



EFFECTS OF EDIBLE INSECTS' CONSUMPTION ON COMMUNITY REVITALIZATION IN NORTH CENTRAL NIGERIA

ADEYEMO, P. A. ¹ | ADEYEMI, F. G. ¹ | AKINTARO O. S. ¹ | BANKOLE, J. A. ²

¹ DEPARTMENT OF AGRICULTURAL EXTENSION AND RURAL DEVELOPMENT, LADOKE AKINTOLA UNIVERSITY OF TECHNOLOGY, P. M. B 4000, OGBOMOSO, OYO-STATE, NIGERIA.

² TEACHING AND RESEARCH FARMS, LADOKE AKINTOLA UNIVERSITY OF TECHNOLOGY, P. M. B 4000, OGBOMOSO, OYO-STATE, NIGERIA.

ABSTRACT:

This study examined effects of edible insects' consumption on consumption on community revitalization in North Central Nigeria. The study was carried out in North Central Nigeria. Multi-stage sampling procedure was employed in selecting respondents for the study using purposive and simple random sampling techniques. In the first instance, two State (Kogi and Kwara States) were purposively selected from North Central Nigeria. The second stage was purposive selection of two (2) ADP zones from each of the selected State. The third stage was purposive selection of two (2) ADP blocks from each of the ADP zone. The fourth stage was purposive selection of two (2) ADP cells from each of the ADP block. This made up of eight (8) ADP cells from each State and a total of sixteen (16) ADP cells in the study (i.e the two State). Finally, twenty (20) respondents each were randomly selected from each of the sixteen (16) selected ADP cells, making a total number of three hundred and twenty (320) respondents for the study.

Descriptive statistics such as frequencies, percentage, mean and standard deviation were used to measure the socio economic characteristics of the farming household heads, such as gender, age, marital status e.t.c. Ordinary Least Square (OLS) regression (inferential statistics) was also used.

About 34% of the respondents identified that they consumed beetle larva. Also, 94.38% of the respondents identified that they consumed palm weevil and winged termites. Moreover, 100% of the respondents identified that they consumed field crickets and African locust. Furthermore, respondents' consumption of edible insects were; *Oryctes Monoceros* (50.00%), *Brachytrupes membranaceus* (38.75%), Edible Grasshopper (22.19%) and *Macrotermes bellicosus* (5.63%). These were indications that the respondents had appreciable consumption of edible insects. The remittance, income and investment were positive and statistically significant at 1% level of significance. Therefore, increase in edible insect's consumption has the propensity to increase remittance, income and investment of the inhabitant of the community. However, membership of cooperative society was negative and statistically significant at 1% level of significance.

It is concluded that, the respondents had appreciable consumption of edible insects. Increase in edible insect's consumption has the propensity to increase remittance, income and investment of the inhabitant of the community. Therefore, the economic and nutritional importance of edible insects should be disseminated to the respondents.

KEYWORDS:

INTRODUCTION

Insects are the most successful group of organism in the animal kingdom with high biodiversity especially the terrestrial and freshwater in terms of species richness, animal biomass and critical ecological functions (Ancha *et al.*, 2021). Insects are valuable to humans due to their pollinating activities and their use as biological control agents has aided in the control of pests (Okeke *et al.*, 2019). Some insects provide commercial value products such as honey and silk for human and animal. Bees deliver about 1.2 million tonnes of commercial honey per year, whilst silkworms produced more than 90,000 tonnes of silk (Clarkson *et al.*, 2019).

Besides their commercial and medicinal value, insects also constitute an important component of the diet of many cultures around the world and their consumption makes efficient use of available natural resources (Matandirotya *et al.*, 2022). Recently, it has also been established that insects are important natural source of food for many vertebrate animals, including birds, lizards, snakes, amphibians, insectivores and other mammals (Wendin and Nyberg, 2021). The traditional use of insects as food continues to be widespread in the tropical and subtropical countries as it provides significant nutritional, economic, and ecological benefits for rural communities (Olaewaju *et al.*, 2020). Many of these countries regularly eat insects

as part of their diet, particularly in Africa and Asia.

Animal feed needs a substantial amount of proteins- soy and fish meal. Owing to rising demand for food, especially meat, there is a pressing need to increase the supply of protein from viable sources (Ancha *et al.*, 2021). While the consumption of edible insects is gaining currency in countries like Mexico, their use as part of traditional diet has been observed to continually decrease in many communities in Africa, specifically in Nigeria, where these edible insects originally formed a vital source of food and nutrition of the local people (Olawejaju *et al.*, 2020).

The practice of eating insects is known as entomophagy. Many animals, such as spiders, lizards and birds, are entomophagous, as are many insects (Clarkson *et al.*, 2019). People throughout the world have been eating insects as a regular part of their diets for millennia. Although this practice should be specified as *human* entomophagy, throughout this book entomophagy refers to human entomophagy (Meludu and Onoja, 2018).

Community development is a process that brings about change in many aspects of community living especially in the areas of social, economic, cultural as well as environmental (Oke, 2019). The focus of community development process is the people's involvement whereby the community members come together to take action collectively to meet their shared goal(s) or to generate solutions overcoming a shared problems. The participation of community members In providing solutions to problems confronting them is one the principles that makes community development one of the best approach to community development, The role of community development is to develop members" capabilities and potentials to affect their wellbeing and quality of life through maximizing resources utilization to benefit them socially and economically.

OBJECTIVES OF THE STUDY:

1. identify consumption of edible insect in the study area;
2. analyze effects of edible insects consumption on community revitalization in the study area.

RESEARCH METHODOLOGY

The study was carried out in North Central Nigeria. The North Central Nigeria comprises of Kwara, Kogi, Nasarawa, Benue, Niger and Plateau States, with also the Federal Capital Territory (FCT). It is located in the central part of Nigeria and in the sub-humid region of the country, and bounded to Bauchi, Kaduna, Zamfara and Kebbi States to the north; Cross-River, Ebonyi, Enugu, Edo, Ondo, Ekiti, Osun and Oyo States to the south; Taraba State and Republic of Cameroon to the east and the Republic of Benin to the west. Situated between latitudes 6° 30" - 11° 20"N and longitude 7° - 10°E, the zone has 20.36 million people with the rural population constituting 77 percent (NPC, 2006). Nigeria is located in West Africa with an estimated 170 million inhabitants and a population growth of 2.5 percent annually. Nigeria is the most populated

country in Sub-Saharan Africa and the 10th most populated country in the world (NPC, 2006). Approximately 49 percent of the population engages in agriculture as their major occupation. The agricultural sector is the mainstay of the majority of Nigerian rural poor, with over 70 percent of the active labor force in rural areas employed in agriculture and the sector contributing over 23 percent of the GDP in 2006 (World Bank, 2018).



FIGURE 1: MAP OF NORTH CENTRAL NIGERIA

The population for this study consisted of all farmers in North Central, Nigeria. Multi-stage sampling procedure was employed in selecting respondents for the study using purposive and simple random sampling techniques. In the first instance, two State (Kogi and Kwara States) were purposively selected from North Central Nigeria. The second stage was purposive selection of two (2) ADP zones from each of the selected State. The third stage was purposive selection of two (2) ADP blocks from each of the ADP zone. The fourth stage was purposive selection of two (2) ADP cells from each of the ADP block. This made up of eight (8) ADP cells from each State and a total of sixteen (16) ADP cells in the study (i.e the two State). Finally, twenty (20) respondents each were randomly selected from each of the sixteen (16) selected ADP cells, making a total number of three hundred and twenty (320) respondents for the study.

Descriptive statistics such as frequencies, percentage, mean and standard deviation were used to measure the socio economic characteristics of the farming household heads, such as gender, age, marital status e.t.c. Ordinary Least Square (OLS) regression (inferential statistics) was also used.

DISCUSSION OF FINDINGS

CONSUMPTION OF EDIBLE INSECT

In Table 1 consumption of edible insect were presented. About 34% of the respondents identified that they consumed beetle larva. Also, 94.38% of the respondents identified that they consumed palm weevil and winged termites. Moreover, 100% of the respondents identified

that they consumed field crickets and African locust. Furthermore, respondents' consumption of edible insects were; *Oryctes Monoceros* (50.00%), *Brachytrupes membranaceus* (38.75%), Edible Grasshopper (22.19%) and *Macrotermes bellicosus* (5.63%). These were indications that the respondents had appreciable consumption of edible insects.

TABLE 1: CONSUMPTION OF EDIBLE INSECT

Characteristics	Frequency	Percentage
Rhinocerus beetle larva		
Yes	108	33.75
No	212	66.25
Palm weevil		
Yes	302	94.38
No	18	5.63
Field crickets		
Yes	320	100.00
No	0	0.00
African locust		
Yes	320	100.00
No	0	0.00
Winged termite		
Yes	302	94.38
No	18	5.63

Source: Field Survey, 2023.

TABLE 1: CONSUMPTION OF EDIBLE INSECT (CONTINUATION)

Characteristics	Frequency	Percentage
<i>Oryctes Monoceros</i>		
Yes	160	50.00
No	160	50.00
<i>Brachytrupes membranaceus</i>		
Yes	124	38.75
No	196	61.25
Edible Grasshopper		
Yes	71	22.19
No	249	77.81
<i>Macrotermes bellicosus</i>		
Yes	18	5.63

No	302	94.38
----	-----	-------

Source: Field Survey, 2023.

EFFECTS OF EDIBLE INSECTS CONSUMPTION ON COMMUNITY REVITALIZATION

Effects of edible insect's consumption on community revitalization are presented in Table 2. The remittance, income and investment were positive and statistically significant at 1% level of significance. Therefore, increase in edible insect's consumption has the propensity to increase remittance, income and investment of the inhabitant of the community. However, membership of cooperative society was negative and statistically significant at 1% level of significance. Increase in edible insects consumption has the propensity to reduce membership of cooperative of the inhabitant of the community.

TABLE 2: EFFECTS OF EDIBLE INSECTS CONSUMPTION ON COMMUNITY REVITALIZATION

Variables	Coefficient	P> z	Decision
Remittance	0.05***	0.00	S
Income	0.00***	0.02	S
Investment	0.00**	0.33	S
Membership of cooperative society	-4.5***	0.00	S
Constant	0.38***	0.00	S
R ² = 0.68			
Adjusted R ² = 0.67			

***1% level of significance, **5% level of significance, *10% level of significance

S = Significant

NS = Not Significant

Source: Field survey, 2023.

CONCLUSION

It is concluded that, the respondents had appreciable consumption of edible insects increase in edible insects consumption has the propensity to increase remittance, income and investment of the inhabitant of the community. Increase in edible insects consumption has the propensity to reduce membership of cooperative of the inhabitant of the community.

RECOMMENDATION

It was recommended that; the economic and nutritional importance of edible insects should be disseminated to the respondents.

REFERENCES

1. Ancha, P.U., Ikyaaagba, E.T. and Kaor, C.D. (2021). Consumers acceptance and willingness to pay for edible insects in Makurdi metropolis, Benue State, Nigeria. *Journal of Research in Forestry, Wildlife & Environment*, 13(4): 159 -170.
2. Clarkson, C., Birch, J. and Miroso, M. (2019) Locusts as a Sources of Lipids and Proteins and Consumer Acceptance. *Encyclopedia of Food Chemistry*, 167-172.
3. Matandirotya, N.R.; Filho, W.L.; Mahed, G.; Maseko, B.; Murandu, C.V. (2022). Edible Insects Consumption in Africa towards Environmental Health and Sustainable Food Systems: A Bibliometric Study. *Int. J. Environ. Res. Public Health*, 19: 148-171. <https://doi.org/10.3390/ijerph192214823>
4. Meludu and Onoja (2018). Determinants of Edible Insects Consumption Level in Kogi State, Nigeria. *Journal of Agricultural Extension*, 22 (1): 156 – 170.
5. Megido, C. R., Haubruge, É., Francis, F. (2018) Insects, The Next European Foodie Craze?. In: Halloran A., Flore R., Vantomme, P. and Roos, N. (eds) *Edible Insects in Sustainable Food Systems*. Springer, Cham. https://doi.org/10.1007/978-3-319-74011-9_21
6. NPC (2006). National Population Census, Nigeria. Federal Republic of Nigeria Official Gazette, Abuja, Nigeria. 2006.
7. Olarewaju T.O., Orumwense L.A., Oke O.S., Idowu A.B. and Adeboye T.E. (2020). Assessment of Knowledge on Functional Values of Edible Insects in Peri Urban Communities of Ijebu Ode Local Government Area, Ogun State Nigeria. *Journal of Tropical Agriculture, Food, Environment and Extension* 19 (4): 1-5.
8. Oke, I. O. (2019). Community Development and Extension Services: A Synergy for Rural Development in Nigeria. *KIU Journal of Social Sciences*, 5(4): 7–15.
9. Okeke, T. E. , Ewuim, S. C., Akunne, C. E., Ononye, B . U. (2019). Survey of Edible Insects in Relation to their Habitat and Abundance in Awka and Environ. *International Journal of Entomology Research*, 4 (1): 17-21.
10. Wendin, K. M.E. and Nyberg, M.E. (2021) Factors Influencing Consumers perception and Acceptability of Insect-based foods. *Current Opinion in Food Science*. 40: 67-71.
11. World Bank (2018). Poverty at a glance, World Bank Issue Brief/Poverty. Retrieved from: <http://siteresources.Worldbank.org/INTPOVERTY/Rsources/Poverty>