



FARMING PRACTICES AND FARMERS' PARTICIPATION IN COMMUNITY DEVELOPMENT PROJECTS IN ANAMBRA STATE, NIGERIA

By

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Abstract

*This study investigated the relationship between farming practices and farmers' participation in community development in Anambra State, Nigeria. Two research questions and two null hypotheses were tested in the study. Correlational research design was adopted for this study with a sample of 833 respondents selected from the population of 24,488 registered farmers in the study area using both stratified and purposive sampling techniques. A well developed and validated questionnaire titled *Farming Practices and Farmers' Participation in Community Development Project Questionnaire (FPFPCDPQ)* was used to collect data. The reliability of the instrument was done using Cronbach alpha reliability and result showed the reliability index range from .74 to .95. Simple regression statistical technique were used for data analysis and each hypothesis was tested at .05 level of significance. The results revealed that snail farming and rabbit farming significantly contributes to economic empowerment of farmers in Anambra State. Based on the findings, it was recommended among others that State government should provide incentives to snail farmers to boost their production considering the gross margin and net profit of snail farming; due to significant influence of price on profitability of snail farming, government should help maintain stable price for snails in the State.*

Key words: Farming, practices, farmers' participation and community development projects.

Introduction

Farming remains the mainstay for most individuals in Anambra State. In fact, most of the community people engage in farming for income, employment, food production that has helped them live meaningfully in the society. Essentially, Agriculture is composed of crop production, livestock, forestry, and fishing. It involves the production of food, feed, fibre and other goods by the systematic growing and harvesting of plants and animals (Masawi, Mango, Kugedera, and Mango, 2019). Farming can be operated at a peasant small scale or large-scale level. Peasant or small-scale farming is defined as the cultivation of crops and rearing of animals on a small scale. Peasant farmers operate mainly in the rural environment of Anambra State. They operate on very small holdings using mostly traditional methods because, their income is relatively low and the capacity to save is poor. Thus, the need to be economically empowered in order for them to engage in large scale farming in order to boost the productivity of activities, increase in come as well as assist in providing employment as well as increased food availability in the country.

Empowerment is both a process and an outcome. Depending on how it is used, the two are indistinguishable. Empowerment has for the most part remained rooted in the local communities, in the needs of the 'poorest of the poor' especially farmers. Farmers empowerment is therefore more than simply a 'assistive' term for development agencies (Desai and Potter, 2018). According to the Nigeria Times (2016), farmer's empowerment concerns itself with giving farmers the ability or opportunity to better their own lives and society in general. It has nothing to do with competition but rather provision of right facilities and means to ensure growth and prosperity for a nation. However, it has been observed that most of the rural farmers in Anambra state have nor been economically empowered. Despite the importance of economic empowerment of farmers, they have much more limited access to agricultural extension, credit, land, all of which combine to restrain their ability to increase their productivity and incomes. This is expressed in their engagement with crude or traditional methods of farming. Most of the farmers have no knowledge of land rotation, utilization of irrigation in farming, utilization of pesticides that are largely applied in modern farming. In fact, in most of

the rural communities, it is common to see that most of the farmers cultivate just a small piece of land to produce food for self and immediate family (subsistent farming). They lack the financial farm credits, tractors, or machineries, required labour hours, storage facilities and so on as result of economic disempowerment. This has not only affected the individual but the nations GDP (Nigeria Times, 2016).

Many researchers, community leaders, and non-governmental organizations have been worried over the reason why most of the farmers are not empowered economically in the area. Many factors have been deduced such as poor attitude of agricultural extension workers, corruption, lack of data base for farmers in the area, government policies, attitude to farming and perception of rural practices. The effect is expressed in the level of poverty in most rural areas in Anambra State, low-income level, increased malnutrition, kidnapping and banditry, low per capita income, poor standard of living, lack of accessibility to good health care and education as well as rising cases of infectious diseases. Government of former president Mohammadu Buhari made frantic efforts to ensure that provision of fertilizers, credit monies to farmers, provision of farming tools to local farmers but these efforts have not yielded the right outcome. The researchers are asking, could agricultural practices influence economic empowerment among farmers in Anambra State, Nigeria?

Objectives of the study

The study sought to:

1. to determine the extent to which Snail farming contributes to economic empowerment of farmers in Anambra State
2. to find out the extent to which Rabbit farming contributes to economic empowerment of farmers in Anambra State

Research hypotheses

The following hypotheses were developed to direct the investigation;

HO1. Snail farming does not significantly contribute to economic empowerment of farmers in Anambra State, Nigeria.

HO2. Rabbit farming does not significantly contribute to economic empowerment of farmers in Anambra State, Nigeria.

Literature review

Snail farming and economic empowerment of farmers

The snail industry lays a long time economic prosperity for the people involved. There is potential for export to the international market. One can keep ones job and do this on part time until the business grows. With the business growing rapidly and gaining a place in economy, Enugu State can turn into one of the biggest snail exporters. There are opportunities for more farms. Small-scale farms can make enormous difference. Snail farming is a virgin area in livestock farming, which offers low risks compared to other livestock farming

due to the fact that it has low capital requirement (Azeez, 2021).

Onuigbo (2015) carried out a study on the economics of snail production in Enugu East agricultural zone of Enugu State, Nigeria. This study examined snail production in Enugu State, Nigeria using cross-sectional data. It was guided by five specific objectives namely: describing the socio-economic characteristics of snail farmers in Enugu State, snail production system/rearing techniques in the study area, determining the cost and returns from snail farming in the study area, estimating factors influencing profitability of snail production in the area and identifying constraints facing snail farmers in the study area. Data analytical techniques used were descriptive statistics, gross margin and profit function analysis. The findings of the study revealed that 95.7% of the sampled respondents were within the economically active age bracket (21-50 years). Gross margin and net profit were N 54,955.77 and N 47,367.25 per snail farmer per one cycle respectively. The return per naira on investment was 2.01. This shows that snail production enterprise is profitable and this might go a long way to boost their income thereby improving their livelihood. According to Imobhio (2022), snail farming is one of the most lucrative businesses that one can embark upon, either on a small or large scale, with very low initial capital outlay. Snails are very prolific.

In a study carried out on snail farming, Nwaduku (2019) observed that considering the humid tropical climate of south eastern Nigeria, the technical feasibility of establishing snail farms has been confirmed. However, there is just a component in diversified farming ventures. Homestead or compound farms with its array of multipurpose trees and shrubs are an ideal habitat for snail farming. In the wild, the snails go through a cyclical growth pattern that is determined by the occurrence of the seasons (wet and dry seasons). During the dry and hot periods of the year when there is little moisture and few succulent food materials available, the snails go under rocks, rotting vegetable debris, logs or climb the trunk of trees where they secrete a membrane of mucus across the opening of the shell. This membrane called epiphragm hardens and closes off the shell, thus protecting the snails against desiccation. Above all, is the fact that snail farming has contributed significantly to the individual economic development and the development of many communities through the establishment of self-help projects that have benefited a number of people and households. The advantages of snail farming over most other livestock include low capital requirement for its establishment and operation, less demand for professional knowledge, very high fecundity (fertility) and low mortality, less labour requirement, the animal noiselessness, an availability of ready domestic and international markets, among others (Akinbile, 2020). It is very cheap and easy to feed snail. Their food is almost all around us. Any space around us, no matter the size, can easily be converted into a snail pen. Neighbours are neither disturbed nor offended because snails neither smell nor make noise. Unlike poultry, sales of snails are done in the farm as customers go right into the farm and make purchase orders in

advance. Snails' exporters buy all that is available in large farms for the international market (Imobhio, 2022).

Ngenwi, Mafeni, Etchu and Oben (2020) investigated characteristics of snail farmers and constraints to increased production in West and Central Africa. Structured questionnaires and focus group discussions were used for data collection in selected locations in Cameroon and Ghana. Descriptive statistics (means and percentages) and regression analysis were used to analyze the data obtained. The results indicate that snail farmers are predominantly women with basic school level of education. Between 42 and 62% of rural income is derived from sale of snails. Causes of declining snail populations were attributed to habitat loss through deforestation, overexploitation, indiscriminate harvesting, climate change - indicated by extremely high temperatures and low rainfall, high dependence on agricultural chemicals (herbicides and pesticides) and lack of training on improved snail husbandry. A holistic approach to biodiversity conservation and capacity building of current and would be snail farmers is suggested to increase snail supply in markets.

Rabbit farming and economic empowerment of farmers

Rabbit farming in most African countries has grown from raising a few rabbits for family consumption to large commercial operations with hundreds of rabbits. In Egypt, for example, rabbit projects involving the youth reduced youth migration from rural to urban area, (Lukefahr, 2024). There are some advantages that are inherent in raising rabbits as a business for less resourced communal farmers. One of them is that expansion of a rabbit project is much simpler than other livestock alternatives (Shaeffer, Kime & Harper 2020). This is because a large range of existing facilities can be changed to cater for rabbit keeping and land requirements are negligible.

Deliwe and May (2023) carried out a study on the factors affecting the production of rabbits by small holder farmers in Mt Darwin district of Zimbabwe. The study looked at economic factors affecting commercialization of rabbit production in rural areas of Mt Darwin District of Zimbabwe. All the 85 rabbit producing farmers identified were used in a survey conducted in four wards of Nohwedza, Dotito, Mudzengerere and Karoi. Findings of the research revealed that crop production was the main source of income (98 per cent of farmers), however where rabbits were concerned; fathers were the main owners of rabbits (81%), followed by sons and mothers at 15% and 4% respectively. Rabbits were mainly kept for consumption purposes (39 rabbits/farmer/year) and a few rabbits (31/farmer/year) were sold each year. On average only 1% of the rabbit producers sold more than 100 rabbits per year, 9%, between 50-100; and 90%, between 0-50. The benefits from rabbit keeping are twofold, that is immediate and long term. Immediate benefits are those that create local demand for rabbits thus bringing additional income. Long term benefits are created when rabbits give an insurance against possible future shocks, through livestock diversification and also they avail funds for purchase of other livestock species such as goats, sheep and cattle if the project is done with passion. However, most rural smallholder farmers are raising rabbits as an alternative source

of income and meat protein requirement apart from the vegetable protein they heavily depend on (Owen, 2024). Masawi, Mango, Kugedera. and Mango (2022) investigated the challenges and opportunities to Rabbit (*Oryctolagus cuniculus*) Production and Marketing (A Case of Mazowe District, Zimbabwe). The study was carried out to determine the challenges affecting the production and marketing of rabbits (*Oryctolagus cuniculus*) in Chiweshe communal area of Mazowe District, Zimbabwe. Fifty small scale rabbit farmers were selected using systematic random sampling. Results from this study showed that the major challenges in rabbit production are: poor funding (26%), poor nutrition (26%), personal perspectives and beliefs (22%) and poor markets (8%). Ninety-two per cent of the respondents sold their rabbits at the local market and 8% to new farmers for breeding stock. Rabbits are largely kept by limited-resourced farmers who maintain small scale operations with the aim of producing meat and income. The vast majority of meat rabbits are produced under small scale and backyard systems. It is in such systems that the rabbit can make a valuable contribution towards supplying meat for rural African communities and improving rural livelihoods. Rabbit has an immense potential of high growth rate, high efficiency in converting forage to meat, a short gestation period, high prolific and relatively low cost of production. The meat has a high dressing out percentage and the presence of caecal microbes enables the rabbit to digest large amounts of fibrous feeds which most non ruminants cannot (FAO, 2021).

Methodology

The research design used for this study is survey research design. According to Ofem (2022), survey research design involves the collection of data to accurately and objectively describe existing phenomena. This study is located in Anambra State, Nigeria. Anambra State is east-central Nigeria. Anambra state was first formed in 1976 from the northern half of East-Central state, and in 1991 it was considerably reduced in area by an administrative reorganization that created the new state of Enugu. Anambra is bounded by the states of Kogi on the north, Enugu on the east, Abia on the southeast, Imo and Rivers on the south, and Delta and Edo on the west. Its coordinates are 6°20'N and 7°00'E It includes the valley of the lower Anambra River, which is a tributary of the Niger River. The population of the study consists of all the 24,488 registered farmers across the state. They consist of men and women who are educated, uneducated; gainfully employed, self-employed or unemployed. A manageable and sizeable sample size of 833 respondents was selected for the study using stratified and purposive sampling techniques. A questionnaire was the only instrument that was used for data collection for this study. It was tagged "Agricultural Practices and Economic empowerment of farmers Questionnaire (APEEFQ) designed by the researcher and validated by three experts. One in measurement and evaluation and two in Community Development Department, University of Calabar – Calabar, Nigeria. To determine the reliability of the instrument a trial testing was done using 50 respondents drawn from the study

area with similar characteristics who were not included in the main study. A set of items was administered to the respondents after an interval of two weeks. The Cronbach Alpha reliability coefficient was used to test the degree of consistency of the instrument. They were found to range from .72 to .87. This implies that the instrument was reliable enough to be used for this investigation. The procedure for data analysis was based on the already structured research hypothesis. Prior to the administration of the questionnaire to the respondents (registered farmers), the researcher

secured information on the venue and date of registered farmers meetings per LGAs of the sampled area. This the researchers attended with five other trained research assistants to other locations depending on the LGAs. At the meeting venue after the farmers had concluded their meeting deliberations, the researchers and their assistants respectively

formally introduced themselves stating the aim of their visit, after which the questionnaire was administered to the respondents. Simple regression statistical technique was used to analyzed data for the study.

Presentation of results

The two research hypotheses were stated and tested in order to provide solution to the problem of this study. Each hypothesis was tested at .05 significant level.

Hypothesis one

Snail farming does not significantly contribute to economic empowerment among farmers. The independent variable in this hypothesis is snail farming; while the dependent variable is economic empowerment of farmers. To test this hypothesis, simple regression analysis was used and the result of the analysis is presented in Table 1.

TABLE 1: Simple regression result of the prediction of Snail farming on economic empowerment of farmers

Model	Sum of square	df	Mean square	F	p-value
Regression	806.623	1	806.623	92.077*	.000(a)
Residual	7200.997	822	8.760		
Total	8007.620	823			

R=.317, R²=.101, Adj. R²=.100, * Significant at .05 level.

The simple regression analysis of the prediction of Snail farming on the farmers' economic empowerment produced an adjusted R² of .100. This indicated that the Snail farming accounted for 10.0% of the determinant farmers' economic empowerment. A cursory look at the analysis of variance result showed (F =92.077, p=.000). Since p(.000) is less than p(.05), this showed that , the hypothesis that stated that snail farming significantly contribute to economic empowerment was rejected and the alternate hypothesis was upheld.

Hypothesis two

Rabbit farming do not significantly contribute to farmers' economic empowerment. The independent variable in this hypothesis is rabbit farming; while the dependent variable is farmers' economic empowerment. Simple regression analysis was employed to test this hypothesis. The result of the analysis is presented in Table 2.

TABLE 2: Simple regression result of the prediction of rabbit farming on farmers' economic empowerment

Model	Sum of square	df	Mean square	F	p-value
Regression	1526.651	1	1526.651	193.630*	.000(a)
Residual	6480.969	822	7.884		
Total	8007.620	823			

R=.437, R²=.191, Adj.R²=.190, * Significant at .05 level.

The simple regression analysis of the prediction of mushroom farming on the farmers' economic empowerment produced an adjusted R² of .190. This indicated that the rabbit farming accounted for 19.0% of the determinant farmers' economic empowerment. A cursory look at the Analysis of Variance (ANOVA) showed that (F= 193.630, p=.000). Since p(.000) is less than p(.05), this implies that the null hypothesis that stated that rabbit farming do not significantly contribute to farmers' economic empowerment was rejected and the alternate hypothesis accepted.

Discussion of findings

Snail farming and farmers' economic empowerment.

The result of the first hypothesis indicated that, snail farming has a significant influence on farmers' economic

empowerment. The findings are in line with the view of Ogogo, Ijeomah and Ekwere (2020) who also noted that owners of snail farms in the study area were all males, Christians and literates. Majority of the farms (71.43%) were between 1 and 3 years old. About 35.71% of established farms have stopped functioning and the active ones (64.39%) may become passive before 5 years due to poor management (100%), inadequate knowledge of snail farming (100%), lack of capital (100%) and no encouragement from the government (100%). Majority of the respondents (71.43%) embarked on snail farming as hobby while some joined for conservation of snail (42.86%). Only 14.29% established snail farms for income generation. With exception of farm 7 with 1600 snails, no other farm had above 300 snails. Farm 1 has only 30 snails. About 57.14% of the respondents sourced their

breeding stocks from the wild alone. Snail feed were locally sourced by all respondents. The housing system mostly used by respondents was enclosure with nets (71.42%) while only 14.20% used motor tyres and concrete trench indicating low scale of production.

Onuigbo (2025) findings also aligns with that of the study that revealed that 95.7% of the sampled respondents were within the economically active age bracket (21-50 years). About 87.14% of the respondents were males while 12.86 % were female. Average household size was seven persons, with majority (52.86%) having household members whose sizes ranged from 5-8 persons. The mean farming experience was seven years indicating that most of the farmers had been in the business for a long time and were therefore conversant with the problems of snail production in the study area. About 67% of the respondents were married. Majority (44%) of the snail farmers practiced trench pens production techniques. Average number of snails per farmer was 465 snails with average revenue of N70,879.00 in a production cycle of six months. The average labor utilization was 53.69 man-days per snail farmer. Three marketing channels were identified. These were (a) producers to consumers (b) producers to wholesalers to retailers to consumers and (c) producers to wholesalers to consumers. Gross margin and net profit were N 54,955.77 and N 47,367.25 per snail farmer per one cycle respectively. The return per naira on investment was 2.01. This shows that snail production enterprise is profitable and this might go a long way to boost their income thereby improving their livelihood. Output price positively and significantly influenced the profitability of snail production in the study area, while labour cost, feed cost and land cost (rental value of land) all had negative and significant effects on the level of profit. The R² value of about 0.891 shows that the regressed variables explained 89% of the variability in profit. All the regressed variables were in line with a priori expectations. Based on these findings, the study recommended that the state government should provide incentives to snail farmers to boost their production considering the gross margin and net profit of snail farming; due to significant influence of price on profitability of snail farming, government should help maintain stable price for snails in the state.

The result could also be due to the fact that the advantages of snail farming over most other livestock include low capital requirement for its establishment and operation, less demand for professional knowledge, very high fecundity (fertility) and low mortality, less labour requirement, the animal noiselessness, an availability of ready domestic and international markets, among others. It is very cheap and easy to feed snail. Their food is almost all around us. Any space around us, no matter the size, can easily be converted into a snail pen. Neighbours are neither disturbed nor offended because snails neither smell nor make noise. Unlike poultry, sales of snails are done in the farm as customers go right into the farm and make purchase orders in advance. Snails' exporters buy all that is available in large farms for the international market.

Rabbit farming on farmers' economic empowerment.

The result of the second hypothesis indicated that, Mushroom farming significantly contribute to farmers' economic empowerment. The findings are in line with the view of Deliwe and May (2023) who revealed that crop production was the main source of income (98 per cent of farmers), however where rabbits were concerned; fathers were the main owners of rabbits (81%), followed by sons and mothers at 15% and 4% respectively. Rabbits were mainly kept for consumption purposes (39 rabbits/farmer/year) and a few rabbits (31/farmer/year) were sold each year. On average only 1% of the rabbit producers sold more than 100 rabbits per year, 9%, between 50-100; and 90%, between 0-50. Farmers indicated lack of access to credit and feeds as the major challenge to rabbit production. Regression results revealed that the main factors affecting commercial rabbit production are lack of extension services, low rabbit price, low agricultural education and lack of experience in rabbit keeping. These were significant at $p < 0.05$. Rabbit farmers revealed that they need assistance in market identification, extension service and government support in terms of market creation through the setting up of rabbit meat and for industries. It is worthy of note that rabbit farming has help youths and adults to contribute meaningfully to the development of the communities used for the study.

Masawi, Mango, Kugedera. and Mango (2022) also showed that the major challenges in rabbit production are: poor funding (26%), poor nutrition (26%), personal perspectives and beliefs (22%) and poor markets (8%). Ninety-two per cent of the respondents sold their rabbits at the local market and 8% to new farmers for breeding stock. There was no significance difference between gender and ownership of rabbits ($p > 0.05$). Farm visits by extension officers were rarely made (40%), regularly (30%) and about 18% when consulted by the rabbit farmers.

The findings of the study could be due to the fact that rabbits are medium size hopping animals with long legs, long ears and a short tail. They are noiseless and easy to manage; they require small compartments due to their body conformation unlike cattle and other small ruminants which requires a large area of land. Rabbits are largely kept by limited-resourced farmers who maintain small scale operations with the aim of producing meat and income. The vast majority of meat rabbits are produced under small scale and backyard systems. It is in such systems that the rabbit can make a valuable contribution towards supplying meat for rural African communities and improving rural livelihoods.

Conclusion and Recommendations

Based on the results of the study it was concluded that snail farming and rabbit farming significantly contribute to farmers' economic empowerment in Anambra state.

In light of the study's conclusions, the following recommendations were made:

1. State government should provide incentives to snail farmers to boost their production considering the gross margin and net profit of snail farming; due to

significant influence of price on profitability of snail farming, government should help maintain stable price for snails in the state.

2. Adequate budgetary allocation should be given to the tertiary institutions for subscription to online databases and acquisition of rabbit farming.

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