

## ASSESSMENT OF THE IMPACT OF VITAMIN - A CASSAVA MULTIPLICATION PROGRAMME ON FARMERS FOR SUSTAINABLE DEVELOPMENT AND FOOD SECURITY IN NORTH CENTRAL NIGERIA

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Received: 08 May 2019, Revised and Accepted: 09 June 2019

### Abstract

The study assessed the impact of vitamin - a cassava multiplication programme on farmers for sustainable development and food security in north central Nigeria. Four research questions were answered and four null hypotheses were tested at 0.05 level of significance. The study made use of survey research design. The population for the study was 120,122 respondents. A sample of 392 made up of 291 farmers and 101 facilitators in north central Nigeria was drawn using multistage sampling technique. A 29 - item questionnaire titled 'Cassava Multiplication Programme Impact Assessment Questionnaire (CMPIAQ)' was used for data collection. The CMPIAQ was validated by three experts, one expert in Agricultural Education, one in crop production and one in Agricultural Extension and Communication, all from the Federal University of Agriculture, Makurdi, Benue State. Cronbach alpha reliability method was used to determine the internal consistency of the instrument. A reliability coefficient of 0.93 was obtained. Mean was used to answer the research questions and t-test statistics was used to test the null hypotheses at 0.05 level of alpha. It was found that 5 objectives of vitamin A cassava multiplication programme were relevant to the rural farmers; vitamin A cassava multiplication programme had 9 significant impacts on rural farmers, 10 challenges were faced by rural farmers in adopting the vitamin A cassava multiplication programme and 5 strategies were suggested for improving the vitamin A cassava multiplication programme in north central Nigeria. It was recommended that the three tiers of Government should collaborate with NGOs, CBOs and private organizations to look into the problems faced by farmers trying to adopt the vitamin A cassava multiplication programme, Strategies to improve the vitamin A cassava multiplication programme should be put into practice by the stakeholders in order to boost cassava production among rural farmers in North Central Nigeria among others.

**Key words:** Cassava, Farmer, Food security, Programme, Assessment

### INTRODUCTION

It has been the desire of government to aid farmers to farm on a large scale without encountering a lot of hardship so as to sustain and develop the farmers and the society at large. Various agricultural development programmes and policies have been developed and executed by successive administrations in Nigeria from early 60s to date. Agriculture as viewed by Falana (2012) is the deliberate effort by man to till the soil, cultivate crops and rear animals for food and other purposes. It also involves the sales of produce from farming. Farmers produce crops like yams, rice, sorghum, corn, millet and many others. They also rear animals like cattle sheep, goats, poultry and many other animals not mention here, all to boost food production and even for income. One of the programmes introduced by the Federal Government to alleviate poverty among farmers is the vitamin A cassava multiplication programme.

Cassava (*Manihotesculenta* Crantz) has its origin in Latin America where it has been grown by the indigenous Indian population for at least 4000 years (Akinpelu, Amangbo, Olojede & Oyekale, 2011). After the discovery of Cassava by the Americans, European traders took the crop to Africa as a potentially useful food crop; later it was also taken to Asia to be grown as a food security crop and for the extraction of

starch. Okogbenin, Marin, and Fregene (2006) reported that cassava is native to tropical America and were introduced to Africa by the Portuguese in the sixteenth century.

Nigeria is currently the largest producer of cassava in the world with an annual output of over 34 million tonnes of tuberous roots. Cassava production has been increasing for the past 20 or more years in area cultivated and in yield per hectare. On average, the harvested land area was over 80 percent higher during 1990–1993 than during 1974–1977 (Okogbenin et al). In order to boost cassava production in Nigeria, the Federal Government and International Fund for Agricultural Development (IFAD) jointly initiated the Vitamin A cassava multiplication Programme with the aim of promoting cassava utilization as a commodity-based approach against food insecurity (Adeniji, 2000). The aim of Vitamin A cassava multiplication Programme is to alleviate poverty and increase income among farmers. Human and material resources have been put into this programme so as to facilitate its implementation and ensure the development of farmers.

At the level of the individuals, development implies increased skills and capacity, greater freedom, creativity, self-discipline, responsibility and material wellbeing" (Chukwuebuka, 2011). On the other hand, Todaro (2007) says that development

must therefore be conceived as a multi-dimensional process involving changes in structure, attitudes and institutions, as well as the acceleration of economic growth, the reduction of inequality and the eradication of absolute poverty. Development is also aimed at improving the living conditions of the people through the effective management of both the human and material resources. Thus, Egbe (2014) noted that development concerns the capacity and creative capability of a people to effectively transform the natural resources of their environment into goods and services through the imaginative and practical application of their creative talent and productive power. This implies that the people must be empowered to be able to meet their basic needs of food, housing, health, transport, education, employment, reduction in poverty level and increase per capita income among others. This is what is lacking in the rural areas of Nigeria and elsewhere in Africa where about eighty percent of the population live in the rural areas which is underdeveloped hence requires sustainable development

The Brundtland Commission formally known as World Commission on Environment and Development (WCED, 2015) defined sustainable development as development that meets the needs of the present without compromising the ability of future generation to meet their own needs. For sustainable development to be among rural farmers, the development must be on a continuous process.

A farmer is a person engaged in agriculture, raising living organisms for food or raw materials. The term usually applies to people who do some combination of raising field crops, orchards, vineyards, poultry, or other livestock. A farmer might own the farm land or might work as a labourer on land owned by others, but in advanced economies, a farmer is usually a farm owner, while employees of the farm are known as farm workers, or farmhands (Aniagolu, 2012). In Nigeria, the bulk of farmers are concentrated in rural areas where there is vast piece of land for them to carry out their farming activities.

The word "rural" connotes a place with agricultural orientation; the houses are farm houses, barns, sheds and other structures of similar purposes. In the opinion of Olisa (in Haruna, 2012), population is the main characteristic that differentiates rural from urban areas, especially in the developing countries. In this regard, in Nigeria, an area with a population of 20,000 people and below is classified as a rural area. According to Olisa (in Haruna 2012), the main features of rural areas are depression, degradation and deprivation. Many rural farmers are immersed in poverty so clearly that the people are the embodiment of it. In most rural areas in Nigeria, basic infrastructure where they exist at all, are too inadequate for meaningful development. In other words, the rural farmers lack virtually all the good things of life like roads, medical and health facilities, portable water and electricity. Sustainable development cannot exist successfully without food security. In this case, the researcher believes that if Vitamin A cassava multiplication Programme is sustained, it will lead to food security.

According to Food and Agricultural Organization (FAO, 2002) food security is the availability of food which individuals are entitled to and which they can actually access in the expected proportion and at the right time. In this concept, food security is defined in terms of the household. A household is said to be food secure when all its members have access to 2300 kcal of energy or more per day, all the year round, or most times of the year, without facing the possibility of losing the access in the future. In order to ensure food security for sustainable development, the government introduced a lot of agricultural programmes among which include Vitamin A cassava multiplication Programme.

A programme is a planned activity for achieving something (Abbott, 2014). Vitamin A cassava multiplication programme refers to the activities and instructions, including human and

materials involved in boosting Cassava Multiplication and dissemination to rural farmers (Aniagolu, 2014). Vitamin A cassava multiplication Programme (CMP) commenced in July 2001 with the goal of increasing income, alleviating poverty and improving food security status of the farmers. The specific objectives of Vitamin A cassava multiplication Programme are:

- to provide sufficient food among rural farmers,
- to train farmers on the agronomic practices of the cassava,
- to carry out supervisory visits to multiplication farms by facilitators,
- to distribute inputs to farmers,
- to provide improved variety of cassava stems and
- to distribute improved variety of cassava stems among farmers

These objectives are targeted at rural farmers especially those in crop production area. The objectives of the programmes are normally conveyed to the rural farmers through the facilitators. Facilitators are people who make progress easier (Aniagolu, 2012). In this study, the facilitators involved are extension workers, Community Leaders (local chiefs), leaders of Non-Governmental Organizations (NGOs), Community Based Organizations (CBOs) and Young Farmers Clubs (YFC). The facilitators helped in sensitizing the rural farmers on the relevance of Vitamin A cassava multiplication Programme, although the level of involvement of these facilitators may vary from state to state based on the resources available and hence there is need for an assessment of their level of involvement in sensitizing farmers.

Assessment refers to a variety of methods or tools that are used for evaluating, measuring and documenting the academic readiness, learning progress, skill acquisition, or general needs of the student (Abbott, 2014). In the context of this study assessment is the collection of information from farmers and extension agents and passing value judgement on the level of awareness of Vitamin A cassava multiplication Programme with a view to improving cassava productivity and ensures food security.

Despite the introduction of the Vitamin A cassava multiplication Programme by the federal government since 2001, the researchers observed that many farmers in North Central Nigeria are still using the old variety of cassava stems have over time, not guaranteed food security since the output per hectare is low due to the facts that they are not early maturing and are often prone to pest and disease infestation among other yield limiting factors while the improved variety is early maturing, pest and disease resistant, drought tolerant, and produces high quality and nutritious tubers hence can guarantee food security in North central, Nigeria. What is of great concern to the researchers is that; in spite of the intense efforts of the government in campaigns through agricultural extension agents and media such as the radio, television, magazines and newspapers on the objectives and potentiality of the vitamin A cassava multiplication Programme, the farmers remained adamant in using the old varieties of cassava stem. It was in a bid to ascertain the real knowledge (level of awareness) of the farmers on the potentiality of the vitamin A cassava multiplication Programme that motivated the researchers to carry out an assessment to that effect.

#### **Purpose of the Study**

The purpose of this study is to assess the impact of vitamin - A cassava multiplication programme on farmers for sustainable development and food security in north central Nigeria. Specifically, the study sought to:

Ascertain the relevance of the objectives of the Vitamin A cassava multiplication programme to rural farmers in North Central Nigeria.

Determine the extent to which vitamin A cassava multiplication programme affects rural farmers in north central, Nigeria;

Identify challenges faced by the rural farmers in adopting the vitamin A cassava multiplication programme in North central Nigeria.

Identify strategies for improving vitamin A cassava multiplication programme among rural farmers in North central Nigeria.

### Research Questions

To what extent are the objectives of vitamin A cassava multiplication programme relevant to the rural farmers in North Central Nigeria?

How does vitamin A cassava multiplication programme affects rural farmers in North Central Nigeria?

What are the challenges faced by rural farmers in trying to adopt the vitamin A cassava multiplication programme in North Central Nigeria?

What are the strategies for improving the vitamin A cassava multiplication programme among rural farmers in North Central Nigeria?

### Hypotheses

There is no significant difference between the mean responses of farmers and facilitators on the extent to which the objectives of vitamin A cassava multiplication programme is relevant rural farmers in North Central Nigeria;

There is no significant difference between the mean responses of farmers and facilitators on how vitamin A cassava multiplication programme affects rural farmers in North Central Nigeria;

There is no significant difference between the mean responses of farmers and facilitators on the challenges faced by rural farmers in trying to adopt the vitamin A cassava multiplication programme in North Central Nigeria and

There is no significant difference between the mean responses of farmers and facilitators on the strategies for improving the vitamin A cassava multiplication programme among rural farmers in North Central Nigeria.

### Methodology

The study adopts questionnaire survey research design. This design was considered suitable because the opinion of a representative sample of respondents was sought using questionnaire and the finding was generalized on the entire population of farmers and Facilitators in North Central Nigeria. The area of the study is North Central Nigeria which comprises six states and the Federal Capital Territory Abuja namely; Benue, Kogi, Kwara, Nasarawa, Niger, Plateau and the Federal Capital Territory, Abuja. The area is suitable for the study because the major occupation of the people in this region is basically farming with cassava as one of the major crops produced in this area. Besides, Cassava Multiplication programme has been implemented in the area since 2001 and it is supposed to have made impact on the lives of the farmers. The population for the study was 120,122 respondents consisting of 120,021 registered farmers from North Central Nigeria (National Integrated Survey of Household; NISH, 2009) and 101 facilitators (Federal Ministry of Agriculture and Rural Development, 2009) The sample for this study was 392 comprising 291 farmers and 101 facilitators in north central Nigeria. This is determined using Taro Yamane formula for a finite population. Multi-stage sampling technique was used for sample selection. This is because sampling was done in stages using different techniques. In

arriving at the sample size, the entire population was stratified into seven (each state represents a stratum) using Stratified proportionate sampling technique. In each of the stratum, simple random sampling technique was used to select the respondents according to the proportion in each of the states since there is a comprehensive list of the entire population of the respondents with their respective state. The instrument for data collection was a 29 - item questionnaire titled 'Cassava Multiplication Programme Impact Assessment Questionnaire (CMPIAQ). The instrument has 5 items on objectives of vitamin A cassava multiplication programme that are relevant to the rural farmers; 10 items on impacts of vitamin A cassava multiplication programme, 10 items on challenges faced by rural farmers in adopting the vitamin A cassava multiplication programme and 5 items on strategies for improving the vitamin A cassava multiplication programme. The questionnaire had four-point response options of highly relevant (HR), average relevant (AR), Relevant (R) and not relevant (NR) and Strongly agreed (SA), agreed (A), disagreed (D) and strongly disagreed (SD) with a corresponding nominal value of 4, 3, 2 and 1 respectively. The CMPIAQ was validated by three experts, one expert in Agricultural Education, one in crop production and one in Agricultural Extension and Communication, all from the Federal University of Agriculture, Makurdi, Benue State. Their corrections and suggestions were used to produce the final copy of the questionnaire. Cronbach alpha reliability method was utilized to determine the internal consistency of the instrument which yielded a reliability coefficient of 0.93, indicating that the instrument is reliable for the study. Three research assistants were involved and given orientation on how to administer the questionnaire to the respondents. Three hundred and ninety two copies of the questionnaire were administered to the respondents and were all retrieved. Mean was used to answer the research questions, while t-test was used to test the hypotheses of no significant difference at 0.05 level of significance. In answering the research questions, any item with a mean rating of 2.50 or above was regarded as agreed while any item with a mean rating less than 2.50 was regarded as disagreed for research questions 2, 3 and 4 while the real limits of number was used for answering research questions 1 thus;

Highly Relevant = 3.50 - 4.00

Averagely Relevant = 2.50 - 3.49

Slightly Relevant = 1.50 - 2.49

Not Relevant = 1.00 - 1.49

In testing the null hypotheses, a hypothesis of no significant difference was not rejected for any item whose p-value is equal to or greater than alpha value of 0.05 while it was rejected for any item whose p-value is less than alpha value of 0.05.

### Results

The results of the study were obtained from the research questions answered and the hypotheses tested through data collected and analyzed.

#### Research Question 1

To what extent are the objectives of cassava multiplication programme relevant to the rural farmers in North Central Nigeria?

#### Hypothesis 1

There is no significant difference between the mean responses of farmers and facilitators on the extent to which the objectives of vitamin A cassava multiplication programme is relevant rural farmers in North Central Nigeria

**Table 1: Mean Ratings And T-Test Analysis Of Respondents On Extent To Which The Objectives Of Vitamin A Cassava Multiplication Programme Is Relevant To The Rural Farmers (N = 392: 291 Farmers And 101 Facilitators)**

S/N	Items	X1	SD1	x2	SD2	Xg	SDg	Sig.	Remark
1	Provision of sufficient food among rural farmers	3.87	0.54	3.66	0.47	3.82	0.53	0.13	HR, NS
2	Provision of improved variety of Cassava stems and distribution of same to farmers	3.59	0.54	3.88	0.32	3.67	0.51	0.35	HR, NS
3	Training farmers on the agronomic practices of the cassava.	3.6	0.62	3.55	0.5	3.59	0.59	0.09	HR, NS
4	Distribution of inputs to the farmers	3.29	0.9	3.66	0.47	3.39	0.83	0.32	AR, NS
5	Carrying out supervisory visits to the multiplication farms.	3.6	0.49	3.33	0.47	3.53	0.45	0.21	HR, NS

**N= number of respondent s= X<sub>1</sub>= mean of farmers, X<sub>2</sub>= mean of facilitators, SD = standard deviation, Xg= grand mean of respondents SDg = grand Standard deviation, Sig. = P-value, significant at P≥0.05, HR = highly relevant, AR = averagely relevant, NS = not significant.**

Data in Table 1 showed that 4 out of the 5 items had their mean values ranged from 3.53 to 3.82, indicating that their mean values were within the real limit of 3.50 and 4.00. This showed that the respondents agreed that the 4 objectives of vitamin A cassava multiplication programme were highly relevant to the rural farmers in North central, Nigeria. The data also showed that 1 out of the 5 items had its mean value as 3.39, indicating that the mean value was within the real limit of 2.50 and 3.49. This showed that the respondents agreed that the one objective of vitamin A cassava multiplication programme was averagely relevant to the rural farmers in North central, Nigeria. The standard deviation ranged from .45 to .83 which was an indication that the respondents were not too far from the mean and from one another in their responses on the extent to which the objectives of vitamin A cassava multiplication programme were relevant to the rural farmers in North central, Nigeria. The table further revealed that all the items had their calculated p-values ranged from 0.09 to 0.35 which were

greater than the alpha value of 0.05 indicating that there was no significant difference between the mean responses of farmers and facilitators on the extent to which the objectives of vitamin A cassava multiplication programme is relevant rural farmers in North Central Nigeria. Therefore, the hypothesis of no significant difference was not rejected for the 5 items on the extent to which the objectives of vitamin A cassava multiplication programme is relevant rural farmers in North Central Nigeria, was not rejected.

#### Research Question 2

How does vitamin A cassava multiplication programme affects rural farmers in North Central Nigeria?

#### Hypothesis 2

There is no significant difference between the mean responses of farmers and facilitators on how vitamin A cassava multiplication programme affects rural farmers in North Central Nigeria

**Table 2: Mean Ratings And T-Test Analysis Of Respondents On How Vitamin A Cassava Multiplication Programme Affect Rural Farmers In North Central Nigeria (N = 392: 291 Farmers And 101 Facilitators)**

S/N	Items	X1	SD1	x2	SD2	Xg	SDg	Sig.	Remark
1	Improved the socio-economic status of the farmers	3.38	.85	3.66	.47	3.45	.78	.91	A, NS
2	Provision of improved varieties to boost cassava production	3.43	.85	3.23	.41	3.38	.77	.89	A, NS
3	Training of farmers on better agronomic practices of the cassava	3.50	.66	3.22	.41	3.43	.62	.78	A, NS
4	Reduction of wastages because of new technologies to process cassava into different products	3.26	.85	3.21	.41	3.25	.76	.67	A, NS
5	Maximum use of land because cassava can produce better than other crops even when the land is exhausted	3.45	.79	3.00	.66	3.33	.79	.94	A, NS
6	Maximization of profit because improved varieties mature earlier and can be planted more than once in a year	3.19	.70	3.33	.47	3.23	.65	.36	A, NS
7	Earning of foreign exchange because cassava can be processed into many products and exported to other countries	3.42	.49	3.55	.49	3.45	.50	.87	A, NS
8	Reduced rural-urban migration because many rural youths now engage in cassava production.	3.01	.97	3.33	.47	3.09	.88	.93	A, NS

9	Provision of basic infrastructures by government to boost cassava production	3.11	.87	3.22	.41	3.14	.78	.55	A, NS
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**N= number of respondent s= X1= mean of farmers, X2= mean of facilitators, SD = standard deviation, Xg= grand mean of respondents SDg = grand Standard deviation, Sig. = P-value, significant at  $P \geq 0.05$ , A = Agreed, NS = not significant.**

Data in Table 2 showed that all the 9 items had their mean values ranged from 3.09 to 3.45 which were above the cutoff point of 2.50. This showed that the respondents agreed that all the 9 items were the ways by which vitamin A cassava multiplication programme affects rural farmers in North Central Nigeria. The standard deviation ranged from .50 to .88 which was an indication that the respondents were not too far from the mean and from one another in their responses on ways by which vitamin A cassava multiplication programme affects rural farmers in North Central Nigeria. The table also revealed that all the items had their calculated p-values ranged from .36 to .93 which were greater than the alpha value of 0.05 indicating that there was no significant difference between the mean responses of farmers and facilitators on how vitamin A cassava multiplication programme affects rural farmers in North Central Nigeria.

Therefore, the hypothesis of no significant difference was not rejected for the 9 items on how vitamin A cassava multiplication programme affects rural farmers in North Central Nigeria.

### Research Question 3

What are the challenges faced by rural farmers in trying to adopt the vitamin A cassava multiplication programme in North Central Nigeria?

### Hypothesis 3

There is no significant difference between the mean responses of farmers and facilitators on the challenges faced by rural farmers in trying to adopt the vitamin A cassava multiplication Programme in North Central Nigeria.

**Table 3: Mean Ratings And T-Test Analysis Of Respondents On Challenges Faced By Rural Farmers In Trying To Adopt The Vitamin A Cassava Multiplication Programme In North Central Nigeria (N = 392: 291 Farmers And 101 Facilitators)**

S/N	Items	$\bar{X}_1$	SD1	$\bar{x}_2$	SD2	$\bar{X}_g$	SDg	Sig.	Remark
1	Shortage of cassava stems supply.	3.02	.97	3.00	.66	3.02	.90	.41	A, NS
2	Lack of mobile telephones in some farmers.	2.90	.87	3.66	.47	3.10	.85	.69	A, NS
3	Lack of network coverage in some communities.	2.67	.79	3.66	.47	2.92	.85	.56	A, NS
4	Constant breakdown of vehicles during the distribution of materials.	2.68	.93	2.88	.74	2.73	.89	.32	A, NS
5	Bad road networks in some communities hamper effective supervision of multiplication farms.	2.74	.96	3.44	.50	2.92	.92	.91	A, NS
6	Nonchalant attitude of the farmers.	3.08	.85	3.21	.41	3.12	.76	.36	A, NS
7	Illiteracy of peasant farmers.	3.04	.96	3.22	.41	3.09	.86	.78	A, NS
8	Inadequate number of extension agents.	3.55	.73	3.21	.41	3.47	.68	.93	A, NS
9	Lack of incentives to both farmers and facilitators.	3.38	.87	3.21	.41	3.34	.78	.15	A, NS
10	Inadequate capital needed for the training of personnel and running of extension services.	3.36	.87	3.33	.47	3.35	.79	.23	A, NS

**N= number of respondent s= X1= mean of farmers, X2= mean of facilitators, SD = standard deviation, Xg= grand mean of respondents SDg = grand Standard deviation, Sig. = P-value, significant at  $P \geq 0.05$ , A = Agreed, NS = not significant.**

Data in Table 3 showed that all the 10 items had their mean values ranged from 2.73 to 3.47 which were above the cutoff point of 2.50. This showed that all the 10 items were the challenges faced by rural farmers in adopting the vitamin A cassava multiplication programme in north central, Nigeria. The standard deviation ranged from .68 to .92 which was an indication that the respondents were not too far from the mean and from one another in their responses on the challenges faced by rural farmers in adopting the vitamin A cassava multiplication programme in north central, Nigeria. The table further revealed that the all the items had their calculated p-values ranged from .15 to .91 which were greater than the alpha value of 0.05 indicating that there was no significant difference between the mean responses of farmers and facilitators on challenges faced by rural farmers in adopting the vitamin A cassava multiplication programme in

north central, Nigeria. Therefore, the hypothesis of no significant difference was not rejected for the 10 items on challenges faced by rural farmers in adopting the vitamin A cassava multiplication programme in north central, Nigeria.

### Research Question 4

What are the strategies for improving the vitamin A cassava multiplication programme among rural farmers in North Central Nigeria?

### Hypothesis 4

There is no significant difference between the mean responses of farmers and facilitators on the strategies for improving the vitamin A cassava multiplication programme among rural farmers in North Central Nigeria.

**Table 4: Mean Ratings And T-Test Analysis Of Respondents On Strategies For Improving The Vitamin A Cassava Multiplication Programme Among Rural Farmers In North Central Nigeria (N = 392: 291 Farmers And 101 Facilitators)**

S/N	Items	X1	SD1	$\bar{x}_2$	SD2	$\bar{X}_g$	SDg	Sig.	Remark
1	Shortage of cassava stems supply.	3.49	.79	3.67	.47	3.54	.73	.13	A, NR
2	Lack of mobile telephones in some farmers.	3.38	.77	3.66	.47	3.45	.71	.34	A, NS
3	Lack of network coverage in some communities.	3.52	.67	3.43	.49	3.50	.63	.46	A, NS
4	Constant breakdown of vehicles during the distribution of materials.	3.44	.76	3.21	.41	3.39	.69	.39	A, NS
5	Bad road networks in some communities hamper effective supervision of multiplication farms.	3.71	.45	3.44	.50	3.64	.48	.71	A, NS

**N= number of respondent s= X1= mean of farmers, X2= mean of facilitators, SD = standard deviation, Xg= grand mean of respondents SDg = grand Standard deviation, Sig. = P-value, significant at  $P \geq 0.05$ , A = Agreed, NS = not significant.**

Data in Table 4 showed that all the 5 items had their mean values ranged from 3.39 to 3.64 which were above the cutoff point of 2.50. This showed that the respondents agreed that all the 5 items were the strategies for improving the vitamin A cassava multiplication programme in north central Nigeria. The standard deviation ranged from .48 to .73 which was an indication that the respondents were not too far from the mean and from one another in their responses on the strategies for improving the vitamin A cassava multiplication programme in north central Nigeria. The table further revealed that the all the items had their calculated p-values ranged from .13 to .71 which were greater than the alpha value of 0.05 indicating that there was no significant difference between the mean responses of farmers and facilitators on strategies for improving the vitamin A cassava multiplication programme among rural farmers in North Central Nigeria. Therefore, the hypothesis of no significant difference was not rejected for the 5 items on strategies for improving the vitamin A cassava multiplication Programme among rural farmers in North Central Nigeria.

### Discussion of Results

The study revealed that 5 objectives of vitamin A cassava multiplication programme were relevant to the rural farmers; vitamin A cassava multiplication programme had 9 significant impacts on rural farmers, 10 challenges were faced by rural farmers in adopting the vitamin A cassava multiplication programme and 5 strategies for improving the vitamin A cassava multiplication programme in north central Nigeria. The findings of the study in table 1 were in consonance with Arega, Khataza and Chibwana (2013) who wrote that the objectives of multiplication and distribution of improved planting material of cassava are to establish and improve cassava multiplication and to develop effective and sustainable systems of delivery of improved varieties to farmers. The findings of the study on table 2 was in line with the findings of Simonyan and Omolehin (2012) that, in an attempt to alleviate poverty among rural Nigerians and also to increase the incomes and productivity of the rural inhabitants as an approach of meeting up with the millennium development goals (MDGs) of food sufficiency and poverty eradication, the federal government of Nigeria through the pooled World Bank loan came up with Fadama Project, to finance the development of Fadama lands by introducing small-scale irrigation in states with Fadama development potentials. The findings of the study on research questions 3 was in conformity with the findings of Okojie (2003) and Anuebunwa (2008) who found that land degradation, infrastructure, financial problems and ignorance respectively are some of the challenges faced by rural farmers in crop production in general and the adoption of vitamin A cassava multiplication programme in particular. The finding is also in consonance with Carmara (2002) who reported that, the

problem of poor rural roads leading to markets reduced the active participation of farmers on root crop production as transport cost exceeds the value of the unsold crops. The findings of the study on table 4 were in consonance with the introduction of the vitamin A cassava multiplication programme by the Federal Government in collaboration with the International Fund for Agricultural Development (IFAD) in 2001. The above step was taken by the Federal Government to boost Cassava Production and improve the standard of living of the rural farmers. The three tiers of government, non-governmental organizations, Community Based Organizations, private sectors and international bodies have laid down some strategies to boost cassava multiplication which include training and manpower development, promotion of micro and rural credit institutions, promotion of the production of inputs for crops, provision of rural infrastructure, and agricultural mechanization among others.

The result of the hypotheses tested showed that there was no statistical significant difference in the mean ratings of the responses of farmers and facilitators on the extent to which the objectives of vitamin A cassava multiplication programme is relevant rural farmers, how vitamin A cassava multiplication programme affects rural farmers, challenges faced by rural farmers in adopting the vitamin A cassava multiplication programme and strategies for improving the vitamin A cassava multiplication programme among rural farmers in North Central Nigeria. The implication of these findings was that the professional differences of the two groups of respondents did not significantly influence their responses on the extent to which the objectives of vitamin A cassava multiplication programme is relevant rural farmers, how vitamin A cassava multiplication programme affects rural farmers, challenges faced by rural farmers in adopting the vitamin A cassava multiplication programme and strategies for improving the vitamin A cassava multiplication programme among rural farmers in North Central Nigeria. This added credence to the findings of this study.

### Conclusion and Recommendations

In order to aid farmers to farm on a large scale without encountering a lot of hardship so as to sustain and develop the farmers and the society, various agricultural development programmes and policies have been developed and executed by successive administrations in Nigeria from early 60s to date. One of the programmes introduced by the Federal Government to alleviate poverty among farmers is the vitamin A cassava multiplication programme. This study has revealed that the objectives of the vitamin A cassava multiplication programme are relevant to rural farmers to a great extent, the vitamin A cassava multiplication programme has improved the standard of living of the rural farmers although farmers are often faced with challenges in trying to

adopt the new innovation, but if the strategies suggested by this study are laid down by the stakeholders, they will improve the Vitamin A cassava multiplication programme.

Based on the findings of this study, the following recommendations were made by the researchers.

The laid down objectives of the vitamin A cassava multiplication programme as stated by the Federal Government in collaboration with IFAD should be strictly adhered to by the stakeholders.

The three tiers of Government should collaborate with NGOs, CBOs and private organizations to look into the problems faced by farmers trying to adopt the vitamin A cassava multiplication programme.

Strategies to improve the vitamin A cassava multiplication programme should be put into practice by the stakeholders in order to boost cassava production among rural farmers in North Central Nigeria.

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