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Analysis of Socio-Economic Impacts of Vegetable Gardening in Urban and Sub-Urban Morogoro, Tanzania

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***Abstract*: The study was conducted in two sites namely Mazimbu (Dark-city) and Mwembesongo in Morogoro Municipal, Tanzania to analyze the socio-economics of vegetable gardening activities. Specific study objectives were to identify specific techniques involved in vegetable gardening activities, to identify the most produced vegetables, to find out the extent to which growers benefit with vegetable gardening activities and the grower's future plans on vegetable gardening activities. A sample of 40 people engaging in vegetable gardening was interviewed using a structured questionnaire. Field observations and secondary data supplemented the information from the primary data. Data collected were analyzed using the statistical package for social science (SPSS). Descriptive statistics such as percentage and frequency distribution were used to summarize the information for interpretation. Findings of the study indicated that, there are various techniques which the growers use in order to get best produce, The specific techniques include; Land preparation, Sowing, Management practices such as watering, fertilization, pests and disease control etc. The growers admitted to get some benefits in these activities, there are various vegetables which are mostly produced than others, these includes Amaranthus, Potato leaves, okra and tomatoes and also the study indicated the grower's future plans in these activities. Growers were advised to form groups so as to increase their chance of acquiring credit or loans as most growers admitted that they need financial support so as to increase their production and be able to buy the inputs for production, if they form groups, they will increase their chances for of acquiring credit or loans as the suppliers for the loans or credit are more interested in groups rather than individual persons.**

***Keywords*: Gardening, Impacts Socio-Economic, Sub-urban Urban, Vegetable.**

1. Introduction

A. Background Information and Statement of the Problem

Gardening is the cultivation of fruits, vegetables and ornamental plants. Gardening includes a variety of crops that are generally grown in small scale but sometimes in large scale. The garden crops grown in small scale are mainly for home consumption and for sale; those grown in large scale are always for marketing purposes. Gardening activities require intensive care of the crops; this is usually associated with the use of comparatively small land areas.

In urban and sub-urban Morogoro gardening activities are seen in a number of places, this involves mostly vegetable gardening. Gardening as a special branch of farming has a lot of diversity. It has many uses that include production of food for human consumption, feeds for livestock and production of many plants for medicinal purposes. There is a lot of diversity in the plants grown in the garden. This provides diversity in family diet. It can also provide a better continuing of income, that is,'' there is always something to pick from the garden'' almost throughout the year and the produce can be sold. It can also provide medicinal products, fiber art and crafts from the garden plants can be sold, processed products can be exported for foreign currency, it also solves unemployment problems. Gardening has social roles. Hedges and ornamental plants demarcate farm boundary, decorates dwelling and psychologically it provides a sense of pride ambition and satisfaction. Because of their diversity garden plants help to ensure safe regular food supplies (food security). It also alleviates malnutrition and thus improving family health. (Rwamugira, 2005).

There are a number of different crops involved in vegetable gardens found in Urban and sub-urban Morogoro, these include Amaranthus, Cabbage, Spinach, Okra, Tomatoes, Carrots, Eggplants, Cucumber, Sweet potato leaves, Cassava leaves, Chinese cabbage, Pumpkin leaves etc. These vegetables are produced in many sub- urban and urban areas of the Morogoro Region including Magereza area, Mazimbu, Kididimo, Mkwajuni, Mwembesongwa area etc. All in all, vegetable gardening activities in sub- urban and urban Morogoro is still undeveloped and is done in Traditional ways, the growers are mainly depending on their own prior experience of the activities rather than formalized learning.

Although the needs for vegetable crops is increasing at a very high rate due to its importance in both consumption and marketing purposes, still the production in urban and sub- urban Morogoro is very low. Production is limited by many factors including lack of knowledge in production of best quality crops, lack of always available markets for the produced garden

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products, absence of post-harvest handling facilities etc. Other problems as reported by AVRDC (1990 a) include sources of reliable planting materials, high incidences of pests and diseases, lack of storage facilities, etc. Lack of funds for supporting gardening activities is another problem since these activities involve cost of good and quality seeds, planting materials, garden tools, fertilizers etc. There is also a decline in production in dry seasons as many growers depend much on rain water for irrigation purpose. The government policies are still favoring cash crops production than any other crops including vegetables. There are poor Extension services and this contributes to low and poor production of quality crops, the extension officers are still few and those present lack enough training on vegetable gardening aspects and hence they give less information to growers on how to produce best quality garden crops. The vegetable crops face lower markets which contributes to low production as the growers tend to be discouraged due to high production cost and low prices they get after selling their produces (AVRDC, 1990 a) Indeed socio- e economic problems are many and complex, among those include also lack of information and documentation on important gardening activities, constraints, perspectives and prospects.

Even though many socio socio-economic problems influencing horticultural crop gardening activities are generally known, specific problems and production patterns in urban and sub-urban Morogoro are not well established. Economic activity is increasing in all sectors of production and service with increasing population and growth of urban livelihood. Among most important of such activities is vegetable gardening within and near the town areas. Information on such activities and their associated socio-economic parameters is usually not available and not documented. There is a need for research to determine the range of gardening activities in specific localities in Morogoro municipality and socio-economic attributes determining and governing the pattern of those activities. The study generally aimed at creating some database of vegetable gardening activities and its constraints in Urban and Sub- Urban Morogoro, with an emphasis in determining specific techniques involved in vegetable gardening in Morogoro municipality.

Knowing how growers do benefit from the vegetable gardening activities, knowing the most produced Vegetable crops in the study area and why? Together with knowing grower's future plans on vegetable production.

2. Materials and Methods

A. Description of the Study Area

The study was conducted in Morogoro Municipality an area lying between latitude 5058 'N and 100 0'S and longitude 350 30' E, South west of Dar-es-salaam at the foothills of Uluguru mountains. The area has been chosen as it has a considerable number of people engaging in vegetable gardening activities. The research aimed at obtaining and analyzing the Socio-economic parameters or attributes of vegetable gardening activities in the study area.

The study was specifically conducted in Mazimbu and Mwembesongo areas which have a good number of growers engaging in vegetable gardening.

B. Data Source and Type

Both primary and secondary data were collected. Primary data is the major source of information in this study. This category of data was collected using a structured questionnaire comprising of open and close-ended questions. A questionnaire was used to interview the vegetable growers. Various publications and unpublished materials were used as sources of secondary data.

C. Sampling Procedure

1) Sampling frame

The sampling frame involved vegetable growers among farmers cultivating Mazimbu (Dark-city) and Mwembesongo areas of the Morogoro municipality. Among the farmers 23 were interviewed in Mazimbu and 17 in Mwembesongo areas where they were doing their activities.

2) Sampling Procedure

The Random sampling method was employed in both two sites of the study area.

D. Data Analysis

Data collected was coded and analyzed using Statistical package for social sciences (SPSS) computer Programme, and then presented using tables, figures etc.

E. Limitation of the Study

During the research a number of limitations were encountered, among others, the reluctance of some growers in giving some information, example in telling their income.

3. Results and Discussion

A. Socio-Economic Characteristics of Respondents

Participation and performance of vegetable gardening like other production activities depend on socio economic characteristics of the proprietor. The socio-economic characteristics described in the preceding sub-section include age, sex, education level, marital status, number of children, income generating activities, and proportionate contribution of vegetables to the income and resource and land ownership.

1) Age, Sex and Marital Status

Results from the study indicate that, the minimum and maximum ages of the respondents were 22 and 44 respectively. The results indicate that about 95% of the respondent had their ages ranging from 20- 40. (table 1) it can be considered that all the respondents were in their youthful age. This implies in part that vegetable production is an important economic activity which attracts the most economically active age who struggle to improve their livelihoods, and 5% of the respondents had their age between 41-44 years of the age.

The result from the study indicates that both male and female engage in vegetable gardening activities in which 47.5% were males and 52.5% were females. (as indicated in table 1) Therefore women engage more in vegetable production especially in urban areas in the struggle against poverty and for their own development as compared to the early times where

women were only involved in household works such as cooking and taking care of children etc. Reynaud (2001) in his study also said more women use urban vegetable gardening in the process of empowerment to establish social networks, to extend a sense of security and to encourage community development.

The findings show that; divorced, married, unmarried and widowed engage in vegetable gardening activities. As it is indicated in Table 4, 65% of the respondents were married. Of the 60 respondents, 22.5% were singles, 5% divorced and 7.5% Widowed (table 1).

Table 1
Socio-economics of vegetable growers

Variable	Frequency	Percentage
Age group		
20-44	38	95.0
41-44	2	5.0
Sex		
Male	19	47.5
Female	21	52.5
Marital status		
Single	9	22.5
Married	26	65.0
Widowed	3	7.5
Divorced	2	5.0
Education level		
No formal education	12	30
Primary	24	60
Secondary	3	7.5
Above Secondary	1	2.5
Household size		
No child	7	17.5
One child	3	7.5
Two children	19	47.5
Three children	6	15.0
Four Children	4	10.0
Five Children	1	2.5

2) Household size

Throughout history, large families are considered to be a blessing. However, changes in socio-economic patterns and lifestyle have created a lot of economic hardships to large families, and children are no longer economic assets. Large families especially poor ones are more likely to face serious food shortages when compared to small families (Houghton, 2001). the study indicated that the respondents had small families in which 17.5% had no children, 7.5% had one child, 47.5% had two children, 15% had three children, 10% had four and 2.5% had five children as shown in table 1.

3) Education level of respondents

The results indicate that most growers engaged in vegetable gardening activities in the study area had primary education (60%). About 7.5% of the respondents had secondary education, 2.5% above secondary education and the remaining 30% of the respondents were not educated as indicated in table 1.

4) Income generating activities

In order to identify income generating activities performed by vegetable growers, respondents were asked to indicate their other income generating activities apart from vegetable gardening. Among these other activities were Livestock keeping, petty trade, cultivation of either maize, rice or both. Some respondents were doing only vegetable gardening activities as shown in table (6), 30% engage in livestock keeping, 35% engage in cultivation of maize/rice or both, 30% in petty trade and remaining 5% depends only on vegetable gardening activity as shown in (Fig. 1).

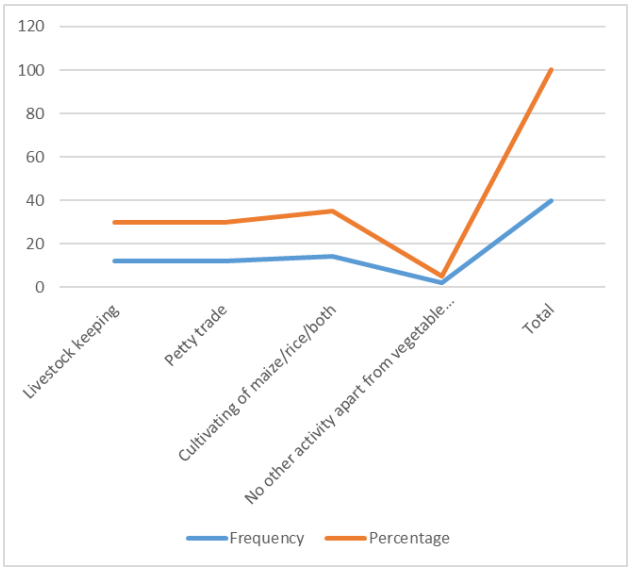

Fig. 1. Income generating activities done by respondents apart from vegetable gardening

5) Proportionate contribution of vegetable gardening to respondents' income

Most of the growers depends on vegetable gardening as their mainly source of income. The growers were asked on proportionate contribution of vegetables in their income in which 25% reveals that vegetables contribute about100 % of their income, 12.5% about 90%, 17.5% about 80% of their income, 22.5% about 70% of their income, 7.5% about 60% of their income, 12.5% about 50% of their income and remaining 2.5% reveal that vegetable production contribute to less than 50% of their income.(see (Fig. 2) The results show that a large percentage of vegetable growers depend much on this activity for their income.

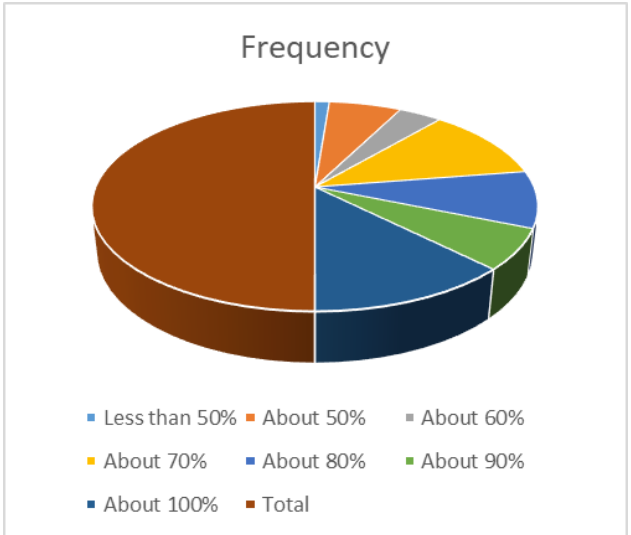

Fig. 2. Proportionate contribution of vegetable to Respondents income

6) Resource ownership and agricultural production

The study results reveal that; livestock was owned by the majority of the respondents (56.7%), livestock owned included cattle, chicken and ducks. Some respondents indicated to own more than one type of livestock, some owned chicken and ducks while others owned chicken and cattle. The results further indicate that 65% of the respondent's own land for agricultural production. Total land owned ranged between 1.0-10.00 hectares; this land is used for both agricultural productions that are for production of vegetables, other crops, and livestock keeping as well as for residence.

Land ownership was among problem stated by respondents. About 65% owned land and other 35% did not own land. The land owned was for production of vegetables in which about 15% owned less than 3 hectares, 7.5% owned about five hectares, 30% owned more than 5 hectares, 12.5% owned more than 10 hectares and other 35% do not own land. For those who don't own land, 85.7% produce vegetables by hiring land from their neighbors and 14.3 get the land from the local government.

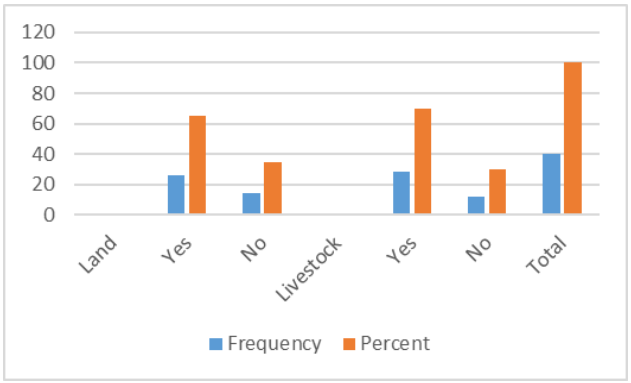

Fig. 3. Resource ownership of respondents

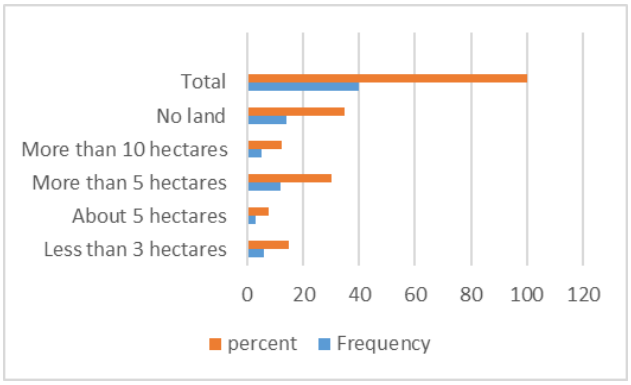

Fig. 4. Hectares owned for vegetable production

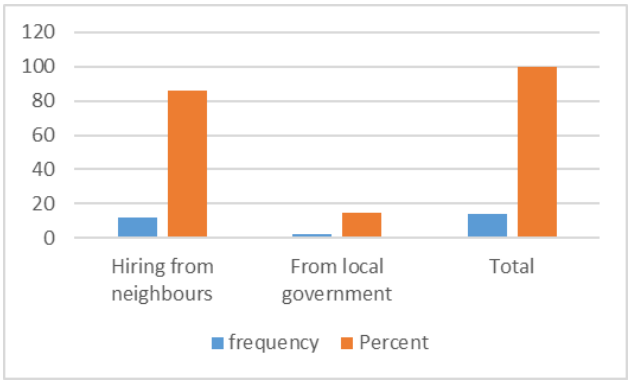

Fig. 5. Where they get land if not own their own land

B. Specific Techniques Involved in Vegetable Gardening Activities

The growers use different techniques in growing their vegetables, as described below;

1) Land preparation and sowing

The vegetable growers said land preparation depends on type of vegetable they want to grow but mostly they prepare the land for production clearing so that to remove the remains of previous crops and do levelling and make the seed bed.

The types of sowing depend on type of vegetable to grow, but they mostly sow the seeds by Drilling and Broadcasting methods

2) Management practices

As usual the vegetables need to be managed so as to come up with best harvests, the management practices include, watering, fertilization, pest and diseases control, weeding etc.

1. Watering

The respondents reveal that they usually irrigate their vegetables during hot days and during the rain periods they depend on rain for irrigation. Most farmers were observed to use watering can for irrigation, and those who don't have these cans uses plastic buckets.

2. Fertilizer application

The growers used both artificial and natural fertilizers/manures in their production, 87.5% % reveal that they use artificial fertilizer and 12.5% use the manures/organic fertilizers. The growers use various methods of applying these fertilizers, 32.5 they apply fertilizer by broadcasting methods, 37.5% apply by top dressing methods and 30% use both top dressing and broad casting methods as indicated in table 2.

3. Pests and diseases control

100% of the growers admitted to use pesticides and insecticides in the control of pests and disease. This was one among the major problems growers admitted to come across. 25% use natural pesticides whereas 5% use artificial pesticides

Table 2
Use of Manures/fertilizers and methods of application

Application of manures/fertilizers	**Type**	**Frequency**	**Percent**
Yes	Artificial	35	87.5
	Manures	5	12.5
Total		40	100
Methods of applying the manures/ fertilizers			
Broad-casting		13	32.5
Top-dressing		15	37.5
Both top-dressing and broad casting		12	30
Total		40	100

and 70% use both natural and artificial pesticides as indicated in table 3.

Table 3
Types of pesticides used

Type	Frequency	Percent
Natural	10	25
Artificial	2	5
Both artificial and Natural	28	70
Total	40	100

C. *Harvesting*

The harvesting methods depend on type of vegetable. But harvesting is done manually that is hand picking or uprooting the vegetables. Example in Amaranthus, pumpkin leaves, eggplants, tomatoes etc.

D. *Selling*

The growers sell their produces in three ways which are retail, whole sale or both retail and wholesale. About 20% of the respondents sell their produces in retail form, 62.5 in wholesale form and 17.5 in both retail and wholesale. The growers do sell their produces within the farm, at the markets and others sell in both the farm and at the markets, 45% sell the produces within their farm, 40% at the market and 15% in both the farm and at the market as indicated in figure 6.

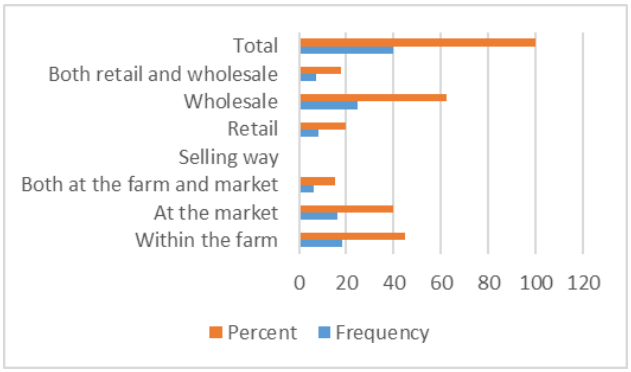

Fig. 6. Growers selling place and ways

E. *Growers Benefit from Vegetable Gardening Activities*

The gardening activities benefit/sustain the growers by providing them with their basic needs such as foods, clothes and shelter and other surplus money for other activities such as sending their children to school etc. About 42.5% admitted that gardening gives their basic needs, 7.5% benefit with these activities by sending their children to school, 30 % reveals that gardening contribute much to their income and 20% said this activity is not an important income/ livelihood source, (Fig. 7). Not only that gardening can benefit the grower in many aspects such as source of foreign currency and thus increasing country's economy, offering employment, a good root to opening of vegetable processing and manufacturing industries etc.

The growers admitted that these activities benefit them in some seasons usually dry season where vegetables prices are high and they usually get losses due to pests and diseases outbreaks, unreliable markets and also they are not satisfied with selling price of vegetables due to the problems they admit this activity is not reliable and that's why they engage in other activities apart from vegetable production. For those who depend solely on gardening they said though the activity is not reliable they continue to do it due to lack of other alternatives.

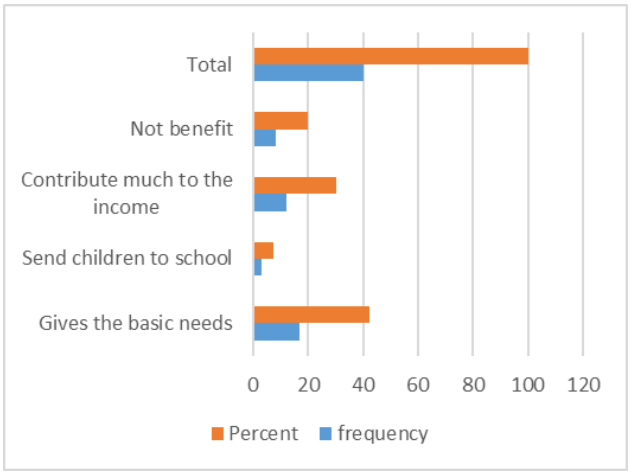

Fig. 7. Benefits from vegetable gardening activities

On top of that also the growers get the benefit of consuming these vegetables and therefore adding to their diet. 60% of the growers admit that they consume about 10% of their produce,15% consume about 15% of their produce, 22.5% consume about 20 % of their produce and 2.5% consume about 20% of their produce (Fig. 8). The frequency of consumption depends on the grower in question but most of them admitted to consume regularly.

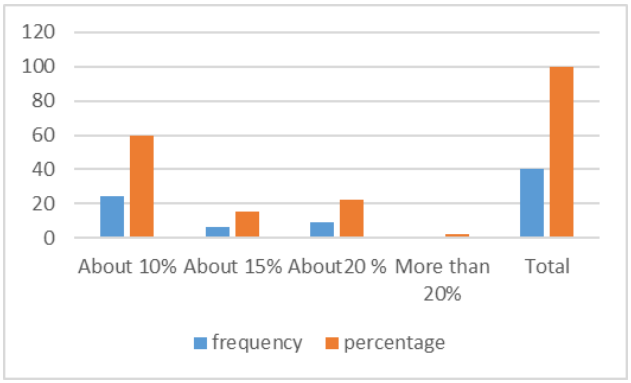

Fig. 8. Growers produce consumption

F. *The Most Produced Vegetables and Why*

In Mazimbu the most observed vegetable produced were Potato leaves, and Okra whereas in Mwembesongo the most observed vegetables were Amaranthus, Potato leaves and Tomatoes but generally the most produced vegetables were, Amaranthus, Potato leaves, Okra and tomatoes About 57.5% of the respondents were producing Amaranthus, 22.5% Potato leaves, 12.5% Okra and 7.5% Tomatoes as indicated in table 4.

The reasons given by the growers as to why they mostly produced them were that these vegetables are easily marketed, as many customers prefer them and they also fetch higher prices at the markets, also they grow fast and can overcome harsh conditions. The growers also admitted that they have experience in producing these vegetables.

Table 4
Most produced vegetables

Type of Vegetable	Frequency	Percent
Amaranthus	23	57.5
Potato leaves	9	22.5
Okra	5	12.5
Egg plants	3	7.5
Total	40	100

G. Growers Future Plans on Vegetable Production

Most of the growers had plans on increasing in both more vegetable species and quantity of production in future, 87.5% reveals that they will engage in vegetable production in future while the remaining 12.5% said they will quit this activity in future as indicated in fig. 8. These results were obtained after being asked as what were their future plans on vegetable production.

The growers also revealed that their future plans would be successful if they get support like loans etc. The growers were asked if they will be given loans would they engage in vegetable production and upon that also 87.5 % admitted that they will engage on vegetable and others 12.5 admitted that if given loans they will shift to other activities.as shown in fig. 8.

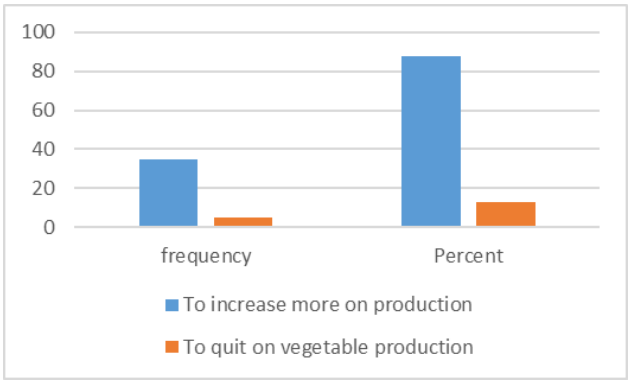

Fig. 8. Future plans on vegetable production

H. Reasons for Future Engagement in Vegetable Production

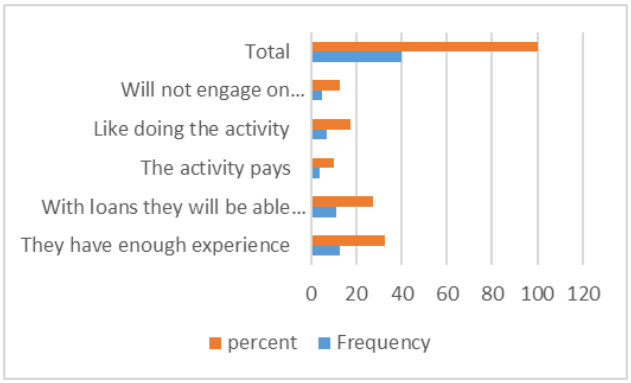

Fig. 9. Reasons for future engagement in vegetable gardening

Different reasons were given as to why they would engage in vegetable production in future, 32.5% said they would engage because they have experience in this activity, 27.5% said that with loans they will be able to buy inputs for production, their own land and production modern tools. About 10% revealed that vegetable gardening pays, 17.5% admitted that they liked doing this activity and others 12.5% said they will not engage in vegetable production in future as shown in fig. 9.

4. Conclusion and Recommendation

A. Conclusion

The study revealed that growers use specific techniques in producing the vegetables such as land preparation, planting, various management practices until harvesting but mainly they depend on experience rather than formalized learning there is a need of providing education to them so as to improve the quality and quantity of the produces. Vegetable gardening activities offers many benefits to growers such as giving them income which in turn gives their basic needs but according to them these benefits depend on season of production as they mostly incur losses if the season is not conducive. The losses are due to various problems such as marketing problem, incidences of pests and diseases. Finding permanent solution for grower's problems such as finding markets for their produces and combating various methods for reducing or controlling pests and diseases will help the growers to benefit from these activities.

In the area there are many types of vegetables which are produced the mostly produced ones were Amaranthus, Potato leaves, okra, eggplants and tomatoes according to growers this is due to the fact that these vegetables are mostly preferred by consumers as well as they fetch high prices in the market not only that but also they produce them to overcome land shortage which limit them to produce other veggies and look for those which are highly needed, this is to say the growers are capable of producing more types and quantity if they have access to more land and reliable markets.

Most of the growers had the future plan of increasing on vegetable production in both the number and quantity of production, but this plan will depend on certain circumstances such as access to land, financial assistance such as loans and assurance of reliable markets.

This study noted with concern that in spite of the hardship and the importance of vegetable gardening activities in the societies its contribution is still not well established and not recognized, there is a need of this activities to be recognized and given priority as they contribute much to the societies as they offer employment to many members of the societies as well as providing food which helps us to improve our nutritional status and also a good source of foreign currency.

B. Recommendation.

Based on the findings of the study the following recommendations are given;

Vegetable growers should form groups in order to increase their chances of acquiring credits/ loans so as to increase their capital this is due to the fact that the growers admitted that they need support especially loans so as they can be able to buy their own land as well as important tools for production. If they form groups, it will be easy for them to access the loans, as the suppliers for these loans are interested more with groups rather than individual person.

The participation of vegetable growers should be

strengthened in the design of developmental programs, mobilization of financial resources in development and maintenance of appropriate infrastructures.

The government through the extension officers should offer knowledge on importance of growing crops organically as this is less expensive in terms of cost of production, also it is environmentally friendly as well as it the produces are not toxic to humans. This knowledge should be provided since many growers admitted that they know few natural pesticides example (Neem tree) and do not understand on how to use them and that's why they prefer to use artificial pesticides, which they admitted to be costly.

Not only that but also extension services should be strengthened in terms of increasing number of officers, provide them with enough working materials which will easy their work and those who are in service should be responsible for regular visits, this is because the growers are in real need of them as majority admitted that the services are not present in time of need and their visits are generally few or no at all.

The government should take trouble to find markets for crops especially horticultural crops, this is important because most growers admitted to be discouraged as mostly, they incur post-harvest losses due to lack of markets.

References

[1] AVRDC, (1990 a). Vegetable research in South Asia. AVRDC-ADB Workshop.

[2] Houghton, M. (2000). The American Heritage® Dictionary, Boston Publication London.

[3] Phua, K. L (2004). Food, Nutrition and Health. University of California, AR Publication No. 21567

[4] Reynauld, K. (2001). Role of income generating gardening activities. http://www.ag.arizona.edu/OALS/ALN29/Reynauld.html

[5] Rwamugira, (2005). Lecture notes on Horticultural cropping systems, Research and Development.