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MARKETING SYSTEMS OF TRADITIONAL LEAFY VEGETABLES AND SOME SOCIO-ECONOMIC CONSIDERATIONS: A CASE STUDY AT BAWKU, TAMALE AND KUMASI MARKETS

By

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1.1 1ntroduction

Traditional leafy vegetables (TLVs) are one of the major sources of essential micronutrients and found to be very important in the food culture of most Africans. They are rich in vitamins and minerals such as vitamin A, thiamine, riboflavin, ascorbic acid, niacin, and minerals like calcium, iron, zinc, magnesium and phosphorus (Eyeson & Ankrah 1975).

Empirical evidence show that most Ghanaians are malnourished (Agble 1992 and Quarshie & Agble 1999). Factors contributing to the malnutrition situation in Ghana include inadequate intake of foods rich in micronutrient, traditional methods of cooking which destroy the water and heat-labile vitamins (Ihekoronye & Ngoddy, 1985) and the dietary patterns, which consist primarily of whole-grain staple foods (FAO, 1992 and Teklu, 1996). To help solve the dietary and nutritional problems facing the Ghanaian populace, a project aimed at improving the preservation, marketability, and utilization of traditional Ghanaian leafy vegetables for use as sources of micronutrients has been implemented. As part of the activities under the project, this study was carried out with the following objectives:

- To take inventory of TLVs on the market
- To identify the distribution channels for the TLVs.
- To investigate into the post harvest practices at the market level
- To examine the availability and price trends
- To identify consumer preferences for TLVs
- To identify Socio-culturally related factors and other constraints to marketing and utilisation of TLVs.

Understanding the marketing and distribution of TLVs helps generate relevant demand-related data and innovative information useful for the development of appropriate technologies and strategies, which will lead to market expansion for TLVs. The study also brings to bear the socio-culturally related issues underlying the

marketing and utilisation of TLVs and thereby helps understand better the factors, which are standing in the way of increased use of the TLVs in Ghana.

1.2 Methodology

The marketing systems and distribution channels as well as the profit margins at the various distribution levels were identified through both formal and informal sampling procedures. A simple random sampling technique was used in selecting respondents. The survey was conducted in the main markets using pre-tested questionnaire. The market surveys were conducted at two major marketing centers in Ghana; one was in the dry-savannah zone (at Tamale) and the other in the forest zone (at Kumasi). The interviews were conducted in the morning and evening when most of the vegetables are traded. All vegetable sellers were first identified and counted before the interviews were then conducted using structured questionnaire. In all one hundred (100) traders who sell vegetables both in the wet and dry seasons were interviewed.

2.1 Marketing and Distribution of TLVs in the Dry-Savannah Zone

2.1.1 Market Survey

Three markets in the Tamale municipality were surveyed. These were the Aboabo, Lamashegu and Tamale Central markets. These are daily markets. The Aboabo market also doubles as a weekly market operating in a six-day cycle. Traders from neigbouring towns and villages as well as towns across northern region and Ghana as a whole operate in the Aboabo market weekly market.

Apart from traders who have permanent stalls and for that matter pay monthly market tolls, all other traders pay Two hundred cedis ($ 0.03) per day to sell in the market. Many

of the vegetable traders consider this charge rather high. Traders sell from stalls or find open spaces in and around these markets. Their products are mostly displayed on tabletops and in basins.

2.1.2 Trader detail

Most of the vegetable traders interviewed were middle-aged women, ranging ages between 22 to 56 years. The mean age of the traders was about 40. In northern Ghana, it is usually the responsibility of women to market crops from household farms. It is therefore common to find rural markets characterised by several women petty traders who are mostly producers-sellers. There are other groups of traders (wholesalers/itinerary traders, and retailers) who also purchase vegetables from the farmer-seller at the village market and farmers fields for sale to consumers in the urban markets. It was reported that some farmer-traders from the farming communities also sell in the urban markets surveyed. However, none of the traders interviewed was a farmer.

All the traders interviewed sell traditional/indigenous vegetables (TVs). Only about 15% retailers interviewed sell exotic vegetables only (Table 1).

Table 1

Number of retailers selling different vegetable types (dry season)

	Central	Aboabo	Lamashegu	Total	%
TVs only	**20**	**10**	**15**	**45**	**69.2**
Exotics only	**5**	**5**	**0**	**10**	**15.4**
TVs and exotics	**10**	**0**	**0**	**10**	**15.4**
Total	**35**	**15**	**15**	**65**	**100**

2.1.3 Product inventory

About eighteen (18) different types of vegetables (both indigenous) are sold in the markets in Tamale. However, most of these vegetables are scarce during the dry season. Table 2 presents the important vegetables traded in the markets surveyed. The common indigenous leafy vegetables include *Hibiscus sabdariffa* (Bra), *Corchorus* spp. (Ayoyo) and *Amaranthus spp* (Alefu). The popular exotic vegetables include onion, tomato, cabbage and lettuce. Other vegetables including garden eggs, cowpea leaves (Bangli), carrots and sesame leaves were also on sale but in smaller quantities.

Table 2

Inventory of vegetables sold at Tamale Market

Vegetable	% of traders selling
Tomato	13.68
Sweet pepper	1.11
Onion	6.31
Okra	20.00
Lettuce	3.15
Hibiscus (bra)	13.6
Garden egg	4.21
Cucumber	3.15
Corchurus (ayoyo)	13.68
Carrots	3.15
Cabbage	3.15
Cowpea leaves	5.26
Amaranthus (alefu)	9.47

Okra, Ayoyo, and Bra are the popular among the traditional vegetables sold in the markets. Thirty-three percent of the respondents trade in Okra whilst 22% each sell Bra and Ayoyo (Fig. 2.1).

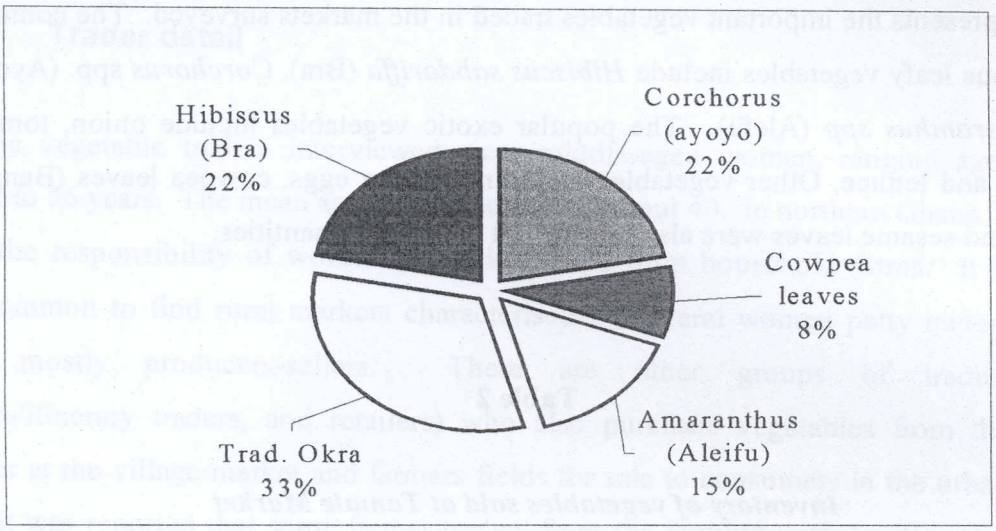

Fig. 2.1 Popular Traditional Vegetables sold in Tamale markets

The majority of the vegetables sold in the Tamale markets obtained from peri-urban communities around Tamale and villages close to dam sites. The dam sites remain the most important sites for the vegetables especially during the dry season. Some of the exotics are however sourced from southern Ghana.

2.1.4 History of marketing

The majority of the retailers have been selling vegetables for a period of 2-24 years. There was evidence to suggest that the number of traders and volumes traded has increased over the years in response to the growing demand from the urban population. The range of vegetables sold in the markets has also changed as a result of growing diversity in taste. Tamale is becoming cosmopolitan in status and so the demand for

exotic vegetables is increasing. The survey revealed that there are more vegetable traders now than previous years due to rising populations and urbanization. Most of the retailers revealed that they started trading with traditional leafy vegetables.

2.1.5 Market arrangements

Retailers and wholesalers travel to vegetable producing communities to obtain supplies. Some farmers also carry their vegetables to the markets in Tamale for sale to both consumers and retailers, usually during the market days. No evidence of contractual arrangements between the traders and vegetable producers was revealed. Generally retailers buy vegetables in small bundles while wholesalers buy in large quantities in polythene sacks. A bag may take three to five days to sell. Retailers bought vegetables in the afternoon and evening from farmers and wholesalers who travel to the market.

2.1.6 Consumer Preferences

Consumers prefer fresh and large green vegetable leaves regardless of whether the leaves had holes or not. Cleanliness is another important quality required by customers for both indigenous and exotic vegetables. The survey shows that consumers patronize more exotic vegetables than indigenous vegetables. Among the indigenous vegetables Alefu is the most preferred (Table 3).

Table 3

Consumer preferences for vegetables sold at the Tamale Market

Vegetables	Score	Rank
Garden egg	15	1
Tomato	21	2
Onion	22	3
Sweet pepper	26	4
Cabbage	28	6
Okra	28	5
Amaranthus spp ('alefu')	39	9
Hibiscus sabdariffa ('bra')	77	14
Corchorus spp ('ayoyo')	68	13
Cowpea leaves (bangli)	44	10

2.1.7 Post-harvest techniques

Vegetable traders reported that indigenous vegetables could be stored for 2-3 days while exotics could be stored for 5-7 days. There was no special packaging used in the handling of vegetables in the markets surveyed. Leafy vegetables such as Amaranthus spp. (alefu) and *Hibiscus sabdariffa* (bra) are first tied into bundles. The bundles are then tied into bales using strings.

There were no storage facilities for vegetables. The only preservation techniques used by traders for unsold vegetables was to pack them in baskets, sprinkle water on the leaves and cover them with moistened sacks/clothes and kept in the shade to reduce transpiration. Unsold bra and cowpea leaves are sometimes left standing in water.

Most vegetables are sold fresh, but onion leaves are often processed. The freshly harvested leaves are pounded in a mortar, molded into sizeable balls and smoked dry. Trade in the processed onion leaf is on the decline, as most consumers now prefer to use fresh onion bulbs.

When okra is harvested and left for a few days, it tends to get tough and unsuitable for use. Processing allows these fruits to be used or preserved for future use. The fruits are sliced and dried in the sun. The dry okra is then put in jute sacks or polythene sacks for storage.

2.1.8 Seasonality

Almost all the vegetables are available for sale in the markets both in the wet and dry seasons as a result of increasing interest in dry season gardening in peri-urban communities with mushy lowlands and dam sites. Exotic vegetables such tomato and onions are usually abundant because they are imported from production areas near and far to meet local demand. The market for vegetables, especially the traditional leafy ones, slums during the rainy seasons because most households grow them.

2.1.9 Prices

Table 2.4 shows the prices for the main vegetables sold in Tamale market. Prices for the vegetables tend to be low in the wet season because it is the main production period, and for that matter many households get vegetables either from their own farms or from friends and therefore need not buy them from the market. For the traditional leafy vegetables price decrease/increase is mainly reflected by change in the volume rather than in the amount of money (value) of the commodity. For example, about trice the quantity per unit value sold in the dry season will be sold for the same price in the wet

season. On the other hand, abundance or scarcity of exotic vegetables from the market is reflected in change in both volume and value. During the dry season half the quantity of a given exotic vegetable can sell as high trice it price in the wet season.

Table 4

Range of vegetable prices in cedis (¢) at the Tamale markets

Vegetable	Unit	Wet season	Dry season
Tomato	crate	3000-30000	40,000-100,000
Onion	sack	80,000-150000	200000-3000000
Sweet pepper	sack	5000-50000	40000-60000
Cabbage	sack	40000-50000	60000-100000
Lettuce	Basket/pan	4000-6000	5000-10000
Okra	sack	2000-10000	10000-40000
Cucumber	sacks	4000-5000	5000-40000
Carrots	sacks	11000-20000	20000-70000
Amaranthus spp. (Alefu)	pans	2000-5000	8000-10000
Hibsicus sabdariffa (Bra)	pans	2000-5000	8000-10000
Corchorus spp.(Ayoyo)	pans	2000-5000	5000-16000

Note: In Jan., 2001, $1= ¢7,000

2.1.10 Income

For most of respondents, vegetables are the only commodities they sell in the markets. These vegetables therefore constitute the main source of income for the traders. Even though traders tended to be very reluctant to divulge information about their income, it was very apparent that traders are able to make a profit out of trading in vegetables. As shown on Table 5 below, okra, cabbage and garden eggs provided the most income to the

traders. Among the leafy vegetables, cowpea leaves and 'alefu' are ranked as the most important source of income.

Table 2.5

Ranking of vegetables as importance source of income

Vegetable	Score	Ranking
Tomato	29	9
Okra	8	1
Onion	30	10
Amaranthus spp. ('alefu')	17	5
Hibiscus sabdariffa ('bra')	26	8
Corchorus spp. (ayoyo)	45	11
Cowpea leaves (bangli)	15	4
Sweet pepper	25	7
Cabbage	11	2
Cucumber	18	6
Carrots	18	6
Garden egg	12	3

2.1.11 Constraints

The lack of financial assistance was frequently mentioned as the major problem faced by the traders as they are unable to expand their trading activities (Table 2.6). Other common constraints include high perishability of vegetables, lack of storage facilities and high market fees.

Table 2.6

Problems faced by traders

Problem	Frequency
Lack of financial assistance	12
High perishability of vegetables	1
Lack of storage facilities	2
High market fees	5

2.2 MARKETING AND DISTRIBUTION OF TLVS IN THE FOREST ZONE

2.2.1 Structure and Organisation of the market

Despite the important role that TLVs play in the diet of people, they are almost completely neglected in MOFA activities. There is therefore very little documented information on both production and marketing of TLVs. Micro and small-scale private traders as revealed by the survey, handle organization of the markets. These include producer-sellers who are mostly men and commonly found at the farm gate and rural primary markets, female itinerant wholesalers who assemble produce from several farmers and female retailers who obtain supplies and display them for sale in convenient forms to consumers. Some of these traders act as specialized enterprises that are very familiar with product handling, sources of supply and nature of demand. The Kumasi market, which is a tertiary market, had a permanent place for TLVS traders where trading activities are carried out daily throughout the year. They offer a wide range of different

types and varieties of TLVS on the market. In this market are a wide range of TVLs, popular among are cocoyam, cowpea, Roselle, Alefu, bitter leaves (Plate 10). Roadside TLVs traders only traded in cocoyam leaves due to lack of knowledge on handling practices and storage techniques, fear of poor patronage as well as some socio-culturally related issues. There was no barrier to market entry.

2.2.2 Packaging and market presentation

At the farm gate level, TLVs are tied in bundles and packaged in baskets for sale .For easy transportation to market centers the itinerant trader's package in jute and polypropylene sacks. Good market presentation is considered important since fresh well-presented produce always attract customers. Fresh TLVs are sorted, cleaned and; washed and displayed openly on tables or bowls for sale on the market. They are regularly sprinkled with water to maintain freshness and turgidity. Chopped fresh leaves as well as dried and milled leaves are also bagged in polythene bags for sale. Sales are conducted in a humid environment mostly under well-constructed sheds or umbrellas to prevent exposure to sun, rain, or wind.

2.2.3 Short- term storage

Storage at the market level was done by arranging TVLs on jute or polyproprene sacks spread on the bear floor or raised platforms, and covered with wet jute sacks to create the appropriate temperature for storage. The damaged and rotten leaves are sorted out every morning. It was reported that cool storage at suitable temperature keep fresh TLVs in good condition for a maximum of 4 days. However, dried milled leaves could keep for one year.

It was identified that the cocoyam leaves which were considered unmarketable at the farm gate level could have sold at the terminal markets but had be sorted out to prevent further deterioration in transit.

At the Kumasi central market, traders indicated that less than 30% of their stocks go bad due to high demand for TLVs in the metropolis. Apparently, Specific Information on percentage loss of other TLVs was unavailable.

2.2.4 Market information and Price determination

Although market information is needed to balance supply and demand in a particular market and thus avoid gluts and surplus with their corresponding fluctuations in prices, such organised information was unavailable. The survey revealed that with exception of cocoyam leaves, movement of TLVs between markets was limited, thus suggesting low market integration. As mentioned elsewhere in this report, TLVs sellers were quite knowledgeable about the cooking qualities of the products they deal with, method of preparations and their suitability for various purposes. Sellers therefore extended such valuable information to buyers especially, the Akans informally.

Pricing was highly influenced by farmgate price and transportation cost. It was realised that all marketing expenses were captured in the pricing system. Although trading was conducted independently, traders invariably had a common price offer. Marketing margins where reported to be in the range of 100-150%, excluding transportation cost.
In terms of market performance, traders at all levels of the marketing chain indicated that the business was highly profitably; less risky, required less working capital and the number of buyers was trending upwards.

2.2.4.1 Seasonality and Price trends

Quite a number of domesticated TLVs were said to be available throughout the year because farmers in Kumasi as well as those in the per urban communities practised irrigated cropping during the dry season to maintain regular supply on the market. Although cocoyam cultivation was invariably rainfed, the leaves were also available on the market all year round. Generally, availability of TLVs is high and low in the rainy

and dry seasons respectively. Due to the bimodal nature of the rainfall pattern in study area, peak periods occur in the months of April-July and September- october, whiles lean periods occur in December-March. Seasonality was reflected in the price trends (see Table 2.7).

Table 2.7

***Price trends for Cocoyam** (Xanthosoma mafaffa) leaves and other TLVs in the Forest zone during and off-season periods*

Off- Season Prices	During Season Prices
Cocoyam	*Cocoyam*
At the farm-gate price per bundle 200 cedis ($0.02)	farmgate Price per bundle 100 cedis ($0.01)
retail price per bundle 500 cedis ($0.05)	retail price per bundle 200 cedis
Other TLVs	*Other TLVs*
farmgate price per bundle 2000cedis ($0.20)	farmgate price per bundle 1500 cedis ($0.15)
retail price per bundle 3000 cedis (($0.30)	retail price per bundle 2000 cedis ($0.20)

2.2.5 Socio-cultural considerations

The survey revealed that socio-cultural significance of TLVs was an important factor affecting demand in a particular community. This could be partly explained by the fact that consumption patterns evolve over the years become a habit which is difficult to change and hence contributing to ethnic differences in consumption patterns. Comparatively, marketing of cocoyam Leaves in the area was extensive due to its high acceptance level among the Akans. Other TLVS, which did not form part of the Akans' eating habits, were hardly seen on the rural markets. These were picked wild or cultivated by the settlers from the Northern region for home consumption and sometimes given out as gift It was reported in some of the villages that the Akans attached social stigma to the sale of other TLVs in their communities, suggesting that there are ethnic differences in the sale of TLVs. Different ethnic groups are specialised in the sale of TLVs that are preferred by their respective communities. Some of the TLVs were considered as "

weeds" in the Akan communities. However, some respondents indicated that Ayoyo and alefu were gaining recognition among the Akans partly, due to the current economic harshship. It was also realised that because of the immigrant Northerners in the Ashanti region, some of the Akans now enjoy some Northern dishes prepared with TLVs other than the popular cocoyam leaves especially, *Tuo zaafi*. The Akan traders interviewed did not show any interest in selling other TLVs at any profit. Surprisingly, consumption of cocoyam leaves was not popular among the Northerners. Other TLVs had cultural identity in the consumption patterns of the Northerners in the Ashanti region. They were used in the preparation of foods served at traditional ceremonies like funerals, child naming and marriages. TLVs were also believed to have special medicinal and nutritive qualities. For example, *soaka* was used for the treatment of diabetes and low blood pressure. It was for the preparation of special diet for pregnant and lactating mothers (Table 1.5).

2.2.6 Consumer Preference for Popular TLVs in the Forest Zone

General factors affecting consumer's preference identified were eating habit, indigenous knowledge about the method of preparation, cooking time (convenience) nutritional and medicinal values as well as other characteristics such as taste and slipperiness. All the TLVs were preferred fresh. As mentioned elsewhere, cocoyam leaves had the highest market share mainly due to the eating habits of the people in the area. In terms of marketability, which is used as a proxy for consumer preference, Ayoyo was ranked next to cocoyam leaves, followed by Alefu , Bra and lastly Baobab. Consumption of the other TLVs was low partly due to inadequate knowledge about their nutritional and medicinal properties, and lack of knowledge on the method of preparation.

Table 2.8

Ethnic differences in the consumption of TLVs in the Forest zone of Ghana

Type of TLVs	Background of majority of consumers	Main purpose of consumption
Cocoyam leaves	Ashanti, Brongs	Nutritional
Okro leaves	Ashanti, Brongs northerners	-do-
Avocado leaves	Brongs	Medicinal
Cassava leaves	Northerners, Brongs,	Nutritional
Cowpea leaves	-do-	-do-
Kenaf leaves	-do-	-do-
Alefu	Ahantis, Brongs Ewes Northerners ,Nigerians	-do-
Ayoyo	-do-	-do-
Bra	Northerners, Brongs,	-do-
Baobab leaves	-do-	Nutritional, Medicinal
Swaka	Northerners	Medicinal
Ceiba leaves	Northerners, Brongs,	Nutritional
Bokoboko	Ewes, Northerners	Nutritional

Table 2. 9

Rankings traders at the Kumasi Central Market for consumers' preferences for different types of TLVs

Type of TLVS	Preference Ranking	Reasons
Xanthosoma mafaffa (Cocoyam) leaves	1	Eating habit, nutrition
Corchorus olitorius (Ayoyo)	2	Eating habit, nutrition slipperiness and there used with okro
Amaranthus spp. (Alefu)	3	Eating habit, nutrition
Hibiscus sabdariffa (Bra)	4	Eating habit, nutrition ,bitterness, cooking time
Adansonia digitata (Baobab) leaves	5	Eating habit, nutrition ,slipperiness

2.2.7 Distribution channels for TLVs in the Forest Zone

It was found that distribution of TLVs was relatively simply due to their perishable nature and lack of storage techniques as well their narrow utilisation base in the study area. The main distribution channels identified were

1. Direct sales by producer-sellers to consumers. This involves the farmer marketing his/her own product, generally in small quantities, to consumers. It was commonly used at the primary market level for distributing cocoyam leaves.

2. From producer to resident trader to consumer /institution/itinerant traders. Here the farmers sold in large quantities to resident traders who usually retailed along roadside to commuters. These resident traders also sold cocoyam leaves in large quantities to educational institution or to other itinerant traders who visit the rural markets.

3. **Farmers ⟶ itinerant traders ⟶ retailers ⟶ consumers.**

The itinerant traders assembled fresh TLVs at the farmgate and distribute in large quantities to retailers on the markets. This was a popular channel for other TLVs. Drying of TLVs for sale in the lean period was mostly done at the retail level to ensure regular supplies to customers.

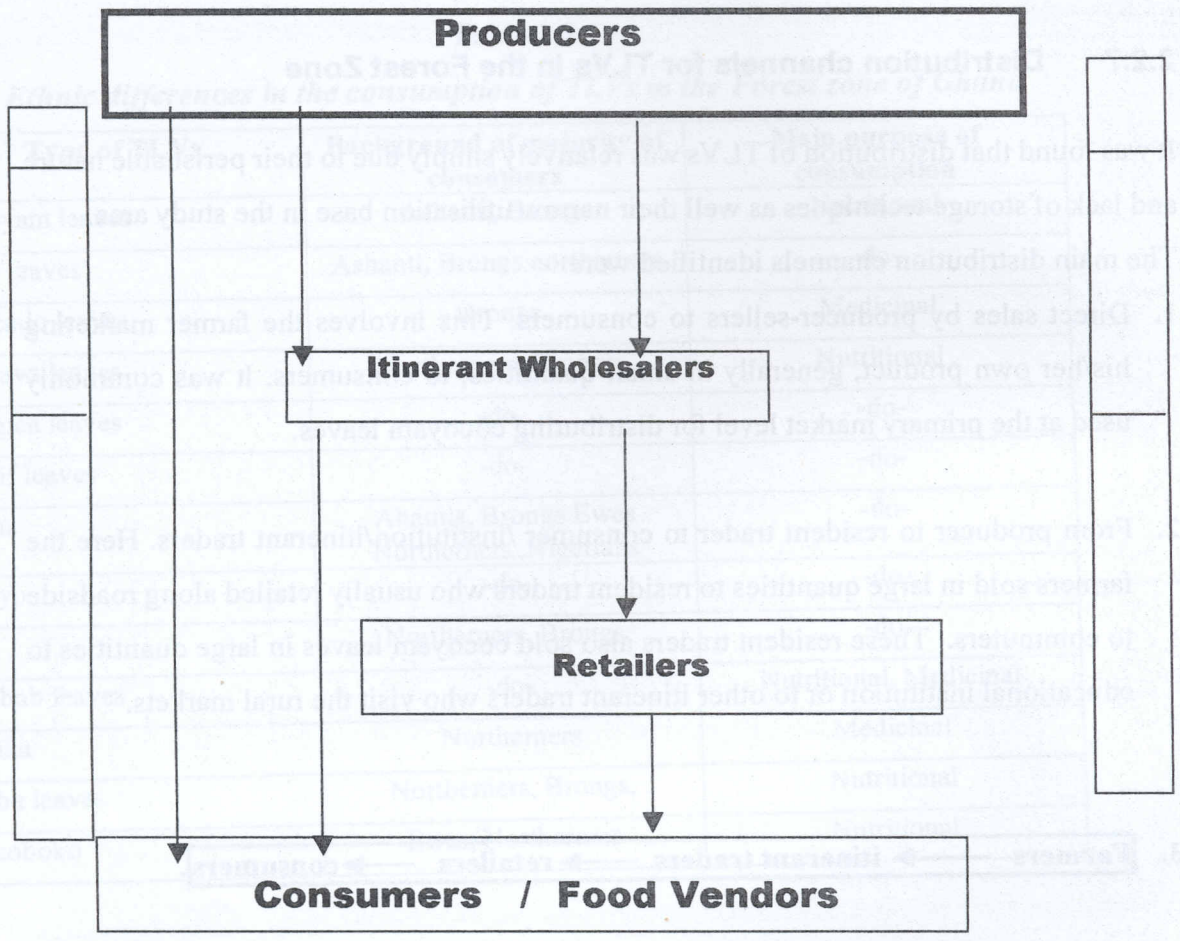

Fig. 2.2 Distribution channels for TLVs in the Forest Zone

2.2.9 Marketing margins

For the *Xanthosoma mafaffa* (Cocoyam) leaves, 20% of the retail price of 500 cedis per bundle went to producers while itinerant traders and retailers received 20% and 50% respectively. For other TLVs, producers obtained about half the final selling price whiles itinerant traders and retailers received 25%each. Comparatively, cocoyam leaves producers received a lesser proportion of the final selling price probably due to the fact that cocoyam is primarily cultivated for the roots.

2.2.10 Associations

TLVs traders were not formally organised. Although no group marketing approach was practiced, they had a market queen who occasionally organise the traders for contributions at social functions like child naming ceremonies, funerals and other welfare issues. She is responsible for the smooth running of trading activities particularly, settling of disputes among the sellers on the market.

2.2.11 Financing

Marketing of TLVs is largely financed from the traders' own resources. Occasionally, some traders also obtained short-term credit on TLV purchases from itinerant traders. Some traders had to give planting seeds to farmers in order to secure supplies.

3.0 CONCLUSIONS

Conclusions drawn from the study are :

- Marketing of TLVs is characterised by several women petty traders who are quite knowledgeable about the cooking qualities, methods of preparation, specific utilisation purposes and in some cases medicinal as well as the nutritional values of TLVs

- The number of traders and volumes traded have increased over the years in response to population increase and regional diversity in dietary patterns which characterises urbanisation
- About eighteen (18) different types of vegetables were sold on the markets with *Hibicus sabdariffa* (Bra), *Corchorus spp.*(Ayoyo) and *Amarathus spp* (Alefu) being the common TLVs in northern Ghana. Comparatively, Cocoyam, Cowpea, Roselle, Alefu, and bitter leaves were popular on the markets in the south.

- Except for cocoyam leaves, inter-markets distribution of TLVs was limited. Marketing margins were within the range of 100-150%, excluding transportation cost.

- TLVs were available on the market through out the year. However, prices were unstable. Price variations were reflected in volumes rather than value of sale with the dry season price being at least three-times more than the rainy season price.

- In the absence of improved packaging and storage facilities, traders used simple preservation techniques like use of baskets for packaging, sprinkling of water on leaves, use of moistened sacks covering and leaving leaves standing in water. Others are keeping leaves under shade to reduce transpiration and regular sorting of rotten leaves.

- Generally, eating habit, indigenous knowledge about the method of preparation, cooking time (convenience) nutritional and medicinal values as well as other characteristics such as taste and slipperiness affect consumer's preference for TLVs. However, consumers patronized exotic vegetables than the indigenous ones and invariably, preferred fresh, clean and large green vegetables.

- Socio-cultural significance of TLVs was an important factor affecting demand in a particular community. There were ethnic differences in the sale and consumption patterns of TLVs. Different ethnic groups are specialised in the sale of TLVs that are preferred by their respective communities.

- Common constraints identified include high perishability of vegetables, lack of storage facilities and high market fees

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