REPORT ON THE FINDINGS OF A SOCIO-ECONOMIC SURVEY ON

THE MARKETING, CONSUMPTION AND PRODUCTION, OF TRADITIONAL VEGETABLES IN THE URBAN AND PERI URBAN AREAS OF HARARE, ZIMBABWE.

DR&SS-HRC/NRI Project A0892

By

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SUMMARY

The findings of a socio-economic survey on the production, marketing and consumption of traditional vegetables carried out in Harare Capitol City of Zimbabwe over a period of two weeks in April and May, 2000 are presented in this report. Interviews were carried out on traders, consumers and producers in and around Harare.

The term 'Traditional Vegetables (TVs)' will be used in this report. This is because all the people interviewed did not specialize in those 'vegetables that are of African origin' only but on those that have been adopted and adapted as relishes in the diet of the indigenous Africans. These vegetables are not necessarily of African origin and they may be used in a completely different manner in their centre of origin e.g. pumpkin leaves *(Cucurbita* spp).

The opportunities and constraints faced by each stakeholder group of trader, consumer and producer are presented in detail but separately for each group in the report. It was evident however, that all stakeholders besides these three traditional players e.g. researchers, health personnel, food scientists (food technologists, food processors etc.) need to team up and come up with strategies that will ensure optimum utilization of these vegetables. At the time of the survey, consumption, trading and production were all said to be increasing from the previous levels.

At the first mention, the English, botanical and local (Shona) names of the traditional vegetables are used. In subsequent references, the names are used interchangeably. However where both the botanical and the English names are not yet established, the local Shona name is used e.g. *Mupombera.* The term *Derere* is used constantly in the report. It is a local name used for all those vegetables that form a mucilaginous (slimy) soup upon boiling. These vegetables include okra/Lady's Finger and *Corchorus.*

Prices are quoted in Zimbabwe dollars (Z$). At the time of the survey, US$1.00 was equivalent to roughly Z$38.50.

Objective of the socio-economic survey was to collect information on a range of traditional vegetables and products currently in use in the urban as well as peri-urban areas of Harare, Zimbabwe. The survey was guided by means of a checklist that focused on each of the groups (traders, consumers and producers/collectors) separately. The findings from the survey are presented separately for each group of stakeholders. These groups are:

1.0 TRADERS

2.0 CONSUMERS

3.0 PRODUCERS & COLLECTORS.

The members of the survey team were:

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Introduction

Harare is the capital city of Zimbabwe. It is located in central north east part of the country. The population of Harare Province was 1 485 615 people. The sexes were 772 741 males and 712 874 females. The population in the province was distributed as below:

Harare Urban	80 %
Chitungwiza	19 %
Harare Rural	1 %

(Central Statistics Office (1994) from the 1992 Population census.)

Harare is strategically located on the high veld with an altitude of 1550 m a.s.l. The city `s origins are based on farming hence it is built upon prime agricultural soils. It services the areas that have the most intensive farming activities in the region. Harare is located in Natural region 2a according to the agro-ecological zoning in Zimbabwe. This natural region 2a is an intensive farming area for both crops and livestock. The total seasonal rainfall is 750-1000 mm. Most crops are produced in this region at large and small scale. This is evident from the wide diversity of traditional vegetables in comparison to Bulawayo that lies in a drier area Natural region five.

1.0 Traders

Twenty-eight interviews consisting of individuals or groups of traders from 14 centers in Harare, Epworth and Chitungwiza were conducted. These centers were Dzivarasekwa, Glen Norah, Highfields, Kuwadzana, Mbare Wholesale & Retail Market, Mbare, Mabvuku, Mufakose, Mabelreign, Greencroft and Fife Avenue Shopping Centre in Harare; Chikwanha Wholesale & Retail Market and Zengeza in Chitungwiza and two markets in Epworth.

The Mbare Wholesale and Retail Market is found in the high-density suburb of Mbare and it is the largest such market in Zimbabwe. It is located at the nerve Centre of Zimbabwe passenger transport services where transport to all corners of the country and to neighboring countries (Botswana, South Africa, Malawi, Mozambique and Zambia) can be found. Dzivarasekwa, Highfields, Glen Norah, Kuwadzana, Mabvuku and Mufakose are also high-density suburbs in Harare.

These high-density suburbs in Harare, as in all the urban centers in Zimbabwe are home to the majority of the African community in the city. Fife Avenue is a shopping Centre in the middle of the city while Mabelreign and Greencroft are low-density multi-racial suburbs. Chikwanha is a wholesale and retail market servicing the high-density suburbs of Chitungwiza, which itself is a dormitory town for Harare and all suburbs in this town are high-density suburbs. Epworth is a dormitory shanty for Harare.

Two of the 28 interviews were group interviews of producers/wholesalers, 19 were stallholders and 7 were vendors. The wholesaler groups consisted of a mixture of men and women who had brought their produce to the wholesale market at Chikwanha.

It was not possible to interview wholesalers at the main Mbare Wholesale Market because they were always busy and soon after selling their wares they would immediately rush to board the next busses back home. Of the 19 stallholders, only 5 were men. Five (5) out of the 7 vendors interviewed were women. The number and gender of the people interviewed is shown in Table 1.

Table 1. Number and Gender of the Traders Interviewed

Gender	Sector		
	Stallholder	***Vendor**	**Wholesaler**
Female	14	5	2 (mixed
Male	5	2	
Total	**19**	**7**	**2**

* Two of the 5 female vendor interviews were made up of groups of two people each.

1.1 Commercial Activities

Traders (wholesalers, stall holders and vendors) sell other commodities apart from traditional vegetables for income generation. Out of these, only four (Soya mince, lemons, *naartjies* and mango) are not vegetables.

Table 2. Horticultural Crops Traded in Harare

English Name	Scientific Name	Vernacular Name
Tomato	*Lycopersicon esculentum*	*Madomasi/Matomatisi*
Onion and shallot	*Allium sp.*	*Hanyanisi*
Rape	*Brassica napus*	*Repi*
Cabbage	*Brassica oleracea var.capitata*	*Kabichi*
Potato	*Solanum tuberosum*	*Mbatatisi/Magwiri*
Cucumber	*Cucumis sativus*	*Magaka*
African cucumber	*Cucumis metuliferus*	*Magaka*
Kale	*Tronchuda portuguesa*	*Covo*
Kale	*Tronchuda portuguesa var.*	*Rugare viscose*
Carrot	*Daucas carrota*	*Karotsi*
Sugar cane	*Saccharum officinale*	*Nzimbe*
Sweet sorghum	S*orghum* sp.	*Ipwa, magunde*
Groundnut	*Arachis hypogea*	*Nzungu*
Bambara nut	*Voandzeia subterranean*	Nyimo
Butternut	*Cucurbita* sp.	Mabatanati
Pumpkin	*Cucurbita moschata*	*Muboora/Mutikiti*
Gourd	*Lagenaria sp.*	*Mapudzi*
Green beans	*Phaseolus vulgaris*	*Bhinzi*
Spinach Beet	*Beta vulgaris*	----------

The traders did not rank these commodities in order of importance. They gave the following reasons for failing to do so:

1. Different commodities are sold at the same time and it is unnecessarily too involving to calculate which commodity brings in more returns. The trader is more interested in the cash

at hand at the end of the day and not which one of those commodities sold during that day brought in more returns. Not the best strategy for good business development.

2. The consumer does not play a major role in deciding what is to be made available on the market i.e. the market is supply and not demand driven. As such the consumer has no choice but to buy whatever is available on the market at any one given time.

3. Consumers like traditional vegetables for different reasons for example for taste or medicinal value or dietary variation from exotic vegetables.

However, at most of the trading centers that the team visited, the most important leaf vegetable was *Rugare*, a leaf vegetable which is probably of Portuguese origin but which has been domesticated and adapted to the indigenous African's cultivation practices and diet. The different varieties of this leaf vegetable can be easily distinguished by leaf morphology, the most common of which has been named *Viscose* by the local community to reflect its wrinkled/crinkled leaf which resembles that of viscose cloth material.

The advantages of this vegetable over others as mentioned by the producers and consumers were that:

1. It can be grown all year with fewer disease problems as experienced in other leaf vegetables like rape and cabbage.

2. It can be picked over a long period.

3. It is less perishable compared to most exotic leaf vegetables.

4. It is propagated by vegetative means; hence it is easy to maintain its genetic purity. This vegetable is a result of deliberate selection by farmers.

1.2 Traditional Vegetables Utilized In Harare

Table 3. is a list of traditional vegetables that were found to be in use in and around Harare province at different times of the year.

Table 3. Different Traditional Vegetable Crops Utilized in Harare

English Name	**Scientific Name**	**Vernacular Name**
Spiderplant	*Cleome gynandra*	*Nyevhe*
Lady's finger/okra	*Abelmoschus esculentus*	*Derere rechipudzi*
Pumpkin leaves	*Cucurbita moschata.*	*Muboora/Mumhodzi*
Cow pea leaves	*Vigna unguiculata*	*Munyemba*
Indian kale,	*Brassica juncea*	*Tsunga-Zifodya*
Jute	*Corchorus olitorius*	*Derere-nyenje/gusha*
Jute	*Cochorus trilocularis*	*Derere-regusha*
----------	*Ceratotheca sesamoides,*	*Derere-rebukwe*
Gourds	*Lagenaria siceraria*	*Mapudzi*
Cucumber	*Cucumis metuliferus*	*Magaka*
Amaranths	*Amaranthus spp.*	*Mowa*
Mushroom	(Wild and local)	*Chowa/Howa*

In 15 out of the 28 interviews carried out, i.e. about 50% of the interviews, respondents managed to rank the traditional vegetables that they sell in order of importance. Of these 46.67 % ranked *Nyevhe* as their top vegetable, 26,67% said *Muboora* was their number one, 20% said *Tsunga* was their number one and only 6.67% ranked okra at the top of their sales. When asked about their number two vegetable, 20% said it was cowpea leaves, 33.33% said it was pumpkin leaves, 13.33% said it was Indian kale and 6.67% said it was okra and *Tsunga yepachuru*. Table 2 shows the number of respondents and how they ranked the different traditional vegetables listed.

Table 4. Relative Importance of some Traditional Vegetables Sold In and Around Harare

Vegetable	**Ranking**			
	1	**2**	**3**	**4**
Cleome gynandra	7	3	3	-
Pumpkin leaves	4	5	2	1
Brassica juncea	3	2	-	1
Cowpea leaves	-	3	3	-

Most consumers prefer fresh traditional vegetables to dried ones. An exception is cowpea leaves where the dry leaves are preferred. Producers are aware that the traders treat dried leaves as a marketable vegetable with a great demand in the urban areas.

1.3 Seasonality

Few traders said they specialize in selling dried traditional vegetables. However, although fresh traditional vegetables are more popular with the consumers than dried ones, during the dry season, dried produce overtake them because the dried ones are available all year round. The demand for fresh ones however is still there though seasonal. All the traders agreed that these fresh traditional vegetables are abundant during the wet season that generally falls between November and March. Prices are best at the beginning and at the end of the wet season when few fresh traditional vegetables would be available on the market.

To avoid large volumes of surpluses, the traders said they always aimed at buying produce, which can be sold in a day or two. Produce not sold cannot be avoided, it is dried primarily for home consumption but these can also be sold at times.
At some of the stalls, some elderly women showed the team some okra that was in the process of being dried. According to them, this was very convenient, as one did not need to take home, unsold produce for processing given that okra does not need any par boiling before drying.
One male stallholder interviewed at Chikwanha Wholesale and Retail Market said that he threw away any produce that was not bought because he was not interested in the hustles of processing. To him, this was part of the risk involved in the marketing of fresh vegetables.

1.4 Trade in Fresh and Dried Traditional Vegetable Crops

Three out of the twenty-eight (28) respondents said that they specialized in dried vegetables only, twenty-one (21) said they sold both fresh and dried while four (4) did not specify. Those who said they specialized in selling dried vegetables said they did so because they did not want to risk losses since fresh vegetables are highly perishable. They said that dried vegetables could keep for over a year without going bad, and they simply ordered their vegetables in an already dried state from the producers. In some cases they acted as intermediaries between the producers and the informal buyers and/or importers to Botswana and South Africa. In these two external markets, dried Spider flower and cowpea leaves were the most popular traditional vegetables mentioned. From the above it is evident that fresh vegetables are more important for the local market while the dried vegetables especially cowpea leaves and Spider flower-*Cleome gynandra* have a high potential for expansion on the export market to neighboring countries or locally for off-season supplies.

1.5 Trade Pattern for the Last Three Years

Fifty per cent (50%) i.e. 14 respondents said trade had increased over the last 2 - 3 years, 11 % said trade had remained stable over the years and another 11 % said that trade had actually gone down. There was no indication on the pattern of trade over the period under review in 28 % of the interviews.

1.6 Reasons for the Current Status in Trade

Each group gave its reasons for why it thought trade had increased, decreased or had remained stable. Those who said trade had increased gave the following reasons for the increase:

1. Harsh economic conditions prevailing in the country since trade liberalization was introduced has led to an increase in the number of people consuming these vegetables for variety and as an alternative to other vegetables. Beef is now very expensive thus vegetables are the cheapest relish in Zimbabwe.

2. The realisation that traditional vegetables have a very high nutritional value has led nutrition advisers at health centers to encourage the consumption of these vegetables especially by expecting/pregnant and breast-feeding mothers.

   The rise in incidence of many diseases has led to an increase in the consumption of traditional vegetables, which are believed to have medicinal properties. Medical practitioners are also now recommending natural foods to those with HIV related illnesses.

3. Easy and cheap to produce since some are semi-cultivated and others are usually inter cropped with main crops.

4. Taste and cultural values

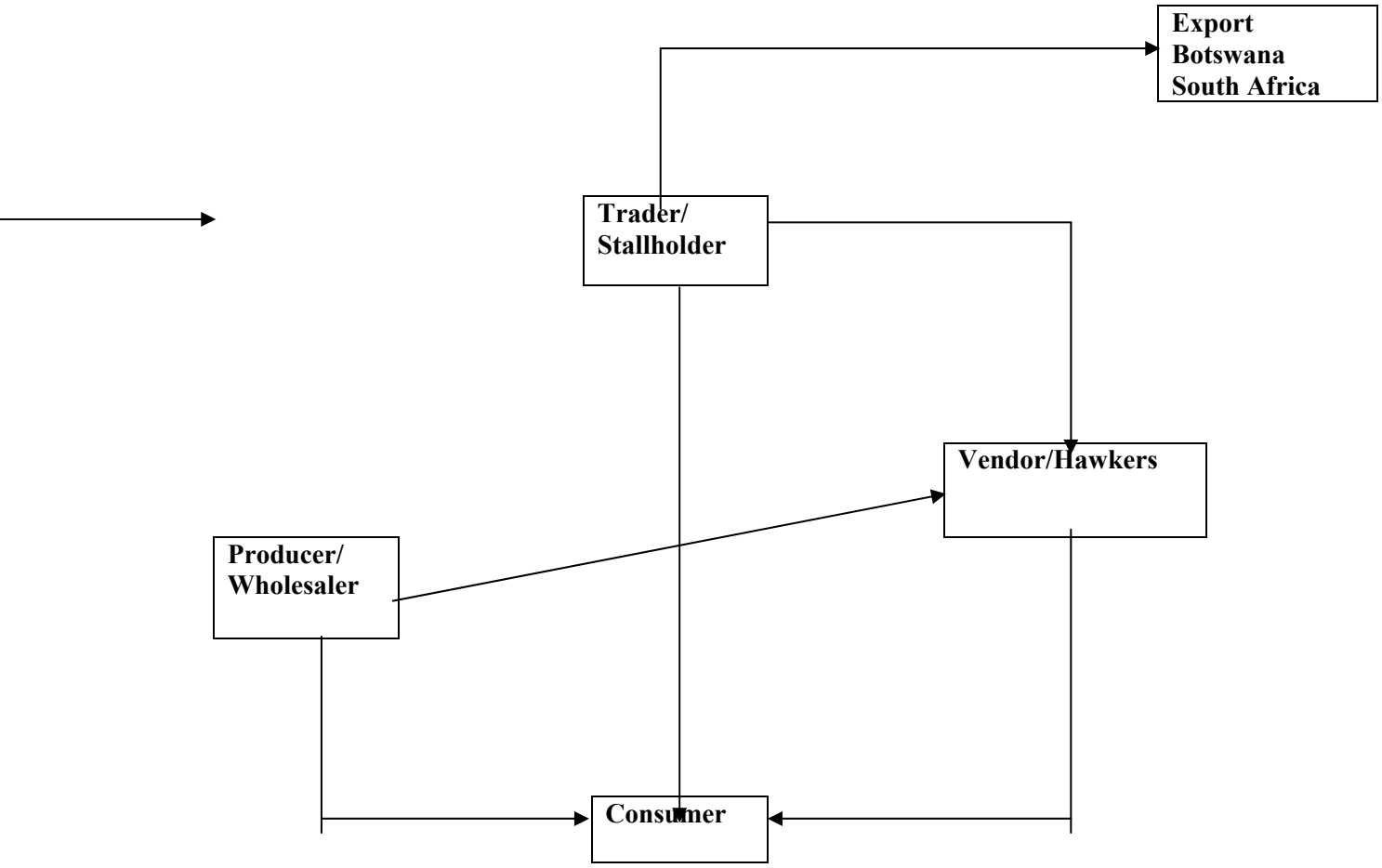
Those who said trade has and continues to rise all agreed supply was not meeting demand. The mushrooming of street-corner and roadside vending markets that happen to be more accessible to consumers was mentioned as a major contributing factor to increase in trade.

The reason given for stability in volumes sold over the years was that consumption of these vegetables had already broken race and class boundaries and they are available throughout the year in the dried and/or fresh form, just as the exotic vegetables. Therefore the consumer is able to interchange exotic and traditional vegetables as and when he/she likes.

1.7 Marketing Channels

The majority of the traders said that they buy their vegetables from the wholesale market at Mbare in Harare or at Chikwanha in Chitungwiza. These vegetables are brought to the market by the producers/wholesalers. Except for two (2) women; one lady at Mbare who said she at times went to collect mushrooms from rural areas and another in Glen Norah who said that she sometimes picks some of the vegetables from her garden, all traders said they bought their produce from producers/wholesalers who bring this produce to the wholesale market. Although very informal, some women will from time to time act as intermediaries between dried vegetable producers and informal dried vegetable traders to Botswana and South Africa.

Figure 1. Marketing Channels Identified in Harare



1.8 Transport

The two groups of wholesale producers/retailers interviewed said that they used public transport (buses) to bring their produce to the market. At Mbare, the wholesalers said they do not need any transport because of their close proximity to the wholesale market. However, those in the other centers said that they hired '[1]Jaggers' from the wholesale market to the bus terminus at Mbare, from where they would use busses and other forms of public transport to take their produce to the high-density . These 'Jaggers' have very negotiable prices. In Epworth, the retailers said they combined and shared the costs of hiring small to medium size trucks.

1.9 Customers

No clear pattern on gender, age and social class was discernible. Men, women, boys and girls came to buy traditional vegetables. Although the customers could not be quantified by gender, age or social class, the tendency was that more women than men came to buy and among the women, the elderly and the expecting mothers (pregnant) are the biggest customers. Of the male customers the majority came to buy the traditional vegetables on Saturday and Sunday mornings. Their vegetable of choice is okra and they believe that it helps them to relieve hang over. *Corchorus sp.* is popular with the visibly ill. *Ambuya* Saranewako a veteran stallholder at Mbare-Musika, volunteered the following information regarding some of the vegetables:

(a) Fresh *Cleome gynandra-Nyevhe* leaves are good for curing oral cavity ulcers.

(b) *Triumfetta annua-Derere renama* is used for curing alimentary canal ulcers.

(c) *Corchorus sp.-Derere regusha* can be used for curing measles in children.

She even boasted that she had now gone for 5 years without any threatening ailment and she had noticed the same thing in those grandchildren she now lives with because she uses traditional vegetables as well as mushrooms in her diet.

1.10 Income and Pricing System

The price at which the vegetables are sold at is dependent on market forces. However as previously mentioned, in real terms it is not the price at which a unit is sold that changes but the size of the unit e.g. bundle size. Over the years, the prices rarely change as the consumers resist this. However when it becomes necessary to change, the traders will through their association sit down and decide on the new price to charge per unit. All the traders mentioned that the bundles are smaller at the beginning and at the end of the rainy season because of scarcity on the market. However the size gradually increases until mid December and January when the market is flooded with fresh traditional vegetables.

One woman though admitted that by merely looking at the appearance of her customer, she could adjust her prices upwards but she never goes below the agreed certain minimum for that vegetable. Information on the size of the bundle is easily exchanged among the retailers. At any

[1] 'Jaggers' is a term used interchangeably to refer to those people operating push carts or to the push carts themselves.

rate, the produce is bought from the same market, at the same price and every trader is aiming for a 100 % profit so at the end of the day, the bundle sizes are not different at all.

1.11 Constraints

Some of the constraints that the traders (producers/wholesalers, stall holders, vendors and hawkers) mentioned are listed below. While some of these constraints are specific to traditional vegetables, the others are very general and apply across all produce sold.

As an example rental fees to the town council and punitive transport costs. Unfortunately, the traders had few suggestions on how to overcome constraints like this one.

1. Fresh traditional leafy vegetables have a very short shelf life since they are highly perishable. This is further aggravated when some wholesalers bring produce that is not fresh and this further shortens the vegetables' shelf life. Produce not sold does not have a ready market and many of the traders do not have time and space to dry their excess vegetables. As a result, they are left with no option but to throw away the produce that was not bought that day.

2. There is a lack of a constant supply of fresh traditional vegetables i.e. they are not available throughout the year as other vegetables. As a result supply fails to meet demand and the retailer misses out on an opportunity to make more money.

3. Producer prices are always fluctuating. Although this can be easily passed on to the consumers, this can result in strained customer-retailer relationships.

4. The number of retailers selling traditional vegetables is increasing and this has resulted in stiff competition that is forcing other traders to pull out.

5. Sometimes the profits made by the retailers are not attractive because when there is a high demand the producers sell their vegetables at a very high price that if passed on to the consumers may not be accepted.

6. As a result of high rental costs for the stalls/tables from the local authorities (town council), some stallholders and vendors have now resorted to vending from illegal selling points. Apparently these vending sites are more accessible to the consumer and this further disenfranchises the legal stallholder who has to pay rental fees to the town council.

7. Some of the cultivated traditional vegetables do not taste well because of over-application of inorganic fertilizers.

8. The conditions at the wholesale market are not hygienic especially during the rain season. The place is over crowded and dirty and infested with thieves and crooks.

9. The cost of transporting the vegetables is very high.

10. Within each traditional vegetable group, no distinct varieties are available. Therefore there is no within-vegetable species choice for the consumers.

1.12 Suggestions by Traders on How to Overcome Some of the Constraints

The traders suggested that the following could help ease some of the problems they are currently facing:

1. Researchers should come up with cheap, improved and easy-to-adopt post-harvest technologies for traditional vegetables. These should include processing and storage technologies.

2. Varieties of the different traditional vegetables should be developed to ensure that the consumer has a choice and the producers has a choice of varieties suitable for the different seasons of the year. This will greatly help in ensuring a constant supply of fresh traditional vegetables throughout the year.

3. More irrigation schemes should be developed so that out of season (rain) production can be possible.

4. People should be educated on the importance of traditional vegetables.

5. Research should develop agronomic practices for traditional vegetables especially the use of fertilizers and manure. People believe that vegetables grown using inorganic fertilizers do not taste well.

6. Alternative products and the potential of export markets should be explored with a view for expansion. Currently dried cowpea and spider flower leaves are already albeit informally being exported to neighboring countries while dried wild mushrooms are being exported formally to Europe.

7. The city council should do something about the hygiene at the wholesale market. After all, traders pay daily rentals to them for using their place.

8. Illegal vending should be discouraged as not only does this take away potential customers from the formal traders at the stalls, but also poses a health risk to the consumers. Vending and illegal stall holders take away a source of revenue for the council because the stallholders will eventually give up their stalls for vending.

1.13 Processing and Storage of Produce

To keep the highly perishable vegetables fresh, the traders continuously sprinkle cold water onto the leaves. This helps to cool the leaves as well as maintain a high relative humidity thus reduce transpiration. No trader refrigerates his/her produce at home or at the stalls. Few traders process produce that has not been sold at the end of the day. The common processing practice is sun drying. Generally the vegetables are cut into small pieces and par-boiled before spreading them out to dry except the 'okra type' (slimy upon cooking) vegetables. After cooking, some are rolled into small bolls e.g. *Cleome gynandra* and cowpea leaves but this depends on the customers. The outside regional market (Botswana and South Africa) prefers them in this form while the local customers prefer straight dried leaves. Except for a very small cost of fuel (firewood) and their labour the few stallholders processing vegetables said there were no costs associated with this activity.

The major constraints associated with processing were:

1. When the weather is overcast and humid, the vegetables fail to dry and rot due to lack of sunshine and heat, and if they so happen to dry, the process takes a very long time.

2. There is very limited space in urban areas for laying out the vegetables to dry. At times traders have to use the roofs of their houses to dry the vegetables.

3. Some pests (weevils) can attack the dried vegetables while in storage.

4. The stored vegetables can deteriorate in storage especially if stored in humid poorly ventilated places.

5. Dried products are sometimes found with sand and grit after cooking

The traders could not come up with suggestions on how to overcome the first two constraints. They however suggested that they would readily welcome insecticides to control weevils provided these chemicals are there and they are not harmful to the consumers. To reduce product deterioration in storage, the traders suggested that the dried vegetables should be kept in a well ventilated, cool and dry environment and those who practice this said their product could keep for over a year.

2.0 CONSUMERS

2.1 Introduction

The interviews of consumers were carried out in the same areas that were visited during the interviews for traders and producers. These areas included the city center (Five Avenue), low-density residential suburbs, the high density residential areas of Chitungwiza, Glen Norah, Dzivarasekwa, Highfield, Mabvuku and Epworth well as producers in Domboshava and Murehwa.

A total of 20 consumers were interviewed, 50% were from the urban center and the other 50 % were farmers from Domboshava and Murehwa. Gender distribution was 75 % female and 25 % male. In rural areas most man always refer to women any business that involves traditional crops. This is mainly because it is the women, who handle these crops. Hence they are the custodians of the indigenous knowledge of these crops. The ages of the people interviewed varied and for the city dwellers their occupations varied as well.

2.2 Traditional Vegetable Crops Consumed

Table 5. Traditional Vegetable Crops Bought or Produced for Household Consumption.

Crop	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
Pumpkin leaves	1	1	2	1	1	2	1	1	2	1	3	1	2	0	4	1	1	2	3	4
Okra	2	2	3	0	0	3	3	5	0	2	0	2	3	3	2	2	0	0	1	1
Spider flower	0	0	1	2	3	7	2	3	3	0	4	4	0	1	1	0	0	0	0	2
Jute	0	0	0	0	2	4	4	0	0	0	0	0	0	0	0	4	0	0	0	0
Indian kale	0	0	0	0	0	1	5	2	1	0	2	5	0	0	0	0	2	0	0	3
Spindle pod	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Amaranthus	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cowpea Leaves	0	0	0	0	0	0	0	4	0	3	1	3	1	2	3	3	0	1	2	0
Muchacha	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mupombera	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Triumfetta annua	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0
Wild mushrooom	0	0	0	0	4	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Frequency	1x	2x	4x	0	0	0	0	2x	3-4x	2x	3x	3x	0	2-7x	0	0	0	0	0	0

Key

A to T. Represents twenty consumers interviewed
1, 2 Represents the ranking
Frequency: Implies the number of times traditional vegetables are consumed per week

2. 3 Sources of Traditional Vegetable Crops

Eight of the consumers said they obtain their vegetables from vendors and stallholders. Two of the consumers said they buy straight from Mbare-Musika, where they are cheaper. One female office orderly in Harare said that she preferred pumpkin leaves from her own garden or straight from rural areas. Her reason was that Mbare-Musika is a very dirty place. This was her personal opinion although it reflects the poor conditions at Mbare-Musika especially during the rain season.

2.4 Trend for the Last Three Years

Seven of the consumers said consumption had gone up within the last three years. One consumer said that they were fed up with exotic vegetables. Three consumers said the trend had not changed at all but had remained constant. The rest of the consumers could not say, for rural consumers it would be difficult to mention trends since these are part of their daily dietary

requirements. In terms of how the consumers prefer to eat the traditional vegetables, some liked them in the fresh or the dried form. Others preferred only *Nyevhe* and *Munyemba* in both forms. One consumer said she does not like dried traditional vegetables because they have a bad smell. Another consumer said that *Muboora* in dried form is not very tasty.

2.5 Reasons for Consuming Traditional Vegetable Crops

The reasons cited below were not generalized but put down as said by the consumers interviewed hence the tendency for repetition.

1. Traditional vegetables taste good when one is pregnant. For example, okra is cooked with soda; pumpkin leaves are cooked without oil, tomatoes or onions but with peanut butter (*Dovi)*. This is a favorite recipe for pregnant woman.

2. Traditional vegetables are tasty especially when *Dovi* is added. Others have a very unique taste. Spider flower (*Nyevhe)* has a very unique sour taste that is well liked by some consumers.

3. Traditional vegetable crops are tasty, cheap and have a variety of medicinal and nutritional properties. These dual-purpose vegetables include *Nyevhe, Derere regusha derere rebukwe,* cow pea leaves and mushrooms. *Nyevhe* can be used for treating stomachaches. Besides being a vegetable, *Derere regusha* is also good for the eyes. It is believed that in men, consumption of *Derere* and mushrooms induces sperm production. Cowpea leaves (*Nyemba*) are used to cure stomachaches. A decoction of the leaves is given to children to drink to prevent stomachaches. Some traditional healers discourage their clients to eat particular traditional vegetables if they use it in a medicine to cure the individual. In general children do not enjoy eating traditional vegetables them as much as the elders do.

4. Consumption of traditional vegetables can introduce variety in a monotonous diet. They also provide vitamins. Unfortunately they are not always available.

5. Traditional vegetables are healthy to eat because they have no pesticide or fertilizer residues, they prevent diseases and *Nyemba* (cowpea leaves) helps to reduce high blood pressure. People who eat traditional vegetables do not visit hospitals regularly.

6. The bitterness in *Nyevhe* can make one drink a lot of water and in so doing, increases the blood thereby strengthening the body.

7. Consumption of traditional vegetables is one way of ensuring that one maintains one's links with one's traditions. The types and recipes e.g. preparing them in *dovi,* were passed down generations. However the young people do not like them.

8. They ensure food security in the household.

9. Traditional vegetables can be eaten in the fresh or dried form because of the need for a relish and the desire to eat traditional vegetables that taste best when cooked in *dovi*.

2.6 Recipes of Traditional Vegetables Mentioned by Consumers

In terms of recipes, it seems *dovi* (peanut butter) was the most important and common ingredient mentioned by most consumers. One consumer mentioned that one could add fresh milk cream to

fresh *Nyevhe* and *Muboora* to improve the taste. Another consumer said she mixes some traditional vegetables with *Matemba* (small kapenta dried fish), onion, tomato and Royco soups to improve the taste. One female farmer said children complain if the vegetables become too monotonous, hence the needs to improve the recipes by adding ingredients like Royco or Maggie soups, tomatoes, onions, oil and/or *dovi.*

2.7 Suggestions to Increase Consumption

The following are some of the suggestions that were mentioned by consumers on how to improve and increase the consumption and utilization of traditional vegetable crops.

1. Educate people about the use of traditional vegetable crops, as an example people consume spinach because they know the benefits of eating it. In comparison traditional vegetables taste better than exotic vegetable and have medicinal properties as well. People should be educated on the benefits of eating traditional vegetables and this will result in increased interest in them.

2. Information on recipes is not readily available. Consumers rely on knowledge passed down to them by their parents. Consumption if traditional vegetables would greatly increase if such information were easily available.

3. Traditional vegetable producers should grow more traditional vegetables, preferably on a year round basis. This would result in lower prices since producers use few inputs. Availability of fresh vegetables is limited to the wet season only and only dried vegetables are found through out the year. She (the consumer interviewed) prefers traditional vegetables to exotics.

   If traditional vegetables would be available throughout the year in fresh form they would sell more than exotics. No information from outside on recipes they use what was passed on to them by their parents.

4. Producers should grow more traditional vegetables because they are perennially in short supply. This, together with the encouragement of consumption from a younger age would result in increased consumption.

5. There should be more traditional vegetable crops than exotic vegetables. These traditional vegetables should be available everywhere just like the exotic vegetables. In addition children should be encouraged from the beginning to consume traditional vegetables. In this way, the child develops an acquired taste because that child starts eat traditional vegetables at an early age and gets used to them.

3.0 PRODUCERS

3.1 Introduction

The farmers interviewed where from Domboshava, Murehwa, Mutoko, Musami and Chihota. These are peri urban farming areas around Harare. These areas commonly supply the capital city with a variety of fresh horticultural crops. The total number of farmers interviewed was twenty-eight. The gender distribution was twelve female and 16 male farmers. Most of them were producers as well as traders of various horticultural commodities as well as other agricultural activities.

Table 6. Common Crops Mentioned

A. Horticultural Crops

English Name	Scientific Name	Vernacular Name
1. Tomato	*Lycopersicon esculetum*	*Mudomasi*
2. Onion	*Allium cepa*	*Hanyanisi*
3. Rape	*Brassica nepus*	*Repi, Rape*
4. Kale	*Brassica sp.*	*Rugare var. viscose*
5. Okra	*Abelmoschus esculentus*	*Derere rezvipudzi*
6. Green beans	*Phaseolus vulgaris*	*Bhinzi*
7. Watermelons	*Citrullus lanatus*	*Manwiwa*
8. Indian kale	*Brassica juncea*	*Tsunga*
9. Butternut	*Cucurbita moschata*	----------
10. Pumpkin	*Cucurbita moschata*	*Muboora, mumhodzi*
11. Sweet potato	Ipomea batatus	Mbambaira

B. Field Crops:

1. Maize	*Zea mays*	*Chibage*
2. Groundnuts	*Arachis hypogea*	*Nzungu*
3. Bambara nuts	*Voandzeia subterannea*	*Nyimo*
4. Cowpea	*Vigna ungucuilata*	*Nyemba*

All the farmers produce field crops for home use and as well as for selling to raise cash. These are usually produced during the rain season November to April. Most of the farmers also keep some domestic animals of various kinds. A variety of traditional vegetable crops are also produced during the rain season and to some extend exotic vegetables for those farmers who know how to do it. This is because most exotic crops do not do well when the rains are excessive.

The pest and disease problems in exotic vegetable crops at this time of the year limit their production. The farmers who produce exotic vegetables during May to August have access to some source of water and they employ various appropriate irrigation methods of supplying the vegetable crops with water. The farmers with access to water produce various horticultural crops as from end of April to December depending on water source and reserves. Some of the traditional vegetable crops like *Brassica juncea-Tsunga* and *Brassica carinata-Chembere dzagumhana* can be produced over winter (May to July) and those that are frost sensitive like okra, pumpkin etc are produced from August to December.

3.2 Production of Traditional Vegetable Crops

Table 7. Traditional Vegetable Crops Utilized at Different Times of the Year. Cultivated or Semi-Cultivated (gathered from the wild).

English Name	Scientific Name	Vernacular Name
Spider Plant	*Cleome gynandra*	*Nyevhe, runi*
Pumpkin	*Curcubita moschata*	*Muboora, Mumhodzi*
Jute marrow	*Corchorus olitorius*	*Derere regusha, derere renyenje*
Okra	*Abelmoschus esculentus*	*Derere, derere rezvipudzi*
Cowpea	*Vigna anguiculata*	*Munyemba, muriwo wenyemba*
Indian kale	*Brassica juncea*	*Tsunga*
Ethiopian kale	*Brassica carinata*	*Chembere dzagumhana*
Spindle pod	*Cleome monophylla*	*Mujakari*
Amaranthus	*Amaranthus* sp.	*Mowa*
----------	*Ceratotheca sesamoides*	*Derere reBukwe, simukatienzane*
----------	*Triumfetta annua*	*Derere reNama*
Wild gherkin	*Cucumis anguria*	*Mukakashanga*
African cucumber	*Cucumis metuliferus*	*Mugaka, magaka*
Bottle Gourds	*Lagenaria siceraria*	*Mapudzi, mikombe, matende*
Watermelon	*Citrullus lanatus*	*Manwiwa, Nwiwa*

3.2.1 Ranking by Importance of the Crop

Ranking according to importance was very variable and not all the people interviewed could rank. As far as they were concerned all vegetable crops play an important role in their food security systems. For the few who ranked it was because they were asked to.

Table 8. Traditional Vegetable Crops Ranked

Crop	Farmer 1	Farmer 2	Farmer 3	Farmer 4
Pumpkin leaves	1	2	1	4
Okra	2	-	-	-
Nyevhe	3	3	-	3
Tsunga	4	-	-	1
Cowpea	1	2	-	-
Derere regusha	4	-	-	-
Derere renama	-	-	-	2

3.2.2 Seed Sources and Varieties Grown

All the farmers said they retain their own seed for most if not all of the traditional vegetables they grow.

a) For *Tsunga* two varieties were mentioned *Zifodya* with bigger leaves and *Tsunga yepachuru* with smaller leaves.

b) A few said they buy seeds of okra and cowpea from Farm & City, but no specific varieties were mentioned. There were no distinct varieties of okra except landraces, which are variable

in height and pod productivity. Farmers expressed disappointment from the inconsistency found in pod production of some of their landraces.

c) Pumpkins are produced from local landraces and there are distinct local varieties known by mostly women farmers. These were as follows:
Dindimhanga - large pumpkin fruit.
Mhengerero (mhenjere) - red and white spotted leaves.
Ndodo - small, white spotted leaves producing small fruits.

d) As regards cowpea, two local landraces, which produces leaves first and pods later were mentioned. The improved varieties introduced by Non Governmental Organizations (NGO`s) and some government agencies are dwarf and high yielding in terms of the peas. This is at the compromise of leaves, which are as important to the farmers as the peas.

e) *Cleome gynandra* (*Nyevhe*) only one farmer had brought seed from Hwedza and she claimed the variety out performed their local varieties. All the producers we talked to who are traders expressed their wish to have seed of *Nyevhe* for them to plant off-season so they can make money when there is limited supply.

f) *Corchorus olitorius* (*Gusha derere renyenje*) that is semi-cultivated now was also introduced to some farmers in Murehwa. The variety was introduced from Mutoko. Once the farmers introduce the seed in their fields the *Corchorus* keeps germinating. In Murehwa farmers have been trying to grow it off-season but it failed to germinate until it rained. At an earlier encounter on a field day organized by CTDT on production of traditional vegetables one female farmer explained how she had collected a lot of seed for *Corchorus olitorius*-*Gusha* and was selling the seed using a tablespoon as a measuring unit. This was the same area the PRA was conducted.

3.2.3 Production Periods

The producers in Domboshava said they planted pumpkins in August so that they sell the leaves from October to December when prices are very high.

Other vegetables that are produced during the rain seasons are pumpkin leaves *Brassica carinata-Tsunga*, and *Brassica carinata-Chembere dzagumhana*. Also found during the rain season usually inter-cropped in other main crops, either planted or left out during weeding are the following:

1.	Pumpkin	*Cucurbita moschata*
2.	Spider flower	*Cleome gynandra*
3.	*Derere regusha*	*Corchorus olitorius*
4.	*Derere rebukwe*	*Ceratotheca sesamoides*
5.	*Derere renama*	*Triumfetta annua*
6.	Indian kale	*Brassica juncea*
7.	Okra	*Abelmoschus esculentus*
8.	Watermelon	*Citrullus lanatus*

Most of the farmers in general produce traditional vegetables during the rain season. The farmers said that *Cleome* and *Corchorus* would be abundant for home consumption, processing and drying as well as for marketing fresh from end of December to February. However there are some farmers in Murehwa who expressed interest in planting both crops in August so as to bring the produce on the market early to fetch high prices. This would extend the available period and

prices are bound to be higher. One of the reason why many of the farmers found traditional vegetables cheaper to produce was because when intercropped they benefit from the fertilizers applied to the main crop. This could be one of the factors why at times the insect pest and disease problems was very low. This scenario may change when cropping has increased to sole crops and area of production expanded.

Of all the traditional vegetables grown by farmers, few farmers who said they had bought their seed from a seed seller mentioned cowpea, okra and *Tsunga*. The rest of the farmers retain their own seed and also share by exchanging or buying from other farmers Others when they travel outside their districts they collect seed from friends and relatives.
In most cases farmers seem to be resorting to landraces of mostly the cultivated traditional vegetables like okra, pumpkin, *Tsunga*, watermelon, cucumber and *Lagenaria siceraria*. Of the semi-cultivated group only *Cleome gynandra*, and *Corchorus olitorius,* was being collected seed for planting or introduction as well as for off-season production. This was common with farmers who had contacts with CTDT an NGO promoting production, utilization and marketing of traditional vegetables. Some farmers from Mutoko complained that they had tried to plant *Nyevhe* but failed. One farmer collected *Cleome gynandra* from Hwedza; she found it to be superior in terms of leaf production than their local varieties. One farmer said seed of *Nyevhe* is easy to distribute through manure or compost. But the availability of seed and good reliable seed of all traditional vegetable crops seems to us from an observation point of view, one of the limiting factors in the increased utilization of many traditional vegetable crops in Zimbabwe cultivated or semi-cultivated ones.

It also revealed the fact that farmers who had contact with CTDT in Murehwa showed more interest and had a higher degree of awareness on the merits and benefits of producing, utilizing and marketing of traditional vegetables. They had obtained seed and extension services; (the Nutrition division of the Ministry of Health is also involved explaining the nutritive benefits as well as recipes of traditional vegetable dishes.)

3.4 Trends over the Last Three Years

A few farmers said the trend of production and utilization of traditional vegetable crops has not changed over the last three years. The rest said there is an increase in production and consumption of traditional vegetables.

Others said that saying they could never satisfy the demand for *Cleome gynandra* and *Corchorus olitorius* during the season, that is very short (January to February). Others said they have realized the potential that traditional vegetable crops have on the market and they will be growing to sell. The level of understanding and enthusiasm among farmers who had interacted with CTDT in Murehwa was higher than other farmers in other areas.

3.5 Prices and Amounts Utilized

Figures for how much the farmers sell and consume were not very easy to get. Only a few managed to give us an idea of how much they would sell at the market per day.

Table 9. Amounts and Prices of Traditional Vegetables at the Market.

Vegetable	Farmer 1	Farmer 2	Farmer 3
Cleome gynandra-Nyevhe	36 bundles	36-48 bundles ($15.00)	12 bundles ($2-$10)
Pumpkin leaves-*Muboora*	84 bundles	36-60 bundles ($5-7)	----------
Okra-*Derere rezvipudzi*	----------	$200/box	$150- $30/box
Corchorus olitorius	----------	24 bundles	----------

Note: Prices in brackets are per bundle

The farmers usually tie the leave stalks or stems to form a bundle; the bundle from the producer is usually bigger in size (wholesale). When a trader or vender buys these bundles they split them into smaller bundles that are sold at prices that enable them to make a profit.

3.6 Consumption Patterns

It was very difficult to get amounts consumed in quantitative terms, because farmers do not measure the amounts that they consume. Consumption is greatly influenced by the time of year and availability. Dietary variability is another factor that influences utilization. There is also the element of choice and preference, of the traditional vegetable crops available. Where choices are limited people are forced to eat traditional vegetables everyday whether once or twice a day. It is common practice in Zimbabwe for people to have a morning meal, usually can include porridge or tea, with bread, home made bread, sweet potato and/or pumpkins or gourds-*mapudzi*. The midday meal can be *sadza* and relish; others may skip this meal if they are busy with field chores or when food availability does not allow. Although during the rain season in rural communities there is always plenty of snack foods and during dry season provisions are usually made the in form of groundnuts, cooked dry maize, cowpeas, pumpkins, roasted maize and groundnuts.

3.7 Reasons for Production of Traditional Vegetable Crops

All the farmers interviewed produced traditional vegetable crops for home consumption and for marketing. One or two grew them only for home usage. The reasons brought up by farmers was that traditional vegetables were tasty and healthier to eat. This they explained by saying very little fertilizer and chemicals are used on them. Some explained the medicinal properties of some of these traditional vegetables. Some gave reasons of cultural heritage values that they inherited from their parents. Another reason given was that they are cheap to produce since most can be inter-cropped with main crops from where they obtain residual fertility from the fertilizers that would have been applied in the main crop e.g. a cereal or a legume.

3.8 Harvesting

In general traditional vegetables are planted, taken care of and harvested by mostly women and children. This does not exclusively exclude man; some do both these chores especially when there is an aspect of marketing. Planting is commonly done during the rain season for rain season production. For those who plant off-season in gardens it is mostly in August after frost periods are over. For crops with big leaves like, *Tsunga* and *Chembere dzagumhana,* leaves are individually plucked and for pumpkin usually the third and fourth leaves from the tips are harvested, since they are the most tender and allows the tip to continue to expand and produce more new leaves.

Cleome gynandra, Corchorus sp., Derere renama, Derere rebukwe are usually harvested by removing the tender tips. *Cleome* and C*orchorus* can also be pulled as whole plants and sold together in bundles. For cowpeas, only the tender leaves and tips are harvested. In most cases where tips are harvested, this practice encourages branching, hence more harvesting points.

3.9 Processing and Storage of Traditional Vegetable Crops

Processing and storage is a task usually done by women. The most common method of processing is blanching of the vegetables in boiling water and sun and /or air dried. The time depends on individual preference and taste.

Cowpea leaves are cooked for some minutes over the fire. When the pot has cooled down the vegetables are then drained out of all the water that can be squeezed out by hand before being spread out directly on to a clean surface e.g. a swept flat rock. Others place the vegetables in containers called *rusero* or on plastic paper, spread thinly to facilitate quick drying.

One producer said she rolls the vegetables after the pot has cooled to squeeze out the water and to make aggregates rather than loose leaves. *Cleome gynandra* is also cooked but others claim that it is cooked a bit longer than others so as to remove the bitter taste. It is then air or sun dried. Okra pods are cut into slices before being dried fresh. This applies to all traditional vegetable crops that produce a mucilaginous dish, and these are *Derere rebukwe, Derere regusha-Corchorus sp.* and *Derere renama-Triumffeta annua.*

From the description by farmers and traders *Ceratotheca sesamoides-Derere rebukwe* is very interesting. The leaves are dried fresh and then ground into a pound and it will be stored or cooked in that form. At Mbare Msika it was being sold at $3.00 to $5.00 per teaspoon as a measuring unit. It is said to rise or expand when cooked that a teaspoon can feed quite a number of people or family. Hence the name *simukatienzane* that translated into Shona means rise and measure up to my height. This is an idiom expressing its cooking properties of expanding when cooked.

Pumpkin leaves can be dried in cooked form after cutting into small pieces. But the cooking should take only a few minutes since they cook easily. They can also be dried fresh, but are very brittle when dry. The *Brassica* species are sliced or cut into small pieces and then cooked before they are dried. They can also be dried in fresh form after slicing. A few producers claimed that *Tsunga* turns yellow when it is being dried.

For the farmers in Murehwa ward 14 those who work CTDT were the only farmers who had improved drying facilities. One was a communal based solar drier located at Musami Business center, donated and installed by CTDT for the community. At individual households they also had small versions that are portable. These are very basic in make, made of an iron rod frame in a box form. The dried leaves of *Murara* made into strings cover the sides and bottom. At the top there is a lead that opens on a hinge system and is covered with black plastic that generates the heat. This simple drier, dries material faster, prevents dust and rots during the rains. Farmers were happy with the clean end products, although for drying a lot of vegetables one may need more than one drier. One of the biggest problems complained by consumers that they find putting them off eating dried traditional vegetable products was the grit that is found in them when they are cooked. Other producers and consumers said the remedy to getting reed of the grit is to soak the dried vegetables first in warm water for some minutes to allow the grit to settle.

This is as a result of drying in the open where the produce is exposed to dust and many other fungal contaminants found in the air. The driers at time of the interviews were quoted at Z$700 to Z$500.
Not all producers interviewed dried traditional vegetables for selling at the market, but others only dried for home consumption during off-season and the relish gap period or any other natural disasters like a drought. One female farmer claimed that her daughter had gone to Ranch House College to attend a short course on processing, drying and utilisation of traditional vegetables.

3.10 Storage

Storage of dried vegetables was not standard, some store in sacks mostly hessian (Jute bags) sacks are preferred and one farmer claimed that the dried product could last up to three years in these bags.

Jute bags are no longer that common so many said they put into plastic sacks with aeration, closed plastic sacks will encourage rots due to condensation as explained by the farmers. The producers agreed that in whatever container you store they must be placed in a moisture free atmosphere. The best is usually the *hozi*-grainnery.

All producers agreed that losses during harvesting are very minimal, but during drying their biggest losses occur due to rots caused by the rains. Most traditional vegetables are abundant during the period when the humidity levels and temperatures are high, ideal conditions for fungal growth. This was a common constraint less with farmers who uses dryers from CTDT. Losses during storage were reported to be very low.

For those producers who are also traders one of them claimed that if pumpkin leaves are not bought after two days she throws it away. *Nyevhe-Cleome gynandra* she cooks and then dries it. One of the producers claimed that she also sold dried traditional vegetables to locals within her area. The major constraint in production of traditional vegetables that came out was the availability of reliable good quality seed. The other constraint that the farmers mentioned was that *Cleome gynandra* and *Corchorus* sp., fail to germinate when planted during the rains to allow them to produce off-season. A few producers mentioned diseases and insect pests as a constraint. Others claimed that they spray against aphids in cowpea and *Cleome*. Others said *Muboora* is attacked by leaf eaters, root eaters, cutworm and attacked by powdery mildew.

In terms of external advice in Murehwa, there was evidence of CTDT, AGRITEX, Ministry of Health and Range House College and the Zimbabwe Farmers Union (ZFU) were mentioned as those supplying advice on various levels of their farming activities. All the organisations mentioned usually have community based extension officers who helps to keep the farmers informed, arrange and coordinates courses and field days.

3.11 Marketing of Traditional Vegetable Crops.

Most of the producers who sell traditional vegetables expressed the knowledge that quality and size plays an important role in marketing and to some extend good prices. Prices also fluctuate as more produce becomes available, hence the desire for some farmers to produce out of season to enable them to sell at a much higher price.
Prices seem to be dependent on market forces. The need to grade is there but packaging is not yet a common practice. Both female and male producers go to Mbare to sell their produce. All producer traders interviewed expressed a high degree of concern on looses that can be incurred at Mbare.

Tricksters, (*Matsotsi, makoronyera*) thieves can make a farmers day miserable when they are robbed all their produce. Thieves can also rob farmers by offering very low prices for their produce. The *tsotsis* are of different age groups. This is one reason, which at times discourages female farmers to market their produce; instead husbands go in their places. The security situation at Mbare for the protection of farmers is very poor and the congestion at the market leaves a lot to be desired, during the rain season it is even more pathetic.

Transport was cited as another of those factors that affect their business. It is both unreliable and expensive. Some farmers transport their produce on top of public bus. Others use lorries that they hire to ferry their produce. Produce is usually packed in sacks, wooden boxes, and 20-litre tin buckets or weaved baskets. In other areas the state of the road reduces, transport availability as well as it affects quality of produce.

Cowpea is the only traditional vegetable that is rarely consumed fresh. It is favored in dried form according to the producers. Other vegetables are utilised in fresh form during the season. Dried vegetables are only popular and tastier during off-season and for food security, at household level. Others dry vegetables not only for the their household use but for marketing as well.

Most of the producers who trade are wholesalers. They sell in large quantities to traders, vendors, stallholders and any customer who approaches them. Customers are both genders and the ages are variable from young people to older ones. At the wholesale market at Mbare a farmer or producer pays an entry fee into the market of Z$70 per day for the use of the place. The marketplace belongs to the city council that collects the revenue from the farmers.