GENDER ROLES IN EDIBLE CRICKETS (*BRACHYTRUPES SPP.)* HARVESTING, PROCESSING AND MARKETING IN ANKPA LOCAL GOVERNMENT AREA OF KOGI STATE, NIGERIA.

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Abstract

The study analyzed the gender roles in edible crickets harvesting, processing and marketing in Ankpa Local Government Area(LGA) of Kogi State, Nigeria. Using both purposive and multistage sampling technique, a sample of ninety (90) respondents were selected to represent the population. Data for the study were collected through the use of structured questionnaire. Organization and description of data were done by the use of frequency distribution tables and percentages. The findings indicated that a little more than half (51.11%) of the respondents were within the age range of between 26-36 years. Majority (61.11%) of the respondents were married, while most (57.78%) of them lacked any form of schooling. More than half (61.11%) of the respondents had between 11-20 years of experience in edible cricket venture. While 66.67% of the respondents got their unprocessed crickets from any available fallow forest land, 55.57% of the respondents got theirs from designated sales points on the farm. Few respondents (33.33%) got unprocessed crickets from their personal farmlands. Results further show that 5 out of the 7 operations involved in the venture were majorly done by female. The percentage involvement by gender were 71.43% for female and 28.57% for male; meaning that the edible cricket venture in the study area is feminine inclined. Several constraints were found associated with edible crickets enterprise. For instance, seasonality (88.89%), of the insect; scarcity during breeding period (87.78%) were very serious constraints associated with the enterprise. The paper therefore recommends that appropriate number of extension agents be employed to adequately educate the processors on the proper handling of the edible crickets, among others.

Keywords: *Gender Roles, Edible Crickets, Harvesting, Processing, Marketing.*

Introduction

Edible cricket (*Brachytrupes spp.)* belongs to the order *Orthoptera*, family *Gryllidae* (Banjo *et al.*, 2006). Cricket as an insect has three pairs of jointed walking legs,

one pair of protective outer wings and a pair of membranous wings for occasional flights. The body is divided into; the head, thorax and abdomen.

Crickets like other edible insects are not used as emergency food to ward off starvation, but are included as a normal part of the diet when seasonally available. Crickets are harvested from natural forests. According to Adeoye *et al*. (2014) edible crickets can be a good source of not only protein, but also vitamins, minerals and fats. It contains, like many other edible insects, abundant stores of lysine, an amino acid deficient in the diets of many people who depend heavily on grains.

In Nigeria, edible crickets are found in commercial quantities, in North-Central and South-West parts of the country. Crickets are found in large and commendable quantities in many villages within Ankpa Local Government Area of Kogi State. The insect is consumed at the adult stage, although some at the nymph stage when harvested too early.

Harvesting/capturing, processing and marketing of the insect provide a good source of income and livelihood opportunities for an indeterminable number of people (Abu, 2012). For instance, the capture, transport and sales of crickets provide income and food for youths (motor cyclists), women and the general community during its season (rainy season).

The specific values of the insect as noted by Abu (2012) to the consumers are indicated below:

Table 1: Protein, Mineral and Vitamin Composition of Edible Cricket.

Crude Protein (%)	**Minerals**			**Vitamin**		
	Ca(mg/100g)	P(mg/100g)	Fe(mg/100g)	A(mg/100g	B2(mg/100g)	C(mg/100g)
6.25	9.21	126.9	0.68	0	0.03	0

Source: Abu (2012).

The insects are found within the soil underground tunnels made or built by them as well as forest trees nurseries. Therefore, their harvesting is done by digging their tunnels with hoes/cutlasses and capturing them with hand after which they are arranged on rope or very slender stick through the dorsal end of their necks.

On processing, the collected crickets are washed with clean water severally to remove sand particles; after which the two types of wings are removed as well as the guts. The clean crickets are seasoned and boiled for few minutes after which they are put in a perforated container to drain the water in them, and later fried in vegetable oil. According to Adeoye *et al*. (2014) the crickets are roasted over fire or hot coals. They turn to golden colour when fully roasted. Where the guts are not removed before frying, it has to be done

before eating. In a well fried state, it can stay for more than one week without getting spoilt. Processed edible crickets are sold commercially to consumers at roadside food stalls as well as markets in various cities of Nigeria (Agbidye *et al*., 2009); and hawked in trays in Ankpa town.

Gender describes te socially constructed roles and responsibilities of women and men (Abdullahi and Idris, 2020). They include roles such as what male and female do, what they are responsible for, and how they are expected to behave. According to Bhattacharya and Thansi in Odoh *et al*. (2009) gender focuses on te relationship between men and women, their roles, access to and control over resources, division of labour and needs. It is determined by the conception of attributes such as tasks, functions and roles of women and men in the society and also the biological characteristics of women and men (Abdullahi and Idris, 2020). Okorodudu in Odoh *et. al*. (2009) opined that certain task activities are regarded as "male" or "female", and in some settings, a rigid division of labour exists between men and women. Roles and norms of gender are formed by both men and women through their activities (World Development Report in Abdullahi and Idris, 2020). In Edible crickets venture, gender analysis also takes into cognizance roles performed by women as agricultural producers, their time and labour allocation as well as their decision - making efforts.

Edible crickets thrive very well and because they are found in commercial quantities in many villages in the study area, both male and female gender participate in the enterprise. Putting the present economic realities of the country into consideration, both men and women participate in any production, processing and marketing of commodities including edible crickets that can generate income. Different and specific roles are being played by those involved in the cricket enterprise along gender lines. It is on this premise, that this study evaluates the gender roles of men and women involved in the harvesting/capturing, processing and marketing of edible crickets. The specific objectives of the study were to:

I) describe the socio-economic characteristics of people involved in cricket harvesting, processing and marketing in the study area.
ii) ascertain the extent of gender participation in the cricket harvesting processing and marketing in the study area.
iii) identify constraints associated with the cricket enterprise.

Methodology

The study was carried out on Ankpa LGA of Kogi State, Nigeria. The study area is Kogi East Senatorial District of Kogi State. It has a total population of 267,353 and a land mass of 200km^2 (Adah, Paul and Akor, 2020). The LGA is made up of nine (9) districts namely; Ankpa, Enjema, Ojoku, Ika, Adawo, Adanawo, Emekutu, Udama and Ikoja.

The inhabitants of the area are predominantly peasant farmers growing crops such

as cassava, yam, groundnut, sweet potato, beniseed, melon, cowpea, pigeon pea, millet and bambara nut (Negedu and Adah, 2020). Economic trees such as cashew, oil palm, banana, citrus and coconut are also grown in the area. Livestock rearing on extensive system is also practiced in the area. Edible cricket business also thrives in the area.

All the people (male and female) involved in edible cricket ventures in the study area constituted the study population. Multistage sampling technique was used for this study. In stage one, three (3) districts out of the nine (9) districts in Ankpa LGA were purposively selected which included Ankpa, Enjema and Ojoku. In stage two, two villages with high level of edible insects populations were also purposively selected from the three (3) districts; the villages under Ankpa district are Emere and Ogaji; Enjema District are Enjema and Odagba; Ojoku District are Ojoku and Inyologu respectively making it a total of 6 villages. In stage three (3) 15 respondents (5males, 10 females) were randomly selected from each village making a total of ninety (90) respondents as the study sample. Out of the 90 respondents, 30 were male while 60 were female. The gender disparity here is as a result of more involvement of female in the venture, especially in processing.

Data were collected using structured questionnaire. Those who could not read and write were interviewed based on the questionnaire items. Data obtained were analysed using descriptive statistics such as mean, frequency distribution and percentages.

Results and Discussion

Social-economic Characteristics of the Respondents

Table 1 relays the socio-economic characteristics of the respondents. More than half (51.11%) of the respondents were within the age range of 26-36 years; followed by 28.89% that were between 15-25 years. This implies that the venture is in the hands of the matured and economically viable population endowed with enough energy to carry out the required operations in the business. This finding is in line with that of Rahman and Lawal (2003) who found that age of farmer is said to influence farmers' maturity and capability. The respondents involved in the enterprise are within the agile and active age ranges.

Data from Table 1 also shows that 61.11% of the respondents were married. This implies that married people dominate in the edible cricket enterprise in the study area. That majority of the respondents are married shows a great mark of responsibility in the endeavour. Hence, Ezedinma (2001) reported that married people have the responsibility for the provision, processing and marketing of food items for the household as well as sale of fresh fruits and processed agricultural products to get income. Marriage also connotes maturity and commitment to any venture.

Table 1: Socio-economic Characteristics of Respondents

Socio-economic Items	Frequency	Percentage(%)
Age		
15-25	26	28.89
26-36	46	51.11
37-47	12	13.33
48-58	6	6.67
Marital Status		
Single	33	36.67
Married	55	61.11
Divorced	2	2.22
Years of Formal Schooling		
0	52	57.78
1-6	20	22.22
7-12	16	17.78
13-18	2	2.22
Years of Experience		
1-10	25	27.78
11-20	55	61.11
21-30	10	11.11
Source of Unprocessed Crickets		
Personal farm land	30	33.33
Available fallow land	60	66.67
Designated sales points	50	55.57

Source: Field survey, 2020.

* **Multiple Responses.**

Table 1 also relays that more than half (57.78%) of the respondents had no formal education. This is in consonance with the earlier findings of Adah *et al.*(2018) who reported that majority (54.0%) of cassava processors into gari lacked any form of formal education. According to Ojih *et al*. (2013) low level of education would negatively affect levels of farm productivity, including edible crickets venture or enterprise. Motuma *et al.* (2010) have also underscored the importance of education in agricultural production.

Data in Table 1 also show that majority (61.11%) of the respondents in the study area had between 11 and 20 years of experience in edible crickets' enterprise. This suggests that the people were well experienced in the business. This could boost the success or growth of the enterprise. Hence, long period is an important advantage in agricultural productivity since it encourages faster adoption of innovations (Ofoka, 2014), and by extension, production generally.

The findings from the study show that 66.67% of the respondents got their unprocessed edible crickets from available fallow forest areas, 55.57% got theirs from

designated sales points in villages, while 33.33% got the product from personal farmland. The results imply that the respondents got edible crickets from multiple sources, as one source wasinadequate.

Table 2: Distribution of Respondents According to Gender Roles in Harvesting, Processing and Marketing of Edible Crickets.

Gender Roles in Edible Cricket Harvesting, Processing and marketing	Male (n=30) Frequency (%)		Female (n=60) Frequency (%)		Remarks
Digging of cricket tunnel/collection	30	100.00	02	3.33	Male
Purchase from farm	04	13.33	55	91.67	Female
Transportation (motorcycle)	28	93.33	20	33.33	Male
Washing and removal of wings and guts	08	26.67	60	100.00	Female
Parboiling with seasoning and salt	05	16.67	60	100.00	Female
Frying with vegetable oil	06	20.00	60	100.00	Female
Sales of processed crickets	04	13.33	59	98.33	Female
Percentage Involvement by Gender	-	28.57	-	71.43	Female

Source: Field survey, 2020

***Multiple Responses**

Table 2 shows the respondents distribution on gender involvement in edible crickets harvesting/collecting, processing and marketing in the study area. The findings from the study show that five (5) out of the seven (7) roles involved in edible crickets enterprise were mostly performed by female as shown by the high percentage scores for the females.

Conversely, the following roles: digging of cricket tunnels/collecting (100.0%) and transportation to and from points of sale of the unprocessed crickets via motorcycle (93.33%) were mostly performed by the male. Generally, gender involvement in the venture, indicates that 71.43% of female and 28.57% of the male participated in the harvesting/collecting, processing and marketing of edible crickets in the study area. This implies that female dominate edible crickets venture in the study area. This is in consonance with the view that some roles in the production process are gender inclined. Korie *et al.* (2013) revealed that female processors were found to be more in traditional palm oil processing than males. This agrees with established findings that women are more involved in food processing (as noted by Azam-Ali in Korie *et al.*, 2013). Igwe (2012) also pointed out that several studies have indicated that women constitute up to 70% of African

agricultural workforce. The digging of cricket tunnels and their collection as well as transportation roles played by male respondents could be attributed to the uneasy or too tasking nature of such operations. This agrees with the findings of Ojih *et al.* (2013) that farm operations not convenient for women farmers are carried out for them either by their husbands, male children or hired labour.

Constraints Associated with Edible Crickets Enterprise

Table 3 shows the distribution found associated with edible crickets' enterprise in the studyarea.

Table 3: Respondents Distribution on Constraints Associated with Edible Crickets Enterprise

Constraints	* Frequency	Percentage (%)
Digging hazards such as snake bite, scorpion sting, etc	35	38.89
High transportation cost	59	65.56
Seasonality	80	88.89
Lack of harvesting regulation	55	61.11
Poor processing/handling	40	44.44
Scarcity during breeding period	79	87.78
Exorbitant price	45	50.00

Source: Field Survey, 2020

*Multiple responses

Data in Table 3 shows the various constraints found to be associated with edible crickets harvesting, processing and marketing in the study area. The results show that seasonality (88.89%) of the insects and scarcity during their breeding period (87.78%) was very serious constraints in the enterprise. High transportation cost (65.56%) to and from the procurement points, lack of harvesting regulation (61.11%) and exorbitant price (50.00%) were serious problems. Others include poor processing/handling (44.44%) and tunnel digging hazards such as snake bite, etc (38.89%) were less serious problems associated with the venture. With the identified constraints, it implies that those in the enterprise in the study area are greatly challenged. This calls for serious attention. Apart from these constraints, Adeoye *et al.* (2014) reported lack of social acceptance and nutritional knowledge as problems associated with edible cricket enterprise.

Conclusion and Recommendations

The paper highlighted the gender roles in harvesting/collecting, processing and marketing of edible crickets in the study area. Female gender dominate the various operations involved in the venture except those seemed to be tedious for them. Such operations also appear to be traditionally masculine. This calls for carefulness among

policy makers on gender related issues while making policies. This is important because, non-cognizance of issues bothering on gender difference may lead to unfavourable outcomes which in turn could result in programmes that are technically successful but negatively affect women.

From the foregoing, and to boost the venture, the following recommendations were made:

I) Participants in the venture should be pooled together to form cooperative societies in order to standardize the venture in terms of regulations on harvesting, processing and pricing etc.

ii) The Local Government health authority should monitor the processing aspect of the venture to ensure that no health law is breached in any way.

iii) Since majority of the venture participants lacked any form of schooling, extension agents, especially home economics extension experts should be employed to give adequate education on proper handling of the edible crickets to the processors. Efforts should be put in place to widely research into edible cricket ventures generally, especially in the area of domestication and expansion, since it is an income generating venture for women processors.

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