



**CONSTRAINTS TO COWPEA (*VIGNA UNGUICULATA*) PRODUCTION
AMONG SMALL SCALE FARMERS IN BAUCHI STATE, NIGERIA**

¹BABUGA, U. S., ²GARBA, A. AND ³IMAM, M.

¹Department of Agriculture Technology, Federal Polytechnic, Bauchi, Bauchi State, Nigeria. ²Department of Agricultural Economics and Extension, Federal University, Dutse, Jigawa State, Nigeria. ³Jigawa State Research Institute, Kazaure, Jigawa State, Nigeria.

ABSTRACT

The study examines the constraints of cowpea production in Bauchi state Nigeria. Data were collected from the study area through questionnaires administered to seventy five randomly selected respondents across the four districts of the study area. Data were analyzed using Descriptive statistics and Likert scale. From the data analyzed, it was discovered that greater percentage (90.7%) of cowpea producers were male and only (9.3%) were females. Majority (38.6%) were having household size that falls between 1-5 and (34.7%) between 6-10, and (26.7%) from 11 and above. Majority (62.7%) of the respondents were married while (34.7%) were single and (1.3%) were divorced and (1.3%) were widows. It also reveals that almost half of the respondent (46.7%) were literate up to tertiary level of education while (30%) were having secondary education, (16%) with primary education and only (5.3%) with no form of education. The result further reveals that majority (54.67%) obtained their planting materials from previous harvest. Also greater percentage (61.3%) of the respondents acquired their land by inheritance. The result of the likert scale shows that majority of the respondents agreed to the constraints of cowpea production in the study area with includes: poor storage facilities, incidence of pest and diseases, non-availability of quality seeds, high cost of insecticides and herbicides. It is recommended that government should provide adequate extension services, improved seeds varieties and also

provision of adequate storage facilities with pesticides in order to check the constraints affecting cowpea production in the study area.

Keywords: *Constraints, Cowpea, Small Scale farmers, and Bauchi State*

INTRODUCTION

The cowpea (*Vigna unguiculata*) is an annual herbaceous legume from the genus *Vigna*. Due to its tolerance for sandy soil and low rainfall, it is an important crop in the semiarid regions across Africa and Asia (Pasquet, 2012). It requires very few inputs, as the plant's root nodules are able to fix atmospheric nitrogen, making it a valuable crop for resource-poor farmers and well-suited to intercropping with other crops (Garba & Pasquet, 2011). Most cowpeas are grown on the African continent, particularly in Nigeria and Niger, which account for 66% of world cowpea production (Pasquet, 2012).

The Sahel region also contains other major producers such as Burkina Faso, Ghana, Senegal, and Mali. Niger is the main exporter of cowpeas and Nigeria the main importer. Exact figures for cowpea production are hard to come up with as it is not a major export crop. Estimating world cowpea production is rather difficult, as it is usually grown in a mixture with other crops, but according to a 1997 estimate, cowpeas are cultivated on 12.5 million hectares (31 million acres) and have a worldwide production of 3 million tones (Ehlers & Hall, 2014). While they play a key role in subsistence farming and livestock fodder, the cowpea is also seen as a major cash crop by Central and West African farmers, with an estimated 200 million people consuming cowpea on a daily basis.

According to the Food and Agriculture Organization of the United Nations, as of 2012, the average cowpea yield in Western Africa was an estimated 483 kilograms per hectare (0.195 t/acre), which is still 50% below the estimated potential production yield. In some tradition cropping methods, the yield can be as low as 100 kilograms per hectare (Steele et al, 2013).

Cowpeas are grown mostly for their edible beans, although the leaves, green seeds and pods can also be consumed, meaning the cowpea can be

used as a food source before the dried peas are harvested. Like other legumes, cowpeas are cooked to make them edible, usually by boiling. Cowpeas can be prepared in stews, soups, purees and casseroles, but the most common way to eat them is in curries. They can also be processed into a paste or flour. Chinese long beans can be eaten raw or cooked, but as they easily become waterlogged are usually sautéed, stir-fried, or deep-fried (Pasquet, 2013).

The cowpea has often been referred to as "poor man's meat" due to the high levels of protein found in the seeds and leaves. However, it does contain some anti-nutritional elements, notable phytic acid and protease inhibitors, which reduce the nutritional value of the crop. Although little research has been conducted on the nutritional value of the leaves and immature pods, what is available suggests that the leaves have a similar nutritional value to black nightshade and sweet potato leaves, while the green pods have less anti-nutritional factors than the dried seeds (Adebayo K. 2016).

METHODOLOGY

The Study Area

According to Babuga (2014), Bauchi local government area (LGA) is located between 10° 17' and longitude 9°45'E. It is situated within the Northern guinea Savannah ecological zone of Nigeria and has an elevation of 1690.20metres above sea level. The climatic condition of the town is characterized by two distinct seasons, dry and wet. The wet season lasts for five months (from May to September), while the dry season begins in October and ends in April, (7 months). The mean annual rainfall varies from 60mm to 130mm. While the temperatures ranges from 18.33°C-40.39°C, with April as the hottest month and January as the coldest month. Relative humidity is highest in August, having the values of 66.5%, and lowest in February, with 16.5%. Bauchi State was created in accordance with the local government reform of 1976. The LGA comprises of our districts, namely, Bauchi, Galambi, Zungur and Miri. It covers a land area of 3,540,701square kilometers. Bauchi LGA is a sub zonal extension office

which comprises of three (3) extension blocks namely, Bauchi, Limankatagum, and Kangere under Western Zone of Bauchi State Agricultural Development Program (BSADP), each block comprises of 8 extension cells (BSADP, 2009). Bauchi LGA is located at the Southeastern part of Bauchi State with a population of 493,810 base on the 2006 population census (Bauchi LGA. 2009).

The major economic activity of the area is agriculture, which includes both crops and livestock production. The major crop production activities include the production of maize, sorghum, millets, cowpea, rice, sweet potatoes and groundnut. While the animal production includes the rearing of sheep, goats, cattle and poultry (BSADP, 2009).

Sampling Techniques

To draw out the respondent for this study, Bauchi LGA was selected which is a sub zonal office of Western zone (NABORDO). A multi stage and simple random sampling technique were adopted in the selection of respondents for the study. First stage involves the purposive selection of four(4) districts in Bauchi Local Government Areas which are(Bauchi, Miri, Galambi, Zungur). Stage two, purposive selection of two communities from each of the initially selected districts of Local Government was done(Bauchi town, Witin Dada, Gwalameji, Inkil, Tirwum, Mararraba Liman-katagum, and Liman-katagum) also 10 respondent were randomly selected from each of the selected communities with the exception of Bauchi were 15 were selected because of the population size. This gives the total of 75 respondents for this study.

Method of Data Collection

The data and information were collected from a direct field study based on the result of 75 questionnaires administered to 7 selected communities given ten (10) questionnaire except Bauchi which was given 15 because of its size. All the questionnaire administered to each of the respondents were completely answered and analysed and collected back from the respondents.

Analytical Techniques

Descriptive statistics were used to analyze the objective of the study. The objectives of studies are to describe the socio-economic characteristics of cowpea farmers in the study area, to determine the benefits obtained from cowpea production in the study area, to examine the problems affecting cowpea production in the study area and finally to determine proper solutions to problems affecting cowpea production in the study area

Descriptive statistics

Will Kenton 2019 describes descriptive statistics as brief descriptive coefficients that summarize a given data set, which can be either a representation of the entire or a sample of a population. The Statistical techniques used in organizing the data into meaningful forms include (frequency, percentage and mean).

Descriptive statistics, in short, help describe and understand the features of a specific data set by giving short summaries about the sample and measures of the data. Opeyemi, 2018.

RESULT AND DISCUSSION

Socio-Economic Characteristic of the Respondent

The socio-economic characteristics of the respondents that were considered in the study include gender, household size, marital status, educational qualification, age, types of labor of production, mode of land acquisition, source of planting materials, income obtained annually, years of experience. .

Age of the Respondent

The result in table 1, shows that majority of (38.6%) of the respondents were in the age range of 21-30 years. 10.7% were in the age bracket 41-50 years while four percent fall in age bracket 51 and above. The implication of the finding is that large population of the respondent was young and can adequately be regarded as active, agile and physically fit for work.

Gender of the Respondent

The results in table 1 showed that majority (90.7%) of the respondents were male while female contributed the remaining (9.3%). This implies that majority of the respondents were male, perhaps because of the culture and tradition of people in the study area where farm activities are predominantly men profession.

Respondents Household Size

The results in table 1 showed that majority (38.6%) of the respondents fell within household size of the 1-5, followed by 34.7% of the respondent fell within household size 6-10, followed by 26.7% of the respondent fell within household size 11 and above.

Marital Status

The result in table 1 furthermore, showed that (34.7%) of the respondent were single while 62.7% of them were married. (1.3%) of the respondent were divorced and the remaining 1.3% of the respondent was a widow. The implication of this finding showed that most of the farmers have responsibilities; therefore marital status is important factor to be considered in any farming business.

Educational Qualification of the Respondents

Education helps to facilitate any production business. The result in table 1 showed that majority (46.7%) of the respondents has tertiary education (30.7%) of them had secondary education and 16% had primary education and 5.3% had no formal education. (1.3%) had other form of education that was Nabordo

Source of Planting Materials of the Respondents.

The results in table 1 shows that majority (54.67%) of the respondent gets their source of plant material from previous harvest while (44%) from the market and 1.33% from ADP.

Income Obtain Annually by Respondents

The result in table 1 shows that majority (45.3%) of the respondent income is less than 40,000 annually while 33.3% had an annual income of ₦41,000-₦80,000. 6.7% gets income that ranges from ₦121,000-₦160,000 and 6.7% ₦81,000-₦20,000. Only 81% gets income that is above ₦160,000.

Years of Farming Experience

The result in table 1 shows that (34.7%) of the respondent fell in between 5years and below while 29.3% of the respondents fell in 6-10years of the experience. (13.3%) of the respondent fell in range 11-15years while 8% and 14.7% fell in between 16-20years and 20 and above.

Table 1A Socio- economic characteristics of the respondent (n=75)

Variables	frequency	percentage
Gender		
Male	68	90.7
Female	7	9.3
Total	75	100
Household size		
1-5	29	38.6
6-10	26	34.7
11 and above	20	26.7
Total	75	100
Marital status		
Single	26	34.7
Married	47	62.7
Divorced	1	1.3
Widow/widower	1	1.3
Total	75	100
Educational Qualification		
No formal education	4	5.3
Primary education	12	16
Secondary education	23	30.7

Tertiary education	35	46.7
Other	1	1.3
Total	75	100

Table 1B Socio- economic characteristics of the respondent (n=75)

Age		
1-20	12	16
21-30	29	38.6
31-40	23	30.7
41-50	8	10.7
51 and above	3	4
Total	75	100
Mode of land acquisition		
Inherited	46	61.3
Purchased	14	18.7
Rented	14	18.7
Communal	1	1.3
Total	75	100
Source of planting material		
ADP	1	1.33
Market	33	44
Previous harvest	41	54.67
Total	75	100
Income obtained annually		
Less than 40,000	34	45.3
41,000-80,000	25	33.3
81,000-120,000	5	6.7
121,000-160,000	5	6.7
Above 16,000	6	8
Total	75	100

Table 1C Socio- economic characteristics of the respondent (n=75)

Number of the years into

Cowpea production		
Less than 5years	26	34.7
6-10years	22	29.3
11-15years	10	13.3
16-20years	6	8
20 and above	11	14.7
Total	75	100

Constraints of Cowpea Production in Bauchi State

Problem of Insect Pest

Pest is the major problem or constraint of cowpea production. The result in table 3 showed that majority (61.3%) of the respondent agreed to this problem and 37.3% strongly agreed. 2.7% disagreed while non strongly disagreed. The result has a mean of (3.60) which was ranked 2nd.

Problem of Disease

The result in table 3 showed that (68%) of the respondent agreed to disease as a problem to cowpea production while 26.7% strongly agreed to this. A pair of 2.7% of the respondent disagreed and strongly disagreed to this constraint. The result has a mean of (3.56) which was ranked 4th.

Poor Storage Facility

This is another major challenge cowpea producer usually go through. The result in table 3 showed that 53.3% of the respondent agreed to this problem and 38.7% strongly agreed. (5.3%) disagreed and 2.7% strongly disagreed. The result has a mean of (3.52) which was ranked 5th

Poor Soil Fertility

The result in table 3 showed that majority (53.3%) of the respondent agreed to this problem while (26.7%) strongly disagreed to it. 13.3%

disagreed while 6.7% strongly disagreed. The result has a mean of (3.52) which was ranked 5th.

Incidence of Weed

Weed are unwanted plant growing where they are not planted and compete with useful crops for space, nutrients, air etc. the result in table 3 showed that 61.3%) of the respondent agreed and 34.7% strongly agreed to this problem. (1.3%) disagreed while 2.7% strongly disagreed. The result has a mean of (3.56) which was ranked 3rd.

Over Grazing of Cowpea Farm by Animals

The result in table 3 showed that (72%) of the respondent agreed and (20%) strongly agreed to the problem. The result has a mean of (3.67) which was ranked 1st.

Table 3A Problems Affecting Cowpea Production in the Study Area

Variables	A	SA	D	SD	MEAN	RANK
Problem of	46	28	1	-	3.60	2ND
Insect pest	(61.3%)	(37.3%)	(2.7%)	-		
Problem of	51	20	2	2	3.56	3RD
disease	(68%)	(26.7%)	(2.7%)	(2.7%)		
High cost of	46	25	3	1	3.55	4TH
insecticides	(61.3%)	(33.3%)	(4%)	(1.3%)		
Non availability	47	16	9	3	3.42	6TH
of quality seeds	(62.7%)	(21.3%)	(12%)	(4%)		
Incidence of	46	26	1	2	3.56	3RD
weed	(61.3%)	(34.7%)	(1.3%)	(2.7%)		
poor storage	40	29	4	2	3.52	5TH
facility	(53.3%)	(38.7%)	(5.3%)	(2.7%)		
High rainfall	52	17	4	2	3.56	3RD
	(69.3%)	(22.7%)	(5.3%)	(2.7%)		
Poor soil fertility	40	20	10	5	3.52	5TH
	(53.3%)	(26.7%)	(13.3%)	(6.7%)		

Table 3B Constraints of Cowpea Production in Bauchi State

Variables	A	SA	D	SD	MEAN	RANK
Grazing of cowpea farm by animals	54 (72%)	15 (20%)	4 (5.3%)	2 (2.7%)	3.67	1ST

CONCLUSION

It was concluded from this study that cowpea has a great potential for increase production. But there are some major constraints that is limiting this prospect and therefore the farmer also calling on the intervention of the government to ascertain solution to the problem.

RECOMMENDATION

Based on the findings, the following recommendations were made.

- i. There is need for more extension workers in the study area to enlighten the farmers on the constraints of cowpea production and to be taught ways by these problems can be checked.
- ii. Farmers should be encouraged to adopt the use improved seed varieties and agro-chemicals.
- iii. Farmers should get easy access to grants and loans so as to purchased the required facilities needed to check the problem facing cowpea production
- iv. Government and nongovernmental organization need to support farmers with improve varieties of seeds that is resistance to pest and diseases
- v. Farmers should be made encouraged to form cooperatives so that they can pool their resources together to increase their scales of operation.
- vi. Also the issue of storage should be well addressed by government and other Non-governmental organization by providing adequate storage facilities that are capable of resisting any form of invasion by pest.

REFERENCES

- Adebayo, K. (2016). Communication in Agriculture. Abeokuta Greenlinks International, pp. 53- 54.
- Ehlers and Hall (2014). Qualitative response models: A survey. J. Econ. Lit.,19:1483-1536.

- FAO/WFP: Food Security Assessment Mission to South Sudan (Special Report Feb 2012).
- Garrba & pasquet,(2011). An evaluation of involvement of youths in agriculture and adoption of agricultural technology information. Padulosil, S.; Ng, N. Q. (1997). "Origin,taxonomy, and morphology of Vigna unguiculata (L.)