

**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 BULAWAYO, 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 Bulawayo city of Zimbabwe over a period of two weeks in February and March, 2000 are presented in this report. This was the period when traditional vegetables are in season. Interviews were carried out on traders, consumers and producers in and around Bulawayo.

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 (Ndebele) names of the traditional vegetables are used. In subsequent references, the names are used interchangeably. The term *iDelele* is used constantly in the report. It is a local Ndebele name used for all those vegetables that form a mucilaginous (slimy) soup upon boiling. These vegetables include okra/Lady's Finger and *Corchorus species*.

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

The main 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 Bulawayo, 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:

Mr F. Chigumira Ngwerume

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Ms. B. Dube

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## Introduction

Bulawayo is the second largest city in Zimbabwe. It is located in the South West of the country. The population of Bulawayo is made up of the following 309 864 males and 311 878 females. This brings the total population to 621 742. The whole province of Bulawayo occupies an area of 479 000 sq. km. The population density was 1289 persons per sq. km. (Central Statistics Office (1994) from the 1992 population census)

In Zimbabwe the country is divided into five agro-ecological zones called natural regions. The amount of rainfall decreases from natural region one to five. Bulawayo lies in the agro-ecological zone called natural region four. This region experiences low total rainfall 450-650 mm per year. As well as poor distribution, the region often encounters dry spells during the rain season. It is most suitable for extensive livestock production and drought tolerant crop production. This also has a bearing on the types of crops available for food as was revealed in this study in comparison to Harare and Mutare.

### 1.0 TRADERS

The survey saw 26 interviews being held. There were three group discussions and 23 individual interviews. Interviewed traders were mainly women who conducted their business from Bulawayo Independent Market in the city centre along Fife Street, and Lobengula Street. In the high density suburbs the following markets and places were also visited, Makhokhoba Market, Pumula Beer hall and Nkulumane Sekusile Market place. Interviews were also held with traders at the Luveve Railway Station (this is a drop off station on the Bulawayo Victoria Falls route) as they came from different locations to buy traditional vegetable crops from suppliers who used the train to ferry commodities from areas such as Sawmills, Nyamandhlovu and Igusu. The people who were interviewed all came from different parts of Zimbabwe. Some originated from Bikita in Masvingo, Matobo, Kezi, Lupane and Nkayi districts and were all now based in Bulawayo.

### 1.1 Traditional Vegetable Crops Traded

Table 1. Traditional Vegetable Crops Traded in and around Bulawayo

English Name	Scientific Name	Ndebele Name
Spider flower	<i>Cleome gynandra</i>	<i>Ulude</i>
Pumpkin leaves	<i>Cucurbita moschata</i>	<i>iBhobola</i>
Jute	<i>Corchorus</i> species	<i>Idelele</i>
Cowpea leaves	<i>Vigna unguiculata</i>	<i>iNdumba</i>
Gourds	<i>Lagenaria siceraria</i>	<i>aMakhomane</i>
Amaranthus	<i>Amaranthus</i> spp.	<i>iMbuya</i>
Okra	<i>Abelmoschus esculentus</i>	<i>iDelele</i>

There was no clear cut ranking in order of importance of traditional vegetable crops as most traders regarded them equally important. However the general indication was that *Cleome gynandra-Ulude* was the most traded of them all in terms of amounts.

Trade in traditional vegetable crops followed a specific pattern. For fresh vegetables trade commenced soon after the first rains, around mid-November to April/May period when winter begins. *Cleome-gynandra-Ulude* and *Amaranthus* species-*Imbuya Corchorus* sp.– *iDelele* would be the first to be available as they are triggered by the first rains and grow as weeds. Other cultivated vegetable crops like cow pea, pumpkin leaves, okra and gourds appear later after being planted. These are commonly cultivated as rain-fed crops. Soon after the fresh produce was finished, traders increased their activities in dealing with processed (dried) vegetables, in most cases, of the same type except *Amaranthus* species which was never found in dried form.

During periods when fresh traditional vegetable crops were available, some traders would also be selling dried vegetables though they are bought in small quantities. What was revealed to influence traditional vegetable traders stocks (fresh and/or dried) was seasonality and demand. Generally customers would prefer fresh produce when available. Demand for dried traditional vegetables picked on the on-set of the dry season (April to November) as fresh vegetables became scarce. It was clear that traders who sell dried traditional vegetables specialise in dried products of other traditional field crops as well.

Although it became apparent that trade in traditional vegetables was quite significant, traders could not establish the numerical quantities of produce they handled whether dried or fresh. No standard measurements were used and this could have discouraged traders from keeping sales records. This made quantification of sales very difficult, if not impossible.

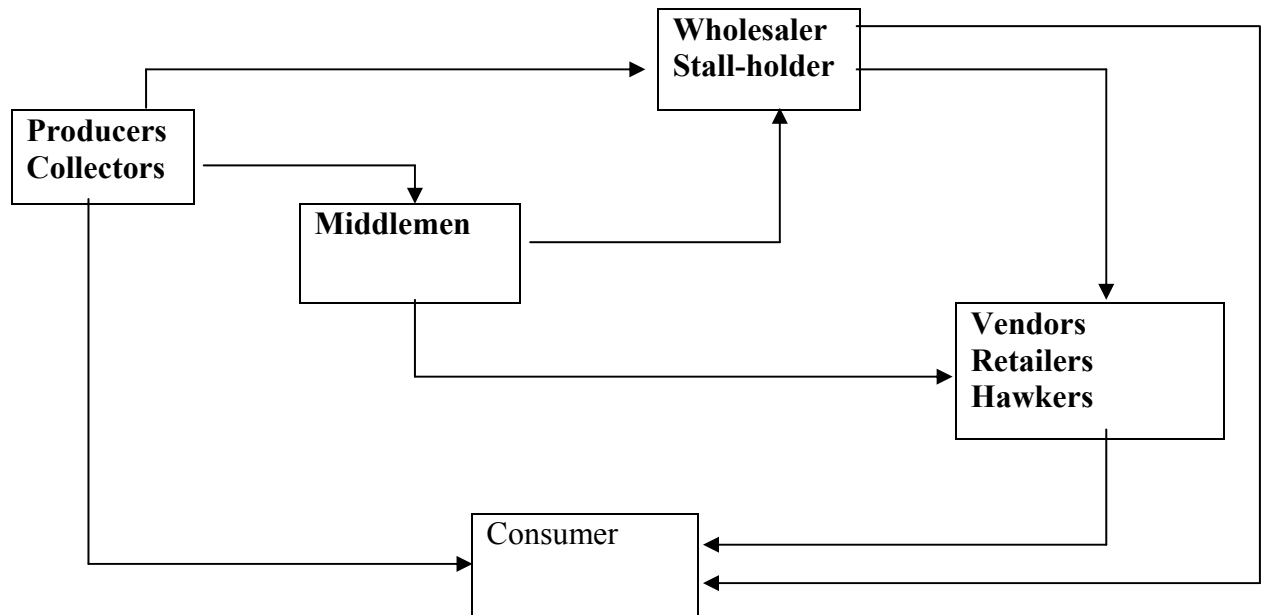
## **1.2 Sources and Trading Trends**

Traded traditional vegetables came from quite a variety of sources in and around Bulawayo. Identified sources included Bulawayo Peri-urban areas such as Range more, Terre Nance, Sauerstown and Kensington. Other areas were mainly communal and resettlement areas close and/or far away from Bulawayo. All these areas had direct public transport into Bulawayo. These were Matobo, Esigodini, Kezi, Maphisa, Solusi, Tsholotsho, Gokwe, Nyamandlovu, Lupane (Mzola area), Nkayi, Khami, Sawmills and Igusu. Distances to supply areas could not be ascertained but one area mentioned, Gokwe, had its main service centre about 240 km from Bulawayo. In addition to the above-referred sources, villages very close to Bulawayo also contributed immensely to traditional vegetable crop trading business. Robert Sinyoka, Methodist and St Peters villages that lied within a radius approximately 20 km from Bulawayo were revealed to be major nearby communal suppliers of traditional vegetable crops traded in the city. In these villages production was both at individual plots and in co-operative gardens. The latter appeared ideal for any future work on traditional vegetables, should there be need to link with producers.

The above areas were identified as sources (production areas) of traditional vegetables and also direct suppliers for some traders especially those operating from the city centre. Traders based elsewhere normally bought their merchandise from the Bulawayo Independent Market where collectors, farmers and/or middlemen would be selling. Other traders would buy from similar people but at the Luveve Railway

Station where produce came from Nyamandlovu, Sawmills and Igusu rural areas by train. The market chain for traditional vegetables as established by the study was as in Figure 1.

**Figure 1. Marketing Channels Identified in Bulawayo**



There were also instances where people who maintained ties with their rural homes would receive consignments of traditional vegetables for sale in town. At Independent Market one male trader brought his fresh *Ulude* straight from his home area. This was especially so with processed vegetables. During the rain season the rural folks would be busy drying traditional vegetables or wives who normally went to their rural homes during summer would process traditional vegetables for sale in town during winter when they re-join their families after harvesting their rain fed crops.

Respondents could not say with one voice the trend followed by traditional vegetables` trading business. Some felt it increased over the past three years whilst others perceived otherwise. Reasons given for increased business activities included affordability and easy availability of traditional vegetables and over consumption of exotic vegetables resulting in an optional switch over to traditional vegetables as consumers sought alternatives. The other reason was that meat and other food stuffs had became too expensive for the general people so they were economically forced to consume more of traditional vegetables.

Other traders cited the eroded buying power due to the tough macro-economic climate the nation was going through as contributing to reduced business and the unacceptability of traditional vegetables to the young generation that constituted the bulk of urban population. One female trader said traders who are saying the business has decreased is because they are now many traders and vendors involved in the business.

However, from the discussions held with the different traders and market observations one would conclude that traditional vegetables trade had generally increased especially in recent years for the same reasons given by those who supported this view.

### **1.3 Transport**

Trade in traditional vegetables was heavily dependent on public transport and this acted as a serious draw back to the business at times. This was evidenced by, limited stocks of traditional vegetables during the survey period when there were too much rains and a critical fuel shortage caused by the effects of cyclone Eline that occurred in February-March 2000. Most rural roads to producing areas were gravel roads that got damaged or became impassable with excessive wetting. The train was also unreliable at times arriving quite late. This tended to disrupt traditional vegetables trade for those who relied on rail transport since some buyers would leave the railway station before its arrival resulting in farmers, collectors and/or middlemen selling their produce at very discounted prices to the few traders who would have had patience in order to clear produce in time to catch the next train back home.

From far away areas traditional vegetables were transported using buses and train. The train was only identified to serve parts of Nyamandlovu, Sawmills and Igusu that lied along the rail track between Bulawayo and Victoria Falls. Haulage of vegetables within the city boundaries was mainly by commuter omnibuses and pushcarts dubbed *scanias* in Bulawayo (*jaggers or zvingoro* in Harare).

Transport charges for traditional vegetables were considered high but varied depending on container size, route (distance), mode of transport and transporters. Long distances charges ranged between Z\$5.00 and Z\$30.00 per 91 kg bag of traditional vegetables. In the city centre when using commuter omnibuses, luggage normally occupied space meant for passengers and would be paid for accordingly. Urban transport fares were Z\$12.00 per passenger. When *scanias* were used payment fee was in all reported cases Z\$10.00 per 91 kg bag.

### **1.4 Customers**

All sexes and age groups bought traditional vegetables although females and elderly people would buy more frequently. Women were viewed as responsible for ensuring that the family was fed hence the frequent female purchases. Some respondents also felt that since traditional vegetables were cheap, female-headed households would consume more of it as most of them had low incomes.

Elderly people regardless of sex were thought to buy more traditional vegetables than the younger generation because they were used to traditional vegetables` consumption compared to the young. This further confirmed an argument presented in the trading trend section. The few children reported to buy traditional vegetables were in most cases sent by elderly people. Children did not like the taste of traditional vegetables. Some female traders explained that dried vegetables were being bought to be sold in Botswana and South Africa.

## 1.5 Trade

Since there was no proper record keeping, quantifying volume and value of trade proved a lot more difficult. This was even more so when trying to establish the profitability of the business. Pricing was not guided by any known policy; instead it was a dependent variable of demand. Prices were decided for a certain estimated quantity of produce (a heap and bundle of fresh traditional vegetables) and by volume for dried vegetables. The size of the heap for fresh vegetables was estimated by the naked eye while the number of leaves determined bundle size.

For traditional vegetables sold in heaps, prices were normally the same despite type and variety differences. Pumpkin leaves were the only traditional vegetables sold in bundles. The bundle was being sold for Z\$15.00 at the time of the survey.

Price changes were experienced and these appeared dependent on season and partly time of the day. When traditional vegetables were scarce at the beginning of the rain season and/or in the early morning hours prices were high and would reduce responding to increased or decreased supplies toward the end of day in order to clear perishable vegetables still held. Pricing appeared to be by agreements during this time. At formal markets the traders or vendors have a committee to avoid profiteering by others undercharging. This was evident on the uniformity of volumes or prices.

For interest the research team had carried a small weighing scale to record samples. At the Independent Market, Gogo R. Khumalo and her niece Mavis (See Photograph number.....) had given us permission to take sample measurements. These ladies specialise in dried traditional vegetables and other traditional field crop products. The unit of measurements were tins of the same size and weight. The following information was obtained.

Weight of empty tin	210 g
Dried <i>Cleome gynandra-Ulude</i>	410 g
Dried cowpea- <i>iNdumba</i> loose leaves	240 g
Dried cowpea – <i>iNdumba</i> lumps (moulded) leaves	430 g

All the above products were being sold at Z\$50 but notice the differences in weights. What the research team found also interesting was that the traders were not aware that the moulded dried cowpea leaves weighed twice as much as the loose leaves but the price was the same.

Unfortunately other traders thought the reasons we were weighing the produce were for some other use other than what we explained. We decided to avoid annoying the others so the exercise was stopped. The area of keeping information on weights of how much they sell or do not sell, pricing record (bookkeeping) as well as other market related information is one area that really needs to be improved upon for the benefit of both traders and producers.

## 1.6 Constraints

The identified limitations to traditional vegetables trade were linked to transport, availability and procurement cost. The unreliable public transport especially during the rain season that coincided with the peak of traditional vegetables trade limited their supply.

The seasonal supply, of traditional vegetables also affect their trade. This was mainly so for fresh produce which grew primarily under rain fed conditions. The situation remained the same for cultivated traditional vegetables as their production also depended on natural rainfall. The high dependence of traditional vegetables production on rainfall meant that traditional vegetables trade was heavily seasonal and can be affected by drought during poor seasons. Availability of processed traditional vegetables in winter and any other time of the year were influenced by weather conditions during the previous processing period. Incessant rainfall and cloudy weather prohibited proper drying of traditional vegetables. However, due to longer shelf life of processed traditional vegetables traders could keep large stocks of these, increasing availability on the market during off-season as their demand increases.

### **1.7 Storage and Associated Losses**

Storage of traditional vegetable crops varied according to type and form of vegetables. Fresh produce had the least storage duration, which in most cases was less than twenty-four hours. Once a trader procures fresh traditional vegetables she/he would aim at selling out the produce within a day. Pumpkin leaves-*Bhobola* and *Amaranthus* sp.-*Imbuya* are highly perishable as compared to *Corchorus* sp.-*iDelele*, *Cleome gynandra-Ulude*, Cow pea leaves-*Indumba* and *Okra-Idelele*. Okra lasted longer than the rest of the traditional vegetable crops. Fresh traditional vegetables were kept in wet jute sacks and /or sprinkled with water for them to retain their freshness. The same would apply for produce kept over night. Dried traditional vegetables were stored in dry metal containers and/or jute bags and these were kept dry. The containers would be kept in places free of moisture.

As fresh produce deteriorated due to over staying, prices would be reduced to clear it. The trading household would consume excess fresh traditional vegetables that could not be sold. At Makhokhoba Market and at the Independent Market the team observed female traders drying okra and *Cleome gynandra-Ulude* right there at their working places. Some of course would throw away excess vegetables only after they are to go bad or when they cannot process them. Drying of vegetables is not only limited to traditional vegetables. Exotic leafy vegetables including cabbage are also dried for home use and for selling. Once dried traditional vegetables did not result in notable losses unless wetting occurred during storage. Therefore there were no significant losses reported on for processed vegetables.

### **1.8 Post-Harvest Handling and Processing**

There was very little post-harvest handling of traditional vegetables. Very few traders reported on issues such as grading, sorting and packaging. As highlighted in the above section, processing of traditional vegetables was limited to excess not bought in some cases. No trader specifically bought fresh vegetables for processing. Most of the vegetables being sold in processed form are brought from rural areas in that form.



The few traders that graded traditional vegetables removed spoiled produce. Most traders bought graded vegetables but during transportation to the market, especially *Cleome gynandra-Ulude* and *Corchorus sp.-Idelele* if transported in plastic during the day would generate heat resulting in spoiled produce. This was witnessed at Luveve Railway Station when *Corchorus olitorius* leaves were observed to turn brown when subjected to condition described above. In such instances some grading would be conducted and spoilt vegetables would be discarded.

There was no pre-packing of traded traditional vegetables. Traditional vegetables were kept either in huge or small heaps and put in plastic pockets as customers bought. Pre-packing was envisaged to affect the quality to traditional vegetables as it prohibited the constant sprinkling of water on traditional vegetables whilst still on the market place. The plastic containers used were not standard sizes and could vary depending on the amount bought.

## **1.9 External Interventions**

The survey revealed no existence of external institutional involvement/assistance in traditional vegetable business. There was however one incident reported on when some outsiders encouraged traders to formulate co-operatives through which they could source funding. This is said to have failed since the traders had no interest in the arrangement. The traders at some markets had committees that would intervene on behalf on members if the need arise. In Zimbabwe it is always known that one does not mess around with the women traders.

## **2.0 CONSUMERS**

### **2.1 Introduction**

A total of fifteen consumers, three male and twelve female were interviewed during the survey. These included a white male Roman Catholic Priest who resided in the city centre. He was observed buying *Ulude* and *IBhobola* from the Independent Market. He was asked for an interview. The other respondents were from Lobengula, Old Pumula, Entumbane, Methodist Village, Emakhandeni, Robert Sinyoka, Range more and Luveve.

Most of the interviewees were unemployed females except for the Priest and one other male employed by the government as an Office Assistant. Most females were however informal traders who dealt with exotic and traditional vegetables. For the total fifteen people interviewed, eleven were individuals and two group interviews. The group interviews involved men and women from Range more and women from Methodist Village.

### **2.2 Traditional Vegetables Consumed**

The survey revealed consumption of a considerable range of traditional vegetables in and around Bulawayo. The different traditional vegetables utilized are listed in the table below.

**Table 2. Traditional Vegetable Crops Consumed in and around Bulawayo**

English Name	Scientific Name	Ndebele Name
Spider flower	<i>Cleome gynandra</i>	<i>Ulude</i>
Pumpkin leaves	<i>Cucurbita moschata</i>	<i>iBhobola</i>
Jute	<i>Corchorus</i> species	<i>Idelele</i>
Cowpea leaves	<i>Vigna unguiculata</i>	<i>iNdumba</i>
Gourds	<i>Lagenaria siceraria</i>	<i>aMakhomane</i>
Amaranthus	<i>Amaranthus</i> sp.	<i>iMbuya</i>
Okra	<i>Abelmoschus esculentus</i>	<i>iDelele</i>

The Priest who ate them for their nutrition and taste also mentioned roasted pumpkinseeds. The Priest expressed a high degree of respect for traditional vegetables in terms of taste and nutrition.

Generally most of the consumers reflected a high degree of preference for *Cleome gynandra-Ulude*. Preference for *Ulude* was by people of all ages, both genders and in all areas visited. The vegetable was consumed in fresh and dried form. One consumer said he preferred it before it sets flowers when it is less bitter. Another male consumer enjoyed its bitter taste whether fresh or dried, after a beer drink.

The second most popular traditional vegetable was cowpea leaves-*iNdumba*. Most respondents sounded indifferent in terms of preference between fresh and processed *Ulude*, the scenario was quite different with *iNdumba*. All those who consumed the vegetable preferred it processed. Again consumption of the vegetable could not be characterised by sex, age, location and status.

Consumption of *Corchorus* sp.-*iDelele* could not be easily distinguished from that of *iNdumba* regarding consumer preference. However the discussions held seemed to indicate its usage as number three. The vegetable was more popular with women although a few men would enjoy it in the mornings before a beer drink. *Corchorus* sp.-*iDelele* was reported to increase *sadza* consumption. It was also reported to be a favoured by beer drinkers. Preference of the vegetable was more when it was fresh than dried. Respondents identified some different varieties of *iDelele* that were used but this did not seem to significantly affect consumption patterns. Instead availability and taste had a bearing on *iDelele* use.

The following are the different varieties of *Corchorus* sp.-*iDelele* mentioned.

- a. *Corchorus olitorius*                      *iDelele indlothi (ele masimini)*
- b. *Corchorus tridens*                      *iDelele le gongolo*
- c. *Corchorus asplenifolius*              *iDelele elesidaka*

The variety (a) and (c) were identified by leaf shape and habitat. *Indlothi* had broader leaves and grew from high ground and *elesidaka* was thick leaved and was mainly found in low-lying areas with predominantly vertisols. All types grew as weeds, in the field or in the veld.

Ranking of the remaining traditional vegetables could not really separate them. They were regarded essentially the same. The table below shows the respondents ranking of the mentioned traditional vegetables.

**Table 3. Ranking of Traditional Vegetables According to Preferences**

Rank	<i>Ulude</i>	<i>iDelele</i>	<i>iBhobola</i>	Okra	<i>Amakhomane</i>	<i>iNdumba</i>	Pumpkin Seeds
First	8	1	1	0	1	2	0
Second	2	4	2	1	0	2	0
Third	1	1	4	1	0	1	1
Fourth	0	2	1	0	0	0	0

Traditional vegetables were consumed for several reasons. Among these it became apparent that:

- a. Taste-was discovered to be the most influential attribute that affected consumption levels of traditional vegetables.
- b. Availability-households with larger families find that traditional vegetables play a pivotal role in providing for household food security in both urban and rural areas.
- c. Affordability-the cost of meat, milk and exotic vegetables was getting out of reach of many people hence the switch over to traditional vegetable crops.
- d. Easy and cheap to prepare requiring few additives, in the poorest cases only salt is added and at times cooking oil. (See also section on preparation)

Some traditional vegetables mentioned during the study grew as weeds although some such as *Ulude* and *iDelele* are managed after emergence (semi-cultivated). This aspect of voluntary growth made some traditional vegetables readily available to almost all households with access to arable and grazing land. The way they are accessible and available seems to be an important factor in influencing consumption levels of all traditional vegetables.

## **2.3 Preparations and Nutritive Value**

### **2.3.1 Preparation**

Preparation of all traditional vegetables remained mainly traditional with only common additives used. These included tomatoes, onion, cooking oil and/or fresh cream or milk.

**a. *Cleome gynandra-Ulude***

*Ulude* was prepared basically in the same manner whether fresh or dried. Fresh vegetable was normally washed in cold water and then cut. Dried vegetables were soaked in water to wash out dirt. Cut vegetables were added to boiling water and boiled for a while after which water is drained and replaced with fresh water in order to reduce the bitter taste of the vegetable, this is optional depending on preferences. The process was repeated according to one's experience and the growth stage of the vegetable plants. Salt would be added and boiling continued until the vegetables are well done. Tomatoes and onion would be added in some cases. Some consumers used cooking oil while others would add either fresh cream or milk. No special reason was given for this but it appeared where available the fresh cream/milk recipe was preferred and sounds a modern recipe. Peanut butter was also sometimes used.

**b. *Corchorus sp.-iDelele***

Cleaned *iDelele* leaves were added to boiling water that had sodium bicarbonate (soda) added to it. Excess boiling froth is removed. When almost done tomatoes and onion are added. During boiling steering is done to prevent over boiling froth as well as burning.

**c. Cow pea leaves-*iNdumba***

After harvesting *iBhobola* was cleaned, peeled off the fibrous skin covering the leaf stalk and margins. This removes the small spikes that can cause irritation when eating. The leaves and leaf stalk are cut into small pieces and then boiled in very little water with a bit of soda mixed in it. Pumpkin leaves take very short time to be done and tomatoes onion and other ingredients are added before it is well done.

**d. Okra-*iDelele***

Preparation of okra did not differ much from that of *Corchorus* species. The difference was that it would be cut into slices before boiling. Everything else remained basically the same even between fresh and dried, although dried may take longer to boil and prepare than fresh okra.

### **2.3.2 Nutritional and Medicinal Values**

All the people who were interviewed did not mention any known food and /or medicinal values of traditional vegetables, some however acknowledged that too much boiling of vegetables was not ideal as it culminated in nutrient destruction. One consumer who ate roasted pumpkin seeds revealed that he was aware of some medicinal value of the food but could not exactly say what it was. On the whole

traditional vegetables were generally regarded as good for bodybuilding by most of the consumers interviewed.

### **2.3.3 Preference**

Most interviewees said they preferred fresh traditional vegetables to dried ones irrespective of the type except for *iNdumba* because of good taste, hygiene and perceived food value. Dried or processed traditional vegetables were considered dirty and were also reported by some to smell at times. The nutrition of dried or processed traditional vegetables was viewed as low and also the colour was said by others to be unattractive. However among those who consumed dried or processed traditional vegetables they tended to prefer processed *Ulude* and *iNdumba* more than any other traditional vegetable.

## **2.4 Frequency and Quantities Consumed**

There was no clear-cut frequency of consumption of traditional vegetables. Frequencies varied across traditional vegetables from one household to another. However consumption of *Ulude* seemed to be more than that of other traditional vegetables with some families consuming it daily when available. The consumption of *iBhobola*, *iNdumba* and *iDelele* did not seem to be that varied among the population sample. Consumption frequencies ranged from once to thrice a week. Reasons for variations could not be established though one would think it could have been a function of availability of traditional vegetables as well as the need to change relish. Some families would consume traditional vegetables daily but have different types. Quantities of traditional vegetables used could not be established as all respondents said they did not measure the amounts they consumed. All they could say was that they would prepare enough to feed their families.

## **2.5 Consumption Trends**

The consumption of traditional vegetables was generally agreed to have been on the increase for the past three years. Magnitude of the upward trend could not be quantified, as no records to substantiate that were available. However, the change was mainly attributed to consumer taste and preference, and the difficult economic environment the national economy was experiencing. Most consumers said the cost of other foodstuffs had escalated to levels beyond their reach, hence the switch over to affordable vegetables.

## **2.6 Availability Calendar**

Traditional vegetables were available as from November (soon after the on-set of the rains) to May depending on the rain season, quality and traditional vegetable type. *Ulude* and *iDelele* were available soon after the first rains but for the former, once it started flowering, supply dwindled by the end of February. When the survey was conducted early March, signs of shortages were already there on the market. There

was demand of *Ulude* but traders were saying it had flowered by then. *iBhobola* would be available up until just before the cold season since it was susceptible to frost damage. Mid-season dry spells were also reported to negatively affect both the traditional vegetables supply situation and quality. On the other hand, excessive rainfall tended to destroy some traditional vegetables such as *Ulude* seriously limiting supply. Traditional vegetables such as *iNdumba* re-shot in winter improving its supply considerably during that period.

## **2.7 Sources**

Consumed traditional vegetables were from a variety of sources. These include the Bulawayo Independent Market (outside), rural producers, vendors, stallholders and own fields. The source was mainly a function of consumer type and place of residence. Consumers would buy from the nearest sources since in most cases prices and product quality were comparable. For consumers whose rural homes were close by, would continuously receive traditional vegetables from there. Some identified rural suppliers were Nyamandlovu, Sawmills, Igusu, Kezi and Matobo. There could be many more communal sources.

## **2.8 Affordability**

It was generally felt that traditional vegetable prices were affordable especially when fresh. When dried, traditional vegetables tended to cost more but one should bear in mind that as traditional vegetables were processed, they lost volume. Cost of traditional vegetables was identified as heavily dependent on availability. During the survey, a portion of fresh *Ulude* was being sold for Z\$10.00 while a bundle of *iBhobola* was selling for Z\$5.00. These quantities would feed up to three people. Processed *Ulude* going for Z\$50.00/tin container and the quantity would sustain a family of five for up to a week when consumed once a day. Some consumers also reported that none pre-packaging of traditional vegetables presented buyers with an opportunity to bargain for favourable amounts.

## **2.9 Consumption Patterns**

All household types and members regardless of age and sex consumed traditional vegetables though they had different preferences. Consumption of traditional vegetables was discovered to be independent of household type (male or female headed). Among household members, adult males did not like *iDelele* in the majority of cases as it was regarded to make them weak. However in isolated instances, some adult males consumed *iDelele* before a beer drink since it enhanced *sadza* intake. Adult males preferred *Ulude* (both fresh and dried) to any other traditional vegetable.

In most households female adults were the main consumers of all forms and types of traditional vegetables. Children tended to prefer, though with reservations, fresh traditional vegetables to processed ones. This was generally across all traditional vegetable types.

## **2.10 Processing**

The processing of *Ulude* and *iNdumba* was almost similar whilst that of *iDelele*, okra and *iBhobola* also had similarities. No cases were found where *iMbuya* was processed. For the former vegetables, they were harvested, wilted (*iNdumba* only), cleaned, cut, boiled, salted during boiling and dried as moulded or free. One female trader at the Independent Market explained that people who buy to sell to Botswana and South Africa prefer the moulded type. *IDelele*, okra and *iBhobola* were only cleaned and dried raw. *IDelele* was not cut when processing or cooking and its drying was done in the shade to preserve the colour. Drying of traditional vegetables was done on rocks where available, metal sheets and/or firm ground. The process took 2 – 3 days depending on weather conditions. Dry, calm sunny days were the most ideal. During processing losses could be incurred. However these were regarded not significant by all processors interviewed. The losses were through loose leaves and traditional vegetables blown away by wind during drying. However in wet weather significant losses could be experienced since the incidence of rots would be very high.

### **2.11 Storage**

Storage was mainly of processed traditional vegetables. For fresh vegetables, only enough for a meal were either harvested or purchased. In instances where more than enough for a meal was bought, fresh traditional vegetables were kept in refrigerators where available or kept over night in well-ventilated places with water sprinkled. This was reported to keep traditional vegetables fresh for limited periods. Processed traditional vegetables lasted up to twelve (12) months but in most cases they got finished before the period lapsed. Shelf life of processed traditional vegetables was influenced by the drying process, moisture/humidity and ventilation during storage. Damp traditional vegetables stored in poorly ventilated places tended to deteriorate in quality and flavour quickly. Storage was mainly in jute bags kept in huts/granaries or rooms that did not allow in moisture.

### **2.12 Factors to Improve Consumption**

Not many respondents could come up with issues viewed critical to enhance consumption of traditional vegetables. Among those who could, they mentioned recipes, seed availability, hygiene and packaging of traditional vegetables as factors that may influence their utilisation. Some consumers liked traditional vegetables but were not aware of the good recipes. Commercialising traditional vegetable production through availing seed and improvement on hygiene especially for processed traditional vegetables were considered important. Availing seed was meant to aid off-season production and introduction of traditional vegetables in areas where they were not found. One consumer interviewed suggested vacuum packaging of fresh traditional vegetables.

### **2.13 Comparison with Exotic**

Generally all elderly respondents regardless of sex preferred traditional vegetables to exotic vegetables as opposed to the younger people. Traditional vegetables were regarded cheaper although sometimes difficult to get, easy to produce (mainly grew as weeds or inter-cropped) and had better taste. Some even said exotics, unlike traditional vegetables caused heartburns. Prolonged consumption of exotics was also

revealed to be triggering the switch over to traditional vegetables for a change. However there were some who confessed that it was the harsh macro-economic conditions forcing them to take more of traditional vegetables than exotics. Traditional vegetables were considered cheaper and tastier than exotic vegetables.

#### **2.14 Sources and Use of Outside Information**

There was little outside information regarding traditional vegetables used by the consumers. Most respondents got information, especially that relating to recipes, from the traders, producers and their parents. Consumers also shared information among themselves, in socio-economic clubs/groupings and neighbourhood. There was however one case in which a consumer got some information from a television through an advertisement. This related to a recipe for preparing pumpkin leaves (*iBhobola*).

### **3.0 PRODUCERS (FARMERS) AND COLLECTORS**

Producers, farmers, and <sup>1</sup>collectors were interviewed. In total there were seventeen (17) interviews, five were groups and twelve were individuals. Of the seventeen interviewed either group or individual, six were male and eleven female.

#### **3.1 Location**

Seven collectors were interviewed at Luveve Railway Station. They are part traders and part collectors. They bought traditional vegetables from places along the Bulawayo to Victoria Falls railway line. Some do the collection themselves and some buy from collectors in the rural areas. The produce from Luveve Railway Station come from these areas; Tsholotsho, Igusu, Nyamandlovu (all Matebeleland North) Others interviewed were from Esigodini, Matobo (Matebeleland South), and Range more, Terre Nance and Robert Sinyoka (Bulawayo Peri-Urban).

#### **3.2 Main Economic Activities**

All the collectors interviewed spent most of their time buying vegetables and selling in summer. In winter and spring they deal with exotic vegetables and dried traditional vegetables at the same market place.

The growers from Esigodini and Matobo grow exotic vegetables in winter and grow traditional vegetables in summer. They dry traditional vegetables and sell them when the produce is no longer available as fresh. They come to Bulawayo to sell their produce.

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<sup>1</sup> Collectors here mean traders who go buying from one farmer to the other until they build enough stock to bring into town using the Victoria Falls to Bulawayo train. Usually the traders are allowed to go into fields to harvest and then the farmer charges them.



The producers from Peri-urban areas mainly grow exotic vegetables. The traditional vegetables they deal with are pumpkin leaves and cultivated okra. The vendors from Bulawayo come to harvest what ever produce is being produced.

Peri-urban producers from Robert Sinyoka and Saint Peters were producing as communal farmers. They grew exotic vegetables for home consumption. They also grow grain crops for food self-sufficiency and subsistence. The traditional vegetables are picked in the fields during the rainy season. Most of the produce grown is for home consumption and excess is sold locally.

### **3.4 Production**

#### **3.4.1 Traditional vegetables produced and picked according to importance:**

- (a) *Ulude*–*Cleome gynandra* –fresh and dry
- (b) *Idelele*-*Corchorus spp.* – fresh and dry
- (c) *Indumba*–*munyemba*-*Vigna unguiculata* – fresh and dry
- (d) *iBhobola* (pumpkin leaves)- *mubooora* –*Cucurbita moschata*
- (e) *Amakhomane*-*mapudzi*-*Lagenaria siceraria*
- (f) Okra – *iDelele* – *derere rezvipudzi* – *Abelmoschus esculentus*
- (g) Wild mushroom (rare)

#### **3.4.2 Production Calendar**

The time of production is from October for pumpkin leaves to April for production of dried cowpea leaves. *Ulude* is picked from late November depending on the arrival of the first rains to about February. Once the *Ulude* sets flowers and the flower pods dry it will no longer be palatable. So the time of picking *Ulude* is very short. The collectors usually dry it for off-season use. If there is too much rain *Ulude* picking rate would be reduced and processing will be negatively affected.

*iDelele* – *Corchorus* sp. availability is more spread as compared to that of *Ulude*. *iDelele* is collected from November to April. Excess is also dried.

Squash leaves are harvested in August/September from an irrigated crop, there after pumpkin leaves are harvested from the fields. This lasts up to March. If there is an irrigated crop of squash again the leaves are gathered from March to May. *aMakhomane* are harvested from early January to March and are consumed while fresh and still tender. This is when the seed is still tender not fully mature. Cowpea leaves are not eaten fresh; they are harvested from January to March. After harvesting they are dried and sold on the market right throughout the year.

Okra is produced throughout the year with the exception of the cold winter months and very wet summers. This then implies that it is sometimes produced under irrigation.

*Ulude* and *iDelele* are preferably consumed fresh. Once the fresh produce is no longer available, they are sold and consumed dried. This starts as from June onwards until the fresh ones are available..

In *iDelele* there are three broad types;

- a) *iDelele-elesidaka* growing from the bush clay areas especially in grazing areas.
- b) *IDelele-indlothi (elamafusi)*, this grows in cultivated lands.
- c) *IDelele-gongolo* – this is a thin leaved type, which grows in cultivated areas and in the bush.

### **3.4.3 Area Planted**

Producers were not aware of the figures as most traditional vegetables grew as weeds and no records were kept for cultivated ones.

### **3.4.4 Production**

Where there was a commercial level of production, there were no sex differences in who does the production and picking. In areas with a communal set up only women and children of school going age did the picking but the production was done by both sexes (production means planting and caring for the crop).

*iDelele* and *Ulude* are usually not always planted they are only picked, after being left out not weeded in fields. Growers from Matebeleland South said both sexes picked the produce and children also participated.

### **3.4.5 Crop Management**

There is very little crop management. Fertilisation and weeding which are done are not directed towards traditional vegetables. They only benefit because they will be growing amongst the main crops. The only crop which is managed is squash but the management is not aimed at the leaves instead, the fruit later on. *Ulude* and *iDelele* do not succumb to a lot of diseases.

Pests and diseases attacking pumpkin and cowpea leaves are;

- (a) Leaf eaters-usually grasshoppers
- (b) Aphids
- (c) Powdery mildew on pumpkin and squash leaves.

All the traditional vegetables are not irrigated except squash leaves and okra in some cases.

#### **3.4.6 Sources of Seed**

- a. Spider flower-*Cleome gynandra-Ulude*. Only the Esigodini and Matobo producers mentioned deliberate seed harvesting. When the *Ulude* pods are dry they are mixed with kraal manure. There was no mention of variety selection.
- b. *Corchorus sp-iDelele*. No deliberate action to preserve planting seed is taken.
- c. Cowpea leaves-*iNdumba*. Seed is obtained from the previous crop and communities give each other seed.
- d. Pumpkin leaves-*Cucurbita moschata*. As for cowpea.
- e. Butternut-*Cucurbitasp.* – Squash leaves. Bought from seed shops.
- f. Gourds-*Lagenaria siceraria – aMakhomane*. As for cowpea.
- g. Okra-*Abelmoschus esculentus-iDelele*. Bought from seed shops or retained by farmers.

#### **3.4.7 Trends Over the Last three Years**

Most stated that there has been no change over the past three years since traditional vegetables are always in short supply (especially fresh ones). Producers cannot satisfy the needs of the traders and consumers. A few stated that there was a reduction in the amount sold since traders were too many and customers were not very ready to buy because of harsh economic conditions.

#### **3.5 Quantities Sold and Consumed**

These are not measured. If the crop is available it is divided for home use and for trading.

#### **3.6 Reasons for Growing Traditional Vegetable Crops**

The crops are grown to be sold and also to be consumed by the family.

#### **3.7 Harvesting**

- a. Spider flower-*Cleome gynandra-Ulude*: Harvesting starts as soon as the crop is easily handled. It continues until the crop has produced pods and is very coarse. Harvesting is done by twisting the growing tips of the plant. This also encourages regrowth. A reasonable stem portion and leaves are harvested. Women and children usually do it. The respondents who sell this product at a commercial level stated that everyone including the men do harvest the crop.
- b. It is commonly sold as loose tips hence measured in 20 litre buckets at the wholesale market and in heaps by stallholders and vendors.

- c. *Corchorus sp-iDelele*: Harvesting is done when the crop is still soft and tender. It is done by nipping with finger nails the upper part of the growing tips. Women and children usually do it though men do it as well. It is sold loose as *Ulude*.
- d. Cowpea leaves-*Indumba-Munyemba*: Harvesting is done when the leaves and growing tips are still very young and tender. It is done by nipping the growing part of the crop using finger nails. Women and children usually do it.
- e. Gourds-*Lagenaria siceraria* – *aMakhomane*: Harvesting is done when the fruits are immature and tender. The index used is that of pricking with a fingernail. If the fruit can be penetrated by a finger nail then it is ready but if it has grown harder then it is left on the mother plant and will be used as source of seed and gourd. Done by women and children.
- f. Pumpkin leaves – Squash -*Cucurbita sp.*: It is done when leaves are soft and tender. Leaves (individual) are cut off with a knife. Usually women and children do it.

### 3.8 Storage and Processing

- a. Gourds-*Amakhomane*, Gourds are utilised in fresh form but not all gourds are grown for food. Some varieties are specifically grown for use as containers and utensils
- b. *iDelele* is dried raw. Immediately after harvesting it is sorted out, cleaned and cut into slices. It is dried in the sun or in a shade. If the weather is fine and not overcast, the crop will dry in two days or so. After drying it is stored in Hessian sacks or buckets in a shaded place.
- c. Spider flower-*Ulude* and cowpea leaves are graded and thoroughly cleaned after harvesting. The excess stalks are removed. Washing can be done. The leaves are boiled for about 45 minutes for cowpea and one hour for *Ulude*. Salt may be added. If Spider flower is boiled for a shorter time then the bitter taste prevails. Water is extracted and the product is dried on metal sheets. If the weather is fine, the product can be dry in two days. Some mould it and mould it into ball before drying, done in particular to cowpea leaves.

Although the price is the same when the product is sold, when weighed out the balled vegetables weigh more. Consumers from Botswana and South Africa preferred moulded vegetables whereas Zimbabwean consumers preferred either of the two. Cleanliness is vital to maintain the quality of the dried products. The product has to be dry for it to store well. After drying it is packed in Hessian sacks or other containers. Dried product can store for at least a year or more. Dried vegetables sell better once the fresh ones are finished, during winter and summer.

All the respondents from Matebeleland North stated that children and women do harvesting while women only usually do processing. The respondents from Matebeleland South, Esigodini and Matobo districts, stated that all sexes harvest and

process traditional vegetables. Labour requirements and cost could not be established but there appears to be considerable labour demand for those who process.

### **3.9 Losses**

There are very few losses incurred. Losses are experienced during processing when it is raining and overcast. When it is raining the whole produce can be lost. During the time of the survey the major constraints were fuel shortage and effects of Cyclone Eline. There was very little produce coming into Bulawayo because of the above two factors.

Other constraints expressed by this category of interviewees were:

### **3.10 Production Constraints**

- a. Unavailability of seed
- b. Seasonality of production
- c. Pests and disease: - aphids and honeydew in cowpea, leaf eaten in *iDelele* and *Ulude*. Bug in a*Makhomane*, powdery mildew disease in pumpkin and squash leaves.

### **3.11 Harvesting Constraints**

Limited labour as there was competition for labour with other field crops.

### **3.12 Processing Constraints**

- a. Lack of sunshine especially this year
- b. If it is windy the product may gather dust, small pebbles or blown away
- c. During drying traditional vegetables have to be guarded against chickens, domestic pets.

### **3.13 Marketing Constraints**

Lack of and expensive transport from the production areas to the city and from Renkini (long distance bus terminus) to the market place. Train and bus conductors may refuse the product on the train or bus, respectively.

### **3.14 Storage Constraints**

At times there is lack of suitable containers. Product can collect dust and/or moisture.

Suggestions to overcome some of the identified constraints were:

- a. Developing a reliable seed source so that they can produce throughout the year

- b. Improved technology on drying

### 3.15 Marketing

There are no gender differences in marketing traditional vegetables. Both men and women marketed the crop. The consumer is very sensitive to cleanliness of the product, thus the producer has to thoroughly clean his/her product. The traders shun dirty produce. There is need for cleanliness when processing traditional vegetables.

Producers pay the train or bus for ferrying their produce. The transportation cost depends on the distance and container size. A collector from Lupane (about 170 km from Bulawayo) said it cost him Z\$65.00 one-way ticket and Z\$10.00 per full 50 kg bag of traditional vegetables (NB: Traditional vegetables will be weighing much less than 50 kg).

When the produce arrives at Renkini, 'scania boys' also charge Z\$10.00 per 50 kg bag from Renkini to the market place. Those who use the railway line usually drop off at Luveve siding. Vendors and consumers come to buy at the siding. Producers and collectors wait at the siding until most of the produce has been sold. If there is any remaining then it is sold at the markets in the city centre. In most cases all produce is sold at the siding. Producers close to Bulawayo do not transport their produce. Their customers come to buy from the farms. There is no packaging done by the producers and collectors. That responsibility is passed to traders.

Quantities marketed vary a lot. There were no figures given. Prices are variable depending on supply and demand. On one of the days of the survey (29/02/2000), one producer was selling a 20-litre tin for:

- |                           |                   |
|---------------------------|-------------------|
| a. <i>Ulude</i> (fresh)   | Z\$100.00         |
| b. <i>iDelele</i> (fresh) | Z\$ 60.00 – 70.00 |
| c. Cowpea (dry)           | Z\$200.00         |
| d. Mushroom (dry)         | \$120.00 – 150.00 |

The same producer stated that a 20 litre tin would increase by Z\$50.00 or more as from August onwards when processed produce supply becomes limited. Traders and customers prefer fresh produce compared to dry if the two are available on the market but as soon as fresh produce is finished they switch over to dried produce.

### 3.16 Price Fluctuation

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<sup>2</sup> Scania boys are guys with push-carts which are used to ferry peoples goods in urban centres. Their prices are fair and can be negotiable.

This is usually due to market forces but fluctuations are not as bad as in exotic produce. Produce is generally cheaper during the rainy season when it is abundant. It gets more expensive after winter.

Growers usually spend about three hours at the market place or railway station selling their produce. There are therefore no price fluctuations during the day as the time spent at the market place is very little.

Traders and consumers are usually prepared to spend their money on Mondays and month ends, so these are better days for business. Availability of produce seems to control price levels more than state and condition of produce, especially in times of scarcity.

### **3.17 Social and Cultural Aspects**

Matebeleland North and South growers dry their vegetables moulded. Midlands growers dry their vegetables as singles. In most cases women and children gather and process traditional vegetables. Men who live off gathering, growing and selling vegetables also collect and process traditional vegetables.

### **3.18 External Assistance**

Growers have received extension advice from state Department of Agricultural Technical and Extension Services (AGRITEX) in some cases. All the advice has been on exotic vegetables and food security crops but none on traditional vegetables such as *Ulude* and *iDelele*. In some instances extension advice was rendered in okra, squash and *iBhobola* production.