

AGRICULTURAL EXTENSION NEEDS OF BITTER KOLA (*Garcinia Kola*) FARMERS IN ETCHE LOCAL GOVERNMENT AREA (LGA) OF RIVERS STATE, NIGERIA.

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Abstract

*This study examined the agricultural extension needs of bitter kola (*Garcinia Kola*) production by farmers in Etche LGA of Rivers State, Nigeria. Purposive technique was used to select 70 farm household members from 10 communities in the selected rural households. Data were collected through questionnaire and analysed with descriptive statistics. Fifty percent of the farmers were each males and females. About 30.0% of the farmers were within the age range of 41-50 years, 71.7% married. More than half (93%) were literate with mean household size of 8 persons. About 36.7% were full time farmers, 31.7% of them had farming experience of 35-40 years. The farmers were aware that bitter kola when chewed and mixed with lime reduces stomach aches ($\bar{x}=3.55$), aids to prevent food poison ($\bar{x}=3.53$) and boost male and female libido ($\bar{x}=3.53$). Farmers' major extension needs were: extension agents support ($\bar{x}=4.00$), information on health benefits and use of bitter kola ($\bar{x}=3.43$), and information on pests and disease management ($\bar{x}=3.32$). The major constraints were lack of technology for processing bitter kola extraction ($\bar{x}=3.52$), and fewer bitter kola trees presently growing in the forest ($\bar{x}=3.50$). The highly perceived enhancing strategy was awareness of various bitter kola products ($\bar{x}=3.50$). The government should provide extension services and educate the bitter kola farmers on appropriate technologies in bitter kola production.*

Keywords: Farmers, Agricultural Extension, Bitter kola, Production

Introduction

Bitter kola is also known as (*Garcinia kola*), a tropical, herbaceous perennial medicinal plant grown in West Africa (Jusu and Sanchez, 2014). Bitter kola is a non-timber forest product grown in Nigeria; in states such as Rivers, Enugu, Ogun, Akwa Ibom, Calabar, Imo, Ebonyi, Osun and Oyo States. It is referred to as African wonder nut as a result of its medicinal, economical functions for human consumption. They are used in the production of drugs in most pharmaceutical industries. The fruit, seed, nuts, and barks of bitter kola plant are commonly used in folkloric medicines to treat ailments ranging from coughs to fever, liver disorder, bronchitis and other related diseases (Sofowora *et al.* 2013). Bitter kola contains chemical components which have inhibitory effects against Methicillin-resistant to staphylococcus aureus which makes it anti-microbial, anti-parasitic and anti-viral properties

(Sofowora *et al.* 2013). There is photochemical which are non-nutritive plant chemicals in bitter kola; they are active compounds found in the plant that add values to the protection against diseases which are degenerative (Mazi, Okonkwo and Ibe, 2013).

The dreams of bitter kola farmers seem distorted in the study area due to its characterised slow growth rate, difficulties encountered while raising seedlings from the nursery to the field, long gestation period for flowering and fruiting (Ajayi and Eyong, 2016). The constant deforestation of woodlands, pests and diseases, inadequate resource inputs and bad roads seem to reduce the number of bitter kola trees left in the forest. According to Oboho and Urughu (2010), these have reduced the enthusiasm of some farmers and collection of bitter kola from the woodlands. These activities have led to some farmers abandoning bitter kola production to on-farm and off-farm activities. Consequently, some farmers got engaged in illicit dry gins (Ogogoro) ingesting out of frustration. There is need for extension services to boost innovation in nurturing, using and applying new methods in bitter kola production. Rural farmers are unmechanised, but with the assistance of agricultural extension service, there will be a little shift in application of old tools and subsistence farming. In support, Agunga and Manda (2014) mentioned that it is proper that agricultural extension service is strengthened in a way to building the capacities of extension personnel among the rural dwellers for self-sustaining growth. This will lead to high yield income, high quality and quantity of produce, thereby enabling rural farmers to acquire more knowledge and desire to cultivate bitter kola.

Objectives of the study

The broad objective of the study was to assess the agricultural extension needs of bitter kola (*garcinia kola*) farmers in Rivers State. Specifically, the study sought to:

- determine the socio-economic characteristics of rural farmers in bitter kola production in Etche LGA in Rivers State,
- identify the level of awareness on use of bitter kola among rural farmers in the study area,
- ascertain the extension needs of farmers in bitter kola production in Etche LGA in Rivers State,
- identify the constraints in bitter kola production and marketing among rural farmers in the study area;
- ascertain strategies for enhancing effective bitter kola production in Rivers State.

Methodology

The study was carried out in Rivers State, which is made up of 23 Local Government Areas (LGAs) with the capital in Port Harcourt. The state covers a landmass of about 11,077 km²; located on latitude 4° 45'N and longitude 6°50'E of the Greenwich Meridian (National Population Commission 2006., Emodi, Agwu and Momodu, 2018). The state is delineated into three agricultural zones (zones 1, 2 and 3). Etche Local Government Area was selected for the study and is bounded in the north by Imo State, in the east by Abia State and Omuma Local Government Area, in the west by Ikwerre Local Government Area and in the South by Oyiibo and Obio/Akpor Local Government Areas.

All rural farmers formed the population for the study. Purposive sampling techniques were used in the selection of sample for the study. First, one (zone 3) out of the three Agricultural Zones was selected because of the large number of bitter kola trees in the zone. In the second stage, Etche Local Government Area was purposively selected from zone 3 of the three Agricultural Zones. In the third stage, 7 communities (Afara, Okehi, Okomoko, Ulakwo, Umuebulu, Umuechem, Egbeke,) were randomly selected from Etche LGA. Finally, ten (10) farm household members from each of the 7 communities were randomly selected and interviewed.

On the whole, sixty (60) bitter kola farmers that returned their questionnaire were eventually used in the analysis and formed the sample size. A four-point Likert type scale was employed to determine the awareness, constraints and strategies in bitter kola production in the study area.

Data Analysis

Descriptive statistics such as frequency count, percentage and mean were used in data analysis. The

four-point Likert type scale was weighed as follows: Strongly Agreed-4, Agreed-3, Strongly Disagreed-2 and Disagreed-1. Any mean score of less than 2.50 was regarded as not important.

Results and Discussion

Socio-economic characteristics of farmers

Table 1 shows that 50% of the farmers, both males and females respectively were engaged in bitter kola production. This disagrees with the findings of Adedokun, Ojo and Oyelakin (2018) that bitter kola farmers were predominantly female. About 30.0% of the farmers were within the age range of 41-50 years, the mean age was 35.5 years. This implies that the farmers are in their active age and could easily process bitter kola in the farm. Majority (71.7%) of the farmers were married. This is in collaboration with Emodi, Agwu and Momodu (2018) finding that marriage helps farmers in providing cheap labour, since it comes with responsibilities and attending to larger family. The results also show that more than half (93%) of the farmers were literate. Bello (2014) opined that formal education is very important for agricultural development because it aids technology transfer. Majority (50.0%) of the farmers had household size of 6-10 persons with mean of 8 persons. According to Emodi *et al.* (2018), large households tend to source labour within the farm without employing external labour in farm administration. The findings reveal that about 36.7% were full time farmers, and 28.3% of them were part time farmers. Farmers main purpose for bitter kola production is to generate income, support their families and improve their livelihood. Table 1 also shows that 31.7% of the farmers had farming experience of 35-40 years, while 28.3% of them had farming experience of 5-10 years.

Table 1: Socio economic characteristics of rural farmers in bitter kola production in the study area

Variables		Frequency (n=60)	Percentage (%)	Mean (\bar{x})
Gender	Male	30	50.0	
	Female	30	50.0	
Age(years)	21-30	5	8.3	
	31-40	18	30.0	35.5years
	41-50	21	35.0	
	51-60	14	23.3	
	61-70	2	3.9	
Marital status	Single	6	10.0	
	Married	43	71.7	
	Divorced	1	1.7	
	Widowed	6	10.0	
	Widower	4	6.8	
Educational level	Non-formal	4	6.7	

	Primary	33	55.0	
	Secondary	14	23.3	
	Tertiary	9	15.0	
Household size(person)	1-5	21	35.0	8persons
	6-10	30	50.0	
	11-15	6	10.0	
	16-20	3	5.0	
Occupation	Full-time farmer	22	36.7	
	Part-time farmer	17	28.3	
	Trader	13	21.7	
	Teacher	3	5.0	
	Blacksmith	1	1.7	
	Carpenter	1	1.7	
	Cleaner	1	1.7	
	Doctor	1	1.7	
	Nurse	1	1.7	
Farming experience (years)	5-10	17	28.3	37.5years
	11-16	13	21.7	
	17-22	1	1.7	
	23-28	6	10.0	
	29-34	4	6.7	
	35-40	19	31.7	

Source: Field survey, 2018

Level of awareness of bitter kola usage among rural farmers'

Table 2 shows that the farmers were aware of bitter kola different usage. The respondents ranked bitter kola awareness highest when chewed and mixed with lime in reducing stomach ache (\bar{x} =3.55), bitter kola when chewed aids prevent food poison(\bar{x} =3.53)ranked second, while bitter kola boost male and female libido (\bar{x} =3.53)was ranked third.These imply that the farmers were aware that bitter kolacontains some nutritional components which aids human immune system, prevent illnessand repair body tissues.

Bitter kola is used in theproduction of dyes and could serve as a possible substitute to hazardous synthetic

dyes which is a threat to the environment(Ado, Musa, Gumel, and Yahaya, 2015).Among the South-eastern Nigeria, Esiegwu, okoli, Emenalom, Esonu and Udedibie(2014), mentioned that bitter kola seed is used as snake repellents, the wood used as source of fuel, branches arechewing stick as alternative source of tooth paste. Every part of the *Garcinia kola* plant has been useful in traditional practice, ranging from the root of the plant to its seed. Esiegwuet al. (2014) opined that fresh trunk bark is used as purgative, the ground bark is applied to malignant tumours and fresh wounds against infection, while the latex is applied and used against gonorrhoea.

Table 2: Level of awareness on the use of bitter kola usage as perceived by rural farmers

Items	Mean (\bar{x})	SD
When chewed and mixed with lime reduces stomach ache	3.55	.622
When chewed prevent food poison	3.53	.623
Serve as body charm against evil spirit	3.38	.715
Word off snakes from compound	3.30	.696
Bark, leaves of bitter kola with neem cures malaria	3.42	.619
Bitter kola stems used as chewing stick	3.37	.637
Reduces eye pressure	3.40	.694
Is a cleanser against cancer and high blood pressure	3.43	.593
Boost male and female libido	3.53	.593
Plants parts are medicinal	3.50	.537
Tree used in making mortar and pestle	3.37	.637

Source: Field survey, 2018

cut-off point=2.50

The extension needs of farmers in bitter kola production

Table 3 shows that 5 out of the 9 items investigated were perceived by farmers as extension needs in bitter kola production. They include: source of farm inputs in bitter kola production ($\bar{x} = 2.87$), source of effective marketing of bitter kola ($\bar{x} = 2.10$), maintenance of farm and its proper up-keep ($\bar{x} = 1.42$), effective storage of bitter kola ($\bar{x} = 1.63$), information on pests and disease management ($\bar{x} = 3.32$), information on health benefits and use of bitter kola ($\bar{x} = 3.43$), supply of improved seeds for

cultivation ($\bar{x} = 2.83$), planned time for cultivation and harvesting of bitter kola ($\bar{x} = 1.53$) and need of extension agents' attention on bitter kola seed dormancy breaking ($\bar{x} = 4.00$).

The findings revealed that the farmers perceived extension agents support as the most needed assistance in bitter kola production. Agricultural extension activities are crucial in dissemination of technologies to the farmers and in achieving wide-range of rural development (Mbo'o-Tchouawou and Colverson, 2014).

Table 3: Mean distribution of agricultural extension needs of farmers in bitter kola production

Items	Mean (\bar{x})	SD
Source of farm inputs in bitter kola production	2.87	.724
Effective marketing of bitter kola	2.10	.775
Maintenance of farm and its proper up-keep	1.42	.944
Effective storage of bitter kola	1.63	.999
Information on pests and disease management	3.32	.676
Information on health benefits and use of bitter kola	3.43	.831
Supply of improved seeds for cultivation	2.83	1.368
Planned time for cultivation and harvesting of bitter kola	1.53	.999
Needs of extension agents attention on bitter kola seed dormancy breaking	4.00	0.000

Source: Field survey, 2018

cut-off point=2.50

Constraints in bitter kola production among rural farmers

Entries in Table 4 show that the farmers perceived all the constraints investigated as major constraints in bitter kola production. These include: lack of technology for processing its extraction ($\bar{x} = 3.52$) and fewer bitter kola trees presently growing in the forest ($\bar{x} = 3.50$) that were highly perceived constraints. The result is evident that extension agents are not visibly present in the study area. Absence of extension agents will recurrently result to lack of relevant information on improved method of bitter kola production among the farmers. This could be discouraging to the farmers in bitter kola production. Information technology and dissemination can improve the farmers skills in bitter kola production and aid in exportation of its produce. According to Ajayi and Echi (2016), deforestation, exploitation of natural forest and strain of bitter kola seed to

germinate due to its dormancy, have resulted to its low population both in the wild and homestead garden. Bitter kola seed in most cases sparingly germinate when untreated and cultivated (Ajayi and Eyong, 2016). Thus, dissemination of information on improved methods of cultivation from research through extension agents will assist to reduce the inadequacies in bitter kola production.

Pests and diseases could cause huge losses in agricultural production (Emodi, 2012). Thus, knowledge of pest ecosystem and dynamics is essential to allow farmers act appropriately in managing their bitter kola production effectively. Besides, increasing temperature in tropical regions affect many natural systems. In case of bitter kola production, poor weather condition is grimly affecting and causing increase in multiplication of diseases in its production.

Table 4: Constraints in bitter kola production and marketing as perceived by rural farmers

Variables	Strongly Agree	Agree	Strongly Disagree	Disagree	Mean (\bar{x})	Remark
Poor pests/diseases management	24(40.0%)	33(55.0%)	2(3.3%)	1(1.7%)	3.32	AC
Long distance to markets	28(46.7%)	23(38.3%)	1(1.7%)	8(13.3%)	3.30	AC
Fewer bitter kola trees presently growing in the forest	36(60.0%)	20(33.3%)	2(3.3%)	2(3.3%)	3.50	AC
Inadequate finance	36(60.0%)	22(36.7)	1(1.7%)	1(1.7%)	-	AC
Lack of technology for processing its extraction	38(63.3%)	18(30.0%)	3(5.0%)	1(1.7%)	3.52	AC
Limited farmlands	18(30.0%)	28(46.7%)	2(3.3%)	12(20.0%)	3.03	AC
Quantity of bitter kola determines the sales	13(21.7%)	40(66.7%)	5(8.3%)	2(3.3%)	3.07	AC
Transportation cost	18(30.0%)	24(40.0%)	1(1.7%)	17(28.3%)	2.98	AC
Long bitter kola gestation period	19(31.7%)	36(60.0%)	1(1.7%)	4(6.7%)	3.22	AC
Lack of extension contact	35(58.3%)	20(33.3%)	2(3.3%)	3(5.0%)	3.47	AC
Theft in the farm	16(26.7%)	29(48.3%)	3(5.0%)	12(20.0%)	2.97	AC
Lack of labour in bitter kola processing	26(43.3%)	26(43.3%)	5(8.3%)	3(5.0%)	3.22	AC
Poor storage facilities	34(56.7%)	22(36.7%)	3(5.0%)	1(1.7%)	3.45	AC
Lack of cooperation among farmers	32(53.3%)	24(40.0%)	3(5.0%)	1(1.7%)	3.42	AC
Inadequate extension agent posted in the community	26(43.3%)	30(50.0%)	1(1.7%)	3(5.0%)	3.35	AC
Poor weather condition	26(43.3%)	14(23.3%)	2(3.3%)	18(30.0%)	3.07	AC

AC= A Constraint

cut-off point=2.50

Source: Field survey, 2018

Strategies in enhancing effective bitter kola production among farmers

Entries in Table 5 reveal that all the 7 items investigated were perceived by farmers as enhancing strategies for bitter kola production. These include: awareness of various bitter kola products (\bar{x} =3.50), availability of trained extension agents in the community (\bar{x} =3.47), credit facilities from government and NGOs (\bar{x} =3.45), supply of inputs through extension agents (\bar{x} =3.40), information on

pest and diseases infestation/control (\bar{x} =3.40), awareness on bitter kola health benefit (\bar{x} =3.40), awareness of bitter kola seed dormancy breaking (\bar{x} =3.35). The implication of these findings is that all the strategies can enhance bitter kola production. The results show that the farmers revealed that awareness of various bitter kola products will encourage more rural dwellers into its farming.

Table 5: Mean distribution of farmers according to relevant strategies for enhancing bitter kola production

Variables	Strongly agree	Agree	Strongly Disagree	Disagree	Mean (\bar{x})
Supply of inputs through extension agents	31(51.7%)	27(45.0%)	1(1.7%)	1(1.7%)	3.40
Credit facilities from government and NGOs	32(53.3%)	24(40.0%)	1(1.7%)	3(5.0%)	3.45
Information on pest and diseases infestation/control	30 (50.0%)	25(41.7%)	1(1.7%)	4(6.7%)	3.40
Awareness on bitter kola health benefit	27(45.0%)	30(50.0%)	-	3(5.0%)	3.40
Awareness of various bitter kola products	35(58.3%)	21(35.0%)	1(1.7%)	3(5.0%)	3.50
Awareness of bitter kola seed dormancy breaking	26(43.3%)	30(50.0%)	1(1.7%)	3(5.0%)	3.35
Availability of trained extension agents in the community	33(55.0%)	23(38.3%)	1(1.7%)	3(5.0%)	3.47

Source: Field survey, 2018

cut-off point=2.50

Conclusion

Bitter kola production is an enterprise that is undertaken by both males and females. These farmers were skilled, literates and were aware to an extent of the importance of bitter kola production, especially in reducing stomach aches. Major constraints in bitter kola production were lack of technology for processing and extraction, and non-availability of extension services to farmers. The government should provide extension services and educate the bitter kola farmers on appropriate technologies in bitter kola production. Extension agents through dissemination of information to farmers, will significantly improve bitter kola production.

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