Peri-Urban Home Garden Practice: Implication For Food Security In Oyo State

[1*]**Agbontale, A. O.,** [2]**Adisa T. A.,** [1]**Owolade E. O. &** Umunna, M. O.

[1]**Federal College of Animal Health and Production Technology, Moor-Plantation, Ibadan**
[2]**Federal College of Animal Health and Production Technology, Vom, Plateau State**
(*Corresponding Author: omoneimiorg@yahoo.com**. 08060248386)**

ABSTRACT
The study examined the involvement of peri-urban households in home garden practice in Oyo state and its implication for food security. Using Multi-staged sampling technique; structured questionnaire and focused group discussion (FGD) were used to elicit information from the 180 respondents selected for the study. Data were analyzed using descriptive and inferential statistics (Chi-Square and PPMC). Findings revealed that 47.8% were above 50 years with a mean age of 48.15 years, 67.8% were female, 87.8 were married, 53.3% had between 6 and 9 household size with a mean of 5.89, 35.0% had secondary education, 57.2 % were into farming. Crops and livestock raised in the home garden included pepper (95.6%), pawpaw (91.7%), water leaf (95.0%), cassava (92.2%) chicken (70.6%) and goat (72.2%). Crops and livestock accessible for household consumption from home garden included pepper (82.1%), plantain (71.1%), waterleaf (87.2%), cassava products (83.9%) and chicken (56.7%). Inadequate capital (66.1%) was a major constraint to respondents. Respondents' occupation (χ^2=169.008) was significantly (p<0.05) related to home garden practice; food availability and accessibility (χ^2=422.913 and 406.514) while food availability (r=0.589), accessibility (r=0.549), income generation (r=0.549) and other needs (r=0.977) were significantly (p<0.05) related to livestock and crop components of home garden respectively. Home gardening could enhance household food security in while more awareness should be in place to peri-urban dwellers on the contributions of home gardening to households' food security in the state and in Nigeria.
Keywords: Peri-Urban Communities, Food Security, Home garden, food accessibility, Oyo State

INTRODUCTION
Food security implies physical and economic access, at all times to sufficient, safe and nutritious food to meet dietary needs and food preferences for an active and healthy life (FAO, 2005). A household is considered food secured when its occupants do not live in hunger or fear of starvation (Wikipedia, 2010). Generally, food security can be attained via three sources: owned production, purchase and aids. Of these, the only dependable one is owned production as food aids is transitory while purchase is influenced by purchasing power (Ndaeyo, 2007). Sustainability of food supplies refers to the capacity to ensure the long term stability of the household food supply and the ability of households to meet consumption and livelihood needs on a continuous basis. There are three central pillars of food security: Availability or adequacy of food, Economic access to available food and Nutrition Security (FAO, 2006). FAO (2004) disclosed that in many areas of Nigeria, people commonly cultivate compound farm or home gardens often referred to as back yard or kitchen gardens. Home garden is always termed as the woman's farm, yet it is an important source of the household's food supplies, more income, increased well-being, reduced vulnerability of the natural resource base and supplements food needs during the lean periods or seasons. A home garden or backyard farm is however conceived as a place where horticultural crops, fruits, vegetable, spices and medicinal plants are grown and where small ruminant, poultry, fish and pigs

are kept. Generally, it employs a more intensive form of land use than the cultivation of field crop and gardens can be highly diversified.

Statement of Problem

FAO (2001) observed that seasonal hunger has been rampant year in year out during which household food needs are not adequately met. Some indicators of seasonal hunger at household level include depletion of food stocks, reduction in number of meals eaten daily and reduced dependence on home garden crops.

METHODOLOGY

Multi-stage sampling procedure was used for the study. Thirty (30) communities were selected from three (3) Local Government Areas. One hundred and eighty (180) respondents were drawn from the 30 communities while structured questionnaire and FGD were used to obtain information from the respondents.

RESULTS AND DISCUSSION

Table 1: Distribution of respondents by their food availability

S/N	Variables	Always		Sometimes		Never	
		F	%	F	%	F	%
	Fruit vegetable						
1	Okra (*Hibiscus esculentus*)	143	79.4	19	10.6	18	10.0
2	Pepper (*Capsicum spp*)	157	87.2	20	11.1	3.0	1.7
3	Tomatoes (*Lycopersicum esculentum*)	111	61.7	63	35.0	6.0	3.3
4	Cucumber (*Cucumis sativus*)	36	20.0	58	32.2	86	47.8
	Fruits						
1	Banana (*Musa spp*)	97	53.9	63	35.0	20	11.1
2	Mango (*Magnifera indica*)	69	38.9	74	41.1	37	20.6
3	Plantain (*Musca spp*)	129	71.7	35	19.4	12	8.9
4	Papaya (*Carica papaya*)	106	58.9	62	34.4	12	6.7
5	Pineapple (*Ananas comosus*)	97	53.9	68	37.8	15	8.3
6	Citrus (*Citrus spp*)	51	28.3	88	48.9	41	22.8
7	Palm fruit (*Elaies guineensis*)	93	51.7	41	22.8	46	25.6
	Leafy vegetables						
1	Fluted pumpkin (*Telfairia occidentalis*)	92	51.1	25	13.9	63	35.0
2	Amaranthus (*Amaranthus spp*)	142	78.9	18	10.0	20	11.1
3	Spinach (*Amaranthus spinosis*)	87	20.6	51	28.3	92	51.1
4	Water leaf (*Talinium trangulare*	157	87.2	15	8.3	8.0	4.4
5	Bitter leaf (*Vernonia amygdalina*)	157	87.2	13	7.2	10	5.6
6	Scent leaf (*Ocimum grattissmum*)	154	85.6	14	7.8	12	6.7
7	Curry leaf (*Murraye koenigii*)	74	41.1	22	12.2	84	46.7
8	Ewedu (*Corchrous olitorius*)	154	85.6	18	10.0	8.0	4.4
	Food crops and others						
1	Cassava (*Manihot utillisima*)	149	82.8	18	10.0	13	7.2
2	Yam (*Dioscorea esculentum*)	135	75.0	13	7.2	49	17.8
3	Sweet potatoes (*Ipomea batatas*)	79	43.9	52	28.9	102	56.7
4	Cowpea (*Vigna unguiculata*)	39	21.7	39	21.7	102	56.7
5	Groundnut(*Arachis hypogaea*)	50	27.8	42	23.3	88	48.9
6	Maize (*Zea mays*)	150	83.3	19	10.6	11	6.1
7	Cocoyam (*Xanthosoma sogihifolium*)	115	63.9	30	16.7	35	19.4
	Livestock						
1	Cow meat (beef)	19	10.6	23	12.8	138	76.7
2	Poultry (chicken)	76	42.2	64	35.6	40	22.2
3	Goat meat (chevon)	35	19.4	96	53.3	49	27.2
4	Sheep meat (mutton)	24	13.3	96	53.3	60	33.3
5	Fish	34	18.9	31	17.2	115	63.9
6	Snail	25	13.9	20	11.1	135	75.0

Source: Field survey, 2019   Multiple Responses

Table 1 shows that pepper was the highest fruit vegetable that was always available while 11.9% were sometimes available for 1.7% of the respondent it was never available, the table further shows that water leaf and bitter leaf has the same percent of its availability, 8.3% and 7.2% sometimes while 4.4% & 5.6% never available, 85.6% of scent leaf and *Cochorus* was always available while 7.8% and 10.0% was sometimes available but 6.8% & 4.4% of it was never available among the leafy vegetables. The table also shows that among the fruit plantains (71.7%) was always available followed by papaya (58.9%) while 34.4% was sometimes available and was never available for 6.7%. and also among the food crops and others. Maize (83.3%) was always available followed by cassava (82.8%), yam (75.0%), and cocoyam (63.9%) and among the livestock poultry product (chicken) with (42.2%) was always available.

Table 2: Distribution of respondents by their food accessibility

S/N	Variables	Always		Sometimes		Never	
		F	%	F	%	F	%
	Fruit vegetable						
1	Okro (*Hibiscus esculentus*)	146	81.1	17	9.4	17	9.4
2	Pepper (*Capsicum spp*)	156	86.7	18	10.0	6	3.3
3	Tomatoes (*Lycopersicum esculentum*)	93	51.7	79	43.9	6	3.3
4	Cucumber (*Cucumis sativus*)	26	14.4	71	39.4	83	46.1
	Fruits						
1	Banana (*Musa spp*)	92	51.1	70	38.9	18	10.1
2	Mango (*Magnifera indica*)	67	37.2	81	45.0	32	17.8
3	Plantain (*Musca spp*)	128	71.1	38	21.1	14	7.8
4	Papaya (*Carica papaya*)	97	53.9	71	39.4	12	6.7
5	Pineapple (*Ananas comosus*)	81	31.1	81	45.0	16	8.9
6	Citrus (*Citrus spp*)	56	31.1	81	45.0	43	23.9
7	Palm fruit (*Elaies guineensis*)	82	45.6	43	23.9	55	30.9
	Leafy vegetables						
1	Fluted pumpkin (*Teliferia occidentalis*)	87	48.3	26	15.6	65	36.1
2	Amaranthus (*Amaranthus spp*)	142	78.9	17	9.4	20	11.1
3	Spinach (*Amaranthus spinosis*)	38	21.1	35	19.4	107	59.4
4	Water leaf (*Talinium trangulare*	157	87.2	15	8.3	8	4.4
5	Bitter leaf (Vernonia amygdalina)	157	87.2	13	7.2	10	5.6
6	Scent (*Ocimum grattissmum*)	154	85.6	14	7.8	12	6.7
7	Curry leaf (*Murraye koenigii*)	74	41.1	22	12.2	84	46.7
8	Ewedu (*Corchrous olitorius*)	154	85.6	18	10.0	8	4.4
	Food crops and others						
1	Cassava (*Manihot utillisima*)	151	83.9	17	9.4	12	6.1
2	Yam (*Dioscorea esculentum*)	126	70.0	20	11.1	34	8.9
3	Sweet potatoes (*Ipomea batatas*)	73	40.6	59	32.8	48	6.7
4	Cowpea (*Vigna unguiculata*)	41	22.8	43	23.9	85	7.2
5	Groundnut (*Arachis hypogaea*)	52	28.9	43	23.9	85	7.2
6	Maize (*Zea mays*)	138	76.7	25	13.9	17	9.4
7	Cocoyam (*Xanthosoma sogihifolium*)	111	61.7	36	20.0	33	18.3
	Livestock						
1	Cow meat (Beef)	22	12.2	23	12.8	135	75.0
2	Chicken	102	56.7	36	20.0	42	23.3
3	Goat meat (Chevron)	29	16.1	105	58.3	46	25.6
4	Sheep meat (Mutton)	30	16.7	94	52.2	56	31.1
5	Fish	34	18.9	32	17.8	114	63.3
6	Snail	28	15.9	22	12.2	130	72.2
7	Turkey	34	18.9	18	10.0	128	71.1
8	Snail	11	6.1	16	8.9	153	85.0

Source: Field survey, 2019   Multiple Responses

Table 2 shows the percentage of household food accessibility by the respondents. Based on the availability of food pepper and okra were the most available under fruit vegetable as shown in table 5. It is also shown in table 4 that respondent always have access to the same crop with the percentage of 86.7% and 81.1% respectively followed by tomatoes, this could be due to their short period of maturity. Among the leafy vegetables, amaranthus has the higher percentage of 78.9%, table further shows that plantain (71.1%) was always accessible and 7.8 of the respondent never has access to it because they did not own a home garden but hired to work for them among the fruit crops, it was followed by papaya 53.9% being always accessible, while 39.4 of the respondent sometimes have access to it but 6.7% never have access to it.

The table further shows that among the food crops cassava (83.9%) was always accessible to because it can be processed into different forms like chips which can further be grind into flour and can also be processed into garri, fufu, flakes, starch e.t.c. which makes it always available and accessible. This was followed by maize (76.7%), yam (70.0%) and cocoyam (61.7%) due to their easy method of processing and preservation, it makes it available and accessible at all times. The table further indicates that among the livestock chicken (56.1%) was always accessible; this is due to the fact that poultry has become an important sector of livestock production in Nigeria. It is a major contributor to livelihoods, it could be intensive or extensive, both in large and small scales. It has proved to be an invaluable source of employment, income and food security to a large segment of the population. Also most African homes, especially in the rural areas keep poultry alongside with some other livestock for several reasons as reported by James (2004). Others like goat (58.3%) were sometimes accessible while duck according to (85.0%) of the respondents never have access to it as it all shown in table 3b

Table 3: Distribution of respondents by their Income generated from home gardening weekly

S/N	Variables	Frequency	Percentage	Mean
	Income from Vegetables			
1	₦1000 – 3000	93	51.8	
2	₦3100 – 6000	79	43.8	3,415.8
3	₦6100 – 9000	5	2.7	
4	₦9100 -12,000	3	1.6	
	Total	180	100	
	Income from Livestock			
1	₦1000 – 3000	73	40.5	
2	₦3100 – 6000	55	30.5	
3	₦6100 – 9000	23	12.7	5,018.6
4	₦9100 – 12000	20	11.1	
5	₦12100 – 15000	7	3.8	
6	₦15100 18,000	2	1.1	
	Total	180	100	

Source: Field survey, 2019

Income from sales of vegetables: From the finding it was also discovered that 51.8% of the respondents were earning (₦1, 000-3,000) weekly from their sales of vegetables while 1.6% of the respondents were earning between (₦9100 – 12000) with their mean of 3,415.8.

Income from sales of livestock: Highest income from sales of livestock component of home garden was ₦1000-3,000 (40.5%), while 1.1 of the respondents earns ₦15,100 -18,000 with the mean of 5,018.6 as shown in table 3.

Table 4: Distribution of respondents by their home gardening contributions to other households' needs

S/N	Variables	Always		Sometimes		Never		Total	
		F	%	F	%	F	%		
1	Electricity bill	126	70.0	32	17.8	22	12.2	180	100
2	Medical bill	26	14.4	167	59.4	47	26.1	180	100
3	House rent	45	25.0	38	21.1	97	53.9	180	100
4	Gifts/alms	46	25.6	111	61.7	23	12.8	180	100
5	School fee/upkeep	100	55.6	58	32.2	22	12.2	180	100
6	Cloths	75	41.7	88	48.9	17	9.4	180	100

Source: Field survey, 2019   Multiple Responses

Electricity bills (70.0%) and school fee/upkeep (55.6%) is paramount among the needs of the respondent's contributions from home garden. While 41.7% meet clothing needs, 25.6% gifts/alms, 26.67% house rents, 25% medical and 14.4%. This implies that all these other needs are taken care of with the cash realized from the sale of home garden produce. Home garden not only meets food and financial needs of the respondents' household, the income generated can also be used to pay for daily essentials and services, such as upkeep, clothes, school-fees, medicine and farm inputs that cannot be produced by the household (Agbontale, 2005; FAO, 1998).
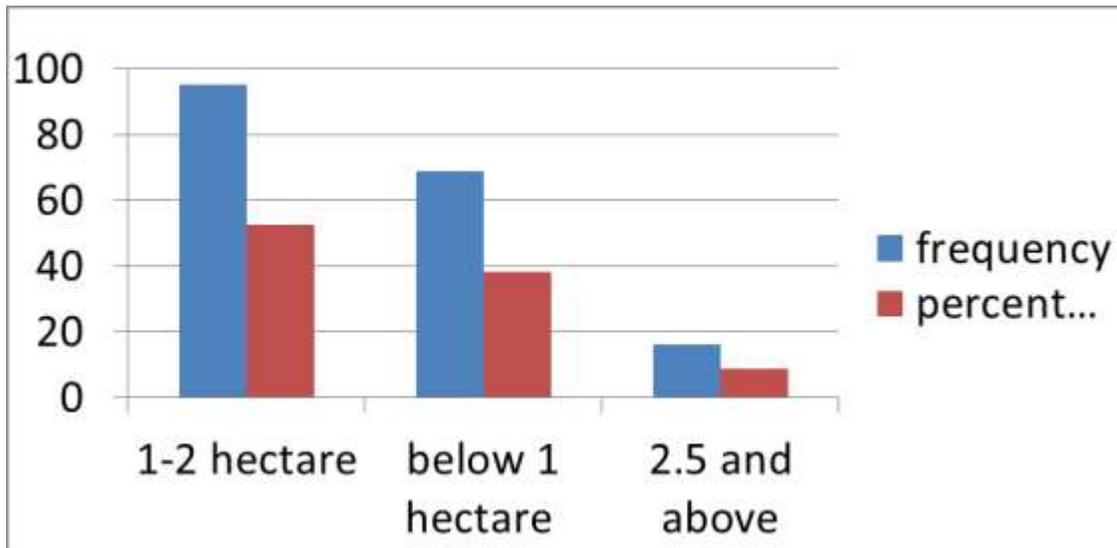

Fig I: Showing the home garden size of the respondents
Source: Field survey, 2019

Figure I above shows the highest home garden of the respondent ranging from 1-2 hectare (52.7%) followed by below 1 hectare (38.3%), and 2.5 above (8.8%) this was due to the closeness of the home garden to the house according to the information collected during focus group discussion. Home garden need guidance on the necessary condition to be considered for effectiveness in controlling pest and diseases which was one of the constraint faced by the respondents in the study area.

Table 5: Distribution of respondents by their home garden components

S/N	Variables	Frequency	Percentage
	Fruits vegetables		
1	Okro (*Hibiscus esculentus*)	158	87.8
2	Pepper (*Capsicum spp*)	172	95.6
3	Tomatoes (*Lycopersicum esculentum*)	170	94.4
4	Cucumber *(Cucumis sativus)*	73	4.6
5	Egg plant	109	60.0
	Fruits		
1	Banana (*Musa spp*)	145	80.6
2	Mango (*Magnifera indica*)	121	67.2
3	Plantain (*Musca spp*)	148	82.2
4	Papaya (*Carica papaya*)	165	91.7
5	Pineapple (*Ananas comosus*)	159	88.3
6	Citrus (*Citrus spp*)	115	63.9
7	Palm fruit (*Elaies guineensis*)	110	61.1
	Leafy vegetables		
1	Fluted pumpkin (*Teliferia occidentalis*)	121	67.2
2	Amaranthus *(Amaranthus spp)*	160	88.9
3	Spinach *(Amaranthus spinosis)*	166	92.2
4	Water leaf (*Talinium trangulare*	171	95.0
5	Bitter leaf (Vernonia amygdalina)	169	93.9
6	Scent *(Ocimum grattissmum)*	87	48.3
7	Ewedu (*Corchrous olitorius*)	163	90.6
	Food crops and others		
1	Cassava (*Manihot utillisima*)	166	92.2
2	Yam (*Dioscorea esculentum*)	138	76.7
3	Sweet potatoes (*Ipomea batatas*)	109	60.6
4	Cowpea (*Vigna unguiculata*)	66	36.7
5	Groundnut (*Arachis hypogaea*)	80	44.4
6	Maize (*Zea mays*)	163	90.6
7	Cocoyam (*Xanthosoma sogihifolium*)	125	69.4
	Livestock		
1	Cattle	3	1.7
2	Goat	130	72.2
3	Sheep	118	65.6
4	Fish	41	22.8
5	Snail	16	8.9
6	Rabbit	21	11.7
7	Swine	16	8.9
8	Chicken	127	70.6
9	Turkey	42	23.3
10	Duck	37	20.6

Source: Field survey, 2019   Multiple Responses

Different types of crops ranging from fruit vegetables, leafy vegetables and food crops totaling about 27 were planted in the gardens. However, fruit vegetable out-numbered the rest in the frequency of occurrence. Pawpaw and pineapple topped the list of fruit; this could be due to the ease of cultivation and the short gestation period of these crops. The leafy vegetables, bitter leaf and scent leaf ranked first and second respectively. The medicinal nature of bitter leaf may also be responsible for its importance in the home gardens. Moreover, food crops cassava (92.2), maize (90.6) and yam (76.7) were highly cultivated.

Also on the home garden livestock component goat (72.2%), poultry (70.6%) and sheep (65.6%) were highly involve by the respondents in the study area.

Table 6: Distribution of respondents by their labour sources

S/N	Sources of labour	Frequency	Percentage	N=180
1	Hired labour	61	33.8	
2	Family labour	54	30.0	
3	Self-labour	37	20.5	
4	Children	28	15.5	
	Total	180	100	

Source: Field survey, 2019

Table 6 above shows that Majority (33.8%) of respondent used hired labour. While 30.0% used family labour, however 20.5% of respondent used self labour and 15.5% used children as their source of labour. This implies that 33.8% use hired to reduce the work load when they embark on large area of land

Table 7: Distribution of respondents' knowledge on home gardening

S/N	Variables	Yes		No		Total	
		F	%	F	%	F	
1.	Did you have knowledge on home garden	177	98.3	3	1.7	180	100
2	How did you acquire your knowledge	Inheritance		Vocational training		Educational	
		F	%	F	%	F	%
		149	82.8	22	12.2	9	5.0

Source: Field survey, 2019

The table 7 above indicates the majority (98.3%) of the respondent have knowledge about home gardening while 1.7% did not. The table also revealed that 82.8 % of the respondent inherited knowledge on home hardening, 12.2% acquire through vocational training while 5.0% acquire their knowledge through educational qualification. This implies for household to meet long term stability of food supply, it must be in a continuous process and they must acquire more knowledge to increase in their productivity.

Respondents' responses on home-gardening contribution from FGDs
   A.   *(nini ogba agbe odara pupo nitoripe o je ona ti a n gba lati le pese ounje fun ebi wa, a si ma n je ki ounje wa ni ile wa ni gbogbo igba) Home gardening improves family food supplies because it makes food available at all time and i also have diversification of food.*
   B. *(o tun je ona ti a n gba lati fi owo se awon oun miran ninu ile wa nitoripe oje ona miran ti a tun la gba lati ri owo bi kose lori oun ti a ba mu ti oko wa, a ma je, a de tun ma ta ninu re lati ri owo lati tun ra awon oun miran sinu ile.) It provides income to solve other needs in the household, since is the other means of getting money.*
   C. *(o tun je ona ti a maa n gba lati se eto ounje ni pajawiri fun awon alejo mi abi ti aba fe se inawo nitoripe gbogbo nkan osin lowa ni oko mi) It sometimes provides food for emergency and special occasion.*
   D. *(O dekun awon koriko ati igbo ni ayika ile ko sit un fi aye gba awon eranko buburu lati wa si ile bi ejo, akeke ati awon eranko miran, nitori gbogbo ayika wa ni yio wa ni mimo. Ategun a si ma fe wo ile) It reduces weed and bushes around my home thereby preventing any dangerous animal like snake to harbour and also allow ventilation.*

Table 8: Distribution of respondents by their Constraints faced in home-gardening

S/N	Constraints	Frequency	percentage	Frequency	percentage
1	Inadequate capital	119	66.1	61	33.9
2	Lack of storage facilities	66	36.7	114	63.3
3	Pest and disease	54	30.0	126	70.0
4	Insufficient land	50	27.8	130	72.2
5	Incessant weather	44	24.4	136	75.6
6	Lack of ready market for produce	17	9.4	163	90.6
7	Ruin by domestic animal	13	7.2	169	92.3
8	Farm input	7	3.9	173	96.1
9	Technical problem	2	1.1	198	98.9

Source: Field survey, 2019

Table 8 above shows that adequate capital was the highest constraints faced confronted by the home gardeners as indicated by 66.1% of the respondents. Lack of storage facilities (36.7%) closely followed. Disease and pest which may be due to use of contaminated planting material from the open market since majority of them got there seed from there and it could also be as a result of lack of good storage facilities which is one of the constraints faced by the respondent. Other problems are insufficient land, incessant weather, lack of ready market for produce, ruin by domestic animals which is part of our culture in Nigeria to allow domestic animals to roam about under the free range system, farm input and technical problem.

Table 9: Chi-square analysis showing the relationship between selected respondents' personal characteristics and home gardening

Variables	χ^2	df	P value	Decision
Age	81.694	72	0.203	NS
Sex	28.086	24	0.256	NS
Educational qualification	104.601	48	0.141	NS
Ethnicity	58.579	48	0.141	NS
Religion	42.722	48	0.688	NS
Household size	44.792	48	0.605	NS
Marital status	103.746	96	0.277	NS
Occupation	169.008	120	003*	S

Source: Field survey, 2019

Table 9 shows the test of significance between home gardening and some selected socio-economic characteristics of the home gardeners which included age, sex, educational qualification, ethnicity, religion, household size, marital status and occupation. It was found that only the occupation of the respondents had a significant ($p<0.05$) relationship while other socio-economic variables did not show significant ($p<0.05$) relationship. This means that occupation is used to accruement their earning from other source of income.

Table10: Pearson correlation showing the relationship between Home garden crop component and food security of the respondents

Variables	r-value	P-value	Decision
Food availability	0.589	.000*	S
Food accessibility	0.549	.000*	S
Income generation	0.549	.000*	S
Other needs	0.977	0.002*	S

Source: Field survey, 2019

χ^2**:** Chi-square value,   P. value**:** level of significant,   df**:** degree of freedom,   *: Significant

The result Table 10 above shows that a significant ($p<0.05$) relationship exist between home garden crop component on food availability, food accessibility, income generation and other needs of the respondents,

which implies that increase in home garden crop component leads to sustainability in the supply of the households food during a given year and all year round as reported by FAO, 2005.

Table 11: Chi – square showing the relationship between hone garden livestock component and food security of the respondents

Variables	χ^2	df	P-value	Decision
Food availability	422.913	320	.000*	S
Food accessibility	406.514	304	.000*	S
Income generation	108.861	90	0.86	S
Other needs	88.743	45	000*	S

Source: Field survey, 2019

χ^2**:** Chi-square value   P. value**:** level of significant   df**:** degree of freedom   *****:** Significant

Result in table 11 indicate that a significant (p<0.05) relationship exist between home gardening livestock component of the respondent on food availability, food accessibility, and other needs This implies that home gardening is an important source of the household's food supplies, more income and also increased well-being, of the people (FAO,2005).

CONCLUSIONS

The study therefore concludes that:

Types of crop grown in the home gardening include fruit vegetable, leafy vegetables fruit, food crops and livestock and these have significant relationship with home gardening at P<0.05.

Availability of and accessibility to fresh vegetables in the home gardening, fruit and small animals not only ensures a more balance diet for families with limited purchasing power, but also increase their self-relevance and reliance. The sales of surpluses also provide other needs of the households.

However, inadequate capital, lack of storage facilities, pest and disease were the major problem associated with home gardening in the study area.

RECOMMENDATIONS

In view of the findings of this study the following recommendation have been made:

1. More awareness should be created on the efficiency of home gardening to household food security and there is need to empower the respondents in their home gardening activities to achieve the food security of homes in the study area.

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