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MARKET GARDENING AS A STRATEGY FOR POVERTY ALLEVIATION IN BUI DIVISION, NORTH WEST REGION OF CAMEROON

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ABSTRACT

This study was carried out in the month of May 2017 in Jakiri subdivision of Bui Division in the North West region of Cameroon. This research aimed at investigating the role of market gardening in poverty reduction particularly in rural areas. Poverty reduction has been one of the main challenges of major international organizations (FAO, World Bank, UNICEF *etc*.) and governments' especially those of Africa. Thus, this study will contribute to the fight against poverty through the analysis of market gardening as a strategy to poverty reduction in the Jakiri municipality. Primary data was collected through, personal and household interview, focus group discussion, interview of personnel (Ministry of Agriculture and Rural development (MINADER) officials, councils, religious heads and local chiefs) and field observation. Secondary data was collected from the Bernard Fonlon's library, the Jakiri council library and internet. Data gotten was analysed and the results revealed that 73% of the market gardeners in the study area did not attend secondary school and lacked the skills to compete for jobs in urban areas. Thus they were left with no other option than to engage in agriculture and in particular market gardening as their major source of income generating activity. More than 75% of the household income comes from market gardening. Equally more than 80% of what is produced is sold. Moreover, 90% of the gardeners in Jakiri subdivision think that if government should help them to improve on their productivity, this will improve their livelihoods and take them out of poverty. Targeted marketing development strategies need to be followed by market gardeners and various stake holders in Jakiri to better exploit the economic potential of these crops and at the same time maintain its contributions to the local crop diversity. Hence, there are high expectations that the income and the number of market gardeners will rise over time and space. This can be seen by the number of farmers, more than 70% that earn from 1000000FCFA and above per year, an average of 83334FCFA and above per month through Market gardening in the study area.

Key words: Market gardening, market gardeners, poverty reduction, and Jakiri sub-division

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INTRODUCTION

The food and agricultural organisation (FAO) objective for the coming decades is to ensure food security for a population that is increasing and becoming more urbanized, helping to create wealth and jobs in rural areas in particular, reducing inequalities and vulnerability, protecting environmental and human capital(NEPAD, 2013). Thus increasing agricultural output stimulates employment in the rural areas. This in turn decreases urban poverty by mitigating rural-urban migration and lowering food prices. Hence, the government of Cameroon of recent has laid emphasis on agriculture as one of the pillars for an emerging country in 2035. Achieving this goal requires not only improving the living conditions of the people in rural areas, but also assuring sustainable agriculture which is the key to sustainable economic and industrial development. The high level of poverty in Cameroon particularly in rural areas have pushed some rural farmers to adopt market gardening as a means of livelihood improvement since it provides them with daily income and food.

Market gardening is a highly specialised form of agriculture.. Among various economic and social benefits, market gardening has a vital and multifaceted role in providing food security, meeting the demands of consumer markets, utilising labour and generating income (Friesen, 1998). In Cameroon, market gardening is highly practiced on the Bamboutos Highlands, the slopes of Mount Cameroon, Mungo and Benue depressions, Foumbot plains, Bamenda Highlands with Jakiri subdivision inclusive. The principal crops include green beans, carrots, lettuce, cucumber, cabbages, spices, tomatoes, potatoes and vegetables under ample precipitation conditions (Amawa et al., 2015). Market gardening becomes significant in Cameroon and in the North West in particular in the early 1990^{s} after the fall in prices of cash crops (coffee) in the world market. The trade of vegetables is also growing due to increasing urban demand and the emergence of intra-regional markets with neighbouring countries namely Gabon, Congo, Equatorial Guinea, Republic of Congo, Chad, Central African Republic, and Nigeria. Market gardening contributes to economic development. The value of the final production of market gardening products was 154 billion CFA francs (3% of GDP) in 1998. This represents approximately 22.9 % of the total agricultural production in Cameroon, with an annual growth rate of 2.7 % per year (Temple, 2001). IRAD in 2010 suggested that vegetable generated 98.5billionCFA France.

The new rural sector development strategy adopted by the Cameroon government aims to ensure food security and self-sufficiency for households and the nation, contribute to economic growth and particularly, the growth of foreign trade and employment, increase the incomes of rural producers, improve the living conditions of the rural population and ensure better use and sustainable management of natural capital as a production base (IMF, 2010). If Cameroon is proud of her position as the “bread basket” of the Central African Sub Region today, one of the areas to be credited for this is the Jakiri subdivision as the food produced in this part of the country especially market gardening crops is not only consumed in the North West region but in other parts of Cameroon. Thus the contribution of market gardening in Jakiri subdivision in providing food security and jobs in Cameroon cannot be neglected and warrant to be studied.

Study Area

Jakiri Sub division is one of the six subdivisions that make up Bui division located in the

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Northwest region of Cameroon. It is located some 80 km from Bamenda on the ring road that passes through most of the divisional headquarters in the North West Region. At the centre of Jakiri, the road branches off to Foumban in the West region of Cameroon. The subdivision covers a total surface area of about 675 $km^2$and shares boundaries with Kumbo to the North, Elak Oku to the West and Mbiame to the East, to the South, it shares boundary with Babessi from Ngoketunjia division and to the South East, it shares boundary with Bangoran from the West region. Jakiri subdivision is located between Latitude $6^0 00^1$ and **$6^0 10^1$North of the Equator and Longitude $10^0 31^1$ and $10^0 48^1$East of the Greenwich Meridian (Figure 1)**

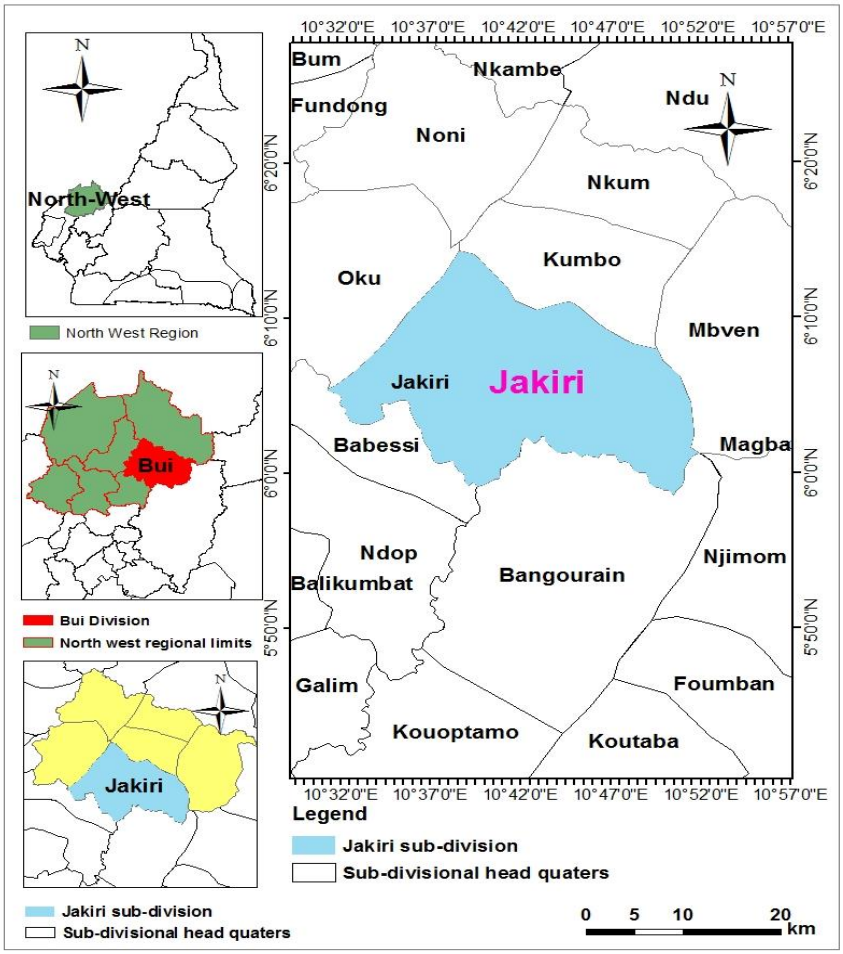

Figure 1. Map of Bui division showing Jakiri-subdivision

METHODOLOGY

The primary focus of this research was to identify the underlying mechanisms and structures that trigger people to adopt market gardening as a means of fighting against poverty in Jakiri sub division. It is important to investigate on how these mechanisms and structures, to further know why, when and how market gardening was adopted and the links it has with poverty reduction and livelihoods of the people in this area. Thus, this research has both qualitative and

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quantitative aspects and therefore data analysis together with empirical findings as well as patterns of social behaviour will be considered in the interpretation of results in order to draw valuable conclusions from it. Quantifiable measures of outputs include income, household data, land availability and labour availability. Qualitative measures include people's reasons for engaging in market gardening activities, their feelings about their occupation and their thinking about the future of market gardening in Jakiri subdivision. Purposive simple random sampling technique was applied to select the sample size. The sample size of the study was obtained using a percentage proportion of the population of each village recruited for the study. In this case, 100 gardeners were selected from the study population in the ratio 1: 3: 3. Table1 shows how farmers were selected per village.

Table 1. The distribution size of questionnaires per village

Village	Frequency	Percentage
Vekovi	33	33.0
Wvem	27	27.0
Yer	18	18.0
Nkar	12	12.0
Wainamah	10	10.0
Total	100	100.0

Vekovi had the greatest number of questionnaires. This is because Vekovi has the highest number of market gardeners in Jakiri subdivision approximately 120; followed by Wvem (n=80), Yer (72), Nkar (n=38) and Wainamah (n=20) (field work may 2016). Gardeners were randomly selected from each of these villages whether involved partially or fully in market garden production. These gardeners gave details on their perception on market gardening and its impact on their lives or changes in production, it effects on their standard of living and income of the households.

RESULTS

Socio- economic characteristics

More than 75% of the population ofJakiri sub division are engaged in agriculture as it is the main economic activity of the people (Jakiri council, 2012). 100 market gardeners were interviewed from five villages and the results showthe heterogeneity in social characteristics of the producers.

Age group and sex

The average age of the gardeners was 43.87 years, with a mode of 42 years. The youngest market gardener was 18 years and 22years for male and female respectively. The oldest was 61years for male and 60years for female.In general, most market gardeners in Jakiri subdivision were middle aged (Table 2)

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Table 2. Age distribution of market gardeners in the study area

Age group	Male	Female	Total
15-25	4	2	6
26-36	9	9	18
37-47	23	15	38
48-58	16	9	25
59-69	10	3	13
Total	62	38	100

Family status

Out of the 100 market gardeners interviewed, married (n=64), single (n=19), divorce (n=7) and widows/widowers (n=10) (table 3).

Table 3. The distribution showing the family status of gardeners

Family status	Frequency	Percentage(%)
Married	64	64.0
Single	19	19.0
Divorce	7	7.0
Widow(er)	10	10.0
Total	100	100.0

The results shows that married people (64%) in Jakiri subdivision were more into market gardening than those who were divorced (7%).

Education

The educational level of the gardeners in Jakiri wasrelatively low. Out of the 100 respondents that were interviewed, 61% attended primary education, 19%attended secondary education, only 2% with highereducation and ended at the Bachelor level and 12% had no formal education. One of them attended standard system of education but this research considered it as primary equivalence (table 4).

Table 4. The distribution of education levels

Level of education	Frequency	Percentage
No education	12	12.0

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Primary	61	61.0
Secondary	19	19.0
High school	6	6.0
University	2	2.0
Total	100	100.0

Land ownership

The majority of gardeners in Jakiri subdivision operate in land they do not own under a variety of temporal arrangement ranging from renting to other persons land and customary land given only for a period which is usually very short for temporal cultivation. Many of them do not own tittle and their contract can be terminated and crops destroyed with little or no compensation when developmental projects like building a school, hospital or road construction are taking place. Out of the 100 gardeners interviewed 17 own land titles and out of the 17 that own land titles 11 inherited. Land is acquired in Jakiri in different ways as presented in table 5. Note that some farmers had two pieces of land acquired in two different ways like purchased and rented and were counted twice.

Table5. Acquisition of land use for market gardening

Land ownership	Frequency	Percentage (%)
Another person land(not rented)	24	19.8
Rented	47	38.9
Customary land	33	27.3
Own title	17	14.1
Total	121	100

In table 5,majority (38.9%) of market gardeners in Jakiri subdivision were operating on rented land and only 14.1% owned land titles.

Sources of capital

Helping market gardeners with capital to invest in their garden during the production process may be a difficult and a complicated task in Cameroon especially in rural areas. Purchasinggood seed of higher value vegetables, motor pumps, fencing to protect crops from theft and animals would help market gardeners to improve their productivity and their contribution to the urban and rural food supply and their own incomes. Market gardeners in Jakiri subdivision acquire their capital from diverse sources such as; plough back profit, “njangi” houses, personal savings and credit unions (table 6).

Table 6. The distribution of the different sources of capital in Jakiri subdivision

Source of capital	Frequency	Percentage (%)
Friends	2	2.0

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Micro finance	13	13.0
Njangi houses	23	23.0
Family conributions	8	8.0
Plough back profit	54	54.0
Total	100	100.0

In table 6 it can be observed that 54% of gardeners in Jakiri subdivision obtain their capital from plough back profit and represent the highest source of capital in Jakiri subdivision and capital from friends represented only 2% that's only two persons obtained their capital from friends.

Relationship between socio-economic characteristics and the state of market gardening

Table 7. The distribution of socio-economic characteristics and the state of market gardening

Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**T**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	1.489	.648		2.298	.024
Sex	.133	.186	.069	.715	.477
Family status	-.213	.094	-.245	-2.257	.026
Age	.209	.101	.228	2.071	.041
Number of children per household	.030	.054	.053	.546	.587
Level of education	.088	.114	.076	.766	.446

Dependent Variable: reasons for engaging in market gardening

The relationship between the state of market gardening and the socio-economic characteristics of market gardeners in Jakiri sub division was tested using the regression model. It resulted that the correlation(r) coefficient was 0.409 with a significant level (p) of 0.08. This indicates that the state of market gardening depended on 16.8% of the socio-economic characteristics of gardeners in the Jakiri municipality. From table 7 it can be observed that only three out of six socio-economic characteristics were significant at the 5% significance level. Thus there is a week relationship between socio-economic characteristics and the state of market gardening in Jakiri. Therefore, anybody in Jakiri married or single, educated or uneducated can be involved in this activity. This proves that market gardening can be a source of employment to all.

The role of market gardening in poverty reduction and livelihood improvements in Jakiri subdivision.

Market gardening affects lives in Jakiri primarily through quality and quantity food provision, income generation and employment.

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Marketing of market gardening crops in Jakiri subdivision

Gardeners in Jakiri subdivision have a direct or an indirect relationship with the customers depending on the kind of arrangement. Wholesalers buy these products and transport them to other urban centres. Retailers are found everywhere in Jakiri subdivision and in urban centres. Wholesalers who buy these crops in bulk transport it to towns and resale them to retailers that in turn sale them to consumers in these towns. Table 8 below shows groups of people that market gardenerssell their crops to in Jakiri.

Table 8. Groups of people market gardeners sell their crops

Group	Frequency	Percentage (%)
Members of the public	22	22.0
Retailers	40	40.0
Wholesalers	34	34.0
None	4	4.0
Total	100	100.0

Members of the public (households, restaurants, schools etc), “buyam sellams” and whole sellers are the people market gardeners in Jakiri sell their produce to. In table 8, 22% of them sells a greater part of their products to members of the public. The most striking findings was the number of people that sells their products to retailers that is 40% and that some producers do not even sell their products that is 4%. This means that more than 80% of products produced in Jakiri goes to the market. More than 34% of the market gardeners sell all that is produced. This is to show market gardening crops are in high demand by the increasing population in Jakiri and even beyond.

Reasons for engaging in market gardening.

Market gardeners advanced diverse reasons for engaging in market gardening. For us to obtain this information market gardeners were asked the reasons for undertaking market gardening activities and their motivations were gathered and presented in table 9.

Table 9. The distribution of showing reasons for undertaking market gardening activities

Reasons	Frequency	Percentage	Cumulative Percentage
Profitable nature	33	33.0	33.0
Improve my standard of living	8	8.0	41.0
Have nothing else doing	17	17.0	58.0
Diversified my sources of food	10	10.0	68.0
Diversified my income	19	19.0	87.0
Prefers self-employment	9	9.0	96.0
0thers	4.0	4.o	100.0
Total	100	100.0	

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.That is the reason why a good number of them, that is 33 in number undertook market gardening because of its profitable nature and 19 of them undertook this activity in order to diversify their sources of income. Often, there were other members of the family who were unable to work (the elderly, children and sick members of the family) and support for their basic needs was required. Many market gardeners stressed the importance of saving money for their children's education.

Average income and expenditure

Assessing the income and expenditure of market gardening in Jakiri subdivision was extremely difficult because market gardening is an informal activity added to thatno written records on production and sales were kept. Market gardeners were therefore asked to estimate their yearly income and discuss the importance of market gardening in their lives.In order to obtain an overallindication of income generated, gardeners estimated the amount of money theyearned per year from market gardening. The spread of average income generated by market gardeners is presented in the figure 2.

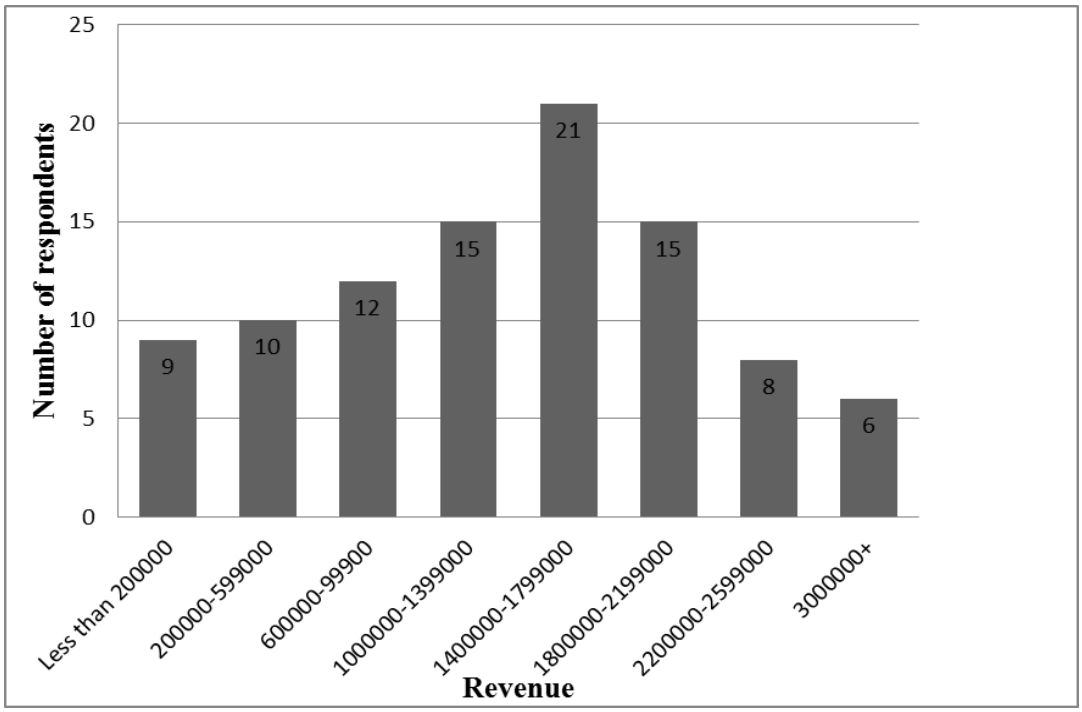

Figure 2. Average income in FCFA

It should be noted that out of the 100 interviewed 2 consume everything they produced hence their level of income from market gardening is not included in figure 2. Also, it was the first time for the other two respondents in market gardening and they could not estimate their level of income from this activity. The highest earned 4500000FCFA while the lowest earn 21000FCFA. Most of those who earn below 200000FCFA were mostly housewives and produce mainly for

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household consumption and only surpluses were carried to the market. From figure 2,it could be observed that market gardening is a lucrative activity in Jakiri and needs only little encouragement from the various stakes holders. Most gardeners earn averagely from 1400000 and 1799000 with average monthly earnings of 133292FCFA.
Revenue generated from the sales of market gardening crops was either used for personal spending by the gardeners, household spending and combinations of the two. This research work considered those who consumed everything produced as household expenditure (figure 3).

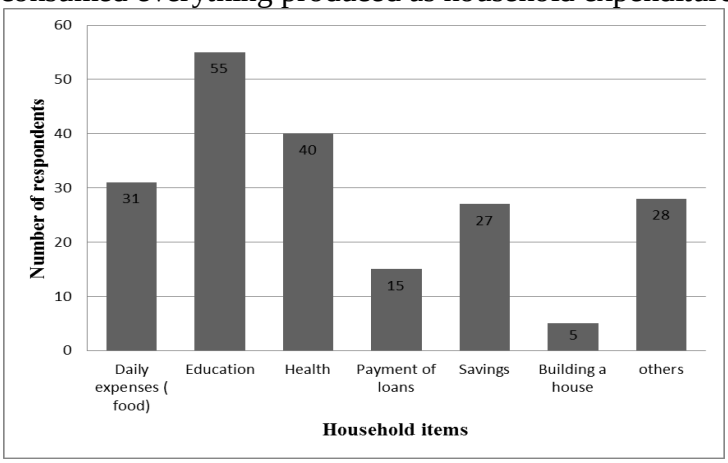

Figure 2. Expenditure of revenue gotten from market gardening

For most households (55), revenue from market gardening was spent more on education for children, followed by health (40). Some market gardeners (5), used part of the income from market gardening in the construction of their personal houses. Some of them save part of their revenue especially in "njangi" houses and in credit unions for their children school fees and unforeseen. Other activities market gardeners used their revenue for include; rendering help to other family members and friends, weddings, death celebrations, gifts and some of them even give loans to some of their friends and neighbours when they are in need. All the above explanation shows how market gardening has improved the living standards of market gardeners and non-gardeners in Jakiri subdivision.

The future of market gardening in Jakiri subdivision

The selected market gardeners were further asked to consider their future as market gardeners. Out of the 100gardeners interviewed, 87 of them said they will continue as market gardeners. Most of them acknowledged the fact that since they started this activity they have realised an increase in their income and a positive change in their standard of living. Those who were uncertain (5%) constituted two women and three young men. Those who considered stopping (8%) were the old and the young. The young preferred to further their education rather than continue with market gardening while some under looked the activity and preferred moving to towns to operate new businesses. Table 10 explain the reasons why some gardeners preferred to continue with this activity. Some gardeners advanced more than one reason and as a consequent were counted more than once.

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Table 10. Reasons for continuing as a market gardener

Reasons	Frequency
Market gardening is more profitable than other farming activities	47
A source of employment	11
Need money for my household	43
Too old and cannot find any other job	9
Interested in expanding market gardening into commercially bigger Projects	32
Market gardening provided an easy, enjoyable lifestyle.	22
Others	17

In general market gardeners in Jakiri subdivision wanted to continue as gardeners simply because it provide a steady source of income and it was more profitable. In fact many gardeners were passionate about market gardening.

Indicators of poverty reduction identified among gardeners in Jakiri subdivision

Table 11. The correlation between indicators of poverty reduction

		Increase SL	Increase income	Revenue MG	Duration in MG	Part revenue spent/year
Increase in standard of living	Spearman's correlation(r)	1	-.014	.608*	.273**	.069
	Sig.(2tailled)		.889	.042	.006	.498
	N	100	100	100	100	100
Increase in income	Spearman's correlation(r)	-.041	1	.198*	-.179	-.178
	Sig.(2tailled)	.889		.048	.075	.076
	N	100	100	100	100	100
Revenue from market gardening	Spearman's correlation	.608*	.198*	1	.309**	.221*
	Sig.(2tailled)	.042	.048		.002	.034
	N	100	100	100	100	100
Number of years in market gardening	Spearman's correlation	.273**	-.179	.309*	1	.230*
	Sig.(2tailled)	.006	.075	.002		.021
	N	100	100	100	100	100
Spending on household items per year	Spearman's correlation	-.178	.212*	.213*	.230*	1
	Sig.(2tailled)	.076	.034	.034	.021	
	N	100	100	100	100	100

**Correlation is significant at 0.01level (2-tailled)
*Correlation is significant at 0.05level (2-tailled)
N= the sample size and p= level of significance

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SL=standard of living
MG=market gardening

The Spearman's correlation was carried out to look at the relationship between the increase in living standards, income from market gardening, increase in income, the experience in market gardening and the spending on households' items. The results obtained showed a significant evidence between increase in living standards and revenue from market gardening (r=0.608 and p=0.042), increase in living standards and the number of years spent as a market gardener (r=0.273 and p=0.006), increase in income and the revenue from market gardening (r=-0.198 and p=0.048), number of years spent as a market gardener and increase in revenue (r=0.308 and p=0.002), households spending and revenue (r=0.221 and p=0.034) and the number of years spent as a gardener and spending on households' items (r=0.230 and p=0.021). This analysis showed that there was a strong relationship between the experience as a market gardener and all other indicators of poverty reduction like; increase in income, spending and living standards. Hence, market gardening has contributed significantly to poverty alleviation in Jakiri subdivision.

DISCUSSION

Reducing poverty at its very source. In addition, development of rural areas through agriculture and especially the cultivation of food crops may contribute to the preservation of the rural landscape, the protection of indigenous cultures and traditions. Most governments and NGOs in their agricultural development policies and programmes invariably recognise the role of market gardening in food security and poverty alleviation in rural areas and stress the need on giving farmers access to land and water, credit, higher-yielding crop varieties, farm inputs, agricultural extension, agro-processing and markets and have developed measures for women to access all of the above.

Although the importance of market gardening is in the rise, this activity in Jakiri subdivision faces a number of problems such as; poor farming methods, inadequate inputs, water shortages, pest and diseases, poor marketing structure, loss in soil fertility, climate variability *etc*. All these factors are reducing the role play by market gardening as a means of poverty reduction in this area. Hence, there was need to discuss the effects of some of these problems on market gardening in Jakiri subdivision and suggest their solutions.

Farm inputs

The productivity of market gardening crops in Jakiri subdivision is held back by insufficient improved species of seeds. More than 47% of the farmers buy their seeds from local stores in Jakiri and over 35% sow save seeds. Most gardeners in Jakiri either plant save seeds or use whatever they can find in local shops. Even those who buy high productive seeds from other towns complain they are expensive and do not produce the same like they do in those areas. This is as a result of differences in climate and soil types. There are no research institutions for producing improved species that can better adapt to the local environment. Thus most farmers using save seeds complained that they do not have confidence with seeds in the market and particular those seeds in local stores and prefer to sow save seeds though of low quality and

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hence low production. Many growers have had bad experiences with low quality seed carrying fake certification.

Reliable sources for the supply of farm inputs like fertilizers, fungicides, herbicides and insecticides that are very important in market gardening are very limited in Jakiri subdivision. Thus farmers usually make their own arrangement and that is why the application of these inputs is still limited in Jakiri subdivision. There are no farmer groups to buy in bulk at reduced prices and no NGOs to help gardeners get these inputs. Hence farmers complained of high prices of these inputs. Even farmers who can affords these inputs do not know the proper way of application as they have never received any training or advice on the proper application of chemicals. The use of organic manure is still high in Jakiri though it is decreasing at a very fast rate. In as much as the use of animal waste and compose manure is good, in Jakiri animal waste is not often fully decomposed before application and can affect plant growth and increase the risk of contamination of produce. Animal waste that farmers use often in Jakiri includes: fowl droppings (gotten from Foumbot and Bafoussam), goat dropping (from Babessi), and cow dung and to a lesser extent waste from piggeries. Some farmers can use up to one ton of fowl dropping per year. Another kind of organic manure used is compos manure which is mainly fallen leaves from cola nuts trees.

Regulating the use of pesticides and other chemicals is very important. This is because pests can adapt and resist a particular pesticide if over used. Likewise chemicals in general are poisonous and kill soil bacteria and pollute water sources if wrongly applied. The use of organic manure is better as compared to inorganic manure, but should be left to decompose before use, so as to reduce the risk of crop contamination. There is need for institutions (Government and/or NGOs) responsible for seed quality and regular assessment of eco-toxicological consequences of excessive usage of phyto-chemicals and such legal structures should be able to advice, fund research on improved varieties of seeds that are adaptable to the local environment in this municipality, regulate the quality of inputs, and request support from international development partners (*e.g.*FAO, World bank, *etc*). These institutions can equally organise agricultural shows in which farmers will showcase their products and know how. Also, these research centre swill equally create transformation units. These units will provide employment to the youths, add value and prevent after harvest losses.

Land availability

In the grass field region of Cameroon and particularly Jakiri subdivision, the land tenure systems range from inheritance, renting and ownership, with the state and traditional rulers having exclusive rights over most lands and will sell or distribute without due consideration given for agricultural purposes. This leaves some farmers with large surfaces of land and others with very small sizes. Also, the rapid population increase (Jakiri council, 2006) is also putting much pressure on the land. This is seen in the increase in demand for land used for developmental projects (schools, roads, churches, houses, hospitals, markets and so many others). As a result of an increase in population and pressure on the land, many farmers in Jakiri subdivision are moving towards the hills and encroaching into rearing land in search for agricultural land. Rearing of livestock and the cultivation of crops are too inter-related activities since pastoral as well as arable farmers utilize the same land. While arable farming is dominated by the natives

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who hold and own land under the traditional land laws, pastoral farming especially the rearing of cattle is dominated by the cattle Fulani (Mbororros) who occupies most slops during the rainy seasons and practice transhumance during the dry season are regarded as "strangers" to the area with no rights over the land. Goats, sheep and local fowls are integrated in the village agriculture. They are tethered during the rainy season in reserved areas near compounds and left to graze in the fields. The straying of uncontrolled or breaking fence animals and herds during transhumance period causes a lot of crop destruction and conflicts between grazers and farmers. Cattle in many years have consumed crops in farms causing serious lost in the family of the victims. The government and all those who are concern should make land accessible and reduce administrative bottle necks so as to encourage gardeners to obtained land tittles as well as regular follow up of c the level of corruption and discrimination so that law officials would not give wrong judgements and exploit locals in a case of farmer grazer problem.

Irrigation and water sources

The level of irrigation in Jakiri subdivision is still low but encouraging where only less than 44% of market gardeners do not irrigate farms. Also, they do not uses modern means of irrigation out of the 56 that irrigate their farms only 14 of them uses motor pumps. More than 70% of them admit they are face with water shortages during the dry seasons which sometimes lead to low harvest and when it comes to the worst crops even dry up. That's why many of them (>70%) usually have the greatest harvest during the rainy season. Gardeners in Jakiri are not trained on any risk of polluting or using polluted water and delicate farm inputs like the pesticides, fertilizers and as well as the polluted water are used without precaution on protection. Gardeners use and throw empty cans carelessly around their farms without thinking about the dangers they have on the environment and streams around their farms. Provision of regular water sources and modern irrigation systems which are of low cost and accessible to small producers is highly recommended for Jakiri. This will go a long way to control climate variability and farmers will not depend on nature to produce their crops.

Transportation and marketing

One of the highest drawbacks of market gardening in Jakiri subdivision is the means of transportation. Poor farm to market roads and the inadequate modes of transportation are also a serious problem. Roads leading to areas of production are deplorable. There are only seasonal roads. Transportation cost is really a handicap to producers. Farmers pay very high for finish product to arrive in various village squares. More so, the absence or poor storage facilities, improved species of seeds and other farm inputs are a big handicap in Jakiri. Production and marketing of these crops is personal that is, farmers do not have common initiative groups (CIGs) which makes it difficult to benefit from Government, NGO, elites and other stake holders. The cost of transportation varies from one market gardener to another depending on the distance, mode of transportation and the nature of the roads. Some market gardeners could not estimate their cost of transportation per kilogram. The gardeners equally explain that the cost of transportation is higher in rainy than during the dry season. This is because during the wet season some roads leading to areas of production becomes too muddy and sometimes becomes inaccessible for cars and bikes. During this period, transport cost become too expensive and

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producers prefer to sell a greater part of their produce at farm gates. 30% of the farmers in Jakiri pay between 50 and 100FRS per kilogram for their produce to arrive the market. Thus this explains why vegetable produce are sometimes expensive in the market at the peak of the rainy season when there are no shortages. These crops are sold differently at different destinations.

The market chain for the market gardening output is not yet well developed and cannot be compared to the market chain in other places. Most market gardeners in Jakiri depend on intermediaries to market their products. Sales are arranged by producers individually rarely do they deal with buyers collectively. This makes market gardeners in Jakiri not to be able to control the market. The producers have a direct or an indirect relationship with the customers depending on the kind of arrangement. Wholesalers buy these products and transport them to other urban centres. Retailers are found everywhere in Jakiri subdivision and in urban centres. Wholesalers who buy these crops in bulk transport it to towns and resale them to retailers that in turn sale them to consumers in these towns. Creating CIGs and personal initiatives are very important for the growth of this activity. Collaborating with more experienced market gardeners and the exchange of ideas is necessary. Equally, it is easy to write projects and seek for sponsors as a group. This will lead to a reduction in the prices of farm inputs and is a means of creating capital and thus controlling the market outlet.

Low level of education

The low levels of education are attributed to the limited availability of schools and negligence of parents when these gardeners were of school age. The lack of formal education excludes this demographic from alternative work, especially off-farm employment. As a result they are left with no other option than to engage themselves in market gardening as their main source of income. Although many of the gardeners in Jakiri subdivision commenced formal education, often secondary and high schooling were not completed. Only eight out of 19 gardeners who attended secondary School completed form five. Only two out of six gardeners who attended high School obtained the Government Certificate of Education (GCE) Advance Level. The two that attended higher education, obtained Bachelor degrees and all of them were men. However, some respondents with previous employment received occupational training. This explains the reason why most of them do not keep any written records of their activities.

CONCLUSION

The main objective of this study was to investigate the role of market gardening as a strategy to fight against poverty in rural areas. This research was carried-out in the Jakiri subdivision revealed that the cultivation of market gardening crops alongside cereals cultivation can go a long way in diversifying farmers' sources of income and hence improve livelihoods conditions of the people in rural areas. The high involvement of the active age group in market gardening is a clear indication that market gardening if encouraged can be used as a vital tool to fight against poverty and unemployment especially in rural areas. The research provides the characteristics of market gardening in Jakiri subdivision and brings out the fact that despite the problems hindering the fast growth of market gardening in this area, farmers who have recognised the profitability and the impacts of this activity on their livelihood try as much as possible to find out solutions by themselves. If market gardening is not a profitable activity, farmers would not go that far to search for methods to adapt in this occupation.. Also, this study brings out a strong relationship

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between market gardening and poverty reduction. Given that more than 80% of market gardeners do not doubt about their continuity in this activity. The contribution of market gardening is also evident on the level of household expenditure in education, health and other daily expenses.

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