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Market gardening as livelihood option in Zimbabwe's rural areas: Glimpses from ward 17, Chihota

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Abstract

This study was carried out to determine the impact of market gardening as a livelihood option in Chihota communal area. A mixed method approach was adopted for this study A sample of 5 villages were randomly selected from a total of 30 villages. Data collection tools included questionnaires, face to face interviews and field observations. Key informant interviews were done with Agritex extension officers. Direct observations were made; photographs were taken that provided visual evidence. Challenges hindering productivity in market gardening in Chihota are similar to those being experienced in other areas in Zimbabwe and Africa as a whole. These challenges included poor transport network, inputs shortages, uncompetitive market prices and limited access to extension service among others. However, there are other challenges which have proved to be more profound in Chihota, such challenges are limited access to both extension services and inputs. There is need for improvement in extension services in the area, servicing of roads more frequently so that they become all weather. In addition, the local authority has a big task to spruce up the area by upgrading of market areas with cold storage facilities and processing plants which hopefully will improve people's livelihoods.

Keywords: Chihota; Horticulture; Market Gardening; Market; Produce

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1. Introduction

At independence, in 1980, the new Zimbabwean government prioritised correction of developmental challenges created by the colonial regime [GoZ, 1982]. With independence in 1980, the government's emphasis was to make sure that there was growth and development in the previously marginalised rural areas through the black empowerment mantra. In areas within 60km of Harare the government initiated smallholder horticultural farming [SHF]. Some of these places include Chihota, Domboshava (both in Mashonaland East Province of Zimbabwe) and Musana (whose geographical distribution cuts across Mashonaland Central and East Provinces). There were many reasons for this initiative. Firstly, the rate of growth of the capital and primate Harare and Chitungwiza, the third largest town in Zimbabwe in the early decade of independence meant that for areas closer to Harare there was going to be demand for fresh horticultural produce since there was a large non-farm population. Secondly, there was less competition from large scale horticulture farmers because they did not necessarily grow the same crops as those of SHF. More than three decades after its inception SHF seem to face a number of challenges. Proctor et al (2000) noted that there were sustainability and viability problems in areas that were thought to have the highest potential for horticultural production; and Chihota is one of them.

2. Statement of the problem

Market gardening has the potential to generate a sustainable amount of income for small scale farmers. Despite the wide spread optimism by analysts and researchers in the ability of SHF to provide solutions to rural poverty, there are challenges which are peculiar to Chihota in terms of realising success in this regard. The study therefore sought to explore the problems encountered SHF by in Chihota. Specifically, the study sought to:

a. Establish the main horticultural produce from Chihota
b. Explore the challenges faced by market gardeners in Chihota
c. Evaluate how the challenges identified could be reduced through a SWOT analysis

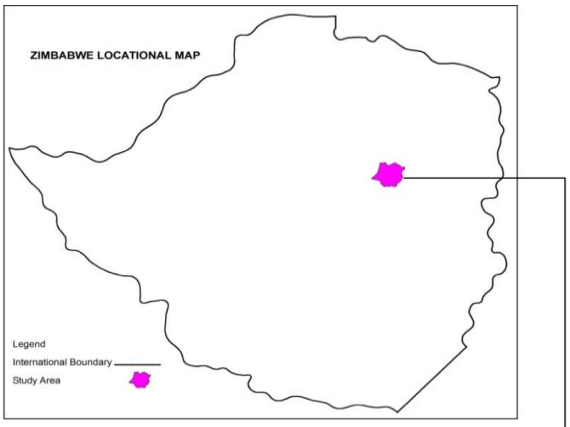
3. Chihota communal area

Chihota Communal Area shown in Figure 1 is located 35km west of Marondera (The Provincial Capital of Mashonaland East Province of Zimbabwe, one of the geo political regions of Zimbabwe) and approximately 60km from Harare. Marondera district is divided into four parliamentary Constituencies: Marondera East, Marondera West, Marondera Central and a small portion of Wedza North Constituency (most of which is Wedza District).

Chihota is in Marondera West Constituency and the following business centres are found in the area; Mahusekwa, Chiwanzamarara and Manyaira. Chihota is generally gently undulating with poor sandy soils. More than half of Chihota floods during the rainy season because the soils easily absorb an d loses water. There

are vast extensions of underlying granite rock which probably accounts for the water logging quite common in the area. The vegetation is mainly savannah type consisting of scattered indigenous trees with the majority being thorny acacia. The climate is savannah with warm wet summers and cool dry winters. The average annual temperature is about 16,7^{0}C and the average annual precipitation is about 902mm (Bindu and Chigusirwa, 2013). Market gardening is the major source of livelihood though there are other activities that include brick moulding, petty trading, clay port making and thatching grass sales. Gardens are located on vleis and swampy areas which are mainly water logged and are on average less than one hectare. Farmers dig some small wells *(matsime)* in their gardens measuring on average 5m meters by three meter and two to four meters deep.

1a. Location of Chihota in Zimbabwe



1b. Map of Chihota Communal Area

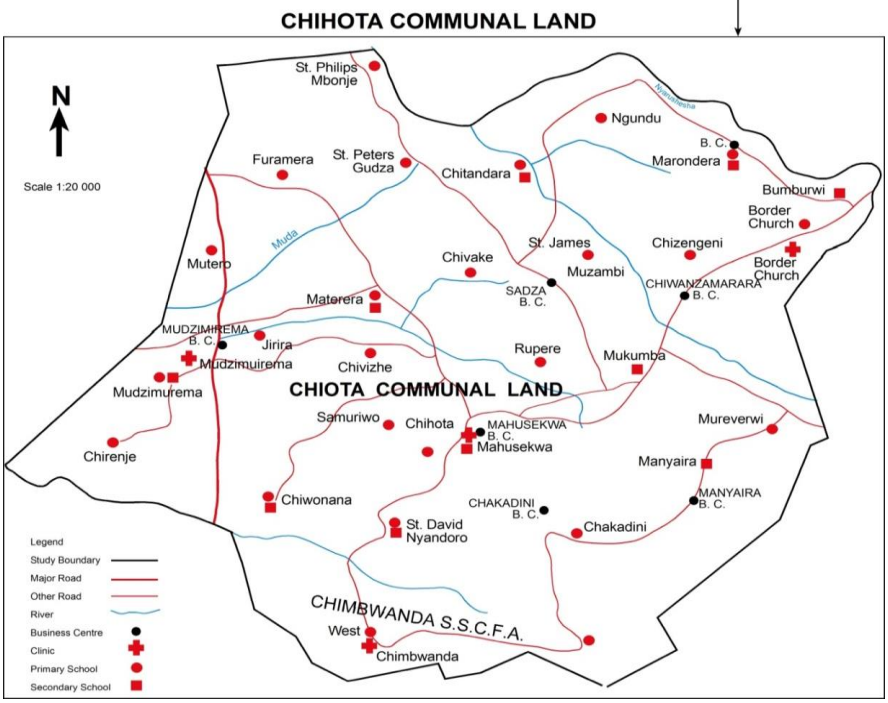


Figure 1. Location of Chihota in Zimbabwe: Source: Surveyor General (2017)

Farmers in Chihota are peasants, they do not have sophisticated technology such as irrigation facilities due to poverty. Hence, they rely on simple irrigation which uses watering cans and in some cases (less than 40%) there is use petrol and diesel water pumps for their farming. Inherently each farming plot has more than one deep well to ensure continuous availability of irrigated water. produce from Chihota is mainly sold at Mbare Musika, Harare, the largest bus termini in Zimbabwe, at Lusaka in Highfield (Harare). A number of farmer's market their produce in the communal market to motorists driving along Landos-Chibwanda road, at Landos and Mahusekwa business centres and within the community (Bindu and Chigusirwa, 2013).

3.1. Market gardening defined

Market gardening is the commercial production of high-value crops such as vegetables, fruits, flowers and other plants on a scale larger than a home garden (Bachamann, 2009). This enterprise gives farmers the potential to increase their livelihoods options and income (Bachmann, 2009). The main goal, as with all farm enterprises is to run the operation as a profitable business entity. Market gardening is oriented towards local markets, although production for shipping to more distant market is possible. Community gardens were initiated around the eighteenth and nineteenth centuries where tropical vegetable culture survived in remote areas (Griggs, 1974). Generally, in Africa community gardens were meant to produce vegetable for family consumption and this was even in prehistoric time. Most of the farming was done after the rainy season when the soils were friable, thus easy to work on. This is quite pertinent because this is an activity meant to continue with farming after the main rainy season when labour shift to this enterprise so as to augment income from crop sales.

For SHF vegetables are mainly produced for home consumption with the excess sold to the local and distant markets. Farming is concentrated along river valley for easy irrigation. The soils along river valleys are also fertile alluvial deposits, however stream bank cultivation n is quite a challenge. However, there are also deeps wells and boreholes in some gardens in major SHF areas near urban centres and along intercity and feeder roads such Zimuto, Uzumba Maramba Pfungwe, Seke, Musana Mutoko, Murewa, Goromonzi, Domboshawa and Chihota (Proctor *et al,* 2000). Horticulture produce requires an efficient transport network, knowledge and an adequate supply of inputs.

3.2. Market gardening outside Africa

Growing vegetables provides poor families with the opportunity to eat as much healthier diet than one based solely on cereals. A better diet enables a much healthier family. Vegetable production intensified in Hanoi, Viet Nam, since the beginning of transformation from a centralised economy to a market economy. In 1991, 5100 hectares were put under horticultural production but this figure reached 8000 hectares and in 2002. Many smallholders lacked knowledge of production and technology since they were entirely attracted to short term benefits. Resultantly many of them overused chemicals to increase crop yields. This resulted in many consumers being poisoned (Dinh Hung et al., 2004). In West Washington and Oregon in the USA sunlight is naturally limited due to the number of overcast days. Most vegetable crops require at least six hours of direct sunlight a day to be productive or else they become leggy and mature late (Taber et al., 2009). By and large, in

urban soils are contaminated with heavy metals such as lead, arsenic, or cadmium. These chemicals are a challenge as stated below:

1. Finding affordable land including adequate land for crop rotation. Crop rotation builds and maintain soil fertility and prevent pest and weed problems. Shortage of adequate land results in mono-cultivation which leads to pest infestations, reduction in soil fertility and hence poor yields.
2. Attaining a scale of production and marketing that meets net cash income needs and goals without the expenses and hassles of extensive labour is a prerequisite for horticultural production to have well paid employees and an honest need to earn more money for his household.
3. Balancing labour with scale appropriate, inexpensive tools and machinery. This is especially true at the small and mid-size scales of production. For the 3 to 12-acre market farms there are significant gaps in available-and affordable- equipment.
4. While there are more young people interested in organic farming, finding hard workers who are good match with a farmer's management style is a challenge. Many workers put in only one season on a farm before leaving.
5. Some part-time growers also struggle with balancing their farm businesses with off-farm jobs, as well as harmonization of the demands of a farm with private time, health considerations, personal and social relationships, and raising children.

3.3. Market gardening in Africa

SHF are producing major cash crops thus contributing to more than 10% of the total output thus contributing to socio-economic transformation and general economic growth. Horticultural production in Sub-Saharan Africa has been on a downward trend owing to unreliable power supplies, unavailability of formal credit, high interest rates, there is limited infrastructure, lack market information, poor transportation, poor storage facilities, limited use of certified seeds and water shortages (The Montpellier Panel, 2013). Largely, in Sub-Saharan Africa rural development and farming in particular is constrained by unreliable, unusable and untimely information. Thus effective decision making becomes difficult due to dispersed and outdated data (eMkambo, 2018). Major horticultural crops grown in Africa are baby corn, bananas, broccoli, cabbage, cauliflower, citrus, coffee, flowers, kales, mange tout peas, onion, pepper, tea and tomatoes. Export of horticultural is mainly directed to the EU especially flower exports, vegetables and citrus. More than 10% of farm produce is wasted between farm gates and consumers, due to poor roads, fuzzy land tenure and traditional land rights, spillage degradation due to limited or no storage facilities (Bachmann, 2009). In DRC, Ivory Coast, Ghana, Nigeria, Rwanda, Senegal and Tanzania challenges faced by SHF are the similar with a fuzzy and often temporary tenure, evictions, in a nutshell farmers lack security due to illegal sale of state, a scenario prevalent in Zimbabwe (FAO, 2012).

The death of the agro- processing capacity in sub-Saharan Africa, in both urban and rural areas, is blamed for post-harvest fruit and vegetable losses that are estimated to be half of the total production (eMkambo, 2018). Farmers prefer to sell raw fresh products as they do not have the capacity to process them. This is also due to the need for more income which is determined by the marketing chain. In Ibadan, Nigeria, farmers keep the marketing chain short by selling directly to the public at the" farm gate", many in Dar es Salam do so from roadside stalls. In Lusaka farmers transport their produce to markets by public transport. Transport is not

reliable in most of Africa, hence it often breaks down when farmers take their produce to the market (World Bank, 2013). They sometimes get stranded and their produce withers and rot middlemen known local in Zimbabwe as *makoronyera* get more money than the farmers themselves as the farmers lack collective bargaining. In Ghana, grower's earnings are often low" because they are disorganised and have limited capacity to negotiate prices.

One of the major reasons why small horticulture products are not easily exported is the poor packaging by farmers (eMkambo, 2016). This leads to down grading of the quality of produce. Perishable products are easily squashed because of the poor workmanship of the wooden boxes that they are packaged in, a scenario common in Lusaka, Highfield and Mbare Musika. However, it is difficult to produce for export under the current scenario until farmers invest in producing high grades of vegetables that fetch a high price on the market. Soweto, is in a" deplorable condition "with limited storage capacity and no cold storage of any kind. In Nigeria markets are, 'badly located, unsanitary, heavily congested and lacking the physical facilities to handle large volumes of produce and low returns to growers do not necessarily mean low prices for consumers Zimbabwe has experienced an unprecedented decline of nearly all human development indicators since the attainment of independence (Zivenga et al., 1994). Despite the introduction of community gardens in drought prone areas of Zimbabwe, poverty persists among the vulnerable groups.

In most cases, when there is donor funding, success stories are often exaggerated to appease the donor. In the same vain SHFs success were often exaggerated (Proctor et al., 2000). It was evident in some places that poverty, hunger and malnutrition remained. In some parts of Mashonaland East and Mashonaland Central provinces where SHFs these challenges were noted. This was mainly as a result of viability, diversity and sustainability challenges in the peripheral rural areas of Zimbabwe. Additionally, farmers do not record most of their activities and thus often rely on wrong advice, hence room for improvement is curtailed. Farmers rarely understand the market in detail and in most cases are seriously disaggregated. Travelling for more than 100km with a bucket of tomatoes and or 20 bundles of vegetables is not profitable. Regrettably farmers continue to approach the market individually. One of the major challenges in Africa is the transport sector which is poor; the roads are in a bad condition. Often there are the delays in sending produce to the market resulting in some perishable produce going bad.

4. Materials and methods

A mixed method approach was adopted for this study. This involved use of both the qualitative and quantitative methods. Structured questionnaires were used to gather data from the farmers. The qualitative aspect of the research design was adopted through the use of face to face interviews with the extension officers The mixed approach design allowed further probing for information directly from respondents. The main data collection tool was the questionnaire which included both closed and open ended questions. Open ended questions offered farmers the opportunity to describe the challenges they are encountering in market gardening in their own words. The questionnaires were personally distributed and administered. Ward 17 in Chihota is made up of 30 villages. Random sampling was used to select 5 villages from the 30. Stratified random sampling was then

used to select 100 participants from the 5 villages as shown in Table 1. The population of this study were all the market gardeners in the ward. Table 1 shows the sample size.

Table 1. Villages and Farmers Sampled

Name of Village	Number of Farmers	Sample Size (10% of The Population)
Ngundu	300	30
Marondera	200	20
Goremucheche	200	20
Mazhindu	200	20
Zimbudzana	100	10
Total	1000	100

Direct observations showed reality on the ground including what farmers claimed they do yet in reality they don't. Key informant interviews were targeted at two Agritex Officers in the ward.

5. Results and discussion

Farmers are made up of both men and women whose ages range from 20-70 years as shown Figure 2.

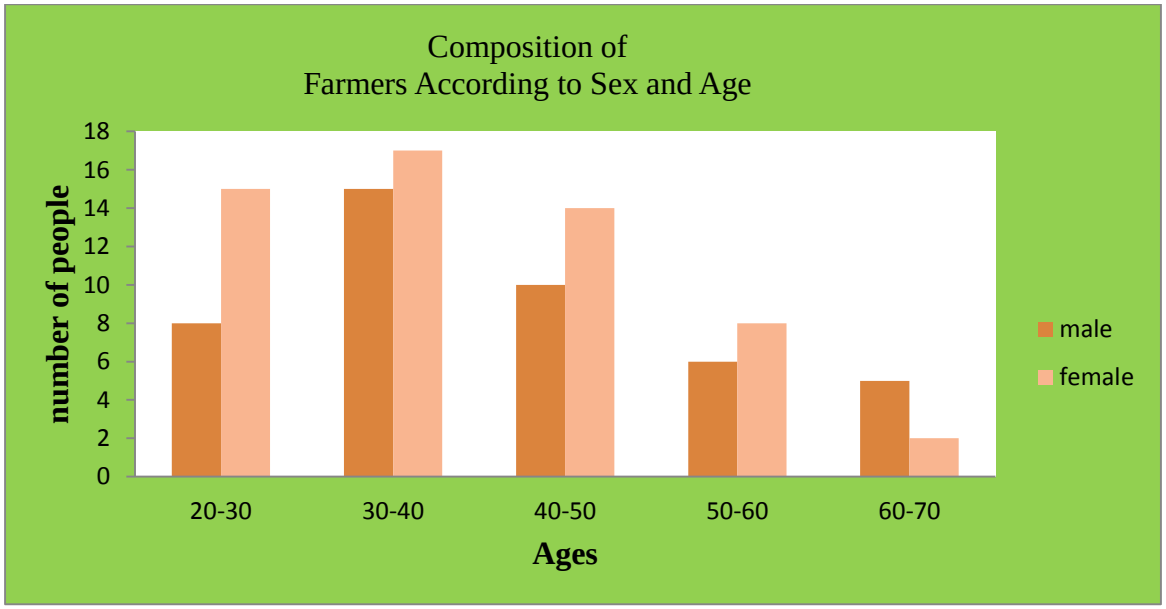


Figure 2. Composition of Farmers by Age and Gender (Source: Field Survey April, 2016)

Figure 2 shows that there are more women in market gardening in Chihota. The reason could be that it is women who are mostly faced with the challenge of providing food for the family. The same point has been noted by Hasna (1998) he argued 'women tend to dominate urban agriculture because they are marginalized in other forms of employment Figure 2 shows that the majority of women involved in market gardening lie in the middle age range of 30-40 years and 40-50. There are very few women in the young age range of 20-30. The reason could be that young women after school tend to pursue employment in towns as they are fascinated by city life. In the age ranges 20-30 and 40-50 there is a sizeable number of males involved in market gardening. This trend might be due to the fact that at these ages men would have given up the hope of finding a good paying job in the formal sector especially in the city. The majority of the farmers grow at least one of the following vegetable varieties namely *rape, tsunga, covo* and *chomolier* (Please refer to Figure 3). Most of the farmers always have at least one of these all year round. Leafy vegetables always have a ready market because they are a daily relish requirement. Onion and tomatoes are mainly grown for the purpose of income generation. Rodade and jam tomato are favourite among the majority of farmers because they can withstand adverse weather conditions. Those farmers who don't grow these complained of the long time it takes until they are harvested. Many farmers prefer the fast growing leafy vegetables.

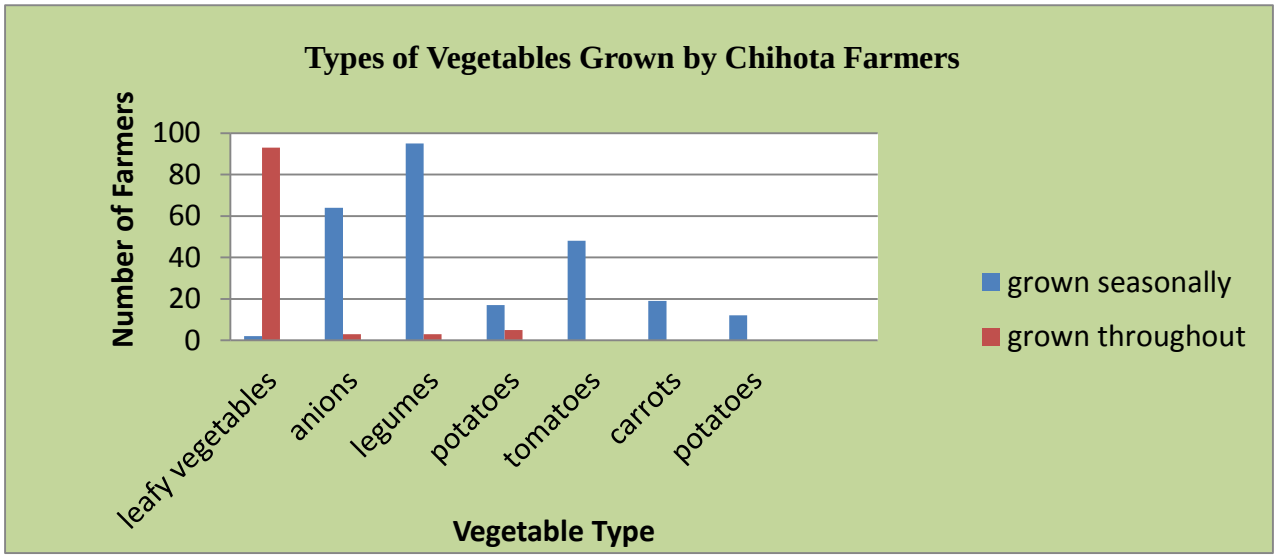


Figure 3. Vegetables Grown by Farmers in Chihota (source: field data 2016, April 12)

Farmers in Chihota have put forward the following as the constraints they face in reaching their maximum potential during vegetable production. Unreliable water supply to irrigate their gardens is one of the main challenges More than 70% of the farmers rely on shallow wells dug in their gardens as sources of water. Shallow wells do not provide enough water as they tend to dry up in the hot season between especially between September and October, only to be replenished by the first rains from early to late November. When wells dry up, farmers tend have to stop production, except for a few individual farmers whose gardens are located near river banks and use river water. Various sources of water used in Chihota are illustrated in Figure 5.

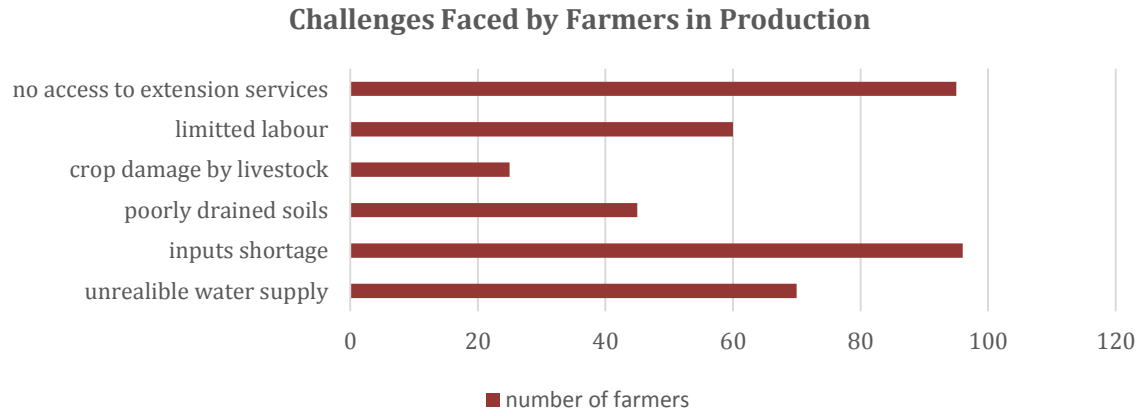


Figure 4. Challenges faced by Farmers during Vegetable production

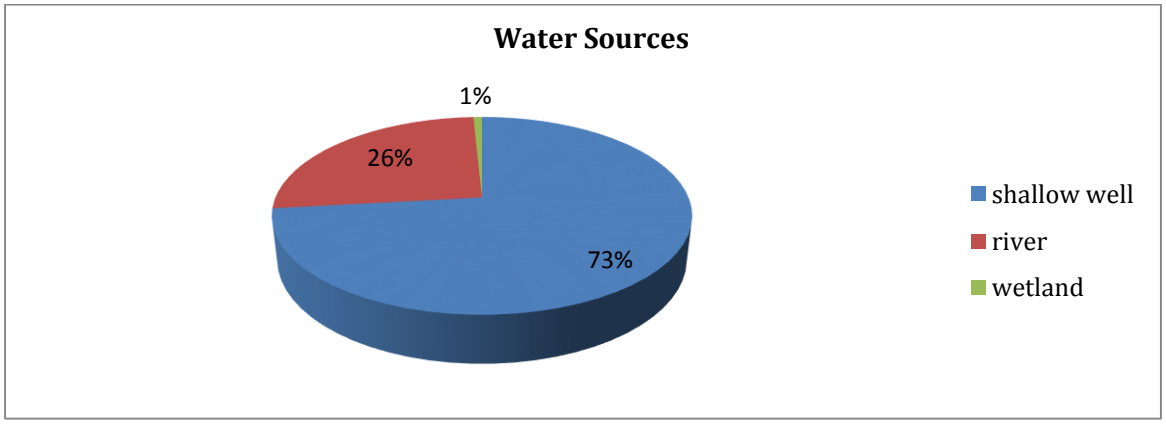


Figure 5. Water Sources Used by Farmers (Source: Field Data 2017)

In Chihota, shortage of inputs is common. Scarcity in fertilizers, pesticides, water pumps and irrigation equipment are due to due to limited financial resources as the majority of the farmers have no other source of income such as formal jobs. Figure 6 below shows that 96% of the famers cited these identified challenges. These challenges are not only peculiar to Chihota but are also prevalent in other countries in Africa countries such as the Republic of Congo, where a well-organised seed supply system that supported market gardening during the 1990s has "ceased to exist'. In Gabon, the horticultural sector suffers prolonged shortages of quality seed. Most African vegetable growers, therefore, either sow saved seeds or use whatever they can find in the local supply shop (FAO, 2012).

Water logging poses a great challenge to farmers in Chihota; the soil type found in most of the gardens is mostly dark sand, clay type which is poorly drained. During the rainy season the gardens become easily flooded. Forty-five per cent of the farmers are affected by flooding The water logging results in heavy nutrient leaching which means little produce from farmers. Efforts have been done by more 71% of the farmers to reduce the effects of the water logging by raising the vegetable beds and opening drainage channels to allow water to flow

easily. Crop damage by stray livestock is also a challenge. Almost all gardens have simple fencing such that cattle and goats easily stray into the gardens as reported by 25% of the farmers. Generally, the majority of farmers are above 50 years hence there is a shortage of young labour supply which capable of coping with laborious manual work involved in market gardening. Family size averages 5 people per household in Chihota, this is relatively small as compared to the demands of subsistence farming. In most cases there are two adults, the parents or grandparents and the rest will be children of school going age and not important labour supplies as they spent the whole day at school. Hence the old are left to work in the gardens. The farmers cannot afford hired labour as they have no money to pay for extra labour. Similar challenges have been cited in Washington D.C by Hendrickson (2005), when he noted that, achieving a scale of production and marketing that meets net cash income needs and goals without the expenses and hassles of extensive labour is a problematic. One large scale grower expressed this as a conflict between his desire to have well paid employees and an honest need to earn more money for his household.

5.1. Access to extension to extension services

Almost all of the farmers (96%) claimed that they do not to have access to extension services. The farmers argued that Agritex Extension Officers say that gardens are not part of their job description; they are only authorized to assist farmers in fields not in their gardens. Farmers therefore lack expert guidance on horticultural production. In the same vein, technical support to market gardening is weak in Ivory Coast or Côte d'Ivoire and non-existent in Gabon. Chad has no extension programmes for urban gardeners. In Enugu, Nigeria, only 20% of market gardeners were even aware of the role and existence of extension services (FAO, 2012).

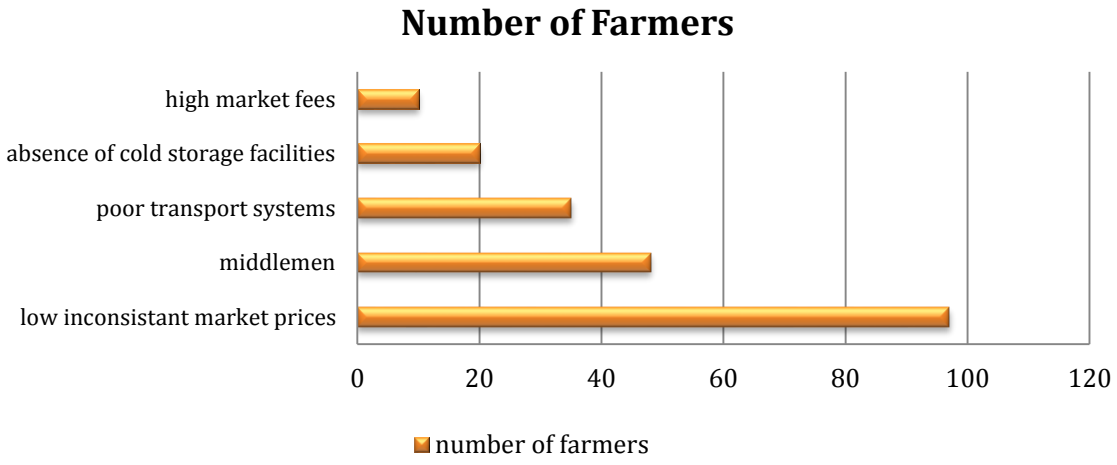


Figure 6. Constraints Farmers Face during Marketing of Produce

Respondents put forward the following as the constraints they face in marketing their produce:

1. Low inconsistent prices on the market. About 97% of the farmers cited low market prices as the main challenge in marketing of their produce. Respondents also mentioned that there are times

when they have to sale their produce at give-away prices because of stiff competition on the market. This is probably attributed to flooding of produce. The farmers have limited market options i.e Chikwanha in Chitungwiza, Mbare Musika as well as the and local area. Sixty-three percent of the farmers sell their produce at Chikwanha, 34% at Mbare and only 7% in the local area. This shows farmers prefer to sell their produce close to where they live so as to reduce transport cost and profit enhancement.

2. An additional challenge that has been faced by respondents is that of middlemen at the markets commonly known as in the local Shona language as *"makoronyera"*. They control the market prices and dupe the farmers into selling them their produce at low prices after which, they resale at higher prices. They make good profits whilst the farmers make loses. Some respondents (63%) actually accused these middlemen of causing confusion and stealing some of their produce during marketing. Forty-eight percent of the respondents echoed the same sentiments. The same trend was noted elsewhere in Africa. Across the continent, gardeners depend on intermediaries to market their crops. Sale is usually arranged by producers individually, rarely do they deal with traders collectively, which would give them greater bargaining power. In Ghana, growers' earnings are often low because they are disorganised and have limited capacity to negotiate prices (FAO, 2012).
3. Poor and expensive transport is another constraint that is faced the farmers. Thirty-five percent of the respondents cited poor transport system as hindering the marketing of their produce. In Chihota vegetables are transported using one tonne trucks and recently kombis. These Kombis are normally used for ferrying passengers. The farmers complain that the fares are too high, with the operators charging around USD $3 per dozen of leafy vegetable bundles and the same for a bucket of tomatoes which weighs approximately 20kg. Additionally, farmers have to pay USD$3 fare per individual. The trucks also carry passengers and because of mixing of goods and people, there is overcrowding and the end result is damage to the produce, which arrives at the market in poor condition. This usually results in the produce fetching poor prices on the market thus negatively affecting the farmers' income and profit. The roads in Chihota are not all weather and some are in a terrible state of disrepair just like the rest of the roads in the country. Farmers produce is also affected because of this scenario hence there is need by the local authority to spruce up the roads. At times farmers spent the whole day on the roadside waiting for transport, the heat of the sun dehydrates the vegetables such that when they arrive at the market they will have lost their freshness and thus not fetch good prices. When there is a glut at the market, transport costs sometimes outweigh profit. The same marketing constraint has been noted in other African countries for instance, in Lusaka Zambia, produce arrives at the market already damaged after being crammed into poorly constructed wooden boxes (FAO, 2012). Twenty percent of the farmers said that there are no storage facilities to keep their produce fresh such as cool containers; when the produce is not sold on day of arrival, the farmers will have no choice but to sell their produce at very low prices so as to clear them off since most vegetables have a very short shelf life. This sort of situation is prevalent in other countries such as Nigeria (FAO, 2012). The death of the agro processing capacity in sub-Saharan Africa, in both urban and rural areas, is blamed for post-harvest fruit and vegetable losses that are estimated to be half of the total production. Almost all product is sold fresh without further processing such as drying. Gardeners income mainly depend on the length of the marketing chain. A small portion of the farmers (10%) cited high market fees charged by the council for selling their produce at the market. The council charges USD$5 at Chikwanha and USD $10 at Mbare musika. These charges are fixed irrespective of the quantity and quality of produce that one brings to the market. However, in most cases farmers tend to lose because they want to sale their produce as quickly as possible though the profits may be very marginal. However, the most innovative farmers are taking turns to sell their produce to distant markets though the

main concerns of thieving and pilferage are common as indicated by more than 50% of the farmers interviewed.

Farmers is Chihota generally face a number of constraints as shown in Fig 4, Figure 6 and Table 2. Some challenges compromise the farmers' livelihood options because of the overall poor performance of the Zimbabwean economy. However, farmers have diversified to other livelihood options such as petty trading, brick moulding broom grass fetching, selling one labour to other farmers (maricho).

Table 2. Summary of challenges faced by SHF in Chihota

Constraint(s)	**Explanation**
Agro-ecological constraints within Chihota	Plots are often small anode poor soils interrupted by poor terrain and rock outcrops and receive erratic rainfall (< 700mm per annum). Area is prone to drought. Rock outcrops reduce arable farming land but steep slopes promote run-off, erosion and siltation.
Lack of irrigation networks	Irrigation has the potential to increase SHF production though it is poorly developed due to limited revenue from sales. Irrigation is normally the bucket type. There is very little investment in this area
Non-flexible cropping patterns	SHF diversification enable farmers to penetrate more lucrative markets and gain higher returns to production. This is lacking in Chihota. Proper planning should consider plot size, water supply, capital inputs, production skills, marketing channels and seasonality of production.
Bonded farming challenges	Chihota SHF are unexperienced with the conditions of contract farming. Some farmers have been disheartened by the experiences of others. Small land sizes and hence low volumes of crops do not justify participation in subcontracting farming.
Access to credit	No or limited information on sources, availability of credit. high interest rates on capital limit borrowing potential. Farmers lack collateral to qualify for loans and credit in addition to capital and market constraints to expand.
Capital equipment and appropriate technologies	There is over reliance traditional equipment, limited capital investment, high annual operating costs and lack of extension services. Machinery dealers lack commitment to service SHF.
Lack of extension services	Little knowledge on availability and costs of inputs and their importance. Lack of appropriate technical information is a major constraint mainly due to few extension officers .
Input availability	Scarcity of superior planting material limits farmers to venture into new crops. Inputs are often expensive and in short supply .
Crop quality	Crop standards are poor. Standard is a function of cultivars, irrigation and production methods, pest control, exposure to sun and timely harvesting as well as pre and post-harvest handling .
Disease and pest control	Disease and pest control are constraints in Chihota. Farmers are less acquainted in prevention and control of disease due to limited training and access to chemicals, their incorrect use, thus resulting low quality produce.
Inapt harvesting techniques	Harvesting methods and timing significantly impact on the quality and shelf life of crops thus harvesting should commence once the crop matures. Transport to the market is a challenge
Sorting of crops	Poor crop quality, poor handling, inadequate storage conditions and lack of ventilation cause post-harvest disease problems and thus affect grading. Packaging is often unattractive, poorly designed or is of low quality. Poor packaging deteriorates and spoils crops quickly .

Post-harvest management	Pre and post-harvest handling affects market price. Farmers are ignorant of product handling and utilization including value addition / beneficiation .
Poor infrastructure	Farmers face high transaction costs due to huge and perishable nature of produce which demands efficient transport and suitable storage and cooling facilities and communication systems.
Absence of market data	A lack of knowledge and clear understanding of markets, market facilities, marketing, as well as absence of market intelligence information is common in Chihota. The absence of growers' associations and poor linkages among stakeholders to articulate local problems and solutions is problematic .
Suspicion of middlemen	Middlemen get the major benefits and generally negotiate higher prices with processor organisations and lower prices with farmers. In the end, middlemen benefit at the expense of the SHF.
Limited availability of labour	SHF have difficulties in meeting labour requirements. Female headed households are affected the most. Male out-migration deprives the much sort after labour especially during the peak season i.e from October to December and April to May.
Lack of farmer initiatives and heavy reliance on donors	SHF lack training to adopt new technologies without extension assistance and supervision. Also, limited by the lack of clearly distinct and organised institutional structures to influence policy, research and development, production, marketing and consumption of horticultural crops.
Overall performance of the economy	Growth is a product of demand, when the economy is stagnant, production is low and rapid growth promotes new start up initiatives, Zimbabwe's economy is in doldrums .

Source: Field Survey May, 2017

Table 3 shows the main options that the farmer considers in dealing with vegetable waste. The table shows that most waste is usually thrown away yet if transport costs were not a significant portion of their costs this could mean the waste taken back to the farm where it could be used as green manures and thus helping the production process.

Table 3. Options to deal with vegetable waste

What happens to unsold produce	Number of farmers
Throw it away	76
Process it	2
Give it away	12

6. Conclusion

Market gardening has the capacity to contribute to poverty alleviation, food security, income generation and household dietary requirement in Zimbabwe especially in Chihota Communal Area. This study revealed that although market gardening is very important in Chihota there are a number of constraints hindering productivity. However, as the study revealed, the challenges faced are not only peculiar to Chihota but to Zimbabwe and the entire almost the entire Sub Saharan Africa. In Chihota the main challenges seem to emanate

from limited access to extension services as provided by Agritex and a reliable water supply for all year round cultivation.

7. Recommendations

Based on the research findings, it is important that Marondera Rural District Council (MRDC) should service the roads more frequent and efficiently so that the transportation system improves. Transport serves an important link between Chihota and distant markets thus guaranteeing vegetables are at the market in their pristine form. Improvement in roads systems means more transport operators are willing to work on the Chihota-Chitungwiza-Mbare route. This will go a long way in reducing fares should competition be stiff. There is need for constant collaboration between government, local authority and NGOs to help farmers with inputs and financial assistance. Agritex should also deploy more personnel to assist farmers and with the current thrust by government to provide basic inputs to farmer so as to enhance food security in the country, a programme usually referred to as command. Agricultural extension services should be provided to farmers involved in market gardening so that they could be advised on good agricultural practices, suitable sites for farming, suitable vegetables and methods of soil cultivation and soil conservation There is need to upgrade market areas, such that cold storage facilities are provided, drying facilities for future use of vegetables that would not have been absorbed at the market as well as processing plants which have the potential of beneficiation and the resultant increase in profits. Such beneficiation processes could include pickling, canning and drying among others.

References

Adebisi-Adelani, O. Adeoye I.B. Usman I.B., Olajide-Taiwo F.B., Usman J.M., Agbarevoh, P. and Oyedele, O.O. (2010), "Gender Thaumato coccus danielli in Ekiti State", *Agricultural Science,* Vol 4, pp. 54-59.

Bachmann, J. (2009), *Market Gardening,* A Start up guide ATTRA.

Burgess, R.G. (1989), *The ethics of educational research* (Vol. 8), Psychology Press.

eMkambo (2016), "How to Move from Ordinary to Best Agricultural Practices", available at: http://www.emkambo.co.zw/?p=955 (accessed 02 September 2016).

eMkambo (2016), "How agriculture markets are more than just memorizing facts and figures", available at: http://www.emkambo.co.zw/?p=716 (accessed 01 August 2016).

eMkambo (2018), "The Hidden Cost of the Time Lag between Marketing and Consumption of Commodities", available at: http://www.emkambo.co.zw/?p=1514 (accessed 21 September 2017).

FAO (2012), First Status Report Growing Greener Cities in Africa.

Grigg, D.B. (1974), *The Agricultural Systems of the world: An Evolutionary Approach*, Cambridge University Press, New York.

Habakkuk Trust (2000), "The Food Situation in Bulawayo: a case study of Bulawayo urban high density areas. Report Compiled by Habakkuk Trust for the Christians, Together for Peace and Justice", Bulawayo, Zimbabwe.

Hasna, M.K. (1998), CFP report 21; NGO gender capacity in urban agriculture; case studies from [Harare] Zimbabwe, [Kampala] Uganda, [Accra] Ghana. International development research centre, [Ottawa] Canada.

Hendrickson, J. (2005), Grower to Grower creating a livelihood on a fresh market vegetable farm, University of Wisconsin, Madison College of Agriculture and Life sciences.

Manyoro, M. (1996), Understanding Farmers; Explaining soil and water conservation behaviour in Smallholder Farmers in Southern Zimbabwe.

Middleton, J. (2009). *Community Gardening*, University of Missouri, Columbia.

Miles, M. and Huberman, A.M. (1994), *Qualitative data analysis: An expanded sourcebook* (2nd ed.), Thousand Oaks, Sage, CA.

Newing, H. (2011), *Conducting Research in Conservation: A Social Science Perspective*, Routledge, London.

Ofoka, C.I., Chah, J.M. and Madukwe, M.C. (2013), "Characteristics of market garden in Anambra State Nigeria Department of Agricultural Extension", University of Nigeria Nsukka, Nigeria.

Ojeifor, I.M., Emuh, F.U., Denton, O.A. (2006), "Crop production systems of market gardens in Nigeria", *Food Agriculture Environment*, Vol 4, pp. 246-250.

Poulton, C. and Mukwereza, L. (1999), Overcoming informational constraints: Improving horticultural marketing and technical information flows to smallholders- Zimbabwe case study report, Wye College.

Proctor, S., Henson, S., Loader, R., Masakure, O., Bronder, A., Bhila, L. and Sigauke, N. (2000), Facilitating the effective production and marketing of processed food product by small scale producers in Zimbabwe. Department of International Development DFID, UK.

RUDEP (2004), Quang Ngai. Rural Development Program Phase 2, Home garden report.

Rukuni, M., Tawonezvi, P., Eicher, C., Munyuki-Hungwe, M. and Matondi, P. (2006), Zimbabwe's Agricultural Revolution Revisited, University of Zimbabwe Publications. Harare, Zimbabwe

Taylor, N. and Francis, J. (2009), "Traditional Home Gardens and Rural Livelihoods in Nhema, Zimbabwe", *A Sustainable Agro forestry System*, Vol. 16 No. 1.

The Montpellier Panel (2013), Sustainable intensification: A new paradigm for African agriculture, Agriculture for Impact, London.

World Bank (2013), Growing Africa: Unlocking the potential of agribusiness, The World Bank, Washington, DC.

ZIMVAC (2010), Strengthening Food Security Analysis in Zimbabwe: Institutional framework for moving forward, Harare, ZIMVAC.

Zivenge, E., Shiferaw-Mitiku, T., Thomas, J. and Ushadevi, K.N. (1994), Researchers Kerala Agricultural University, Kerala Agricultural University, Keral, India.