

## ECONOMIC PERFORMANCE OF COMMUNITY GARDEN IN ZIMBABWE

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### ABSTRACT

Zimbabwe has experienced an unprecedented decline of nearly all human development indicators for the past ten years. Despite the introduction of community gardens in drought-prone areas of Zimbabwe, poverty persists amongst the vulnerable groups. The potential to improve household, community and national food and nutrition security through garden activities is high if issues of water availability cost and availability of inputs, marketing and farmer empowerment can be addressed. This paper seeks to assess the community garden's cost structure to sales volume and profitability and the land use efficiency. Primary data were collected through structured questionnaire. A two stage sampling techniques was used to select respondents. The study was conducted in Zaka district. Three major crops namely tomatoes, covo and onion were chosen for the study basing on size of land under that particular crop. Cost-Volume-Profit analysis employed for analysis of cost structure to sales volume and profitability. Land use efficiency was also employed to measure the ratio yield per acre of farm to average yield of locality. The results showed that although the farmers are able to break even the margin of safety is small especially for covo and onion. The study recommends farmers to increase the size of acreage under onion production whilst reduce acreage under production of covo. Farmers should adopt technology that would improve land use efficiency of onion. There is a need for the intervention by the Government and other stakeholders to improve the profitability and efficiency of the community gardeners. Stakeholders' collaboration especially, in terms of farmer training which can improve garden activities as participants lack knowhow.

### KEY WORDS

Community gardens; Profitability; Cost; Land use efficiency; Margin of safety; Income.

Zimbabwe has experienced an unprecedented decline of nearly all human development indicators for the past ten years. Zimbabwe's Human Development Index fell from 0.659 in 1990 to 0.525 in 2000 and further to 0.491 in 2006 (United Nations Children's Fund (UNICEF), 2010). Gross Domestic Product (GDP) per capita has fallen from United States Dollar 439.50 in 2000 to USD 170 in 2006. Income inequality measured by the Gini coefficient increased from 0.53 in 1995 to .61 in 2003. Although considerable progress has been made in social and economic stabilization in Zimbabwe after formation of inclusive government in 2009, 78 percent of the population continues to live in poverty (UNICEF, 2010).

In an effort to create economic benefit to the majority of rural population in Zimbabwe, who experienced socio-economic challenges for a decade, institutions have been reported to support garden production activities in various ways and increased support has been noted in the recent past. The mass establishment of community gardens was done mainly by non-governmental organisations in a bid to maintain sustainable rural livelihoods among the rural households (World Bank, 2007). Adoption of market gardening plays great role to increase household and intra household food security through providing marketing opportunities to rural people and built a base for food production.

According to Middleton (2009), community gardens are a place to grow food crops, flowers and herbs in the company of friends and neighbours. It may also be a place to reconnect with nature or get physical exercise. Based on this definition, community gardens have attracted different meanings, uses, and purposes to different societies and communities. In rural areas, community gardens takes different shapes, forms and sizes and purposes that make them differ from each other and from place to place. Community gardens are innumerable i.e. neighbourhood community gardens, Youth Communal gardens

and School gardens, Nutritional gardens, Entrepreneurial and Market gardens, Home gardens, Therapy gardens and Demonstration gardens. (Chazovachii.B, Mutami. C,& Bowora.J 2013). The Zimbabwean community is dominated by entrepreneurial and marketing and nutritional gardens. This study focuses on only in Entrepreneurial gardens.

In Zimbabwe, while land is jointly owned in community gardens, each farmer has his/her own allocation within a large garden area. The size of holding per farmer is determined by the number of beneficiaries, land size, water availability and many others. The large garden is divided into sections within which each household has an average total area of 0.06h. Infrastructure is owned collectively. The community gardens manage their activities through the establishment of management committees. Each committee on average has seven members whose positions are chairperson, vice chairperson, secretary, vice secretary, treasurer and two Committee members. The committees are responsible for various aspects like dam and water management and catchment protection. It is also the responsibility of these committees to ensure that members observed the requirements of the constitution. Constitutions, regular meetings, minutes of meetings and records of activities are some of the tools used in the management of gardens. Farmers are assisted by support institutions to draw up constitutions, which become the garden management reference resource. The meetings are held to discuss general and developmental issues related to the garden. Local leadership also assisted in enforcing the rules of the constitution. Members worked in the garden on specified days, enter and leave the garden at the same time. To enforce discipline, there are various fines for various categories of offences. Elections to change the office bearers are held as spelt by their constitution. To become a member, one has to pay certain fee plus labour. Those who wish to resign are free to do so but would get no terminal benefits.

At initiation, externally supported gardens obtain their starter inputs from the support institutions. Thereafter they source from local suppliers either individually or as groups. According to FAO (2005) community gardens have the following advantages: assistance reaches more people, communal use of resources like dams, environmental management simpler, cheaper to monitor, community cohesion enhanced, inputs can be acquired in bulk and cheaper and organized marketing of produce. However, they face challenges such as management can be less effective, sometimes people walk too far to go to the garden, they can be expensive to set up, an suffer vandalism from those who are not members, too many contributions may frustrate participants, internal disagreements can have negative effects on development and too much bureaucracy in decision making.

Garden production activities have potential to generate income as well as being a source of employment for the unemployed. The potential to improve household, community and national food and nutrition security through garden activities is high if issues of water availability cost and availability of inputs, marketing and farmer empowerment can be addressed. Without proper employment of scarce resource for the better utilization of resources for a given project a resource would become meaningless and it is also true for community market gardening. This is mainly because of its high contribution to food security and safety of the community. Rural community should have to be supported with analysing their effort with appropriate implementation of efficient use of resource in a way that would benefit them more. In order to address these issues effectively, it is imperative to understand their current position. Economic performance is one of areas to be explored, thus study seeks to assess the land use efficiency and benefits and costs or return to resource inputs of gardening as an enterprise. The study will enable farmers to ultimately make the best decisions to maximise the chances of a successful seasons. What income benefits has the project provided to the participating households?

## **MATERIALS AND METHODS**

The research was conducted in Zaka district, South West of Masvingo province. The district was purposively chosen as one of drought-prone districts of Masvingo province where community gardens were intensively established to prevent and alleviate famine. The main component of the study was individual household interviews and the primary data collection

tool used was a semi structured interview. A two staged sampling technique was employed for sampling household. The first stage involved random selection of three gardens. The sampling frame for the household component of the assessment was provided by Ministry of Agriculture. Households were also proportional randomly selected from the three chosen garden as second stage of the technique. The sampling frame for the household component of the assessment was obtained from the chosen gardens. A sample size of 120 community garden participants was selected. Gross margin, return on sales and return on investment were used to assess benefits and costs or return to resource inputs.

$$\text{Gross profit margin} = \text{Gross margin} / \text{Gross income}$$

Gross profit margin measures profitability. Gross profit margin indicates how much profit an entity makes after paying for variable costs of production such as wages, raw materials and others but before interest and tax. Gross profit margin is used as one indicator of a business's financial health. It shows how efficiently a business is using its materials and labours in the production process and gives an indication of the pricing, cost structure, and production efficiency of your business. Higher values indicate that more cents are earned per dollar of revenue which is favourable because more profit will be available to cover non-production costs.

$$\text{Return of Investment (ROI)} = \text{Gross Margin} / \text{Cash costs}$$

ROI is usually expressed in percent. Percent is an easy measure to compare. A simple way to calculate ROI is by dividing Gross margin by Cash costs. It is the rate of revenues received for every dollar invested in an item or activity. It is used to evaluate the efficiency of an investment or to compare the efficiency of a number of different investments. The difference with ROI is that the farmers will get an idea of how profitable their business would be based on the investments they can make. The farmers will be able to know how much do they get per every dollar invested in production and marketing. A higher ROI means that investment gains compare favourably to investment costs. The difficulty in calculating ROI lies in how closely specific revenues can be tied into their source

$$\text{Variable Expense Ratio} = \text{total variable expenses} / \text{total sales}$$

Cost-Volume-Profit analysis (CVP) relates the firm's cost structure to sales volume and profitability. The Basic Profit Equation formula that facilitates CVP analysis can be and is abbreviated:  $\Pi + FC = Q \times (P - VC)$ , where,  $\Pi$  = profit, FC = fixed costs, Q = units sold, P = unit sales price and VC = unit variable cost. The Basic Profit Equation is used to solve one equation in one unknown, where the unknown can be any of the elements of the equation.

## RESULTS AND DISCUSSION

Table 1 gives data for cropping pattern of community gardens. The table reveals that the largest percentage of area has been devoted to tomatoes (67.7%). The area under leave vegetables such as rape and covo constitutes about 15 percent of the total cropped area followed by onion and maize occupying 10 percent and 5 percent respectively. The other crops that contribute very low proportion to the total cropped area are pumpkins, banana, and beans. The cropping patterns show that community gardens are producing vegetables.

*The relationships among cost, volume and profit.* Gross margin is a good indication of how farmers are profitable at the most fundamental level. Based on table 2, farmers have higher gross margins in tomatoes (\$925.83) than in onion (\$523.85) followed by covo (\$488.22). This means that, farmers will have more money left over to spend on other business operations from tomatoes production than from onion and covo. The results are consistent with the study which was conducted by chazovachii et al 2012 in Mberengwa district. The study, showed that farmers managed to derive income from community gardens that was used for paying school fees, groceries, and food.

Table 1 – Cropping patterns

Name of the crop	Area under the crop (in percentage)
Tomatoes	65
Leave vegetables (Covo)	20
Onion	10
Other crops	5

Source: Survey data.

Table 2 – Gross Margin Analysis for major crops

n/n	Tomato	Covo	Onion
Area			
Quantity produced/acre	24.3 t	13 t	9.72 t
Price per unit	\$130/tonnes	\$125	\$175
Gross Income/ acre	\$3159	\$1625	\$1701
Variable costs per acre			
Land preparation	\$60.35	\$60.35	\$60.35
Transplanting	\$53.46	\$53.46	\$53.46
Irrigation	\$253.53	\$253.53	\$253.53
Fertiliser	\$443.88	\$331.29	\$331.29
Pest & disease control	\$252.32	\$136.19	\$136.46
Weed control	\$82.62	\$82.62	\$82.62
Casual labour	\$267.3	\$121.39	\$121.39
Harvesting	\$217.01	\$44.55	\$60.75
Marketing	\$601.9	\$52.65	\$77.31
Total Variable Costs	\$2233	1136.03	\$1177.16
Gross Margin/ha	\$925.83	\$488.22	\$523.85

Source: Survey data.

Table 3 shows that the rate of revenues received by the farmer for every dollar invested in the production and marketing of onion (44.5%) is higher than covo (43%) followed by tomatoes (40%). The farmers realise 0.45, 0.43 and 0.4 dollar return for every dollar invested in onion, covo and tomatoes respectively. This implies that onion has higher level of investment efficiency than covo and tomatoes by 1.5 percent and 4.5 percent respectively. Generally, the level of ROI realised by the farmer is below 50 percent means that investment gains compare unfavourably to investment costs.

Table 3 – Financial performance of three major crops

Financial ratio	Crops		
	Tomatoes	Covo	Onion
Return on Investment	40%	43%	44.5%
Gross profit margin ratio	29%	30%	31%

Source: Survey data.

In the same table 3 shows that, farmers use almost the same percentage of their revenue in the three enterprises to pay for the production and marketing costs. The gross margin ratio of onion (31%) is higher than those of tomatoes (29%) and covo (30%). This implies that the performance of onion in terms of profit and efficiency is better than tomatoes and covo by 2 percent and 1 percent respectively. However, low gross profit margin percentages among all the three crops indicate that even if, farmers are able to cover the production and marketing costs, they cannot make reasonable profits that keep the overhead cost other expenses and profits in control. The lower the percentage, the less the farmers retain on each dollar of sales to service other costs and obligations.

Table 4 shows that farmers are operating above the breakeven point. This implies that farmers can decide to go ahead with the operation of the business. The margins of safety show that farmers can withstand fluctuation in sales by 7.3 tonnes, 4 tonnes and 3.72 tonnes in tomatoes, covo and onion production respectively. For onion the margin of safety is high that would enable the farmers to withstand the fluctuations in sales. However, the margins of safety for covo and onion are low which implies that there is a risk of not breaking and incur losses.

Production efficiency of the farm with respect to tomato and covo are equal where as onion has the lowest percentage. This implies that in terms of land use, area under onion is not fully utilised as compared to the other two crops. If farmers increase land efficiency in onion there is room for them to increase their profits. Since production efficiencies for all three crops are less than less than 100 percent means that the farmers can improve in terms of land utilisation. This shows that the land is not fully utilised.

Table 4 – Cost-volume-profit (CVP) analysis and land use efficiency

Financial ratio	Crops		
	Tomatoes	Covo	Onion
Breakeven point	17 tonne	9 tonne	6 tonne
Margin of safety	7.3 tonne	4 tonne	3.72 tonne
Production efficiency	81%	81%	32%

Source: Survey data.

This can be attributed to the fact that some of them travel long distances the results are supported by study which was conducted by FAO 2005. The result indicated that farmers fail to maintain consistence in terms of quality and quantity because of lack of knowhow and poor post harvest handling facilities.

### CONCLUSION AND RECOMMENDATION

The results show onion has higher level of investment efficiency, profit and efficiency than covo and tomatoes. Thus onion should be given big piece of land. Farmers are operating above the breakeven point. This implies that farmers can decide to go ahead with the operation of the business. However, low gross profit margin percentages among all the three crops indicate that even if, farmers are able to cover the production and marketing costs, they cannot make reasonable profits that keep the overhead cost other expenses and profits in control. The level of ROI realised by the farmer is below 50 percent means that investment gains compare unfavourably to investment costs. The production efficiencies for all three crops are less than less than 100 percent means that the farmers can improve in terms of land utilisation.

Therefore, the study recommends farmers to increase the size of acreage under onion production whilst reduce acreage under production of covo. Farmers should adopt technology that would improve land use efficiency of onion. There is a need for the intervention by the Government and other stakeholders to improve the profitability and efficiency of the community gardeners. Stakeholder collaboration especially in terms of farmer training which can improve garden activities as participants lack knowhow.

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