table 17

Reported Availability and Use of Newspapers
Radio and Trade Association Information Sources
by Maize Marketing Channel Participants
June 1986

Type of Mar- keting Institu-	Read News- papers Regularly %	Obtain Marketing Information from Trade Association %	Own Radio that Works %	Listen to Food Production and Marketing Radio Programs Regularly %	Sample Size
Maize Growers	20	21.5	58.5	58	130
Maize Whole- sellers	40	63	66.7	63.4	30
Maize Retailers	3	97	31	30	70

association information sources is the most important communication medium for maize wholesalers. Maize retailers, on the other hand, find radio and trade association information sources equally important.

The table shows that newspapers are not important sources of market information for maize marketing channel operators in Ashanti Region. Field study interviews show that newspapers are not readily available to the majority of maize marketing channel operators. Besides, the information content of Ghanaian newspapers offer little information on maize marketing activities

Tables 18 and 19 show chi-square tests of independence in ownership of radio sets that work and listenership to food production and marketing radio programs in Akan (the major local language). The chi-square tests on the two tables show that there is sufficient evidence that type of marketing institution is not independent of marketing operators ownership of radio sets, and listenership to food production and marketing programs on radio. Thus, radio set ownership and listenership to radio programs vary with type of marketing institution.

A close study of Table 18 shows that 59% of maize growers and 67% of maize wholesaler own radio sets while only 31% of maize retailers own radio sets. Similarly,

Table 18

Chi-Square Table Showing Radio Set Ownership
of Maize Marketing Channel Operators

Type of Marketing Institution	Own Radio that Works %	Does not Own Radio %	Sample Size
Maize Growers	59	41	129
Maize Wholesalers	67	33	30
Maize Retailers	31	69	70
	118	111	229

$\chi^2 = 16.89306$; d.f. = 2, Significance = .0002

Table 19

Chi-Square Table Showing Maize Marketing
Channel Operators Who Listen to Radio Programs
"Radio Badwa" and/or "Kuayo Mu Adwen"

Type of Marketing Institution	Listen to Program Once Weekly %	Listen to Program Once Monthly %	Never Listen to Program %	Sample Size
Maize Growers	45	16	39	123
Maize Wholesalers	47	17	36	30
Maize Retailers	23	7	70	70
	85	30	108	223

$\chi^2 = 19.10816$, d.f. = 4, Significance = .0007

Table 19 shows that maize growers and wholesalers listen to maize production and marketing programs more often than maize retailers. For the majority of maize growers in Ashanti Region whose rural trade associations are poorly organized and whose movements around the country are greatly restricted by farming activities, radio programs provide their major source of information about life in the rest of the country. Maize growers who can afford to purchase battery operated radio sets regularly listen to radio programs that have some relevance to their farming activities and rural life. Field study interviews reveal that maize growers who do not listen to these radio programs either have no access to radios or the timing of the radio programs conflict with other activities they perform. For example, most of the radio programs listed in this chapter are mostly broadcast in the evenings on weekends. Discussions with maize growers indicate that although the majority of farmers are at home on weekends, they usually would be involved in family discussion, attending village meetings, funerals or religious meetings. The timing of the radio programs, therefore, do not sometimes fit the activity schedules of some farmers.

64% of maize wholesalers interviewed in the study said they listen to radio programs on food production and marketing regularly. Most food markets in Ashanti Region

close at 6:00 p.m. and this gives most wholesalers adequate time to get home and listen to the radio programs.

Although the majority of maize retailers live in urban centers and could have access to radio sets, the study shows that few of them own radio sets or listen to radio programs on food production and marketing. Field study interviews show lack of interest on the part of most maize retailers to listen to such informative programs. To the majority of maize retailers, these radio programs have no relevance to their marketing activities.

In summary, information production and transmission efforts of public organizations are potential sources of useful market information for maize marketing channel operators in Ashanti Region. However, lack of active participation on the part of information users in the development of market information, lack of proper education and motivation in the use of information provided make public market information sources less credible and useful to maize marketing operators in Ashanti Region. Maize production activities receive fair amounts of information support services from public organizations. Little attention, however, is paid to the marketing of maize by these public organization. The coordination of marketing functions of the maize market system becomes a major problem due to lack of accurate and relevant market information from the public sector of the economy. Public information

development and transmission activities, if they would achieve their expressed objectives, would need some major policy and structural changes to make information outputs relevant and credible.

In the next chapter, attention will be given to critical evaluation of the structure and role of government-sponsored co-operative associations and market unions in the development and dissemination of market information. Co-operative associations need this attention because they could be important change agents, in the search for improvement in the development of information resources for maize marketing channel operators.

CHAPTER SIX

INFORMATION SERVICES OF TRADE CO-OPERATIVE ASSOCIATIONS

Trade co-operative associations have had long active history in pre-independence and post-independence eras of Ghana. The dominant trade co-operative association in Ghana, over the years, has been Ghana Farmers Co-operatives. This is due to the importance of cocoa production in Ghana. For many years, Ghana was the world's largest producer of cocoa (until the early 1980s when the Ivory Coast began to surpass Ghana in output). Cocoa farmers' outputs have supported Ghana's foreign trade and currency development. Ghanaian farmers, over the years, have therefore played important economic and political roles in the development of Ghana.

Ghana's post-independence farmers co-operative association programs have continued to pay more attention to the production and marketing of cash crops like cocoa, coffee, cotton, etc., which earn foreign exchange to support Ghana's foreign trade, than to food crops. It was not until the past two decades that, with the rapid movement of large numbers of people from rural areas to Ghana's major towns and cities in search of work opportunities, resulting in the

development of large population centers in Ghana, and frequent droughts and famines, that the government began to pay significant attention to food crop production.

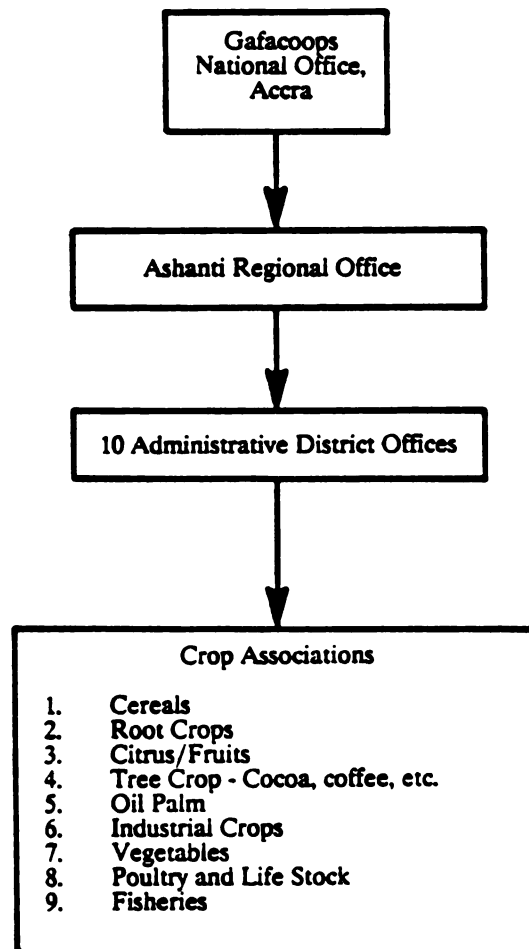
Thus food producers and distributors in Ghana are now organized into co-operative associations to:

- 1) pool together trade association members' limited operating resources so they can function effectively
- 2) enable the government to identify food production and marketing groups and to direct essential support services to them, and
- 3) develop bargaining power in securing social and political recognition necessary for the survival of the industry.

Figure 10 shows the present organizational structure of the Ghana Federation of Agricultural Co-operatives (Gafacoops). Ashanti Region has ten co-operative administrative districts. Co-operative associations under Gafacoops are organized into crop association groups. Maize growers and distributors in Ashanti Region are therefore organized under the Cereals Co-operative Association, with the trade name--Ashanti Region Maize Growers and Distributors Co-operatives.

The co-operative association of each maize marketing institution has an elected chairperson and an executive committee. Field study interviews show that local chapters of Gafacoops have been organized for maize growers and wholesalers in Ashanti Region. Maize retailers in the region however

Figure 10
Organizational Structure of Ghana Federation
of Agriculture Co-operatives (Gafacoops)



Source: GAFACOOPS, Ashanti Region Office, Kumasi, 1986.

had not been organized by Gafacoops at the time of the study.

People and businesses in Ashanti Region's cultural setting are traditionally organized into social groups. Every social or trade group in Ashanti Region has a chief or queen, and elders (executives) who coordinate the group's activities. Market queens and kings are traditional leaders of trade associations in Ashanti Region. The purpose of such social groups is to provide support and protection for members of the groups. Maize growers, wholesalers and retailers in Ashanti Region, over the years, have had traditional market trade associations or unions functioning side-by-side with government sponsored co-operative associations.

Field study findings show that among maize growers and wholesalers in Ashanti Region, government sponsored co-operative associations (Gafacoops) and traditional market trade associations have been merged into one organization. Maize growers co-operative associations in the region are co-ordinated by chief farmers. A chief farmer is the leader of farmers in a farming community. Maize wholesalers, on the other hand, have a chairperson who heads the government sponsored co-operative association, and a market queen who heads traditional market trading activities. Both leaders are selected by popular votes of the association members. Field study interviews show that a wholesaler co-operative

association chairperson represents the association at official regional, district or local government administrative meetings, and also carries out other managerial functions that are government-related. The traditional market queen, on the other hand, supervises selling activities in the marketplace, including maintenance of clean physical facilities in the marketplace. She also represents the association at meetings with traditional chiefs in cities and towns.

Market information received by wholesalers cooperative associations chairpersons and market queens are passed on to association members at regular association meetings.

Maize retailers in Ashanti Region, as noted earlier in this chapter, are organized under traditional maize retailers associations or unions. The associations activities are coordinated by market queens. Retailers market queens perform their managerial duties with the help of executive committees. The market queens represent their associations at government administrative meetings and also at meetings with traditional chiefs and local authorities. Discussions with Ashanti Region Gafacoops senior officers show that the regional co-operative headquarters was in the process of organizing maize retailers in the region.

Figure 11 shows maize production and marketing information outputs from public organizations transmitted through Gafacoops information networks. As discussed

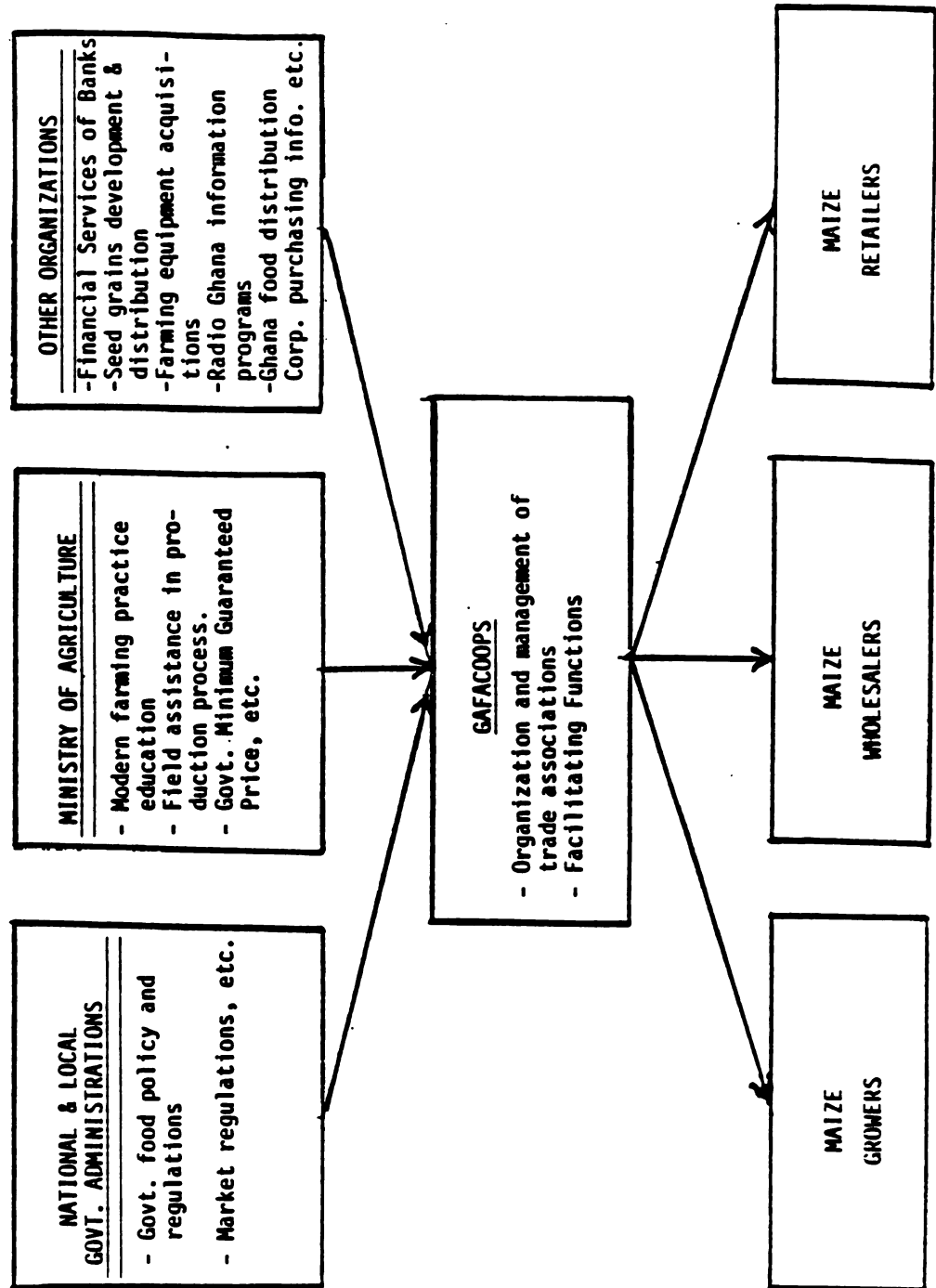
earlier in the study, Gafacoops is the public organization that coordinates the organizational and management activities of maize growers, wholesalers and retailers in Ghana. It is also commissioned to perform facilitating functions such as assisting members of cooperative associations in securing essential operating inputs, financial services, education of its members about their operational responsibilities in the marketplace and helping them solve other social and industry problems.

Gafacoops receives much of the information that it transmits to its cooperative associations from other public organizations. From national and local government administrations it receives government food policies and market regulations which it passes on to its cooperative association members. Gafacoops creates the forum for the Ministry of Agriculture's information services on modern farming practices, field assistance in production processes, government minimum guaranteed prices, and other important pieces of information to maize marketing institutions.

Other public organizations such as Cooperative Banks, Agriculture Development Banks, Grains Development Board, Ghana Food Distribution Corporation, Radio Ghana and others are encouraged by the government to transmit through Gafacoops' information networks, their information services

FIGURE 11

MAIZE PRODUCTION AND MARKETING INFORMATION OUTPUTS FROM
PUBLIC ORGANIZATIONS TRANSMITTED THROUGH GAFACOOPS



to maize marketing institution in Ashanti Region and throughout Ghana.

Co-operative Associations Information Services:

Field study interviews with officers of Gafacoops indicate that national, regional and district officers of the organization are expected to offer the following information and marketing support services to co-operative members:

- 1) representing farmers and food distributors on national and regional agriculture crop production and marketing boards.
- 2) visiting districts and farming communities to educate farmers on the use of improved methods of farming.
- 3) assisting farmers to obtain farm inputs such as farm machinery and fertilizer
- 4) assisting farmers and food distributors to obtain loans and credit facilities
- 5) discussing with farmers how best they can market their farm outputs, and
- 6) organizing district committee meetings with farmers to discuss farmers' problems.

Gafacoops officers interviewed in the study were also quick to point out problems and short-comings of the organization. These problems include:

- 1) lack of adequate financing
- 2) lack of storage facilities
- 3) lack of adequate transportation facilities, and
- 4) the fact that the organization is still in the process of re-organizing co-operative associations under crop groups.

According to senior officers of the organization, Gafacoops is presently quite weak in influencing national food policies due to the problems mentioned.

Commercial farmers (i.e. large-scale producers of maize, rice, and other food and cash crops) have also organized themselves into the Ghana Commercial Farmers Co-operative Association. The association functions under Gafacoops. Field study interviews show that this organization also suffers from similar operating deficiencies as its parent organization--Gafacoops.

Gafacoops Information Services to Maize Growers: Maize growers, wholesalers, and retailers in the study were asked to indicate information services offered them by their co-operative associations. Table 10 (p. 134) shows the responses of the maize channel operators to this inquiry. Only 21.5% of maize growers interviewed indicated they receive some useful market information from co-operative association meetings. Field study interviews show that maize growers cooperative associations in Ashanti Region do not have regular meeting schedules. Members of growers' associations are usually called to meetings whenever there is some matter of importance to discuss. Such meetings are generally initiated by co-operative associations executives.

Maize growers who indicated they receive useful information from their cooperative associations said such information concerns farm machinery, farm loans, fertilizer,

and seed maize supply sources. The rest of the maize growers interviewed, however, said they do not receive any such assistance.

Over 78% of maize growers interviewed said Gafacoops provides no market information services to maize growers. These maize growers showed complete lack of knowledge about Gafacoops market information services.

In the absence of formal market information from maize growers cooperative associations, the majority of maize growers in Ashanti Region rely on informal inter-personal communications among cooperative association members and friends to provide essential market information.

Gafacoops Information Services to Maize Wholesalers: Field study interviews show that local maize wholesalers cooperative associations meet regularly to discuss marketing problems and to share information. 90% of maize wholesalers interviewed said they attend cooperative association meetings at least once a month. Maize wholesalers cooperative associations have regular scheduled meetings every two weeks. Maize supply sources, prices, and market condition information exchanged at the association meetings, however, generally come from individual cooperative association members. Information that comes from Gafacoops regional and district offices is very limited, and usually concern government regulations. 63% of

maize wholesalers interviewed said they find local cooperative association meetings very useful.

Gafacoops Information Services to Maize Retailers: Maize retailers' local market trade associations meet at least once a month to discuss selling practices, social problems and misfortunes of association members. They also share information about maize supply sources and prices. 94% of maize retailers interviewed said they attend market association meetings once a month. 97% of retailers who attend the meetings said the meetings are sources of useful market information.

Opportunities and Problems in Gafacoops Information

Services: Field study interviews with maize wholesalers and retailers show that marketing operators in the two maize marketing institutions have developed trust and dependency in the services of their trade co-operative associations. They rely on their cooperative association members for much of their market information.

A majority of maize growers in Ashanti Region, however, have not developed strong faith in their co-operative associations managements. This is mostly due to lack of effective organization of cooperative association support programs among maize growers. Field study interviews show that most maize growers see great potentials in their co-

operative associations and expect improved services from them.

Gafacoops officials believe they are doing their best in offering important services to farmers and farm produce distributors, given the limited resources they have at their disposal. A critical study of Gafacoops current organization objectives, functions and development programs, however, reveal important issues of concern.

Interviews with Gafacoops' national and regional senior officers, the expressed objectives of the organization and the organization's field activities show that Gafacoops is operating in service areas that tend to duplicate services that are already being offered by some other public organizations. Some of these services are:

- 1) Visiting districts and farming communities to educate farmers on the use of improved methods of farming, and
- 2) assisting farmers to obtain farm inputs such as farm machinery, seeds and fertilizer.

Although these services are important to farmers, other public organizations offer these same farm production support services. Both the Ministry of Agriculture's Information and Field Extension Services Units have, as their major objective, the education of farmers to use improved seeds and modern farming methods. The Ghana Grains Development Board and the Ghana Seed Company also offer similar services to farmers. Gafacoops' involvement in

farmers' production activities therefore constitute duplication of efforts. It would be appropriate for Gafacoops to assist farmers rent or buy farm machinery, but the involvement of the organization in farm production educational programs would be misusing its limited resources. One might ask "how many organizations are needed to educate farmers on modern farming methods?"

Maize growers, in the study, were asked to indicate the number of times they attend farmers rallies in a year and to also state the usefulness of these meetings. Maize growers responses to these issues show that only 39% of maize growers interviewed attend farmers rallies annually in Ashanti Region. Farmers who attend farmers' rallies said they receive mainly maize production instructions, which they had received many times in the past. They also receive promises on farm loans and other farm input assistance which usually are not honored. Only 33% of maize growers interviewed find farmers' rallies useful sources of market information. The majority of farmers interviewed said they were tired of attending farmers' rallies. Public organizations that organize these rallies generally have the desire to help farmers but often do not have the necessary resources to back up their promises to farmers.

Gafacoops, besides duplicating services offered by other public organizations would also be spreading itself thin (given its limited financial and operational resources)

if it gets involved in farm educational programs.

A second matter of concern in the reorganization program of Gafacoops is the type of organization structure that Gafacoops is developing. Current organization development programs of Gafacoops show the development of a "bureaucratic machinery." Field study interviews with some Gafacoops officers show a desire to develop an organization that may end up being self-serving: That is, the involvement of mostly non-farming and non-food marketing professionals in the management of the organization may create an organization whose employees would be more concerned about supporting a bureaucracy rather than offering essential support services to operators in the agriculture industry.

Historically, farmers and farm produce distributors have looked upon government sponsored co-operative association activities from the sidelines and have not participated actively in running cooperative associations. The financing and agenda setting of co-operative associations activities by the government help explain the passive attitudes of co-operative associations members. This issue brings up the third matter of concern regarding the organizational structure of co-operative associations in Ghana; the low level involvement of the general membership in the operating activities of co-operative organizations.

Ghana government's assistance in establishing cooperative associations to support business activities of farmers and farm produce distributors is a healthy activity. However, the beneficiaries of cooperative associations' activities should be given the opportunity to own and operate these associations to generate desired interests and involvement that will make co-operative associations true organization entities for the beneficiaries.

Information Services of Chief Farmers and Market Queens:

Chief farmers and market queens, traditional heads of farmers and farm produce distributors co-operative associations, perform important information and managerial services in Ghanaian food marketing systems. Field study interviews indicate that chief farmers and market queens in Ashanti perform the following marketing functions:

- 1) coordination of trading activities
- 2) provision of information about market demand and prices
- 3) help set market floor prices, and sometimes ceiling prices (i.e. upon request of government administrators in times of food scarcity)
- 4) settle disputes among trade association members and
- 5) serve as spokespersons for trade associations.

The study found that chief farmers and market queens are well respected individuals in Ashanti society. They serve as communication links between trade organizations and

the general public. As such, they acquire large amounts of information about the operations of a particular trade organization. Chief farmers especially, who have had strong formal education, in the past, have risen to national prominence and have had strong impact on the politics of Ghana. Chief farmers and market queens therefore have the potential to share experiences, information, and physical resources they receive from their interactions with the general public with members of their trade organizations.

Maize growers, wholesalers and retailers, in the study, were requested to evaluate the importance of chief farmers or market queens of their trade associations, as sources of useful market information. Table 12 shows the responses to this inquiry. The chi-square test shows there is sufficient evidence that type of marketing institution an operator participates in is not independent of the operator's perception of the importance of his or her chief farmer or market queen, as source of useful market information. That is, these perceptions vary with type of marketing institution in which respondents operate.

A close study of Table 20 shows that maize marketing channel operators perceptions of the importance of their chief farmers and market queens as sources of useful market

Table 20

Chi-Square Test: Showing Importance of Chief Farmers
and Market Queens as Information Sources

Groups	Very Important %	Important %	Not Important %	Sample Size
Maize Growers	27	49	24	128
Maize Whole- salers	49	41	10	29
Maize Retailers	20	77	3	70
	62	129	36	227

$\chi^2 = 27.32662$, d.f. = 4, Significance = .0000

information becomes more certain as one moves from maize growers to retailers. 90% of maize wholesalers and 97% of maize retailers affirm the importance of their market queens as useful sources of market information. Market queens coordinate close-knit organizations in Ashanti Region and they are able to offer marketing services that members of their associations need.

Field study observations show that the informal information services that develop within maize wholesalers and retailers trade associations under the supervisions of market queens and kings show signs of collusive practices. However, no concrete data was obtained in the study to substantiate this claim.

76% of maize growers do recognize the importance of their chief farmers as useful sources of market information. This perception is, however, not as over-whelming as those of maize wholesalers and retailers. Field study interviews show that some maize growers regard their chief farmers as self-serving. Chief farmers in Ashanti Region are usually large-scale producers who compete directly with other maize growers in their cooperative associations for limited farm inputs from the Ministry of Agriculture and other public organizations.

Interviews with chief farmers in the field study show chief farmers have excellent knowledge about farm input

supply sources and markets for maize. Many maize growers of cooperative associations believe often chief farmers do not share important trade information they acquire with members of their trade associations. Instead, they use the information they acquire to facilitate their private production and marketing activities. This behavior usually taints personal images of some chief farmers in Ashanti Region. Field study interviews, however, indicate that the majority of chief farmers in the region perform their duties faithfully.

In summary, maize marketing channel operators, organized under Gafacoops, are able to gather and share information about the marketplace with association members in their respective marketing institutions. Field study interviews show that Gafacoops, on its own, develops very little market information. It generally creates a forum for other public organizations to offer production and limited market information services to maize marketing channel operators. Gafacoops' market queens and chief farmers are also important sources of information to maize marketing channel operators.

However, Gafacoops' preoccupation with maize production information services that tend to duplicate information services of other public organizations, the low level of involvement of its association members in managing its activities and its senior officials preoccupation with

developing a bureaucratic organization seem to hinder its ability to develop a much-needed market information systems and other marketing support services for its members. The majority of maize marketing channel operators interviewed in the study have faith in Gafacoops' ability to offer them essential marketing services, and they look for such services.

CHAPTER SEVEN

CONCLUSIONS AND RECOMMENDATIONS

Summary

The main objective of this study was to investigate information provision and use in maize markets in Ashanti Region. Information was defined in the study as the communication of facts and knowledge relevant to decision making. Market information in the study refers to the communication of fact and knowledge about a market system. The study covered public and private information sources of maize marketing institutions.

Research questions developed to study information provision and its use in the market system were:

- 1) what kind of information (in qualitative and quantitative terms) are channel participants in the various maize marketing institutions exposed to?
- 2) How do maize marketing channel participants interpret and use information that they receive?, and
- 3) How does information in the maize markets facilitate decision making processes of the marketing channel participants?

The subjects of the study were maize marketing channel operators in Ashanti Region. The channel operators comprised of maize growers, wholesalers and retailers. A

detailed descriptive study of the maize market system in the region was first conducted to identify information systems in the market system and maize marketing mix decisions that require information from the market system.

130 maize growers, 30 wholesalers and 70 retailers were interviewed in a field study. These marketing channel operators were asked to state their exposure to market information, their use of information in the marketplace and the effects of information on their marketing decisions.

In addition, 25 senior public officials whose organizations provide information and other relevant services to maize marketing institutions in the region were also identified and interviewed. They provided descriptions of information services performed by their organizations, and they also helped to evaluate the quality of information that their organizations provide.

The first part of this section will summarize the important findings of this study. This will be followed by discussion of the effects of information on marketing activities of maize growers, wholesalers, and retailers. The last part of this section will present the effect of the non-use of product standards and standard measures on public information and the marketing activities of the channel operators.

Summary of Study Findings:

Maize marketing institutions in Ashanti Region, namely, maize growers, wholesalers and retailers, lack accurate and adequate public market information necessary for market planning and operations. Ashanti Region maize marketing institutions, in the absence of relevant public market information seek and find market information through:

- 1) integration of channel functions
- 2) organization of closely-knit trade associations, and
- 3) informal interpersonal communication.

The majority of maize wholesalers and retailers in Ashanti Region in addition to their regular marketing functions also perform maize growing and assembling functions. They are therefore able to acquire some maize supply and demand information. Maize wholesalers and retailers in the region are also members of active and closely-knit trade organizations. Individual trade association members actively seek market information. They share the information they acquire with other members of their trade associations at formal and informal meetings. Maize wholesalers and retailers in the region therefore have fair amounts of information for market planning and operations.

Maize growers in Ashanti Region, on the other hand, are widely dispersed throughout the farming communities and are

generally preoccupied with production and harvesting activities. The majority of maize growers in the region therefore do not find it convenient to perform other marketing functions like wholesaling and retailing which can provide them with information about markets.

Maize growers co-operative associations are poorly organized and not very active. Their trade associations are therefore not major sources of market information. Maize growers in the region thus depend heavily on informal interpersonal communications, which often are inadequate. They are therefore generally deficient of relevant market information. Maize growers should consequently be the prime focus of public food market information development programs.

Information Resources of Maize Growers:

The study findings show that, of the three major maize marketing institutions studied, maize growers seek market information the most, but find very little. They seek information from agriculture extension officers, farmers rallies, trade association leaders, radio information sources and their trade associates. Over 50% of the maize growers studied own radio sets and listen to radio programs on food production and marketing regularly.

Notwithstanding all these strong information acquisition attributes, maize growers are still the least

informed about market conditions and activities. Maize growers in Ashanti Region are scattered over large area of land in rural parts of Ashanti Region where they farm. The physical separation of one maize grower from another by farm lands make the organization and coordination activities of cooperative association very difficult. Maize growers cooperative programs in rural Ashanti are therefore ineffective, especially in offering essential information support services to rural farmers.

The study found informal interpersonal communication among maize growers to be the most important and effective source of market information for maize growers in Ashanti Region. There is much willingness on the part of maize growers to help one another with limited pieces of market information that they acquire.

Although the cost of radio sets are high and there are difficulties in finding batteries to run radio sets, radio is the second most important source of market information for maize growers in Ashanti region. Radio is an effective means of communication because it cuts across the barriers of illiteracy and distance. The majority of maize growers studied would like to own radio sets if they could afford them. Maize growers who do not own radio sets still are able to receive information from radio sets of their friends. The ability to find batteries for radio sets in rural parts of Ashanti Region is a pressing problem for many

maize growers.

Local co-operative associations are also potential sources of market information for maize growers. However, as mentioned earlier in this chapter, cooperative associations in Ashanti Region are not very effective in disseminating market information to maize growers due to difficulties in organizing farmers into closely knit cooperative associations. Field study interviews indicate that maize growers still have faith in their cooperative associations and expect improved services from them.

Newspapers are not an important source of information to maize growers in Ashanti Region. Newspapers printed in Ghana's major cities are not generally accessible to the rural population of Ashanti Region. The small percentage of maize growers who read newspapers obtain them infrequently through friends who visit major towns and Kumasi city in the region. Thus although educated maize growers would like to read national newspapers, they often cannot obtain them in rural parts of Ashanti Region.

The Ministry of Agriculture's Field Extension Services and Information Units field officers do maintain communication links with maize growers in Ashanti Region. Information transmitted to maize growers by the ministry's field officers however relate mainly to maize production activities and have little to do with the marketing of

maize.

The Committee on Agricultural Commodity Prices minimum guaranteed price information was found to be an important piece of information to maize growers. This price information forms a major basis for maize marketing channel operators pricing strategies. When this price is set high, actual market prices for maize, on the average, tend to be high, and when the minimum guaranteed price is low (in relation to channel operators expectations) market prices, on the average, tend to be low for maize growers.

The study found that a majority of maize growers in Ashanti Region believe the Committee on Agricultural Commodity Prices does not set minimum guaranteed prices that reflect actual cost of production and fair returns on production efforts. This comes about because food growers and distributors are not adequately given the chance to provide information input into the price decision making process. Field study data show that minimum guaranteed prices set by the committee generally stay below actual market prices. This is because the minimum guaranteed price is just a floor price. However, this price is misinterpreted as "actual fair market price" by maize growers. The committee that sets this price is generally controlled by government officials and people from non-food production and marketing interest groups. The majority of maize growers studied would like the pricing committee to

give maize growers adequate hearing before the price is determined. Most maize growers in Ashanti Region show much despair about their low economic returns which come about as a result of minimum guaranteed prices set by the committee. They believe several market factors including government information development and distribution processes, information development failures of their cooperative associations and the general exploitive attitude of maize distributors make the market system inequitable, and give them little returns on their maize production and marketing efforts.

Information Resources of Maize Wholesalers:

The study findings show that maize wholesalers in Ashanti Region are exposed to more useful market information than maize growers and retailers.

Marketing channel functions of maize wholesalers in Ashanti Region are highly integrated. Most maize wholesalers in the region, in addition to their wholesaling functions grow and assemble maize. They have continuous interactions with maize growers, maize wholesalers from other regions of the country and maize retailers in Ashanti Region food markets. Communication networks that develop as a result of these interactions provide useful information about maize supply conditions in maize farming communities and also about maize demand and price conditions on food

markets in Ashanti Region and throughout Ghana.

Maize wholesalers cooperative associations also provide useful market information to their members. Maize wholesalers in the region are fewer in number than maize growers; they live in urban areas and they are able to operate close-knit cooperative associations. Urban communities in which most maize wholesalers live provide electricity , large retail stores, and other resources which facilitate the use of radio sets and provide access to newspaper information sources. The study, however, found that the majority of maize wholesalers had little interest in reading newspapers. Newspapers offer them little useful market information.

Maize wholesalers were found to be satisfied with the amount of market information they receive from the external environment. They use the information they receive to effectively coordinate their marketing activities. They are able to find maize supply sources even in times of scarcity. Maize wholesalers generally know when to make appropriate price changes on food markets. Such price changes are based on their knowledge of demand and supply conditions on food markets. Maize wholesalers in the region use the information they receive to distribute maize to food markets outside Ashanti Region.

The study found that maize wholesalers are generally

satisfied with the economic returns of their marketing activities. This goal is realized through the effective use of market information to facilitate product sourcing, distribution, and pricing activities.

A small percentage of maize wholesalers offer specialized services on maize markets due to their knowledge about specialized market needs. These wholesalers sell maize directly to government institutions and animal feed manufacturing plants.

Notwithstanding maize wholesalers' exposures to useful market information, the study found much dissatisfaction among wholesalers in the processes by which the government of Ghana establishes its minimum guaranteed price for maize. Maize wholesalers complain that the minimum guaranteed price is annually established without information inputs of maize wholesalers or food distributors in the country. As a result, minimum guaranteed prices are set for the whole country without regards to geographic location of maize stock and transportation costs--to move maize to urban centers. Most maize wholesalers would therefore like to provide information input into the committee's price formulation.

Information Resources of Maize Retailers:

The study found that maize retailers in Ashanti Region are exposed to more useful sources of market information

than maize growers, but do not have as much useful information as maize wholesalers. Maize retailers also do not seek as much market information as maize growers and wholesalers.

Maize is a staple food in Ashanti Region. Maize retailers in the region therefore have relatively stable market. They seek information mainly about financing services, supply sources, and about price.

Maize retailing channel functions in the region show some degree of channel integration. The study found that some maize retailers are also maize growers. These retailers obtain maize supply information from their production activities and also from their interactions with other maize growers. They also obtain information about demand factors of the maize markets through their interactions with consumers and maize wholesalers.

Traditional maize retailers market associations or unions also provide useful source of market information. Maize retailers on local markets in Ashanti Region form close-knit groups. Their market association meetings provide information about maize supply sources and prices. The associations also encourage pricing practices that guarantee fair market margins to maize retailers. Information sharing activities within wholesalers and retailers cooperative associations show some signs of collusive practices. However, no concrete evidence was

obtained to support this claim.

Most maize retailers in Ashanti Region believe they have adequate information for making marketing decisions. They use information they acquire to facilitate development of their marketing-mix strategies. Maize retailers were found to be generally satisfied with the economic returns from their marketing activities.

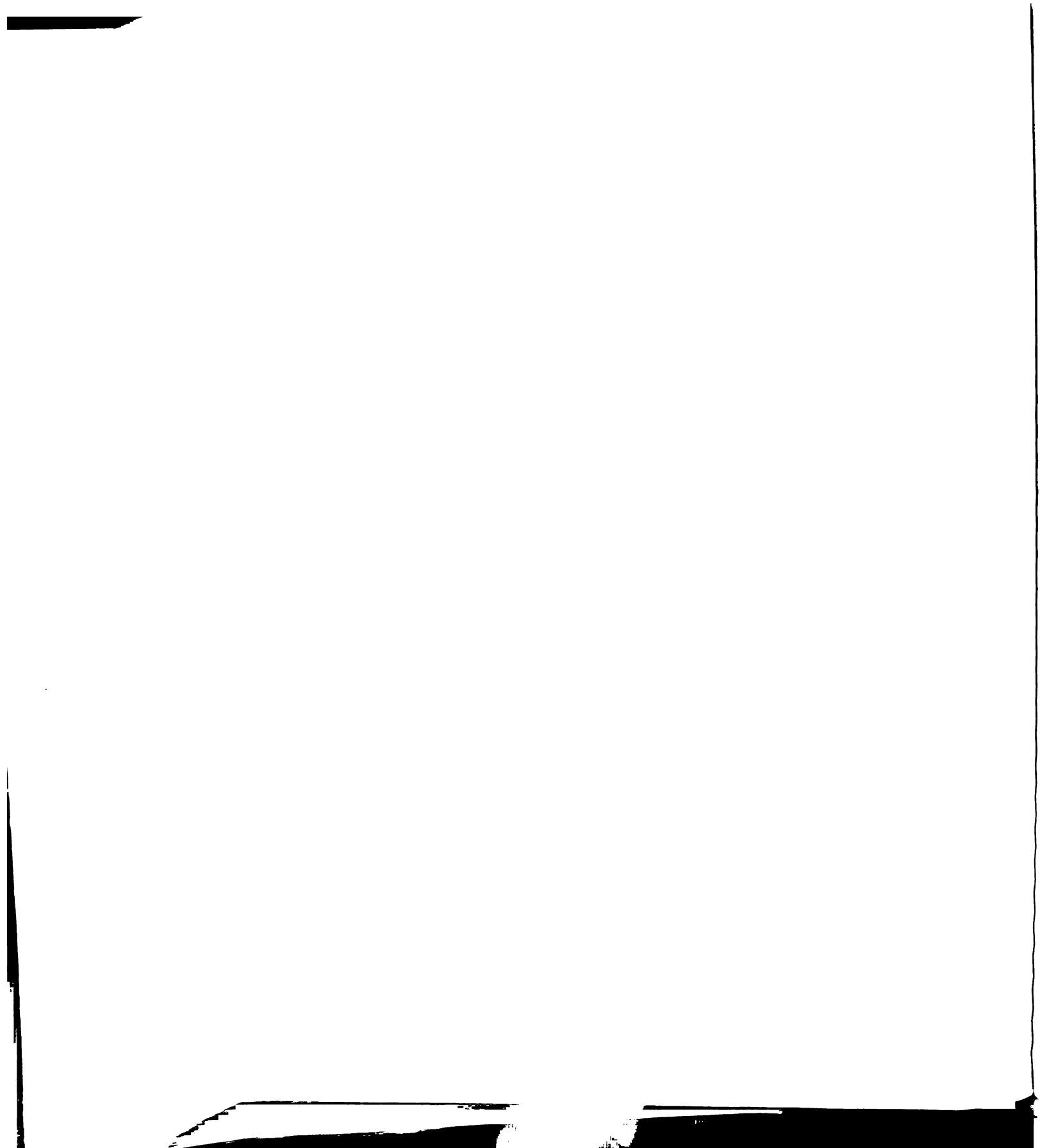
Lack of Standard Measures and Product Standards:

The study found that lack of standard measures on Ashanti Region maize markets make maize market price information less meaningful to marketing channel operators. Maize marketing channel operators are not able to relate their pricing activities to government minimum guaranteed price information because the government and private maize marketing channel operators use completely different measures.

Lack of standard measures on maize markets in the region also make the Ministry of Agriculture's market data collection activities difficult. Field officers who collect price information have to reconcile prices of different sizes of bags with the government's standard sack and price.

The study found that maize growers generally are exploited by maize wholesalers who purchase maize from them, due to lack of standard measures on maize markets.

Lack of product quality standards on maize markets in



Ashanti Region also tend to reduce maize growers ability to earn higher prices for producing high quality maize. Maize wholesalers and retailers do not experience loss in revenues under this market condition since they just pass on some of the price breaks they obtain from paying maize growers same price for different grades of maize to their customers. Maize growers therefore show no desire to improve produce quality on Ashanti Region maize markets. Maize markets in the region therefore do not offer wide range of product selection.

RECOMMENDATIONS

Market information deficiency problems of maize marketing institutions in Ashanti Region and Ghana as a whole, can be rectified through the concerted efforts of the Ghana government, individual maize marketing channel operators and maize production and marketing cooperative associations. These groups and organizations possess unique abilities to make substantial contributions toward improvement of information flow on maize and other food market systems in Ghana.

Harrison and his colleagues (1974) observed from their Latin American studies that there are often wide differences in perceptions of marketing problems and opinions on how to solve the problems. The variations in perceptions come

about because of the following environmental conditions:

1. Individuals and institutions are involved with only parts of the total market system.
2. Individual channel participants or institutions do not have total picture of the problems of the market system because marketing activities are performed by large numbers of independent agents widely separated through space and time.
3. The educational system of most developing countries does not adequately train marketing specialists who can identify and deal with marketing organization problems.
4. There is often little incentive for an individual or institution to use scarce resources to fully understand a system problem when the solution would require actions well beyond the scope and capability of a single institution (Harrison et al., 1974, p. 112).

Harrison and his research associates therefore suggest that system-wide problems require system-wide solutions. The market information deficiency problems of Ghana's food markets thus require such a system-wide attention. The resolution of Ghana's maize markets information problems lie beyond the capability of an individual organization. The Ghana government thus is in a good position to handle such a system wide problem.

Nevertheless, it would be inappropriate to suggest that the Government be asked to solve all information problems that have been identified in this study. Thus, the task of improving information flow on the maize market system, to improve decision-making in the market system, is also the direct responsibility of maize marketing trade associations

and their members. They are the direct beneficiaries of improved food market systems. In actual fact, they should be watchdogs of their destiny.

Suggested recommendations made in this study to solve information problems of the maize marketing institutions therefore are made on the premises that the task of improving information flow on maize markets in Ghana is the dual tasks of the Ghana Government and private market organizations. Information development and dissemination functions that can be effectively performed by the government will be identified and discussed separately from information development functions of private marketing organizations and individuals.

Government Market Information Development Programs

The Ghana government's role in the development of information support services for maize and other food market systems in Ghana fall into two categories: policy issues and information program implementation issues. Policy issues refer to policies that should be adopted to help improve information systems in maize markets, and program implementation issues examine the operationalization of the information programs.

A. Information Development Policies:

It is recommended that the Ghana government make the efficient operation of food marketing systems in Ghana a national priority goal. One way to accomplish this goal is through the development and free flow of high quality market information on food market systems. Information related policies that could be developed to achieve this goal include:

1. development of an integrated market information system to provide essential information support services to farmers and food distributors.
2. use of the national radio station--Radio Ghana--as an important medium of communication for the dissemination of food production and marketing information.
3. education of farmers and food distributors on the meaning and goals of public food policies.
4. establishment of essential market information structures such as the use of scales, standard measures and the encouragement of product standardization on food markets.
5. encouragement of farmers and food distributors to actively participate in the development of market information, and
6. encouragement of greater competition in maize markets.

Special attention will be given to each of these policy issues.

An Integrated Market Information System: There is a great need in Ghana presently for an integrated information system to develop food production and marketing data base to

support food marketing activities and policy decisions. Such an information system should be a centralized data processing unit that would serve the information needs of both public and private food production and marketing organizations. It is recommended that the information system be based in the Ministry of Agriculture.

Current departmentalized food production and marketing information gathering processes in the Ministry of Agriculture and other organizations are not very efficient. The hand-processed data collection system, with its several hundred pounds of old loose files that often have no proper filing cabinets is outdated. A computer-based data processing unit would be recommended in this period of Ghana's development. The information system could be developed on a mainframe computer, with its large data processing capabilities or could be developed on a mini-computer. The initial use of a personal computer would be a humble but effective beginning, which would be several steps above present data collection methods. The Ministry of Agriculture's present data collection processes are unsophisticated and are well within the capabilities of a mini computer.

The information system being recommended here would be a simple data processing system. It would consist of a mini computer, a variety of software, a filing cabinet, and office supplies. The total cost of such an information

system would be about three thousand dollars at the most. The value of information outputs of such a system to government agencies, the general public and other international organizations such as the World Bank and FAO would far outweigh its cost.

The information system that is being recommended would require data input from all relevant organizations that offer information support services to the food production and marketing industry in Ghana. Specific information that could be stored in this information system would include:

1. past and present weather forecasts.
2. food production forecasts
3. food output statistics
4. regional farm labor costs and other major production and marketing cost statistics.
5. regional wholesale prices of major food products
6. inventory and movement of food products on regional markets
7. location of food storage facilities, their capacities and costs.
8. business loans supply sources, loan requirements and loan processing support services
9. list of food production and marketing support organizations and their functions, and
10. lists of food production and marketing policies, regulations and educational programs.

This market information system will serve as a major information resource center for organizations that develop

food policies, regulate market operations and offer support services to food production and marketing institutions. The continuous updating of information stored in the system would help offer timely information for policy making and marketing mix tactical decisions.

Use of Radio Ghana to Disseminate Market Information: Radio Ghana, which is owned and operated by the Ghana government has the capability to effectively transmit critical information to maize marketing channel operators. It currently does transmit some food production and marketing information to the general public in its regular programs. These programs, although important to national economic development goals, are not on the radio station's priority list, in practical terms.

The recommendation here is to put food production and marketing information programs on the corporation's priority list. This policy decision has important practical implications. First, it means food production and marketing programs would receive prime time scheduling. Such programs can then be heard in the major languages of Ghana as primetime news. This will permit the large rural population of Ghana to learn about important developments in Ghana's food production and marketing industry.

Second, putting food production and marketing information programs on Radio Ghana's priority list will

assure continuity of market information dissemination by Radio Ghana.. Since food production and distribution business activities are year-round activities, the continuous flow of relevant production and marketing information is critical. Continuity of food production and marketing information programs would also encourage continuous dialogue between professionals in the industry, consumers and public policy makers. This will help improve the quality of the information developed for the radio programs.

Education of farmers and food distributors: A unified educational program needs to be developed for food producers and distributors in Ghana. There are too many duplicated programs in the food production and marketing systems presently. Notwithstanding all the information bombardments, food producers and distributors in Ashanti Region still do not understand the meaning of government minimum guaranteed prices and other public food policies.

It is therefore recommended that the government delegate all educational programs on food policy issues to the Information and Field Extension Services Units of the Ministry of Agriculture, and Gafacoops. The two departments of the Ministry of Agriculture have well established information networks in all district administration centers throughout Ghana. Gafacoop's role in this program would be

more organizational; that is, creating forums for Ministry of Agriculture officials to educate farmers and food distributors. Gafacoops should also verify the accuracy of information being transmitted. Present programs of these public organizations are structured to the grass roots and field officers of the Ministry of Agriculture have strong interest in helping farmers to be successful. These field officers should also be encouraged to provide information inputs to the development of public food policies. The consolidation of farmers and food distributors educational programs would help reduce field extension logistics of other public organizations, and cost savings that will result from operating efficiencies could be used to support the Ministry of Agriculture's field extension programs.

Establishment of Essential Information Structures: The study findings show that lack of product standards in maize markets in Ashanti Region make price information less meaningful to the channel operators. Maize assemblers and wholesalers who buy maize from maize growers often do not want to pay high price for high quality maize in the market system. Similarly, the non-use of standard scale in the maize markets also lead to exploitative practices. The Ghana government should, as a matter of policy, prescribe the use of standard scales, standard sacks, and also encourage product grading on Ghanaian food markets.

Minimum guaranteed prices will have meaning to maize and other food producers and distributors only when prices can be related to quality and quantity of products. One way to enhance marketing operators' ability to determine price-quantity relationship is to require food buyers and sellers to use standard measures in the marketplace. The use of different sizes of sacks other than the government's 220 lb. standard sack should thus be discouraged. Food marketing radio programs should continually encourage the use of standard measures and farmers' cooperatives should encourage farmers to insist on the use of standard measures.

Product grading is also essential in relating price to product quality. Food markets' use of product grades encourages the production of high quality products on Ghanaian food markets. This will help facilitate market transformation and improve the economic well-being of both food sellers and buyers. Food producers could then have the opportunity to earn higher income by selling high quality produce and buyers will get their money's worth.

Advocation of the use of standard sacks and scales gives the government a second responsibility--provision of adequate number of standard sacks and scales for food marketing operators. This is a very important task. It would be of little use to advocate the use of standard sacks and scales when marketing operators cannot acquire such items. It would therefore be useful for the government to

first encourage domestic production of sacks and scales in large quantities by encouraging investments in such production activities before it initiates the use of these items on food markets.

Finally, there would be a need to monitor adherence to the policy. Food producers, consumers and local authorities should be encouraged to be watchdogs of marketing malpractices. The effective implementation of this policy will make market price information meaningful, help coordinate marketing activities and improve product quality and selection in the marketplace.

Encouragement of Food Growers and Distributors to Actively Participate in Information Development Programs: If public food policies are to have the credibility and meaning that they deserve, active participation of information users and beneficiaries in the development of policy information would be essential. Food marketing channel operators should be encouraged to provide information inputs for the development of food policies, and their inputs should be carefully considered. For example, in the development of government minimum guaranteed prices for major food products, food producers and distributors should be able to present relevant information about production and marketing functions, production and distribution costs, cost of capital and expected margins from production and marketing

efforts. Such information should systematically and periodically be collected by agricultural field officers from a large samples of industry operators, and across different levels of operations.

Food marketing channel operators should be well-represented on policy making boards by legitimate representatives of the industry's trade organizations. Adequate representation is also essential. These precautions would give credibility to food policy information.

Overloading of food policy making boards with government officials and political interest groups should be discouraged. Field study interviews indicate such representations tend to facilitate the development of policies not based on industry information received. The food production and distribution industry will flourish if operators in the industry receive fair returns on their production and marketing efforts.

B. Information Development Implementation Issues:

Setting strong information development policies is half the battle, in the quest for the development and dissemination of quality information on food markets in Ghana. The government also needs to follow policy goals with effective policy implementation practices and commitment. Effective information development and

transmission policy implementation issues include:

1. assuring the development of quality information
2. use of appropriate medium of communication, and
3. monitoring the effectiveness of information development and dissemination programs.

Quality Information: Quality information as defined earlier in this study refers to the attributes of information that is developed. In this context, quality information refers to the accuracy, timeliness, adequacy, relevance, and equitable distribution of information. This information development goal could be achieved through high commitment and realization of the importance of information gathering. People who are entrusted with information gathering need to develop this mental attitude: Quality information is a great asset, but bad information is dangerous to a course.

The Government of Ghana has an important role to play in assuring that high quality information is gathered, processed, stored, and given out to decision makers. This goal can be achieved through the government's practical support to information development services. Among such essential government support services are adequate provision of reliable transportation (including spare parts), provision of a simple but up-to-date computer information processing system, proper training of market data collectors, adequate provision of data collection supplies

and incentives to reinforce positive behavior in data collection.

The Ghana government's acknowledgement of the importance and usefulness of quality food production and marketing information and its commitment to assuring the development of quality information would greatly help bring about change in information development processes in Ghana.

Use of Appropriate Communication Media: This study found that radio, agriculture field extension officials and cooperative associations are the most effective medium of communication for information directed at food producers and distributors in Ashanti Region. The Ghana government has much influence on the operating activities of these three organizations. It is recommended that these organizations be encouraged to commit their resources to the development and dissemination of food production and marketing information.

These organizations' commitment to market information development would once again require Ghana government's support in providing essential resources to get the job done. In Ghana today, the most essential government support that would be needed is provision of reliable transportation for the field officers of these organizations. This will enable field officers to visit operators in the food production and marketing industry to develop appropriate

information programs. Radio Ghana, in addition to the provision of transportation facilities for its field officers, would need spare parts for its transmitters, and changes in its standard programs. Government support in these areas, would help facilitate Radio Ghana's market information development programs.

Monitoring Effectiveness of Information Development and

Dissemination Programs: There is certainly a need to monitor the effectiveness of information development activities. Information development and dissemination efforts are effective to the extent that the programs provide quality information to facilitate public policy decision making, food production activities and marketing mix tactical decisions. For example, the Committee on Agricultural Commodity Prices should annually have at its disposal information and statistics on production forecast, inflation rate in the country, accurate market wholesale prices from all regions, farm loan interest rates, average labor cost in Ghana, average farm machinery rent costs and national transportation charges, for the development of minimum guaranteed prices. Other food public policy making boards should also be provided with essential information for decision making.

Private food production and marketing operators in the food industry should also have access to public food

production and marketing information. It would be essential for the government to monitor public organizations ability to effectively offer essential information services to operators in the industry. Continuous dialogue between the Ministry of Agriculture and cooperative associations management and other industry operators would help determine the effectiveness of public information development and transmission programs.

Cooperative Associations and Individual Maize Marketing Channel Participants Information Development Programs:

Gafacoops and individual maize growers and distributors need to be aware of their own responsibilities and roles in the development and dissemination of market information to facilitate maize marketing decision making. Some important maize marketing information development roles that could be played by the trade associations and marketing channel operators include:

- 1) educating maize marketing channel operators, especially growers, to seek and use quality information for making tactical decisions.
- 2) educating and encouraging maize marketing channel operators to use standard scales in the sale of maize
- 3) encouraging maize marketing channel operators to participate fully in the industry's product standardization program
- 4) encouraging maize marketing channel operators to contribute fully to the Ministry of Agriculture's market information development programs and to participate in national food policy development, and

- 5) provision of relevant market information by Gafacoops to food marketing channel operators to help clear food markets.

Education of food growers, wholesalers and retailers on the importance of market information should be a major concern of all persons who desire to improve the performance of food marketing systems in Ghana. Operators in the food production and marketing industry should be informed about the benefits of market information: that the use of accurate and timely market information facilitates decision-making involving movement of produce to markets where demand exists, helps improve the bargaining power of food sellers, thus enhancing their earning power, facilitates planning for future marketing activities and also facilitates the improvement of overall quality of produce and market transactions.

It has been recommended in this chapter that Gafacoop's local food growers and distributors cooperative associations provide forums for the education of farmers and food distributors on the importance of market information. Co-operative association members can help educate fellow channel operators on the merits of using quality market information.

When food growers and distributors discover they can benefit directly from information developed by the Ministry of Agriculture, they will be willing to provide field information for the Ministry of Agriculture's food market

information system. This behavior was clearly demonstrated in the field study of this research project. When maize growers and distributors were told the information they would provide would help improve their marketing operations and would facilitate food policy development, they were very willing to participate in the field study. The Ministry of Agriculture's field extension officers should communicate this idea clearly to operators in the agriculture industry to facilitate the Ministry's information development programs.

Limitation of the Study

The main focus of this study was maize markets and market operators in Ashanti Region. The findings of this study therefore pertain mainly to information and market operations in Ashanti Region.

Although maize markets in other regions of Ghana are similar in some ways to Ashanti Region maize markets, geographic conditions, ethnic differences, volume of maize marketing activities, local government market regulations, and other market factors create different market conditions and behaviors on the various regional food markets. The generalization of the findings of this study should therefore be done with care. Local market conditions could make the generalization of this research findings inappropriate.

On the other hand, policy issues that affect food

production and marketing in Ghana are addressed at the national level. Information development policy issues and organizational problems that have been discussed in this study are therefore relevant to food market systems in the other regions of Ghana. The replication of this study in other regions of Ghana would help identify information problems and issues that are common in the ten regions of Ghana.

Suggestions for Future Research

Two important findings of this study provide a useful basis for a future theory-oriented study: the study found that the presence of a high level of channel integration and a close-knit trade association seem to provide an effective private information network for the provision of critical market information. It would be useful for future studies to test for some relationships between levels of channel integration and close-knit cooperative association and a marketing institution's ability to provide critical market information.

The study also found a great deal of cooperation among co-operative association members in sharing market information. This communication process provides a good opportunity for collusion. It would be useful for future studies to examine the degree of collusive pricing and physical distribution activities among channel operators of

a marketing institution.

Similarly, since maize growers, assemblers, wholesalers, and retailers share information across marketing institutions, and since the various marketing institutions have private vested corporate interests, it would also be useful for future studies to examine the level of misinformation and deceptions as information is shared across marketing institutions.

Finally, since the main focus of this study was to examine information provision and use in maize marketing institutions at the macro level, no attempt was made to examine information acquisition and use at the firm level. It would therefore be useful for future studies to examine information acquisition and decision-making processes at the firm level and to show differences in strategies used.

APPENDIX A

Appendix A

Market Information Research Questionnaire

Maize Growers

PLEASE NOTE: All information in this survey is strictly confidential.
Individuals will not be identified with their responses. Your
honest responses to the questions being asked will be most useful
and greatly appreciated.

Date of Interview: _____

Place of Interview: _____ Home; _____ Market; _____ Farm;

Other (Specify): _____

Section A: General Information: (Please use checkmarks (X) in appropriate
spaces provided.)

1. Sex: _____ a) Female; _____ b) Male

2. Age: _____ a) 20 and under
_____ b) 21 - 40
_____ c) 41 - 60
_____ d) Over 60

3. Marital Status: _____ a) Single; _____ b) Married; c) _____ Other
(Specify) _____

4. Place of Residence: _____ a) Village
_____ b) Town
_____ c) City

5. Level of Education: _____ a) No formal education
_____ b) Primary school
_____ c) Middle school
_____ d) Secondary school
_____ e) Above secondary school

6. Number of years in the maize business: _____ a) 0 - 5 years
_____ b) 6 - 10 years
_____ c) 11 - 15 years
_____ d) 16 - 20 years
_____ e) Over 20 years

7. What percentage of your annual income comes from your maize business?

- ☐ a) 0 -25% ☐ b) 26-50% ☐ c) 51-75%
☐ d) 76-100%

8. What maize marketing functions do you perform? (Check relevant answers.)

- ☐ a) grow maize
☐ b) shelling maize
☐ c) transport maize to markets
☐ d) retail maize
☐ e) wholesale maize
☐ f) Others (Specify) _____

9. What volume of maize do you produce and sell annually?
(Please note: a bag is 220 lbs. of maize)

- ☐ a) 0 - 20 bags
☐ b) 21 - 50 bags
☐ c) 51 - 100 bags
☐ d) 101 - 500 bags
☐ e) Over 500 bags

10. What acreage did you cultivate last planting season?

- ☐ a) 0 - 5 acres ☐ b) 6 - 10 acres
☐ c) 11 - 20 acres ☐ d) 21 - 50 acres
☐ e) Over 50 acres

Section B: Sources and Quality of Market Information

What sources of information do you use in making the following marketing decisions?

11. How much acreage to cultivate? _____

12. When to sell your maize? _____

13. To determine your selling price? _____

14. To determine on what market to sell your maize? _____

15. To determine where to obtain your farm inputs? (Please specify input and source of information.) _____

16. To determine where to store your maize? _____

17. To determine country-wide market demand for maize? _____

Information From the Committee for the Pricing of Agricultural Produce:

18. How would you evaluate the adequacy of this year's government Minimum Guaranteed Price of ₦2,000 for a 200 lb. bag of maize?
- _____ a) Very adequate and fair
 - _____ b) Overstated
 - _____ c) Understated
 - _____ d) Grossly understated
 - _____ e) No idea
19. How would you evaluate the timeliness of the Committee for the Pricing of Agricultural Produce's minimum guaranteed price information to farmers?
- _____ a) Very timely and useful for planning
 - _____ b) Timely and useful
 - _____ c) Late release of information
 - _____ d) No idea
20. How would you evaluate maize growers representation on the Committee for the Pricing of Agricultural Produce that sets the minimum guaranteed price for maize?
- _____ a) Adequately represented
 - _____ b) Represented but not heard
 - _____ c) Not represented
 - _____ d) No idea
21. How does the minimum guaranteed price affect your maize growing and marketing business? (Please explain) _____

Section C: Information from Radio and Other Sources:

22. What newspapers or printed information do you read regularly? (Please specify) _____

23. What market information do you obtain from the printed information sources? (Please identify paper and the relevant information it provides).

24. Do you own a radio that works? ____ a) Yes ____ b) No
25. How often do you listen to Radio Ghana's "Radio Badwa" and/or "Kuayo Mu Adwen" programmes for farmers and food sellers?
 ____ a) Once a week
 ____ b) Once a month
 ____ c) Once a year
 ____ d) Never
26. If you do listen to the radio programmes, what specific market information do you obtain from the programmes. (Please specify programme and type of information obtained) _____

27. If you do listen to the radio programmes, how useful are the programmes in helping you to market your maize?
 ____ a) Very useful
 ____ b) Useful
 ____ c) Sometimes useful
 ____ d) Not useful
 ____ e) No idea
28. How often do you attend farmers rallies organized by the Ministry of Agriculture?
 ____ a) Once a month
 ____ b) Once in three months
 ____ c) Once a year
 ____ d) Never
29. If you attend farmers rallies, what market information do you obtain from these rallies? (Please specify) _____

30. Are you a member of the Maize Growers Co-operative Association?

____ a) Yes ____ b) No

31. If yes, what market information services does the Maize Growers Co-operative Association provide? (Please specify)

32. What maize marketing information does the Grains Development Board provide?

33. Would you like to have the Ministry of Agriculture announce actual (market) wholesale maize prices on the radio?

____ a) Yes ____ b) No

34. If yes, how would such information help you to sell your maize?

35. Would you like to know the Ministry of Agriculture's annual national maize production forecast before the maize planting season? _____

____ a) Yes ____ b) No

36. Have you in the past two years visited a maize wholesaler, inviting him/her to come to purchase your maize? ____ a) Yes ____ b) No

37. If yes, what type of price did the wholesaler offer you?

- ____ a) Above minimum guaranteed price
 ____ b) Minimum guaranteed price
 ____ c) Below minimum guaranteed price

Section D: Market Specialization

38. What specialized marketing functions do you perform? e.g., grow seed maize only; sell maize mainly to government institutions, etc. _____

39. If you perform some specialized marketing functions, what specific market information helps you perform these functions?

Section E: Information About Farmers' Queen/Chief

40. Do you have a Farmer's Queen/Chief?

_____ a) Yes _____ b) No

41. If yes, what market functions does she/he perform for your trade association?

- _____ a) Coordinates your trade activities
- _____ b) Provides market information about demand for maize
- _____ c) Provides information about maize prices
- _____ d) Helps set minimum selling price for maize, for association members
- _____ e) Settles disputes among association members
- _____ f) Others (specify) _____

42. How important is the Farmers' Queen/Chief with respect to your overall maize business activity?

- _____ a) Very important
- _____ b) Important
- _____ c) Important on some occasions
- _____ d) Not important
- _____ e) No idea
- _____ f) Others (specify) _____

THANK YOU FOR YOUR TIME AND ASSISTANCE!

Market Information Research Questionnaire

Maize Assemblers and Wholesalers

PLEASE NOTE: All information in this survey is strictly confidential.
Individuals will not be identified with their responses. Your
honest responses to the questions being asked will be most useful
and greatly appreciated.

Date of Interview: _____

Place of Interview: _____ Home; _____ Market; _____ Farm;

Other (Specify): _____

Section A: General Information: (Please use checkmarks (X) in appropriate
spaces provided.)

1. Sex: _____ a) Female; _____ b) Male

2. Age: _____ a) 20 and under
_____ b) 21 - 40
_____ c) 41 - 60
_____ d) Over 60

3. Marital Status: _____ a) Single; _____ b) Married; c) _____ Other
(Specify) _____

4. Place of Residence: _____ a) Village
_____ b) Town
_____ c) City

5. Level of Education: _____ a) No formal education
_____ b) Primary school
_____ c) Middle school
_____ d) Secondary school
_____ e) Above secondary school

6. Number of years in the maize business: _____ a) 0 - 5 years
_____ b) 6 - 10 years
_____ c) 11 - 15 years
_____ d) 16 - 20 years
_____ e) Over 20 years

7. What percentage of your annual income comes from your business?

- ☐ a) 0 - 25% ☐ b) 26 - 50%
☐ c) 51 - 75% ☐ d) 76 - 100%

8. What maize marketing functions do you perform? (Check relevant answers.)

- ☐ a) assembling
☐ b) grading and bagging
☐ c) transporting
☐ d) retailing
☐ e) wholesaling
☐ f) offer credit to business partners
☐ f) Others (Specify) _____

9. What volume of maize do you produce and sell annually?
(Please note: a bag is 220 lbs. of maize)

- ☐ a) 0 - 20 bags
☐ b) 21 - 50 bags
☐ c) 51 - 100 bags
☐ d) 101 - 500 bags
☐ e) Over 500 bags

Section B: Sources and Quality of Market Information

What sources of information do you use in making the following marketing decisions?

10. When to begin maize purchases? _____

11. To determine your maize supply sources? _____

12. To determine market demand for maize? _____

13. To determine purchase price? _____

14. To determine selling price? _____

15. To determine when to sell maize? _____

16. To determine on what market to sell maize? _____

17. To determine where to find business loans? _____

18. How would you evaluate the adequacy of this year's government Minimum Guaranteed Price of ₦2,000 for a 200 lb. bag of maize?
- _____ a) Very adequate and fair
 - _____ b) Overstated
 - _____ c) Understated
 - _____ d) Grossly understated
 - _____ e) No idea
19. How would you evaluate the timeliness of the Committee for the Pricing of Agricultural Produce's minimum guaranteed price information to farmers and maize distributors?
- _____ a) Very timely and useful for planning
 - _____ b) Timely and useful
 - _____ c) Late release of information
 - _____ d) No idea
20. How would you evaluate maize wholesalers representation on the Committee for the Pricing of Agricultural Produce that sets the minimum guaranteed price for maize?
- _____ a) Adequately represented
 - _____ b) Represented but not heard
 - _____ c) Not represented
 - _____ d) No idea
21. How does the minimum guaranteed price affect your maize marketing business? (Please explain) _____

Section C: Information from Radio and Other Sources:

22. What newspapers or printed information do you read regularly? (Please specify) _____

23. What market information do you obtain from the printed information sources? (Please identify paper and the relevant information it provides).
-
-

24. Do you own a radio that works? ____ a) Yes ____ b) No

25. How often do you listen to Radio Ghana's "Radio Badwa" and/or "Kuayo Mu Adwen" programmes for farmers and food distributors?

- ____ a) Once a week
 ____ b) Once a month
 ____ c) Once a year
 ____ d) Never

26. If you do listen to the radio programmes, what specific market information do you obtain from the programmes. (Please specify programme and type of information obtained) _____
-
-
-

27. Are you a member of the maize Growers and Distributors Co-operative Association?

- ____ a) Yes ____ b) No

If yes, please answer questions 28-30.

28. How often do you attend your cooperative association meetings?

- ____ a) Once a week
 ____ b) Once a month
 ____ c) Once a year
 ____ d) Never

29. What market information do you receive from your co-operative association meetings?) _____
-
-
-

30. How would you rate the usefulness of your co-operative association meetings in providing you with relevant maize market information?

- ____ a) Very useful
 ____ b) Useful
 ____ c) Sometimes useful
 ____ d) Not useful
 ____ e) No idea

31. Would you like to have the Ministry of Agriculture announce actual (market) wholesale maize prices on the radio?

____ a) Yes ____ b) No

32. If yes, how would such information help you sell your maize?

33. Would you like to know the Ministry of Agriculture's annual national maize production forecast before the maize planting season?

____ a) Yes ____ b) No

34. If yes, how would this type of information help you in your maize wholesale business?

Section D: Market Specialization

35. What specialized marketing functions do you perform? e.g., sell maize mainly to large institutions; sell mainly seed maize, etc. _____

36. If you perform some specialized marketing functions, what specific market information helps you perform these functions?

Section E: Information About Market Queen/King

37. Do you have a Market Queen/King?

____ a) Yes ____ b) No

38. If yes, what market functions does she/he perform for your trade association?

- ____ a) Coordinates your trade activities
 ____ b) Provides market information about demand for maize
 ____ c) Helps set minimum selling price for maize, for association members
 ____ d) Settles disputes among association members
 ____ e) Others (specify) _____

39. How important is the market Queen/King with respect to your overall maize business activity?

- ☐ a) Very important
- ☐ b) Important
- ☐ c) Important on some occasions
- ☐ d) Not important
- ☐ e) No idea
- ☐ f) Others (specify) _____

THANK YOU FOR YOUR TIME AND ASSISTANCE!

Market Information Research Questionnaire

Maize Retailers

PLEASE NOTE: All information in this survey is strictly confidential.
Individuals will not be identified with their responses. Your
honest responses to the questions being asked will be most useful
and greatly appreciated.

Date of Interview: _____

Place of Interview: _____ Home; _____ Market; _____ Farm;

Other (Specify): _____

Section A: General Information: (Please use checkmarks (X) in appropriate spaces provided.)

1. Sex: _____ a) Female; _____ b) Male
2. Age: _____ a) 20 and under
_____ b) 21 - 40
_____ c) 41 - 60
_____ d) Over 60
3. Marital Status: _____ a) Single; _____ b) Married; c) _____ Other
(Specify) _____
4. Place of Residence: _____ a) Village
_____ b) Town
_____ c) City
5. Level of Education: _____ a) No formal education
_____ b) Primary school
_____ c) Middle school
_____ d) Secondary school
_____ e) Above secondary school
6. Number of years in the maize business: _____ a) 0 - 5 years
_____ b) 6 - 10 years
_____ c) 11 - 15 years
_____ d) 16 - 20 years
_____ e) Over 20 years

7. What percentage of your annual income comes from your maize business?
- ____ a) 0 -25% ____ b) 26-50% ____ c) 51-75%
____ d) 76-100%
8. What maize marketing functions do you perform? (Check relevant answers.)
- ____ a) assembling
____ b) grading and bagging
____ c) retailing
____ d) offer credit sometimes
____ e) Others (Specify) _____
9. What volume of maize do you produce and sell annually? (Please note: a bag is 220 lbs. of maize)
- ____ a) 0 - 20 bags
____ b) 21 - 50 bags
____ c) 51 - 100 bags
____ d) 101 - 500 bags
____ e) Over 500 bags

Section B: Sources and Quality of Market Information

What sources of information do you use in making the following marketing decisions?

10. To determine your source of maize supply? _____

11. To determine consumer demand for maize? _____

12. To determine purchase price for maize? _____

13. To determine selling price for your maize? _____

14. To determine where to find business loans? _____

Information From the Committee for the Pricing of Agricultural Produce:

15. How would you evaluate the adequacy of this year's government Minimum Guaranteed Price of ₦2,000 for a 200 lb. bag of maize?
- ☐ a) Very adequacy and fair
☐ b) Overstated
☐ c) Understated
☐ d) Grossly understated
☐ e) No idea
16. How would you evaluate the timeliness of the Committee for the Pricing of Agricultural Produce guaranteed price information to maize sellers?
- ☐ a) Very timely and useful for planning
☐ b) Timely and useful
☐ c) Late release of information
☐ d) No idea
17. How would you evaluate maize retailers representation on the Committee for the Pricing of Agricultural Produce that sets the minimum guaranteed price for maize?
- ☐ a) Adequately represented
☐ b) Represented but not heard
☐ c) Not represented
☐ d) No idea
18. How does the minimum guaranteed price affect your maize selling business? (Please explain) _____
- _____
- _____
- _____

Section C: Information from Radio and Other Sources:

19. What newspapers or printed information do you read regularly? (Please specify) _____
- _____
- _____
20. What market information do you obtain from the printed information sources? (Please identify paper and the relevant information it provides). _____
- _____
- _____
21. Do you own a radio that works? ☐ a) Yes ☐ b) No

22. How often do you listen to Radio Ghana's "Radio Badwa" and/or "Kuayo Mu Adwen" programmes for farmers and food sellers?

- ☐ a) Once a week
☐ b) Once a month
☐ c) Once a year
☐ d) Never

23. If you do listen to the radio programmes, what specific information do you obtain from the programmes. (Please specify programme and type of information obtained) _____

24. Are you a member of the Maize Growers and Distributors Co-operative Association?

- ☐ a) Yes ☐ b) No

If yes, please answer questions 25 - 27.

25. How often do you attend your co-operative association meetings?

- ☐ a) Once a week
☐ b) Once a month
☐ c) Once a year
☐ d) Never

26. What market information do you receive from your co-operative association meetings? _____

27. How would you rate the usefulness of your co-operative association meetings in providing you with relevant maize market information?

- ☐ a) Very useful
☐ b) Useful
☐ c) Sometimes useful
☐ d) Not useful
☐ e) No idea

28. Would you like to have the Ministry of Agriculture announce actual (market) wholesale maize prices on the radio?

- ☐ a) Yes ☐ b) No

29. If yes, how would such information help you sell your maize? _____

Section D: Market Specialization

30. What specialized marketing functions do you perform? e.g., sell seed maize only; sell maize for livestock only, etc. _____

31. If you perform some specialized marketing functions, what specific market information helps you perform these functions? _____

Section E: Information About Market Queen/King

32. Do you have a Market Queen/King?

_____ a) Yes _____ b) No

33. If yes, what market functions does she/he perform for your trade association? (Please check relevant answers).

- _____ a) Coordinates your trade activities
 _____ b) Provides market information about demand for maize
 _____ c) Helps set minimum selling price for maize
 _____ d) Settles disputes among association members
 _____ e) Others (specify) _____

34. How important is the Market Queen/King with respect to your overall maize selling activity?

- _____ a) Very important
 _____ b) Important
 _____ c) Important on some occasions
 _____ d) Not important
 _____ e) No idea
 _____ f) Others (specify) _____

THANK YOU FOR YOUR TIME AND ASSISTANCE

Maize Marketing Information Research Questionnaire

Public Policy Makers & Officials

Name of Organization: _____

Position of Respondent: _____

Section A:

1. What maize marketing information services does your organization offer to maize growers and distributors?

2. What medium of communication do you use to transmit your information services to the maize producers and distributors?

3. What changes would you like to see in your information production and transmission?

Section B: (to be answered by Ministry of Agriculture Officials)

4. What are the uses for your statistics on National Average Maize Wholesale Prices?

5. What are the uses for your statistics on National Maize Production Forecast?

6. Would you like to see the above information (Q. 5 & 6) announced on the radio to the general public? Please explain your support for, or disapproval of, this proposal.

Section C: (To be answered by members of the committee on Agricultural Commodity Prices)

7. In your opinion, how do maize growers and distributors evaluate the Minimum Guaranteed Price for Maize set by the committee for the current maize season?

- ☐ a) Adequate and fair
☐ b) Overstated
☐ c) Understated
☐ d) Grossly understated
☐ e) No idea

8. How do you maintain communication links between yourself and maize growers and distributors? _____

9. What changes would you like to see in the way your committee obtains its information with which it makes pricing decisions?

THANK YOU FOR YOUR TIME AND ASSISTANCE!

APPENDIX B

Appendix B

Ghana: National Average Wholesale Commodity Prices
1963-85 (in New Cedis)

Source: Economic Research and Planning Service--Ministry of Agriculture

COMMODITY	UNIT OF SALE	YEAR	JAN.	FEB.	MARCH	APRIL	MAY	JUNE
MAIZE	PER BAG OF 220 LBS	1963	6.40	6.80	6.60	7.20	7.00	6.90
		1964	7.30	7.90	8.00	10.60	11.10	11.40
		1965	9.20	9.76	10.21	12.90	13.98	13.23
		1966	12.57	12.76	13.18	12.95	16.40	19.19
		1967	7.03	6.52	6.45	6.47	6.80	6.19
		1968	7.11	7.46	7.85	9.96	12.53	11.75
		1969	13.35	13.45	15.20	20.80	22.70	22.70
		1970	11.50	11.89	11.79	13.19	14.09	12.80
		1971	10.82	11.21	12.08	13.19	14.37	14.19
		1972	14.50	16.13	18.22	21.49	23.81	25.46
		1973	17.00	17.04	18.66	23.18	24.67	24.13
		1974	18.09	19.10	20.24	21.67	22.47	21.54
		1975	19.56	20.50	22.02	24.28	27.24	28.51
		1976	36.87	39.49	38.04	43.20	55.64	67.96
		1977	86.91	93.72	96.00	108.00	179.00	184.00
		1978	119.56	126.69	125.12	154.81	137.42	121.14
		1979	142.41	176.19	148.88	176.71	209.67	229.36
		1980	229.49	222.95	256.13	327.38	407.94	589.43

JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	AVE.
7.20	5.20	5.60	6.80	6.40	6.20	6.60
7.40	6.30	6.00	7.10	8.80	9.50	8.40
12.11	8.98	8.84	9.68	19.35	10.97	10.84
11.32	6.68	6.24	6.98	7.08	7.08	11.04
6.27	5.39	4.54	5.09	6.12	6.44	6.11
10.83	8.39	7.83	10.37	11.93	12.37	9.87
15.00	10.58	9.47	11.62	11.46	11.87	14.50
13.15	12.18	9.13	9.27	10.47	10.83	11.69
12.77	9.86	10.24	9.90	11.72	12.92	11.94
18.22	11.92	11.05	13.76	16.03	10.02	17.22
20.80	15.09	13.85	14.45	15.77	16.50	18.43
20.26	17.29	-	-	-	-	20.08
27.33	21.36	18.70	32.42	29.29	28.00	24.94
73.63	59.33	52.87	62.91	74.08	78.76	56.90
155.00	164.70	83.20	78.88	93.79	101.58	118.73
121.68	106.25	100.88	91.37	118.29	130.46	121.14
174.39	141.13	174.79	166.68	150.64	169.55	171.70
621.76	396.16	485.17	383.08	431.06	619.16	413.31

Appendix B (continued)

COMMODITY	UNIT OF SALE	YEAR	JAN.	FEB.	MARCH	APRIL	MAY	JUNE
MAIZE	220 LBS	1981	605.44	638.98	710.14	861.62	1015.22	1030.21
		1982	656.55	555.29	554.76	569.05	903.47	921.78
		1983	1441.99	3820.26	2878.47	5430.10	6841.94	7845.98
		1984	3446.50	3288.08	3227.20	3755.15	3360.56	3163.60
		1985	1647.65	1512.32	1607.84	2082.00	2215.52	2197.97
		1986	2583.11	2757.00	3407.34	3967.00	3864.58	4383.00

Source: Ministry of Agriculture, Accra, 1986.

JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	AVE.
873.81	824.20	512.02	701.38	876.64	633.47	773.59
1027.03	794.50	730.56	844.51	962.17	1050.40	797.51
5258.03	2735.79	2129.12	2459.74	2425.96	3023.66	3857.59
2092.15	1390.23	955.35	1208.62	1078.54	1087.92	2337.82
2487.79	1973.55	1636.12	1865.46	2895.64	2342.10	2037.91
3724.96	2879.94	2420.25	2830.15	3248.26	3435.34	3271.74

APPENDIX C

Appendix C

Organizations Represented on the Committee on Agricultural Commodity Prices, 1985

1. Institute of Statistical, Social and Economic Research (ISSER), University of Ghana, Legon--Chairperson
2. ISSER--member
3. Ghana National Procurement Agency--member
4. Ghana Seed Company, Accra--member
5. Ghana Seed Company, Accra--member
6. National Council on Women and Development--member
7. Kenkey Producers Association--member
8. Ocloo Farms Ltd. (Farmer)--member
9. Ghana Food Distribution Corporation--member
10. Ghana Food Distribution Corporation--member
11. Economic Research and Planning Services, Ministry of Agriculture, Accra--Secretary
12. Economic Research and Planning Services, Ministry of Agriculture, Accra--member.
13. Economic Research and Planning Services, Ministry of Agriculture, Accra--member.
14. Price and Incomes Board, Accra--member.
15. Animal Husbandry, Accra.
16. Crops Division, Ministry of Agriculture
17. Gafacoops (President), Accra--member

Source: Ministry of Agriculture, Accra, 1986.

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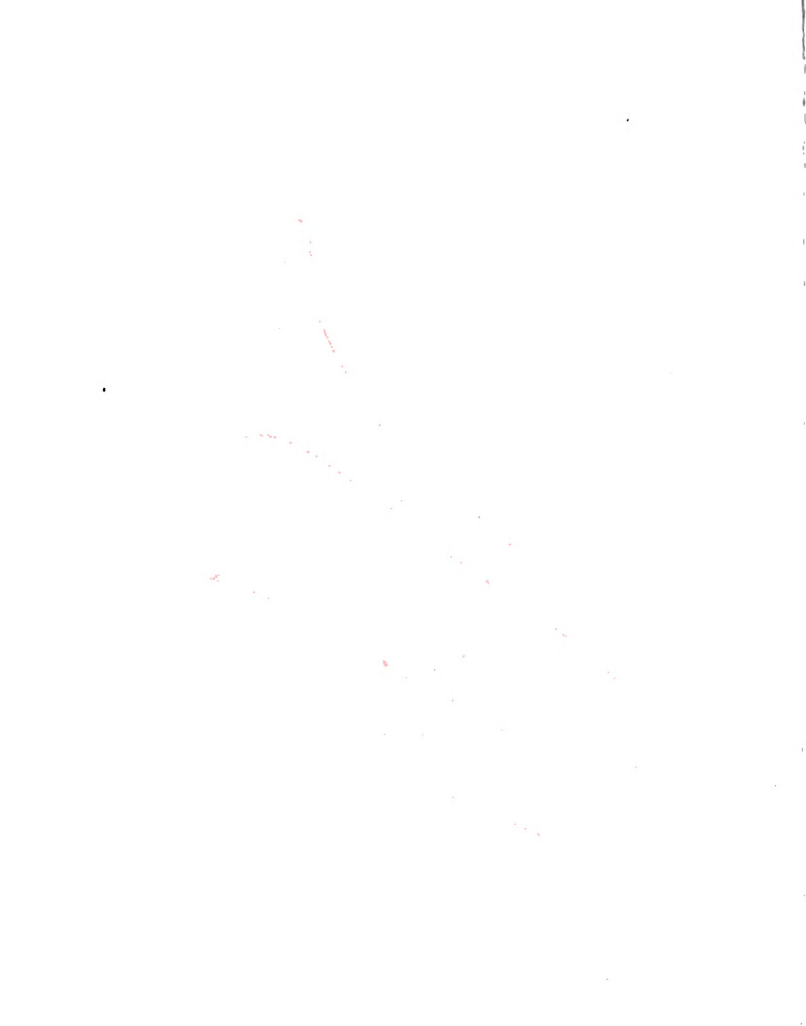
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