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Assessment of Agricultural Extension Service Delivery on Dry Season Onion Production in Bama Local Government Area of Borno State, Nigeria

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Abstract

The study assessed extension service delivery on dry season onion production in Bama Local Government Area of Borno State, Nigeria. Data for the study were obtained mainly from primary sources. Multi-stage and random sampling technique was employed to select 128 respondents for the study. Descriptive statistics was employed to analyse the data. The results showed that half (50.00%) of the respondents age ranges between 20 and 30 years whereas, those who range between 31 and 40, 41 and 50, and 51 and 60 years were 28.10%, 12.50%, and 9.40% of them respectively. Majority (73.40%) of the respondents was male and female were only 26.50% of them. The results also, indicated that most (56.20%) of the farmers use oxen plough for their land preparation and tilling. More (43.80%) of the respondents revealed their perception on the performance of extension services as high, while those who perceived extension services as medium and low were 35.9% and 20.3% of them respectively. The extension agents were believed to perform effectively by majority (78.10%) of the respondents to meet multi-sectional needs of the farmers. The respondents indicated poor storage facilities as the most serious problem ranking first and high cost of fertilizers by 62.50% of the respondents, which was ranked second. The study recommended that improved onion storage facilities and improved information on onion storage should be disseminated through extension services in the study area.

Key words: Assessment, Extension services, Dry season, Onion production, Nigeria

Introduction:

Agriculture is a mainstay of the small scale farmers in Nigeria. Giroh *et al.* (2010) had posited that agricultural production in Nigeria is dominated by small scale farmers and is known to produce more than 90% of food consumed in the country. One of the major items produced is the vegetable. The importance of vegetables as major and efficient sources of micronutrients in African diet cannot be over stressed. Vegetables are nourishing foods, because they contain some elements of all the substances man needs; protein, mineral salts, sugars, vitamins, aromatics, coloring agents, iron and essential oils that increase man's resistance to disease. In this class of food, man finds the wide range of nutritive elements needed. Vegetables are therefore, complementary foods of the first order, and are much more important for man's health than products of animal origin (Aina, 1995; Nnadi *et al.*, 2013).

Agricultural extension remains one of the most crucial means to reach farming households in the agricultural production communities. Agricultural extension has contributed significantly to agricultural and rural development in Nigeria. Extension services have become so important, that farmers are now willing to pay for services rendered (Chukwuone and Agu, 2005). Agricultural extension aims at providing farmers with necessary education, skills and technical information to enable them to make effective farm management decisions to enhance their daily practices. An effective extension service is therefore, an essential factor for accelerated development of agriculture.

Onions (*Allium cepa L. cepa*) are an important vegetable world-wide, ranking second among all vegetables in economic importance with an estimated value of $6 billion dollars annually (Ibrahim, 2000; Anderson, 2007). While onions contribute significant nutritional value to the human diet and have medicinal properties, they are primarily consumed for their unique flavor or for their ability to enhance the flavor of other foods. Onion is rapidly becoming a popular vegetable among consumers. Data showed that the production and extent of onion is greater than other alliums groups; shallot and garlic (Farooq *et al.*, 2006; Berhanu and Berhanu, 2014). Onion is produced in substantial amount in Nigeria is reported to be grown in substantial amounts and is spreading throughout the country being cultivated under both irrigated and rain fed conditions in different agro-climatic region (Ibrahim, 2000; Obuoble, 2003).

Onion (*Allium cepa L. cepa*) is by far the most important of the bulbs cultivated commercially in nearly most parts of the world (Ibrahim, 2000).The crop is grown for consumption both in the green and mature state. Huge range of the onion cultivars and land races have been developed over centuries to fit in to diverse climate and food preferences of the world. Bulbs for consumption uncooked are frequently sweet, mild, flavoured and large, with suitable for making onion aroma. A particular type for pickling is the small, white skinned "sliver skin". On the other hand, bulbs for pickling cooked consumption and for use in food manufacturing could be the small, medium and large grades respectively from a crop of the same cultivar. Onions (*Allium cepa L. cepa*) are a major source of flavoring in fresh and cooked food, and are the second most important horticultural crop after tomatoes.

The performance of agricultural extension services in dry season onion production has been considered important not only to the nation, but to the world at large. Dry season onion production in Borno State has

been ongoing for decades, providing employment and income for the increasing population during the dry season. The benefits of improved technology to agricultural development are realized in terms of increased from output, high-income, and improved standard of living (Sinkaiye, 2005; Nnadi *et al.*, 2013). The government attention has been drawn to develop policies and programs to address the needs of dry season farmers to help dry season onion production and improve farmer's productivity. Over the years, farmers depend on indigenous or local knowledge for dry season onion production. Such knowledge refers to the skill and experiences gained through traditional practices over many generations (Berhanu and Berhanu, 2014). Agricultural extension is the primary mechanism that government uses to assist farmers in expanding their ability to adopt and implement new methods and to relay information concerning new technologies including that of dry season onion production. This study therefore, assessed the agricultural extension services on dry season onion production in Bama Local Government Area (LGA) of Borno State, Nigeria. The specific objectives were to:

i. describe the socio-economic characteristics of dry season onion farmers in the study area;
ii. identify onion production technologies available to farmers in the study area;
iv. assess the effectiveness of the extension services on dry season onion production;
v. determine the performance of extension services on dry season onion production; and
vi. investigate the problems of dry season onion production in the study area.

Methodology:

Bama Local Government Area (LGA) is located between latitudes $11^{0}30^{1}$ north and longitudes $13^{0}30^{1}$east with a total mass of 1,176 square kilometers in the north-eastern part of Nigeria. The study area has a population of about 269,986 people based (NPC, 2006). The LGA is bordered to four LGAs namely Kala Balge to the east, Dikwa to the north, Konduga to the west and Gwoza to the south. The study area consists of nine (9) districts (Bama, Dar-eljamal, Goniri, Gulumba, Kumshe, Kote, Yabiri, Warlasa and Suwa districts) with 187 villages with headquarters in Bama, which is seventy 75 kilometers away from Maiduguri, the State capital (BOSG, 2010).

Multi-stage random sampling technique was employed for the study. At the first stage, out of the nine (9) districts, four districts were purposively selected based on their prominence in dry season onion production. These include Bama, Dar-eljamal, Gulumba and Yabiri districts. At the second stage, four villages each were selected from the four districts making 16 villages in all. At the third stage, eight farmers were selected from each village making the total sum of 128 respondents as the sample size for the study.

Data for the study were obtained mainly from primary sources. The primary data were obtained through structured questionnaires administered to the respondents, and where the respondents cannot read or write, personal interviews were held. Secondary information was obtained from published materials, journals, text books and the internet. The method employed descriptive statistics to analyse the data.

Results and Discussion:

Socio-Economic Characteristics of the Respondents

The socio-economic characteristics of the respondents are presented in Table 1. The socio-economic variables studied were age, sex, marital status, level of education, farming experience and household size.

Table 1: Distribution of respondents by Socio-Economic Characteristics (n = 128)

Variables	Frequency	Percentage
Age (years)		
Less than 31	64	50.00
31-40	36	28.10
41-50	16	12.50
51-60	12	9.40
Sex		
Male	94	73.40
Female	34	26.50
Marital status		
Single	18	12.50
Married	92	71.80
Divorced	08	6.30
Widowed	12	9.40
Level of education		
Qur'an education	26	20.30
Primary education	16	12.50
Secondary education	32	25.00
Post-secondary education	48	37.50
Tertiary education	06	4.70
Farming experience (years)		
Less than 4	20	15.60
4-6	32	25.00
7-9	42	32.80
10 and above	34	26.50
Household size (No.)		
Less than 4	52	40.60
4-6	36	28.10
7-9	30	23.40
10 and above	10	7.80

Source field survey 2014

The results showed that majority (78.10%) of the respondents were aged less than or equal to 40 years whereas, those who range between 41-50 and 51-60 were 12.50%, and 9.40% respectively. This indicated that majority of the respondents were in their economically active ages and are usually prone to seek new innovations than the elderly. Majority (73.40%) of the respondents were male with only 26.50% of them females. This indicated that the females were less engaged in farming activities than the males due to the norms, tradition or religion in the study area. Also, majority (71.80%) of the respondents was married and

the least (6.30%) of them were divorced respondents. The study also, revealed that majority (62.50%) of the respondents acquired post-secondary education with onion farming experience ranges between 7-9 years constituted 32.80%, whereas those with 1-3, 4-6, and 10 and above years were 15.60%, 25.00% and 26.50% of them respectively. This showed that the farmers engaged in onion production at younger age.

Onion Production Technologies Available in the study area

Table 2 showed the onion production technologies available to farmers in the study area. The result indicated most (56.25%) of the farmers used oxen plough for their land preparation and tilling. Tractors were used by only 15.60% of the respondents. Hoe and cutlass is used by 23.40% of the respondents. Garden fork used by only 4.60% of the respondents. Majority (76.50%) of the respondents also used improved seeds. Dasgupta (1989) and Ray (2001) in a study revealed that a large number of personal, social and institutional characteristics of farmers have been found to be related to adoption behaviors. Farmers that have access to fertilizer constituted 51.50%, while, those that have no access to fertilizer were 48.4% of the respondents. This implied that fertilizer was relatively available in the study area.

Table 2: Distribution of respondents by availability of onion production technologies (n=128)

Variables	***Frequency**	***Percentage**
Oxen plough	72	56.25
Tractor	20	15.62
Hoes/ cutlasses	30	23.44
Garden forks	06	4.69
Improved onion seeds	98	76.56
NPK fertilizer	52	40.62
Urea fertilizer	44	34.37
SSP fertilizer	36	28.12

Source; field survey 2014
***Multiple responses exists**

Performance of Extension Services among Respondents

Table 3 showed how the respondents perceived the work of an extension service. More (43.80%) of the respondents 43.80% revealed their perception on the performance of extension services as high, while those who perceived extension services as medium and low were 35.90%. Only 20.30% of the respondents perceived that the agricultural extension services rendered was low. This implies that the extension services had performed well in the study area.

Table 3: Distribution of respondents by perceived performance of extension services

Level of performance	**Frequency**	**Percentage**
High	56	43.75
Medium	46	35.94
Low	26	20.31

Source; field survey, 2014

Effectiveness of Extension Work

The extension agents are believed to perform effectively in agricultural fields in meeting multi-sectional needs of the farmers. To ascertain the situation, the respondents were asked to identify their perceived effectiveness of the extension work in the study area. The results are presented in Table 4. The results showed that most (59.40%) of the respondents indicated that the extension agents were highly effective, while those that rate the extension agent's services moderate effective, less effective and not effective were 15.60%, 15.60% and 9.40% respectively. Therefore, it could be inferred that there was a high level of effective extension work in the study area.

Table 4: Distribution of respondents by perceived effectiveness of extension services

Variable	Frequency	Percentage
Highly effective	76	59.37
Moderately Effective	20	15.63
Less effective	20	15.63
Not effective	12	9.73

Source; field survey, 2014

Problems of Onion Production

Table 5 showed the several problems in onion production by respondents in a ranked order. Majority (70.30%) of the respondents had poor storage facilities ranking first, while 54.70% ranking second who indicated high cost of fertilizer. Poor transportation, inadequate irrigation facilities, high temperature and poor market information ranking third with 46.90% each and inadequate capital ranked fourth with 31.20% of the respondents. The study traced down the major problem of onion production to poor storage facilities in the study area.

Table 5: Distribution of respondents' problems in dry season onion production

Problems	Frequency	Percentage	Ranking
Poor storage facilities	45	70.30	1st
High cost of fertilizer	35	54.70	2nd
Poor transportation	30	46.90	3rd
Inadequate irrigation facilities	30	46.90	3rd
High temperature	30	46.90	3rd
Poor market information	30	46.90	3rd
Inadequate capital	20	31.20	4th

Source; field survey, 2014
***Multiple responses exists**

Conclusion:

The study established that the agricultural extension played an important role in actualizing the crucial role of agricultural information dissemination in the study area. The study revealed that improved onion seeds were the most readily available technology among the respondents. The study also, established that the extension service was effective and has performed well in the study area.

Recommendations:

Based on the findings of the study, the following recommendations were made:

(i) There should be timely supply of farm inputs and equipments such as water pumping machines, wash boreholes, tractors and fertilizers to facilitate improved productivity of onion in the study area.

(ii) Improved storage facilities should be made available together with the information on how to adequately store onon well should also be disseminated.

(iii) Onion farmers should be encouraged to join or form cooperative societies. This could avail the onion farmers the opportunity to access credit facilities and market information among others.

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