Analysis of Cost and Returns for Fried Grasshopper Marketing in Maiduguri Metropolis, Borno State, Nigeria.

U. Makinta[1], S. T. Mohammed[2], B. Y. Mamman[1] and B. G. Makinta[3]

[1]Department of Agricultural Economics and Extension, Faculty of Agriculture, Federal University Dutse, Jigawa State.
[2]Department of Agricultural Economics and Extension, Faculty of Agriculture, University of Maiduguri, Borno State.
[3] Department of Agricultural Technology and Applied Sciences, Ramat Polytechnic Maiduguri, Borno State.
Corresponding Author: ummakin83@gmail.com +2347033035256

ABSTRACT

This study was carried out to examine cost and returns among sellers of fried grasshopper in Maiduguri, Borno state. The specific objectives of the study were to identify the socio-economic characteristics of fried grasshopper sellers and the cost and returns associated with the trade. Also some of the objectives include examining the marketing performance, identifying the distribution channel and the problems encountered by the sellers of fried grasshopper. A total of fifty (50) respondents were selected for the study using purposive sampling technique. Structured questionnaires were used to elicit data for the study. Analytical tools such as percentage, frequency tables, gross margin and marketing margins were used for data analysis. The analysis revealed that the entire respondent used the grasshopper trade as a secondary income source on the basis of its being seasonal. Majority (62%) of the respondents have family size of between 1-4 persons. All the sellers engaged in the business were female with 60% literacy level. An average profit of ₦1700 per 50kg bag was obtained from the trade. The marketing margin found was 30% which is an indicator of the marketing performance of the business. From the study, it was revealed that the trading of fried grasshopper in the area was profitable given a high profit margin per 50kg bag. It was recommended that the fried grasshopper sellers should form themselves into a cooperative society so as to attract more assistance from relevant sources.

Keywords: Marketing, Profit, Grasshopper.

INTRODUCTION

The Sahelian grasshopper, *Oedalens senegalensis krauss,* is widely distributed in dry savannah areas of West and North Africa and India and is a major pest of many agricultural crops. Loss of crops at milky stage of grain formation may, over some areas, be complete **(**chekere et al. 2006**)**.Generally, grasshopper thrives best in the dry warm and sunny climates and the ideal ecology is one with open vegetation particularly Sudano-Sahelian zone where the soil reserves direct sunlight. In this type of environment, large scale breeding of grasshopper is favoured (Popov, 2005). *O senegalensis* is also important because of its migratory habits. In West Africa, it migrates northwest at the beginning of rainy season and southwards at the end of the season. During this migration, it progressively destroys millet along its routes. Crop losses were reported in various states of Northern Nigeria during plaque of 1980s (Chekere, 2006).

Even though millions of Naira were thus spent by the government over the years with minimal success, the growing acceptance of the delicacy in fried grasshopper intensified. More of the grasshopper is put under strict surveillance without spending much but rather with high value it adds to the lives of those in the trade (Popov, 2005).

Grasshopper is now not only considered as a major pest of cereals and other agricultural crops, but also gains cognizance as an important delicacy for human consumption. Grasshopper is now eaten fried with added spices. In some parts of Africa and north-eastern Nigeria in particular, trade in grasshopper provides an important economic activity to many. Large amount of the commodity is sold annually throughout Nigeria. This study therefore, focuses on the analysis of the profitability of grasshopper marketing in Maiduguri, Borno state. The knowledge of the role played by fried grasshopper sellers as principal market participants, the middle men (the catchers) and the consumers is yet to be fully investigated and documented. The activity has thus become both as a means of income earning as well as a source of employment to a large population or otherwise underemployed labour force (Ibrahim, 2005).

Objective of the Study

The broad objective of the study was to analyse the cost and returns in Marketing of fried grasshopper in Maiduguri, Borno state. The specific objectives were to:

1 Identify the socio-economic characteristics of grasshopper sellers in the study area.
2 Determine the cost and returns associated with the trade.
3 Examine the market performance of grasshopper trade.
4 Identify the distribution channel of grasshopper.
5 Identify problems encountered by the traders.

METHODOLOGY

Study Area

This study was conducted in Maiduguri metropolis, Borno state, Nigeria. The state is located in North East geographical zone of Nigeria within 11^{o} to 15^{o}N and longitude 10^{o} to 20^{o}E with an area of 69,346 square km and the largest state in the federation in terms of land mass (Borno State Diary, 2007). The state is an agrarian society with fishing and livestock rearing as more famous. It has a weather which is hot and dry for a greater part of the year. Generally the rainy season is normally June to September with a relative humidity of about 49% and evaporation of 203mm per year. The study area was Maiduguri which shares boundary with Konduga, Jere and Mafa local government areas. The study covered Bolori, Wulari, Post-office, Mairi and Bulumkutu areas all situated within Maiduguri metropolitan council.

Sampling Procedure

The target population for this study were the fried grasshopper sellers in Maiduguri metropolis. A two stage sampling procedure was employed in selecting the sample for this study. Purposive sampling was first used to derive the respondents. The use of this sampling technique was informed by the concentration of fried grasshopper sellers in specific places across the various parts of Maiduguri metropolis. The areas were Bolori, Wulari, Post-office, Mairi, Bulumkutu, Damboa Road, Tashan Baga, Muna, Terminus and Tashan Bama. In all 10 areas listed above, a total number of 150 fried grasshopper sellers 10 from each of the areas depending on the concentration of the sellers were selected for the study. Random sampling technique was then employed on each of these areas to select 5 sellers to get a total of fifty respondents (50) who were interviewed to generate data for the study.

Source of Data

For the purpose of the study, primary data were collected using structured questionnaires administered to the respondents. The study was carried out for 12 months (one farming season) of November 2009 to December 2010.

Data Analysis

The data collected for the study were analysed using descriptive statistical tools such as frequency counts and Percentages. Gross Margin (GM) and Marketing Margin analyses were also used to measure profitability and marketing performance respectively. The GM model is represented as:

$GM=\sum YiPi- \sum XjPj$

Where:

GM=Gross Margin per Mudu per 50kg bag

Yi= quantity of commodity in Mudu per 50kg bag

Pi=price of Y grasshopper in Mudu per 50kg bag

Xj=quantity of variable cost items such as oil, firewood, transport, obtainance, miscellaneous.

Pj=price of variable cost items such as oil, firewood, transport, obtainance, miscellaneous.

i and j=1, 2,3.....n no of bags

Market Performance was calculated using Market Margin Model expressed as:

$$MM= \frac{SP1-SP2}{SP1} \times 100$$

Where,

MM= Market Margin

SP_1= Selling Price

SP_2= Supply Price

RESULTS AND DISCUSSION

Results in table 1 shows the socioeconomic characteristics of the respondents. The study showed that 100% of fried grasshopper sellers were female even though there are males involved but are mostly catchers who sell it to the women that fry and sell. This means that the business is predominantly women dominated probably as a result of the nature of the business which is more of women folk. This agrees with findings of Bemakwa (2000) which reveals that some businesses are gender specific. The literacy level indicated that about 36% of the traders had primary education, 24% had secondary education while 36% had no formal education. This shows that 60% were literate but engage in such business so as to support their education in order to reach tertiary level or to render assistance to their ageing parents, which was stated by the respondents. The result also showed that 44% of the traders were married while 56% were single. The number of single respondents maybe connected with the fact that there is substantial number of school girls in the trade who may be helping their parents during vacation or when school closes. Also the study further revealed that 62% of the traders have family size of 1-4 persons in respect of both the singles and the married, 30% have 5-9 and 8% have 10-14 persons. The above result shows that families with small household size were engaged in such trade more than those with large household size. The result also showed that 74% of the respondents engaged in the business were below 10 years, 12% above 10 years while the remaining 14% have been in the business for more than 14 years. From the result above, it can be seen that the business has been in existence in the study area for quite some time. It was also observed from the study that apart from the fried grasshopper trade which is a primary business of the respondents, they are also engaged in other secondary business. The study reveals that 42% are engaged in fish selling, 40% in farming and about 50% are engaged in knitting business. This is as a result of the seasonality of the commodity. The result also showed

that about 14% of the respondents have their start up capital for the business ranging from ₦1000-₦3000, 16% fall between ₦3000-₦5000 and about 26% have more than ₦5000. This reveals that the business can be started even with a meagre capital such as ₦1000, hence is not capital intensive with potential of generating more proceeds for them. Also, from the research findings, capital for the business was mostly from local sources, family (18%), personal savings (60%) and loans (22%). Personal savings is therefore the major source of capital. Sales coverage of fried grasshopper is mostly locally showing about 80% sales with only 20% sold externally through selling to retailers who in turn sell at neighbouring countries such as Niger, Chad, Benin, Cameroon etc. Local sales entails inter and intra states of Nigeria while externally sold entails selling to neighbouring countries or even beyond.

Table 1: Socioeconomic Characteristics of Fried Grasshopper Sellers in Maiduguri Metropolis, Borno State Nigeria.

(n=50)

VARIABLES	FREQUENCY	PERCENTAGE
GENDER		
Male	-	-
Female	50	100
EDUCATIONAL LEVEL		
Primary	18	36
Secondary	12	24
No Schooling	20	40
MARITAL STATUS		
Married	22	44
Single	28	56
FAMILY SIZE		
1-4	30	62
5-9	15	30
10-14	5	8
NUMBER OF YEARS IN BUSINESS		
0-4	30	62
5-9	15	30
10-14	5	8
OTHER OCCUPATIONS ENGAGED BY THE RESPONDENTS		
Fish selling	21	42
Farming	20	40
Tailoring	4	8
Knitting	5	10
START UP CAPITAL (₦)		
<1000	7	14
1001-2000	7	14
2001-3000	7	14
3001-4000	8	16
4001-5000	8	16
>5000	13	26
SOURCE OF CAPITAL		
Family	9	18
Savings	30	60
Loans	11	22
SALES COVERAGE		
Internally	40	80
Externally	10	20

Source: Field Survey, 2009

Cost and Returns Analysis

The cost and return analysis forms the basis of profitability analysis. This involves itemising the cost and returns associated with the marketing of fried grasshopper. Cost is anything that reduces an objective or the input used in production while revenue is anything that contributes to an objective (Abbot, 2001). The total cost of production is made up of both variable and fixed components. As shown in the table 2, the variable cost is less the total revenue. This finding is in agreement with those of Baba (1998), Baba and Wando (1998) and Tsoho (2004) who in separate studies found variable cost dominating the production cost accounting for about 98.4, 99 and 92.55%, respectively, under dry season irrigation farming.

Gross Margin is called the value of production and it is the difference between the gross incomes (Total revenue) and variable cost (VC) items.

Gross Margin = Gross Income – Variable Cost.

Result in table 2 indicates that the revenue received by an individual fried grasshopper seller per 50kg bag is ₦8750 on the average while the cost incurred in processing a 50kg grasshopper bag from raw to the fried form is about ₦7043 giving a Gross Margin of ₦1707.The result of Marketing Margin of 30% which was obtained showed that fried grasshopper has a short chain and channel affecting it in terms of its time, form, place and possession. The results of marketing margin of 30.7% or about 31% indicates that short marketing activity exist between catchers and sellers. The existence of high marketing margin can be detrimental to catchers (in form of low price) or both. Such high margins results from imperfectly competitive conditions.

Problems encountered by fried grasshopper sellers are many but the major ones stem from seasonality due to weather since grasshopper thrive well during planting season, competition between sellers due to its increasing demand and acceptability, lack of initial capital to start up the business, lack of lack of funding from the government due to the fact that the business has not got recognisance and high cost of the grasshopper due to its demand among others.

Table 2: Gross Margin & Marketing Margin Analysis of Grasshopper

ITEMS	COST	
Gross Revenue (GR)		8750
Variable Cost (VC)		
Labour Cost		250
Cost of Grasshopper		5329
Cost of Transportation		46
Cost of Firewood		100
Cost of Frying Oil	1008	
Miscellaneous cost	310	
Total variable Cost	7043	
Gross Margin		1707
Market Margin		30.7%

Source: Field Survey, 2009

Table 3 shows that 10%, 50%, 14%, 6% and 30% of the respondents or marketers reported problems that has to do with seasonality, competition, inadequate fund, lack of assistance especially from government and those concern and high cost respectively. From the result, it can be seen that competition among the catchers and as well the sellers and high cost of the commodity are the major problems faced by the sellers which is as a result of its high demand which commensurate with its acceptability.

Table 3: Problems of Fried Grasshopper Sellers

Problem	Frequency	Percentage
Seasonality	5	10
Competition	25	50
Lack of initial Capital	7	14
Lack of funding from govt.	3	6
High Cost	10	30

Source: Field Survey, 2009

CONCLUSION AND RECOMMENDATION

From the findings of the study, it revealed that marketing of fried grasshopper is profitable in the area since a profit of about ₦1700 per 50kg bag was obtained from the trade. This can be said to be associated with the low cost of variable inputs of only ₦7043 when compared with the Gross revenue of ₦8750 per 50kg bag even though high cost of variable inputs were states as a problem by some of the respondents. Also, as revealed from the study, the degree of acceptability of the commodity over the years in the study area especially when the rate at which the produce is being sold by the sellers in the areas selected is a clear indication that the business is profitable, sustainable and hence provides a means of livelihood for many household.

The study recommends that fried grasshopper should try and link up with more market outlet in order to increase the sales coverage so as to increase income. Also this may bring about improvement in their living

standard. It is also recommended that there is need for recognition of these venture by governmental organisation such as SME so as to help them get more patronage from large scale buyers who can in turn extend the sales far and beyond.

REFERENCE

Abbot, D.C., (2001), Agricultural Economics and Marketing in the Tropics. London. Macmillan Pub. Chapter 4,Pp. 155-165

Amatobi, C. I. Apeji, O. O and Oyidi, O. (1999), Field Observation on Food Plants and Grasshopper in Gumel Area of Kano State Nigeria. *Nigerian Journal of Plant Protection.* Publication of The Nigerian Society for plant Protection Vol. 53 Pp 99-106.

Amatobi, C.I and Takare, R.B (2001), Studies in Grasshopper Damage to Pearl Millet, *Nigeria Journal of Entomology 5*: 77-82

Baba, K.M (1998), Irrigation development strategies in sub-Sahara Africa. Comparative study of traditional and modern irrigation systems in Bauchi state of Nigeria. Agric Ecosystem. Environ. 45: 47-58.

Baba, K.M and Wando, M.A (1998), Impact of membership of Fadama User Association on Resource use, crop yield and farm income: A case study of two Local Governments Areas of Niger state, *Nigerian Journal of Basic and Applied Sciences, 7*: 31-41.

Batten A. (2001), The Senegalese Grasshopper (O.S) *Journal of Applied Ecology Vol. No. 6* Pp 22-45.

Bemakwa, U.Y. (2000), The Efficiency of Marketing of Hides and Skin in Maiduguri Metropolis. Unpublished.

B.Sc. Project Department of Agric. Economics University of Maiduguri. Pp. 20-23.

Borno State Diary (2007): Borno State Government Official Diary, Department of Information, Ministry of Information, Home and Culture.

Chekere, R. A., Fish Pool, L. D. C and Ritcher, M .J. (2006), An Economic Study of the Egg Production of O. *Senegalensis* (Krauss). *Journal of Natural Science and Histology,*14: 363-370

Chekere, R.A., (2005), Maize Production in Alshara Area, Yemen, FAO *Journal* Pp. 36

Ibrahim, N.D (2005), Insect Infestation and control of thrips in onion in Sokoto state, Nigeria.

Popov, G. B. (2005): Sahelian Grasshopper Bulletin, No. 5 P. 87

Takare, R. B (1984), Studies on Grasshopper Damage to Pearl, Millet in Nigeria. *Journal of Entomology*, 5:77-82.

Tsoho, B. A. (2004), Economics of tomato production under small scale irrigation in Sokoto State. Unpublish Msc Thesis submitted to the Dept. of Agric. Economics and Farm Management. University of Ilorin, Ilorin Nigeria.