International Journal of Agriculture, Environment and Food Sciences
e-ISSN : 2618-5946
www.jaefs.com
JAEFS
edit PUBLISHING

Research Article
Int J Agric Environ Food Sci 6 (2): 233-239 (2022)

Farmers' attitude towards cooperative participation in irrigated vegetables production in Gombe State, Nigeria

Ibrahim Manu[1,*] **Yunusa Mustapha**[1]

[1]Federal College of Education (Technical) Gombe, P.M.B.60, Gombe

[*]Corresponding Author: manui66@yahoo.com

Citation
Manu, I., Mustapha, Y. (2022). Farmers' attitude towards cooperative participation in irrigated vegetables production in Gombe State, Nigeria. International Journal of Agriculture, Environment and Food Sciences, 6 (2), 233-239.
Doi: https://doi.org/10.31015/jaefs.2022.2.5

Received: 04 February 2022
Accepted: 12 May 2022
Published Online: 05 June 2022
Revised: 27 June 2022

Year: 2022
Volume: 6
Issue: 2 (June)
Pages: 233-239

Available online
http://www.jaefs.com
https://dergipark.org.tr/jaefs

Abstract

The study analyzed the attitudes of farmers towards participation in irrigated vegetable production in Gombe state. Multi-stage sampling technique was used to select 180 farmers from a total population of 904 irrigated vegetable farmers in the study area. The data collected was analyzed using descriptive statistics. The result on the socio-economic characteristics revealed that 42.2% of the respondents were within the age group of 30-39 years. Majority 88.9% of the respondents were male and 60.5% of them had no formal education. Most 91.7% of the respondents were married and 35% of them had 9-15 family members. About 52.8% of the respondents earned between ₦ 101,000 - ₦150,000 as their estimated annual income. Majority 62.2% of the respondents had their farm size between 0.5 -1.4 hectares of land and about 87.2% of the respondents had between 1-9 years of experience in irrigated vegetable production. Majority 66.7% of the respondents belongs to the farmers' association. The mean scores of the attitudinal statements are; cooperative participation in irrigated vegetables production help work done faster (4.75), leads to effective decision (4.78), serve as a basis for getting governmental aids (4.11), yield higher profit (4.65), leads to food security (4.72), enhances access to extension services (4.52), facilitates adoption of innovation (4.52), leads to capacity building (4.67), increase investment (4.68), enhances access to market (4.48), and lastly it brings about agricultural development (M=4.62). The study recommended that vegetable farmers should be encouraged to join and revive the existing cooperative societies for them to raise enough capital for their production activities. Government should make available farm inputs, irrigation facilities and construction of boreholes and tube wells to the farmers at subsidized rates. Farmers need to be educated on their production activities and increase in extension agent-farmer contact in order to facilitate the adoption of improved vegetable production technology.

Keywords

Farmers, Attitude, Irrigated vegetable, Cooperative participation, Gombe state

Introduction

Vegetable is used to describe the tender edible shoot, leaves, fruits and root of plants and spices that are consumed whole or in part, raw or cooked as a supplement to starchy food and meat. They are widely cultivated in most parts of sub Sahara Africa, as a cheap and reliable source of protein, vitamins and minerals constituting between 30% and 50% of iron and vitamin A in resource poor diet. FAO (2011) defines community participation as a process of equitable and active involvement of all stake holders in the formulation of development policies and strategies and in analysis, planning, implementation, monitoring and evaluation of development activities. To allow for a more equitable development process, disadvantaged stakeholders need to be empowered so as to increase their level of knowledge, influence and control over their own livelihoods, including development initiatives affecting them. Furthermore,

Leafy vegetables are an important feature of Nigeria's diet that a traditional meal without it is assumed to be incomplete. In developing countries, the consumption of vegetables is generally lower than the FAO recommendation of 75kg per year or 206g per day per capita (Badmus and Yekini, 2011).

Agricultural co-operatives are agricultural-producer-owned coops whose primary purpose is increase member producers' production and incomes by helping better link with finance, agricultural inputs, information, and output markets.

The purpose of agricultural cooperatives is to help farmers increase their yields and incomes by pooling their resources to support collective service provisions and economic empowerment. Given their primary remit to contribute to smallholder farmer production,

According to International Cooperative Alliance, in Nwankwo (2008), cooperative is an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically controlled enterprise. Nwankwo (2008) further stated that a cooperative is an independent enterprise, promoted, owned and controlled by members to meet their needs. As an enterprise, cooperatives are active in markets locally, nationally and worldwide Hogeland (2002). At the introduction of formal cooperative in Nigeria over seven decades ago, cooperative was used as a platform for improving agricultural production and farmers' income. The cooperative according to him is one of the most effective vehicles for organizing modernized rural production, which has become one of the most important preconditions for efficient mobilization of production resources and accelerated rural progress. Merrett and Walzer (2001) stated that the original impetus for the introduction of cooperative was in agriculture more precisely the marketing of agricultural products to help fetch better prices and income for cocoa farmers in the Western part of Nigeria. In Nigeria, vegetables production has been ongoing for decades, providing employment and income for the increasing population especially during the long dry season. However, the production is constrained by inadequate infrastructure, agronomic and socio economic variables (Sabo and Zira, 2008). Farmer's participation is an important factor to sustainable agriculture in rural areas through local, state, federal government and donor sponsored programmes.

Gombe state is one of the states where vegetable production is highly practiced. Production of vegetables is largely carried out during dry season under irrigation, although it is also grown under rain fed agriculture. The Gongola river which provides the main drainage system and Benue river basin that cuts across the state and the presence of the 3 dams in the state namely; Dadin kowa, Balanga and Cham dams serves as the potentials for dry season farming of vegetables crops like tomatoes, pepper, water melon, onion, okra and leafy vegetables. Dry season vegetable production has been ongoing in the state for decades providing employment and income for the people in the state.

It has been observed that despite of abundant of natural, physical and human resources that Nigeria is endowed with, there is still high incidence rate of poverty in Nigeria especially in the rural areas. In Gombe state, majority of the people in the state (60%) engaged in agriculture (GSADP, 2013). Year round cultivation is possible in some parts of the state due to favorable weather and extensive irrigation programme. Gombe State is known for production of vegetables like tomatoes, pepper, onions, okra, pumpkin and melon but their production were mainly at subsistence level. Apart from few non-governmental organizations (NGOs) who engaged in capacity building of farmers in irrigated farming through provision of wells, boreholes, improved varieties etc. Several researchers have reported that there is low level of community involvement on irrigated vegetables production in the area (Dauda, Asinbe, Akinbade and Salaha, 2009). Irrigation farming, though high-yielding it is capital intensive, hence the need for community involvement so as to enjoy government support. Also, the scanty work on the determinants of farmer's participation in the area necessitates the conduct of this research. This work is therefore aimed at investigating the farmers attitude towards cooperative participation in irrigated vegetables production in the State.

Materials and Methods

The study was conducted in Gombe State, Nigeria. Gombe State lies between Latitudes 10^0 16' and 11^0 00' North of the equator and Longitude $11^0$00' E and $11^0$11' E of the Greenwich meridian distance above sea level within the Sudan savannah ecological zone of Nigeria. It shares boundary with Bauchi in the west, Taraba and Adamawa in the south west, Borno in the east and Yobe to the North.

The State covers a land area of 158,998,569 m^2 with a population of 2,365,040 inhabitants based on 2006 National Population Commission (NPC) census with a 2.8 percent annual growth rate. Gombe State is divided into eleven (11) Local Government Areas. The climatic condition of the state is characterized by two distinct season's dry and wet season. The wet season begins from April and ends in October, while, the dry season starts in November and lasts up to March. The annual rainfall ranges from 600mm to 1200mm, with the minimum and maximum temperatures of 22.7^0C and 33.5^0C. (Gombe State Economic Empowerment and Development Strategies, GOSEEDS, 2006).

The vegetation of Gombe State is described as open savannah woodland with trees of up to six meters high or more. The trees normally occurred singly or in cluster, while space in between is occupied by herb layers of non- woody species up to three meters high (GOSEEDS, 2006). The State is a multi-ethnic predominantly occupied by the Fulani, Hausa, Tera and host of others all juxtaposed together.

Gombe is an agrarian State with most of the 20,266 km^2 land mass is cultivable. About 60% of the population is engage in agriculture. Year round cultivation is possible in some parts of the state due to favourable weather and an extensive irrigation programme. There are 3 dams in the state, namely, Dadinkowa, Balanga and Cham with a capacity of about 1.85 million cubic metres of water. These dams would significantly enhance the total land area available for irrigation and increase the tonnage of fish that is harvested from the permanent bodies of water in the state.

Dadin-kowa Dam which is the biggest of the three existing dams irrigates about 6,200 hectares of farm land yearly and can support the production of more than 30,000 tonnes of grains including rice, maize and groundnuts as well as with output of 50,000 metric

tonnes per annum (GSADP, 2013). The major income activities of the people are agriculture (farming and livestock rearing), trading and public service. Major irrigated vegetable crops grown in the state includes onion, spinach, amaranths, okra, tomatoes, pepper, onions, pumpkin, cabbage, lettuce, water melon and sweet melon etc. (GOSEEDS, 2006).

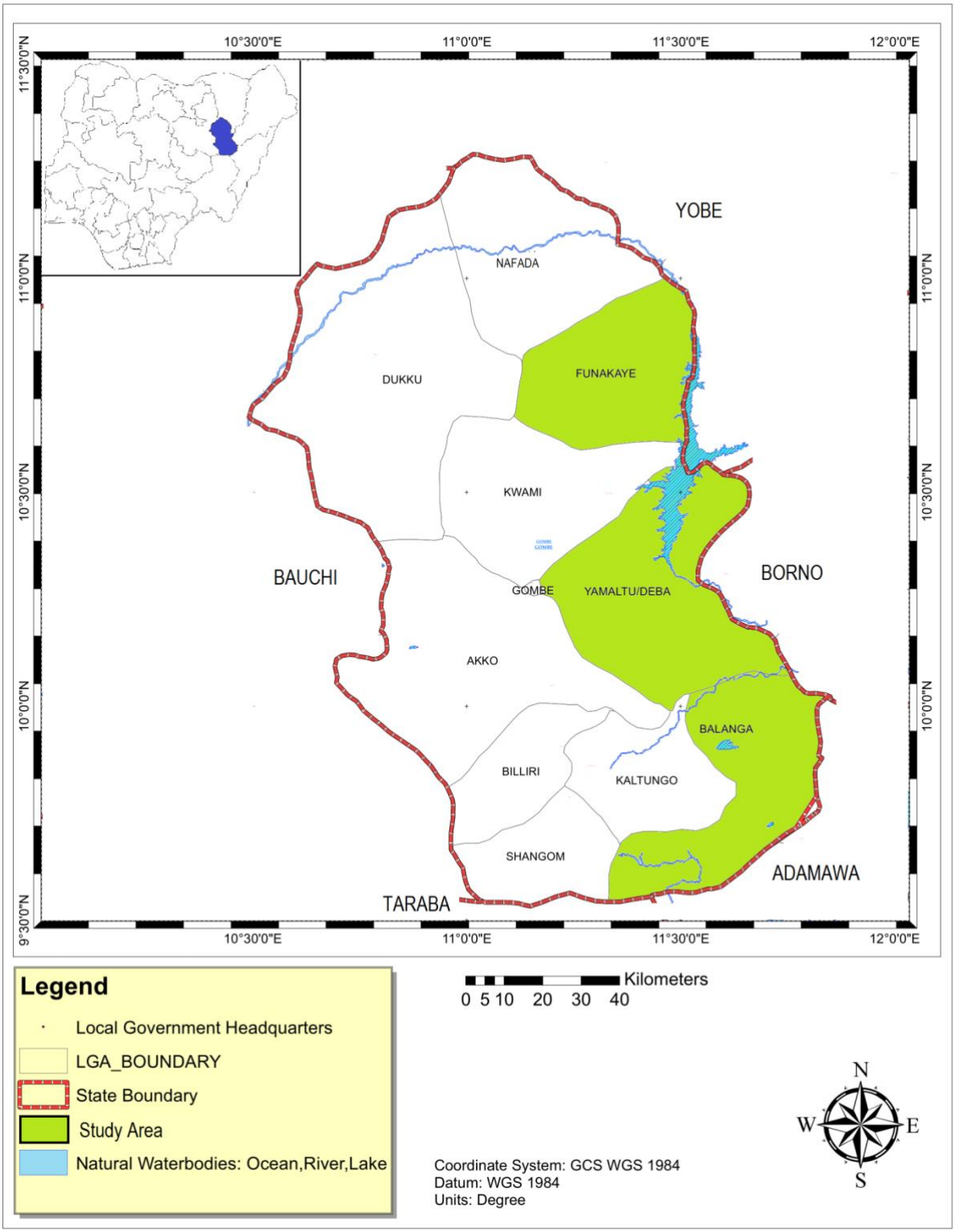

Figure 1. Ressearch area map.

A multi-stage sampling technique was employed. The first stage was purposive selection of three (3) local governments from the state based on their participation in production of irrigated vegetables namely; Yamaltu-Deba, Balanga and Funakaye. The second stage involved purposive selection of three (3) villages based on types of irrigated vegetables production from the three (3) LGAs making a total of nine (9) villages (Table 1).

The third stage was random selection of 20 % of the respondents across each villages based on the list of farmers provided by the Gombe State Agricultural Development Programme (GSADP) to make a total sample of one hundred and eighty (180) farmers.

Table 1. Vegetable Irrigation Farmers in the Study Area

Local Govt. Areas	Villages	Population	Number of farmers to be selected (Sample)
Balanga LGA	Mai Dara	102	20
	Daban Magariya	98	20
	Dasa Mai Buzu	87	17
Yamaltu –Deba LGA	Dadin kowa	155	31
	Kwadon	107	21
	Dumbu	82	16
Funakaye LGA	Ashaka Gari	96	19
	Juggol Borkono	93	19
	Gwangila	84	17
Grand Total		**904**	**180**

Source**:** Field survey, 2017

Method of Data Collection

Data for this study were derived mainly from primary source, with the use of a well structured questionnaire. The questionnaire was used to collect primary data on the socio-economic characteristics of the respondents in the study area. The data for the study was collected through a field survey with the help of Agricultural extension officer and farmers' leaders.

The analytical tools that were used in this study were descriptive statistics, where mean, frequency and percentages was used to analyze the socio-economic variables of the respondents. Five points likert scale was used to determine attitudes of farmers towards cooperative participation.

Results and Discussions

The mean age of the respondents was approximately 40 years. In general the result implies that there is presence of young and middle aged individuals known to be expected to participate more actively in irrigated vegetable production in the study area. The dominance of young persons among the respondents might be due to the fact that irrigation requires a lot of management practices and high labour. The result also indicates an availability of labor required for the farm activities. These results compared favorably with the findings of Taher and Gholam, (2008) who noted that the mean age 41 years of respondents in farmer participation in irrigation management in Doroodzan Dam irrigation Network in Iran.

Furthermore, 88% of the respondents were male and 11% female (Table 2). The result revealed that vegetable production in the study area was dominated by males. This implies that men are more actively involved in irrigated vegetables production than their female counterpart. This could be attributed to the fact that irrigation farming requires rigorous labor which male farmers can provide easily than their female counterpart. The dominance of male farmers in vegetables production in the study area may also be due to upper hand enjoyed by male farmers in terms of accessibility to farm land and production inputs. These results agree with the findings of Shettima et al (2016) who noted that 99% of the respondents in economic efficiency of irrigated vegetables production in Borno State Nigeria were males.

Also 60.5% of the respondents had no formal education, 16.7% of the respondents had primary school education as their highest level of education, 13.9% of them had secondary school education, while, and only 8.9% of the respondents had tertiary education as indicated on Table 2. The result revealed that there is low level of formal education among irrigated vegetables farmers in Gombe state. It is generally agreed that education is a factor that could enable a person to think properly and make reasonable decisions. Mazza et al (2012) were of the view that education enhances communication among farmers and participation in fadama II project. These result agree with the findings of Musa *et al.* (2013) who noted that 53% of farmers had no formal education in economic analysis of crop production under jibya irrigation project Katsina state Nigeria.

Table 2 shows that about 42% of the respondents were in the age group ranging between 30 and 39 years,31% between 40-49 years.11% between 50-59 years.while,4.5% 60 years and above.

Table 2 reveals that majority (91.7%) of the respondents were married, 4% were single, and 2% were divorced, whereas, only1.7% were widowed. The findings imply that there may be abundance of labor supply in irrigated vegetables production in the study areas since most of the people of the area were married and they are likely to have children. This is similar to the finding of Mazza et al (2012) which revealed that 96.5% of the farmers they sampled in Imo state were married. Okafor et al (1994) stated that marital status influences the size of the family and rate of population growth. This in turn, determines the number of hands to help in farm work.

About 35% of the respondents had between 9-10 family members. Whereas 34.4% had between 16-22 family members 8.9% had 23-29 family members. While, 6.1% had 30 family members and above. The mean household size of the respondents was approximately 15 people (Table 2). The study reveal that majority (35%) had 9-15 as members of their families which in turn means the larger the size of family of a farming community, the greater the availability of hands to participate in irrigated vegetables production in the study area.

Majority (68.3%) of the respondents owned their farms, whereas (12.2%) of the respondents acquired farms by renting before they cultivate. While, 19.4% of the respondents combined both their own farms and renting for their farming activities (Table 2). The study revealed that farmers in the study area have enough land for their farming activities.

Table 2. Distribution of the Respondents based on Socio-Economic Characteristics

Variable	Frequency	Percentage (%)	Mean
Age (Years)			
20-29	20	11.11	
30-39	76	42.2	
40-49	56	31.1	40
50-59	20	11.1	
60-69	5	2.8	
70 and above	3	1.7	
Sex			
Male	160	88.9	
Female	20	11.1	
Level of Education			
No formal	109	60.5	
Primary	30	16.7	
Secondary	25	13.9	
Tertiary	16	8.9	
Marital Status			
Single	8	4.4	
Married	165	91.7	
Widow	3	1.7	
Divorce	4	2.2	
Household size			
2 – 8	28	15.6	
9 – 15	63	35	
16 – 22	62	34.4	15
23 – 29	16	8.9	
30 and above	11	6.1	

Table 2. Distribution of the Respondents based on Socio-Economic Characteristics (Cont.)

Variable	Frequency	Percentage(%)	Mean
Land Ownership			
Own	123	68.3	
Rent	22	12.2	
Own and Rent	35	19.4	40
Income (₦)			
10,000 - 50,000	32	17.8	
51,000 – 100,000	31	17.2	
101,000 – 150,000	95	52.8	N102,638.67
151,000 – 200,000	15	8.3	
201,000 and above	7	3.9	
Farm size (Ha)			
0.5 - 1.4	112	62.2	
1.5 - 2.4	59	32.8	
2.5 and above	9	5	
Farming Experience (Years)			
1-9	157	87.2	
10-18	9	5	
19-27	8	4.4	
28-36	3	1.7	7
37 and above	3	1.7	
Extension Contact (Season)			
None	66	36.7	
Once	106	58.9	
Twice	3	1.7	
Trice	2	1.1	
Four times	3	1.7	
Association Membership			
Not belong	60	33.3	
Belong	120	66.7	
Source of water			
On-farm bore hole	147	81.7	
Off-farm bore hole	18	10	
Dam	13	7.2	
Stream	2	1.1	

About 52.8% of the respondents earned from 101,000 -150,000 naira per annum as an annual farm income. While, 17.8% earned from10, 000 – 50,000 naira, 17.2% earned from 51,000 – 100,000 naira and 8.3% earned from151, 000 - 200,000 naira.3.9% earned 201,000 naira and above (Table 2). The mean annual income was approximately 102,638.67 naira. The result is similar to the finding of Dauda et al. (2009) reported

the average net income of 109,750 naira earned by farmers per annum in their study of an assessment of the roles of irrigation farming in the millennium development goals in Oyo and Ogun state, Nigeria.

Majority 62.2% of the respondents had a total farm size ranging from 0.5- 1.4 hectares of land, 32.8% of them had a total farm size ranging from 1.5 – 2.4 hectares of land, and 5% had a total farm size of 2.5-3.4 hectares of land (Table 2). The mean farm size was approximately 1.37 hectares. The study revealed that there was a considerable little problem of land in the study area. The result is similar to finding of Musa et al (2013) which revealed that 42% of the farmers had a total farm size of 0.56 - 1.6 hectares of land in economic analysis of crop production under Jibiya irrigation project in Katsina state, Nigeria.

Table 2 shows that 87.2% of the respondents were found to posses between 1-9 years of experience in irrigated vegetables production. and 5% had 10-18 years of experience,and4.4% of the respondents had 19-27 years of experience in irrigated vegetables production.while,3.45% had 28 years and above. The mean year of experience was approximately 7 years. The study revealed that there is less number of years of experience in irrigated vegetables production in the study area.

About 58.9% of the respondents indicated that they received extension visit once in a season.36.7% of them did not received any extension visit. While, 1.7% of the respondents received extension visit twice in a season and 2.8% received extension three times and above in a season (Table 2). The study revealed that the rate of visit of extension agents in the study area is very low. And it also indicated that farmers in the study area will lack some vital information with regard to their farming activities.

About 66.7% of the respondents were members of farmers' associations/ cooperative societies. 33.3% of them were not members of any farmers associations /cooperative society as shown on Table 2. The result revealed that majority of the respondents was members of farmers associations/ cooperative society. This implies that the respondents may enjoy the benefits derived from being a member of associations, cooperative such as loan, information, inputs among others, which will enables them to participate actively in irrigated vegetables production in the study area.

Majority 81.7% of the respondents sourced their irrigation water from on-farm bore hole. And 10% of them sourced their irrigation water from off-farm borehole, while, 7.2% of them sourced their irrigation water from dam and 1.1% sourced water from stream (Table 2). The study revealed that water for irrigation in the study area is not a problem and it also indicated that they have the opportunity to participate actively in irrigated vegetables production in the study area.

Table 3. Attitude of Farmers towards Cooperative Participation in Irrigated Vegetables Production in Gombe State

Variables	(SA)	(A)	(U)	(D)	(SD)	Total	Mean	S.D
Help the work done faster	151	18	9	-	2	856	4.75	0.64
Leads to effective decisions.	154	16	9	-	1	862	4.78	0.57
Serves as a basis for getting governmental aids and interventions.	114	23	9	17	17	740	4.11	1.38
Yields to higher profits from the investment.	147	16	9	4	13	838	4.65	0.85
Enhances household food security.	150	17	9	2	12	851	4.72	0.70
Enhances access to extension services.	137	20	9	9	5	815	4.52	0.99
Enhances adoption of improved production technologies.	138	18	11	6	7	814	4.52	1.02
Enhances capacity building.	145	19	10	4	2	841	4.67	0.77
Improves investment in agriculture.	146	18	12	1	3	843	4.68	0.76
Enhances access to market.	125	32	12	8	3	808	4.48	0.92
Enhances agricultural sustainability and development	140	22	12	3	3	833	4.62	0.81

NB: Strongly Agree=SA, Agree=A, Undecided= U, Disagree=D and Strongly Disagree=SD

Attitude of Farmers towards Cooperative Participation in Irrigated Vegetables Production in Gombe State

Attitude toward cooperative participation in irrigated vegetables production was measured using a five point likert- type attitude scale all items means are above the median score of 3 as shown on Table 3.These findings shows that farmers generally had positive attitude toward cooperative participation in irrigated vegetables production. The mean scores of the attitudinal statements are cooperative participation in irrigated vegetables production help work done faster (4.75), leads to effective decision (4.78), serve as a basis for getting governmental aids ((4.11), yield higher profit(4.65), leads to food security (4.72), enhances access to extension services(4.52), facilitates adoption of innovation (4.52), leads to capacity building(4.67), increase investment(4.68), enhances access to market(4.48), and lastly it bring about agricultural development(4.62). The findings agreed with those of Ozowa (1995) and Bothoko and Oladele (2013) who found that access to extension services, capacity building, agricultural development and access to land improve farmers' participation in agricultural projects.

Conclusion

Based on the findings of this study it can be concluded that armers have positive attitude towards cooperative participation in irrigated vegetable production in the study area.

Recommendations

The following recommendations were made:

i. Provision of Adult literacy programme to farmers in order for them to acquire basic skills and knowledge for better decisions and improved irrigated vegetables production and marketing.

ii. Extension agents should increase the number of visit to farmers in order to facilitate the adoption of improved agricultural technology.

iii. Government should provide necessary facilities such as irrigation facility, agrochemicals etc. to further enhance farmers' participation in irrigated vegetable production.

Compliance with Ethical Standards

Conflict of interest

The authors declared that for this research article, they have no actual, potential or perceived conflict of interest.

Author contribution

The contribution of the authors to the present study is equal. All the authors read and approved the final manuscript. All the authors verify that the Text, Figures, and Tables are original and that they have not been published before.

Ethical approval

Ethics committee approval is not required.

Funding

No financial support was received for this study.

Data availability

Not applicable.

Consent for publication

Not applicable.

References

Arie Arief, F. (2010). Barriers to Community Capacity Building for Tourism Development in Communities in Shiraz Ran. Journal of Sustainable Tour, 6(2): 136-142

Ayo Ayode, A.R. (2010). Assessment of Women 's participation in National Special Program for Food Security in Oyo State, Nigeria. Education Research, 1(5): 125- 135.

BothBothoko, G.J. and O.I. Oladele 2013. Factors Affecting Farmers Participation in Agricultural Projects in Ngaka Modiri Molema District North West Province, South Africa. J Hum Ecol, 41(3): 201-206 (2013

ColeCole, S. (2007). Tourism, Culture and Development: Hopes, Dreams and Realities in East Indonesia. Clevedon, UK: Channel View Publications.

DauDauda, T. O., O. E. Asibiro, S. O. Akinbode, J. O. Saka, and B. F. Salahu. 2009. An assessment of the roles of irrigation farming in the millennium development goals. African Journal of Agricultural Research 4 (5): 445–450.

FF FAO 2011. Food and Agriculture Organization Bulletin 2011.

GoGGombe State Agricultural Development Programme, (GSADP) (2000). Progress report. Gombe State Agricultural Development Publication, 83.

GomGombe State Economic Empowerment and development strategies (2006).A handbook of Economic Empowerment and Development Strategies. GOSEEDS. Dandafid Nigeria Limited 22p.

HogHogeland, J. A. (2002). The changing federated relationship between local and regional Cooperatives. USDA research report. 190 p. 5.

MazzMazza, M., Ekumankame, O.O, Onyenobi, V.O., Kanu, R.U. and Nwaigwe, G.O. (2012). Socio-Economic Determinants of the Productivity of FadamaUsers: A case of Second National Fadama Development Project in Imo State, Nigeria International Journal of Applied Research and Technology. 1(2): 59 – 67.

MofMofeke, A.L.E., Ahmada, A. and Mudiane, O.J. (2003). Relationship between yield and seasonal water use for tomatoes, onions, and potatoes grown under fadama irrigation. Asset Series A. 3:35-46.

NwaNwankwo, F.O. (2008). Impact of Informal Credit on Agricultural Production in Awka South L.G.A. Anambra State. Nigeria. Journal of Cooperative Economics and Management, 4 (1),

OkafOkafor, F.C and Andrew G.O. (1994). Rural Systems and Land Resources Evaluation for Africa. Benin: The Benin Social Series for Africa, pp. 75-86.

OzoOzowa VN 1997. Information Needs of Small Scale Farmers in Africa: The Nigerian Example. Consultative Group on International Agricultural Research. 4(3).

SaboSabo, E. and Zira Y.D. (2009)."Awareness and effectiveness of vegetable technology information packages by vegetable farmers in Adamawa State, Nigeria". African Journal Agricultural Research Vol. 4 (2), pp. 065-070.

ShetShetima B.G., Ibrahim A. and Zongoma B.A. (2016). Economic Efficiency of Irrigated Vegetable Production in Borno State Nigeria: A stochastic Frontier Cost Function Approach. Asian Journal of Agricultural Extension, Economics and Sociology.Vol.12 No.4:1-14