Gashua Journal of Irrigation and Desertification Studies
Available online at www.gjidsfugashua.org.ng

Volume 3, No. 1

Profitability Analysis of Millet Production in Katagum LocalGovernment of Bauchi State

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ABSTRACT

The study examined the profitability analysis of millet production in Katagum Local Government Area of Bauchi State. Data were obtained with the aid of structured questionnaires administered to eighty millet farmers in the study area and analyzed using descriptive statistics, farm budgeting technique and multiple regression models. The result of farm budgeting showed that the total revenue (TR), Gross margin (GM) and net farm income (NFI) per hectare were ₦33,600.00, ₦15,000.00 and ₦14,750.00, respectively. The regression result revealed that Gender was significant at 1% and Farm size was significant at 10%. The major constraints identified were inadequate supply of input, lack of storage facilities and high cost of inputs. Based on the findings of the research, it was recommended that farm inputs should be supplied to farmers, especially to small-scale farmers, at lower prices and subsidized. Farmers should also form a cooperative society to pool their resources to gather, and the Ministry of Agriculture should address the issue of subsidizing the price of fertilizer and chemicals.

Keywords: Profitability, Millet Production, Farm Budgeting**.**

INTRODUCTION

Agriculture is a key sector in the development of African economies. Millet is an important food and forage crop in Africa and Asia. It has great potential because of its adaptability to extreme hot climates in both tropical and sub-tropical regions. It is a major cereal crop grown by subsistence farmers of the Sudan and Sahelian Zones of West Africa. It provides a diet for over a million people who live, especially at the end of the tropics of Africa and Asia. The production increased to 4.8 million tons in the 2008/2009 cropping season (CBN, 2013). It is one of the most important crops in terms of contribution to food security in some parts of Nigeria (FAO, 2005). Most of the production of millet takes place in northern Nigeria, where millet is used as a staple food, especially in the study area. Women usually engage in the processing of millet to prepare various indigenous dishes, like unleavened bread called "waina or masa," which are popularly produced in the study area. Others include "tuwo, kunu and fura da nono" which is a popular meal taken with fermented yoghourt. Millet is also used to prepare brand meal, which is used for livestock feed.

Millet pennisetum species is the most drought-tolerant of all the cereals and the only crop that strives well in the drier region where sorghum and maize cannot grow to full maturity without irrigation, Millet is a staple

food mainly from local varieties, throughout the Sahel and in parts of the Sudan savannah, improved millet varieties are higher yielding and of better quality than the local varieties, (YSADP, 2014). It is usually consumed by disadvantaged groups and is often referred to as poor people's crops (FAO, 1996). In fact, it is used as a famine reserve crop. The brewing and baking industries make use of it, and it also provides raw material for livestock feeds and some cereal-based baby foods. Moreover, the stalk is locally used for fencing, thatching, straw and fuel. Both in terms of land area cultivated and consumption, millet is the most important cereal crop in Gamawa Local Government of Bauchi state (Adebayo et al, 2008). However, not much work has been done on the profitability of millet production in the study area. Hence, this study is designed to investigate the profitability and factors affecting millet production in the study area with a view to proffering measures that will empower the millet farmer, and impact the knowledge on farmers to know that the millet was profitable in the study area.

Despite the limitations they face in terms of access to resources, women play significant, if not dominant, roles in supplying the ingredients necessary to achieve food security in developing countries. This is because even though man is recognized as the breadwinners of the family farm, women tend to commit a higher proportion of their income to supply their household needs. (Olawoye, 1996) used include frequency counts and percentages, farm budgeting and gross margin.

G M=TR-TVC

G M= Gross Margin

TR=Total Revenue

TVC Total Variable Cost

While the inferential statistics used for testing the relationship between the variables was regression analysis

Y=b0+b1+b2+b3+b4+b5+b6+e

Y=Independent Variable

b0 =Intercept

b1 =Gender

b2 =Age

b3 =Educational Level

b4 =Farming Experience

b5 =Farm Size

b6 =Family Size

e= Error Term

Materials and Methods

The study area was katagum Local Government Area of Bauchi State, Nigeria. It is located in the northern part of the state and lies between latitudes 120 17 N and 100 21N and longitudes 12-28.30 - 10.350E, occupying a total land mass of 1436 square kilometers. Katagum Local Government has a population of 295,970 people with a population density of 80 people per square kilometer (National Population Commission Census, 2006). It shares boundaries with Jama'are Local Government to the west, Dambam to the east, Zaki Local Government to the north, and Giade Local Government to the south. Multistage sampling was used to select four (4) villages out of the ten districts. 20 respondents were selected from each of the four (4) Villages, giving a total of 80 farmers; therefore, a total of 80 questionnaires were used for the survey.

The analytical tools employed for this study include Descriptive Statistics, farm budgeting techniques and multiple regression models. Both descriptive and inferential statistics were used for data analysis. The descriptive statistics

RESULTS AND DISCUSSIONS

Demographic characteristics of the respondents

Table 1 reveals that the majority (79%) of the farmers were males. This implies that males have dominated the millet farming in that area¬. Similarly, the majority (72%) of the respondents are within the age range of 1-40

years, that is, in their active age. Further analysis reveals that 50% of the respondents were married, while 18% accounted for single respondents, and the remaining 17% and 15% represent widowed and divorced respondents, respectively. This implies that the majority of the respondents were responsible and had a degree of dependency. Similarly, the majority of the respondents (59%) have formal education or other while the remaining 41% have no formal education. This indicates that education helps farmers to respond positively to challenges, innovation and other farming technologies, which result in high productivity. Table 1 also reveals that 72% of the sampled farmers cultivate less than 2 hectares of land, and only cultivate between 3-4 hectares. This implies that the majority of the respondents cultivate a small piece of land, which may be due to limited access to loans. Similarly, 12% have 1-5 years of experience, while 38% have 6-10 years of experience 50% accounted for those respondents with above 10 years of experience. This implies that the higher the years of experience, the more knowledgeable in the techniques as well as rational information utilization. Table 1 further showed that half of the respondents (50%) used family labour to cultivate a small piece of land, while 30% of the sampled respondents hired labour, and 20% of the respondents used both family and hired labour. Table 2 shows the cost and returns of millet production in Katagum Local Government Area. The analysis showed that labour has the highest cost of ₦10,500 in millet production, followed by fertilizer with ₦3200, while the cost of seed incurred in the production has the lowest cost of ₦800. The total variable cost was ₦17900, and the total revenue realized was ₦33,600. This result indicates that millet production in the study area was profitable with a gross margin of ₦15,700. Adebayo et al. (2008) also reported that millet production in Gamawa LGA of Bauchi State was profitable with a gross margin of ₦10,143.31. Ya'aishe et al. (2010) reported that millet production in Damaturu LGA was profitable with a gross margin of ₦22,567.08. Results presented in Table 3 indicated that there exists a significant relationship between the Gender of the respondents (X2cal =35.24; P<0.10); and farm size (X2cal =33593.5; P<0.01). The regression result showed that Gender was significant at 10% and farm size was significant at 1%. These depict that as Gender and farm size increase by one unit, profit will increase by 35.243 and 33593.45, respectively. The coefficient of determination (R2) was found to be 92%. This showed that 92% of the Variation in Gross margin is explained by the explanatory variables involved in the model F-value was significant at 1% which shows the validity of the model used. Table 4 shows the constraints encountered by the farmers in the production of millet. The majority (28%) of the farmers are faced with inadequate input supply and followed by lack of storage facilities, which has a lot of effects on the level and quantity of their production and pricing. This conforms to the findings of Ya'aishe et al. (2010), where the majority of their respondents were also faced with the problem of a lack of inputs. Other problems faced are high cost of input (23%), pest and disease (9%), Drought (6%), low farm produce (5%), poor transportation (4%), and soil infertility (1%).

Conclusion

Millet production in the study area was found to be profitable, as indicated in the farm budgeting analysis technique. Some of the major socio-economic characteristics that boost millet production in the study area are gender, source of labour, educational level and farm size distribution of the respondents. Despite the profitability of the millet production in the

study area, there are numerous constraints to its efficient and effective production, like inadequate supply of inputs, lack of storage facilities and high cost of inputs.

Recommendation

For millet production to be increased, farm inputs should be supplied to farmer's especially small-scale farmers, since the majority of the farmers in the study area are small-scale farmers. Therefore, farm inputs such as improved varieties of seeds, agrochemicals should be provided at the right time and at an affordable price. For efficient production of any agricultural practice, adequate capital is required due to the high level of resource utilization, especially in millet production.

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Table1: Frequency and percentage distribution of respondents by their personal characteristics		
Personal characteristics	Frequency	Percentage
Gender		
Male	63	78.75
Female	17	21.25
Total	80	100
Age		
Less than 20	22	27.50
21-30	10	12.50
31-40	25	31.50
41-50	14	17.50
Above 50	9	11.00
Total	80	100
Farm size(ha)		
Less than 1	10	12.50
1-2	48	60.00
3-4	9	27.50
Total	80	100
Marital status		
Married	40	50.00
Widow	13	17.00
Single	15	18.00
Divorced	12	15.00
Total	80	100
Household		
Less than 6	28	35.00
6-10	35	43.75
11-15	7	8.75
Above 15	10	12.50
Total	80	100
Educational Level		
Never been to school	33	41.25
Primary	14	17.50
Post-primary	14	17.50
Tertiary	19	23.75
Total	80	100
Farming experience		
1-5	10	12.50
6-10	30	37.50
11-15	12	15.00
Above 16	28	23.75
Total	80	100
Sources of labour		
Family	40	50.00
Hired	24	30.00
Family and hired	16	20.00
Total	80	100

Table 2: costs and returns of millet production

Variable	Cost (₦/ha)	Total (₦)
Total revenue		33,600.00
Variable costs		
Fertilizer	3200.00	
Chemical	1300.00	
Labour	10,500	
Seed	800	
Mechanize	2,100	
Total variable cost		17,900.00
Gross margin (TR-TVC)		15,700.00
GM per naira invested		0.88

Source: Field survey, 2015

G M=TR-TVC

₦33,600.00-₦17,900.00=₦15,700.00

Table 3: Relationship between socio-economic characteristics and Gross margin

Variables	coefficient	standard error	t-value
Constant	-68.600	51.623	-1.329
Gender	35.243	19.404	1.816*
Age	3.089	2.189	1.411
Education level	-6.760	6.946	-0.973
Farming experience	-1.694	1.6664	1.018
Farm size	33593.45	12.512	2.685***
Family size	-3.139	3.724	-0.843

Source: field survey, 2015

R^2 0.92

F 4.006***

*, significance at 0.05 level,

**, significance at 0.01 level,

***, significance at 0.001 level,

Table 4: Constraints Affecting Millet production

Constraints	Ranking	Frequency	Percentage
Inadequate supply of input	1	22	27.50
Lack of storage facilities	2	20	25.00
High cost of input	3	18	22.50
Pest and disease	4	7	8.75
Drought	5	5	6.25
Low farm produce	6	4	5.00
Poor transportation	7	3	3.75
Soil infertility	8	1	1.25

Source: field survey, 2015