FUDMA Journal of Agriculture and Agricultural Technology
ISSN: 2504-9496
Vol. 11 No. 2, June 2025 Special Issue: Pp.199-203

https://doi.org/10.33003/jaat.2025.1102.025

ECONOMIC ANALYSIS OF WHEAT PRODUCTION IN RINGIM LOCAL GOVERNMENT AREA O JIGAWA STATE, NIGERIA

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ABSTRACT

The study analyzed economics of wheat production in Ringim Local Government of Jigawa State. Primary data were collected using structured questionnaires from a randomly sampled 137 wheat farmers. The data for the study was analyzed using descriptive statistics, resource use efficiency ratio and gross margin techniques. The result showed that the farmers had an average age of 32 years, 50% of them have a household member ranging between 1 and 7 persons and about 50% of them were not formally educated. The result further revealed that majority of them (96%) had no access to credit. The gross margin analysis result revealed an average cost of ₦142844.70; A revenue and profit of ₦391, 017 and ₦248, 172.30 was generated per hectare of wheat production respectively. The study further showed that labour and agrochemicals were over-utilized in the production of wheat, while farm size, seeds and fertilizer were under-utilized. The wheat farmers were also found to be majorly constraint by high cost of inputs (100%), inadequate capital (92.7%), and poor extension contact (72.9%). The study concludes wheat production in the study area is profitable, however the farmers are not efficiently utilizing the wheat production inputs resources. It can therefore be recommended that innovative wheat production method that will increase farmer's efficiency shall be disseminated. In addition government shall provide inputs subsidy and improve farmer's access to extension service.

Keywords: Economics, Wheat, production, and Farmers

INTRODUCTION

Agriculture is one of the most important sector of the Nigerian economy. Globally, wheat (*Triticuma estivum*) is an important industrial and staple food grain. Its ranks second among the most important cereal crops in the world, after rice (Najafi, 2014). In Nigeria, wheat is consumed in one form or the other in virtually every home, restaurants and hotels throughout the country. Besides, the crop is the main raw material in the Nigeria flour mills. Its flour is used for bread production, confectionaries, biscuits and other snacks. The wheat offal (residue) is used in the feed-mills in compounding livestock feeds (Ahmed, 2014). Wheat is the most important grain worldwide based on grain acreage and is ranked second when it comes to the total production volume (Shahbandeh, 2021). The global amount of wheat produced came around 772 million metric tons. There was an increase of almost ten million tons when compared to the previous marketing year (Shahbandeh, 2021). Wheat has been the most rarely cultivated crop of Nigerian agriculture for the last decades, due to the high temperatures that is not favorable for the crop and low productivity (Haruna *et al.,* 2017).

Nigeria imports significant amounts of staple food and does not earn significant foreign exchange from agriculture (Oirere, 2019). This make the country to depends on the import of wheat in order to meet the demands of its large growing population. However, since the oil shock of last quarter of 2014 up to 2016, wheat farming is attracting policy makers who see Nigeria's capacity in wheat production to be self-sufficient (KMPG, 2016). Knoema, (2020) reported that, in 2017 the country produced 6,000MT of wheat while in the year 2019, wheat production for Nigeria was recorded at 60,000MT; reflecting an average annual growth rate of 12.34%. Even though Nigeria has the potential for self-sufficiency in wheat production, particularly in terms of land and human resources needed to produce enough for the country demand (Joshua *et al;* 2015). The adoption of the newly introduced technology is limited; Most of the farmers are also faced with a number of socio-economic problems which include small farm size, lack of capital needed to purchase inputs and equipment for their cropping activities. Also there is a problem of seasonal labour shortage especially during the peak period of production, incidence of pest and diseases and illiteracy on improved production method. These has resulted farmers to produce wheat under poor management techniques that lead to under or overutilization of production resources, thereby allowing the profitability of the enterprises to be discouraging. This study therefore aims at evaluating the economics of wheat production in Ringim Local Government Area (LGA), as the LGA is one of the promising location where wheat is been largely produce in Jigawa state, Nigeria. The specific objectives of the study are to describe the socio-economic characteristics of wheat farmers; estimate the costs and returns in wheat production in the study area; determine the resource use efficiency of

wheat production, and describe the constraints associated with wheat production in the study area.

METHODOLOGY

Description of the Study Area

Ringim Local 'Government Area (LGA) lies between latitude 11º- 13ºN and longitude 8º- 10.15ºE. The LGA is bounded to the east by Taura L.G.A, to the south by Dutse L.G.A. and to the north by Garki L.G.A. The main ethnic groups in the area are mainly Hausa and Fulani. Agricultural activities are the main occupation in the study area which comprised about 70% and other activities carries out 30% (NPC, 2006). The agricultural activities are influenced by two climatic seasons. The rainy. Season starts from May June and ends in September October, while the dry season (Harmattan) is characterized by dusty wind blowing from the Sahara desert, which commences around late December and stops around March. Annual rainfall ranges between 600 - 900mm, the temperature of (12 ºC – 18ºC) is experienced in January. The major crops in the LGA are both the rainy and dry season crops. Rain fed crops include: millet, sorghum, cowpea, groundnuts, sesame, rice, maize, sweet potatoes, Bambara nuts, water melon, cassava, cotton, okra, Roselle and water melon meanwhile the dry season farming crops include tomatoes, pepper, onions, wheat, sugarcane, carrots, cabbage, lettuce, maize and a host of other leafy vegetables.

Sampling Technique and Sample Size

A two-stage sampling technique was employed in the selection of the respondents. The first stage involves the purposive selection of three wards (Ringim, Sintilmawa and Yandutse) Due concentration of wheat farmers and availability of an irrigation scheme (Hadejia valley Irrigation Scheme) Secondly, a simple random sampling was employed in selecting 137 farmers suggested by the raosoft sampling calculator based on the sample frame of 1096 at 90% confidence level. The 137 was then distributed proportionately across the three wards selected. The summary of the sampling summary was shown in table 1.

Table 1: Sampling Frame and Sample size of wheat producers

Communities	Sample Frame	Sample Size
Ringim	112	55
Sintilmawa	89	44
Yan Dutse	75	37
Total	276	137

Source: Field Survey, 2023

Method of Data Collection

Primary data was collected using a structured questionnaire which was administered by the researcher. Data collected include information on : Socio-economic characteristics of the respondents such as age, gender, household size, farming experience, educational level, farm size, mode of land acquisition, number of extension visits, amount of credit obtained and membership of farmers, cooperatives, quantities of inputs used and the costs, quantity of output and their values and constraints associated with wheat production.

Tools of Analysis

The analytical tools that were used to achieve the objectives of this study are descriptive statistic resource use efficiency ratio and gross margin analysis.

Descriptive Statistics

Descriptive statistics such as frequency means and percentages was used to describe socioeconomic characteristic and constraints to wheat production in the study area.

Gross margin analysis

This was used to achieve objective (iii). Gross margin (GM) is the difference between the gross farm income (GFI) and the total variable cost (TVC), that is, GM: GFI - TVC

Where:

GM = Gross Margin (Naira/hectare).

GFI: Gross Farm Income (Naira hectare)

TVC: Total Variable Cost (Naira hectare)

Resource Use Efficiency Ratio

This is the ration of marginal value product (MVP) and marginal factor cost (MFC) it will be used to a to estimate the efficiency of inputs used in wheat production.

Given as R = MVP/MFC

Where,

MVP= MPP x PY

MFC: Unit price of input

R = 1, efficient use of input resource

R > 1, over utilization of input resource

R < 1, underutilization of input resources

RESULTS AND DISCUSSION

Socioeconomic Characteristics of Wheat Farmers

The results in Table 2 shows the socio-economic characteristics of wheat farmers in the study area. The result in Table 2 revealed that most of the respondents (36%) were between the ages of 28-37 years. The mean ages of the farmers was 34 years. This implies that majority of respondents are still within a productive and active working age range, hence their ability to produce to earn some income from farming and non-farming activities. This shows that most farmers are within their active years and can make positive contribution to agricultural production. The result revealed that majority about (50%) of the respondents were between 1-7 household size, the mean household size of the respondents is 38 the implication is that the relatively large household size may likely enhance the family labour supply on the farms, hence supporting favorable,

productive capacities of the farmers already enhanced by their age. The result revealed that about (13%) of the respondents had tertiary education. About (18%) of the respondents had secondary education. About (19%) of the respondents had primary education and majority of about (50%) of the respondents had non-formal education. Muhammad-Lawal *et al;* (2009) noted that level of education is expected to influence farmers, adoption of agricultural innovations and decision on various aspects of farming. He maintained that education is high 11 important for sustainable agricultural growth and development. Adequate funding is required by farmers to finance their wheat production activities' However, a large number of farmers face serious shortage of funds to finance their wheat production activities, which in turn limits their level of production. They obtained their funds through formal and informal sources as presented in Table 5' the result shows that 96% (131) of the wheat farmers have no access to credit while only 4% (6) of the wheat farmers had access to credit and 3%(4) could only access between ₦10, 000 - ₦35, 000 while 1%(2) of the farmers access between amount of ₦62, 000 – ₦87, 000. The low access to credit could be attribute to the fact that government seldom grants financial credit to farmers. Ekong (2003) asserts that credit is a very strong factor that is needed to acquire or develop any enterprise; its availability could determine the extent of production capacity. It also agrees with findings of Nasiru (2010) who noted that access to macro-credit could have prospects in improving the productivity of famers and contributing to uplifting the livelihoods of disadvantage rural farming communities.

Table 2: Socio-economic characteristics of wheat farmers in the study area.

Variables	**Frequency**	**Percentages**
Age		
18-27	42	31
28-37	50	36
38-47	23	17
48-57	15	11
58-67	7	5
Household Size		
1-7	68	50
8-14	46	34
15-21	17	12
22-27	6	4
Education Level		
Non-formal education	69	
Primary education	26	
Secondary education	24	
Tertiary education	18	
Amount of credit obtained		
No access to credit	131	96.0
Access to credit		
10,000-35,000	4	3.0
36,000-61,000	0	0
62, 0000-87, 0000	2	1

Source: field Survey, 2023

Resource Use Efficiency in Wheat Production

The results of resource use efficiency in wheat production in the study area presented in Table 3 showed that labour and agrochemicals were over-utilized in the production of wheat, while farm size, seeds and fertilizer were under-utilized, meaning that increasing labour and agro-chemicals will bring about a relative decrease in output while increasing farm size, seeds and fertilizer will achieve relative increase in output. The results are consistent with those of Saidu (2012) where farm size, seed and fertilizer were underutilized while labour and agro-chemicals were over-utilized by large-scale Wheat farmers.

Table 3: Resource use efficiency in wheat production

Variable inputs	X	MPP	MVP	MFC	R
Farm Size	1.14	310.46	13,970.70	5,240.91	2.67
Seeds	20.37	119.86	5.3937	157.3	34.29

Labour	90.31	-2.95	-132.7	600	-0.22
Fertilizer	498.47	4.92	221.4	95	2.33
Agro-Chemicals	5.3	-56.46	-2,540.70	800	-3.18

Source*:* Field Survey, 2023

Costs and Returns of Wheat Production

The results in Table 4 show the costs and returns of wheat production in the study area. The total cost of variable inputs (seed, labour, fertilizer and agro-chemicals) per hectare was estimated to be ₦142844.70. The cost of labour accounted for the largest percentage of the cost of production (67.55%) while the cost of seed accounted for the least (3.82 %) The gross farm return was ₦391, 017 per hectare. The gross margin per hectare was' therefore, ₦248, 172.30. The average rate of return obtained was 2.74, implying that for every ₦1 invested, there was a return of 74 kobo, and this result shows that wheat production is profitable in Ringim LGA of Jigawa State. Thus, the null hypothesis that wheat production is not profitable is rejected and the alternative accepted' This finding is similar to that of Sani *et al;* (2007) who, in their work on economics of wheat production in Bauchi State, found the average rate of return to be 77 kobo.

Table 4: Costs and Returns of Wheat Production

Items	Average quantity (Kg/hectare)	Unit Price (₦)	Value (₦/Ha)	Percentage (%)
Seed (kg)	71.06	80	5684.8	3.72
Labour (Man-day)	241.23	400	96492	67.55
Fertilizer (kg)	381.41	90	34326.9	24.03
Agro-chemical (litre)	7.46	850	6341	4.43
Total Variable Cost	142844.7			
(B) Output (Kg/ha)	6516.95	60	391017	
(C) Gross Margin /ha	248172.3			
(D) Return per naira	1.73			

Source: Field Survey, 2023

Constraints to Wheat Production

The constraints faced by wheat farmers are presented in Table 5. It was found that about 100% of the respondents ranked high cost of farm inputs as the major constraints. This finding is in line with Ekong (2003), who opined that most farmers have little or no access to improved seeds and continues to recycle seeds that have become exhausted after generations of cultivation. About 92.7% of the respondents ranked inadequate capital as the second constraints. This agrees with the finding of Nasir. (2010) who noted that access to micro-credit could have prospect in improving the productivity of farmers and contributing to uplifting the livelihoods of disadvantaged rural farming communities. Also, about 92.7% of the respondent's ranked poor extension contact as third constraints. Unfavorable market price (price ranked fourth with about 63.5% of the respondents, while poor climatic conditions (short period of rainy season) and pest and diseases was ranked 45.9% and 3 5.0% respectively as title and sixth constraints of the respondents. This finding agrees with that of Hyun *et al.,* (2008), Tekanaer *et al.,* (2011) and Onuk *et al;* (2010) who observed that high cost of farm inputs, inadequate capital and government interference, inadequate transportation facility inadequate storage/processing facilities and inadequate rainfall were among the constraints faced by farmers. This revealed that farmers in the study area are faced with constraints that can limit wheat production.

Table 5: Constraints Associated with Wheat Production in The Study Area.

Constraints	Frequency	Percentage %	Rank
High cost of inputs	137	100	1st
Inadequate capital	127	92.7	2nd
Poor extension contact	100	72.9	3rd
Unfavorable market price	87	63.5	4th
Poor climate condition	63	45.9	5th
Pest and diseases	48	35	6th

Source: Field Survey, 2023 *Note:* Percentage more than 100 due to multiple response

CONCLUSION AND RECOMMENDATION

Wheat is been produced by active age youth is the study area even though most of them are not formally educated. The production in the study area was also found to be profitable agribusiness enterprise, however the farmers are not efficiently utilizing the wheat production inputs resources. As labour and agrochemicals were over-utilized in the production of wheat, while farm size, seeds

and fertilizer were under-utilized by the farmers in the production. It can therefore be recommended that innovative wheat production method that will increase farmer's efficiency shall be disseminated. In addition, Government shall provide inputs subsidy and improve farmer's access to extension service.

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