Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development
Vol. 19, Issue 4, 2019
PRINT ISSN 2284-7995, E-ISSN 2285-3952

THE EFFECT OF HADEJIA-JAMA'ARE RIVER BASIN DEVELOPMENT AUTHORITY ON DRY SEASON FARMING IN KURA LOCAL GOVERNMENT AREA OF KANO STATE, NIGERIA

Zarewa Muhammad NALAMI[1], Musa IBRAHIM[2], Shu'aibu Ahmed USMAN[3]

[1]Federal University Wukari, Taraba State Nigeria Department of Agricultural Economics and Extension P.M.B 1020. Phone : +2347066956049, Phone: +2348037361393.
Emails: zarewa1970@gmail.com
[2]Federal College of Education, Zuba. Abuja, Department of Agricultural Economics and Extension; +2348065710715; Email: musamalan@yahoo.com
[3]Kano University of Science and Technology Wudil, Kano State, Nigeria, Agricultural Economics and Extension, P.M.B 1393 +2348023405743Email: ahmadmarmara@yahoo.com

Corresponding author: zarewa1970@gmail.com

Abstract

The study assessed the effects of Hadejia Jama'are River Basin Authority on dry season farming in Kura Local Government Area. The Purposive sampling technique was used to select 3 villages in the area in which 120 respondents were selected using simple random sampling. Data collected were analyzed using descriptive, statistics, percentages and Net farm income model to achieve the objectives of the study. The results from the costs and returns analysis shows the dry season farming production in the study area was profitable. The average returns per Naira Invested the farmer will realize 2 Naira. Thus the net farm income obtained is higher than the total costs incurred by the dry season farmers in the study area. This indicates that there is positive effects/impact on dry season farming in the study area. Income can still be improved upon with appropriate pricing, adoption of proper management practices, uniform water fee collection policy and accessing low cost inputs through bulk purchasing by farmers cooperatives. The constraint faced by the dry season farmers are limited access to credit, irrigation pumps and accessories, marketing system, seed, fertilizer, diseases and pests. It is recommended that appropriate input pricing, access to bank loan, provision of good marketing system, formation of FADAMA users association with aim of purchasing seed, fertilizer and chemicals which will help to reduce the cost and adoption of proper management practices will improve income.

Key words**:** *effect of dry season farming, dams, water resources, Shadoof irrigation*

INTRODUCTION

Irrigation farming as the name implies, is an Agricultural phenomenon in which water is artificially supplied to the soil for the purpose of sustaining plants growth [2]. It has provided and continues to provide the basis of crops production in many countries. This is essentially true in areas where rainfall inadequate or unreliable [9]. Shadoof irrigation was only practiced on a limited scale via on a narrow strip of land along river; the water was used by vegetable growers. The produce was sold along the high or in the market. In Nigeria, irrigation started as a supplemental measure to natural rain, it provided on insurance against short drought spell during the wet growing season [1].

According to [2] the population of Nigeria particularly of the Northern states is growing at a faster rate. This required an intensified effort in terms of food supply employment opportunities and raising standard of living. To render this possible, attention was given to natural resources of this country, by developing water resources. The adopting of irrigation farming in Kano state was made obligatory in 1965-1968 by the United States Bureau of reclamation made a reconnaissance study of the water resource of Chad Basin which is financed by the United States agency for international development (USAID). One

of the analysis included the possibility of construction of several dams on rivers that drain the upper the upper reaches of the Chad basin through the Hadejia and Yobe Rivers into lake Chad [7]. The Hadejia- Rivers Basin Development Authority (HJRBDA) was taken over from the Ministry of Agriculture and Natural Resources (MANR), Kano state in 1976. Operationally Hadejia-Jama'are River Development Authority (HJRBDA) covers areas in Kano, Jigawa and Bauchi States a potential irrigable space of 250,000 hectares. The objectives of the authority among include conservation, harnessing and utilization available water resources jurisdiction for increased agricultural production and domestic water supply [6]. The effect of the project on the communities included as supplemental measure to natural (rain. Irrigation has played a major role in expanding the level of food production, leading to the attainment of food sufficiency and overall Agricultural development in some developing countries [5]. Irrigation farming it raised the income of the farmers, it creates greater employment opportunities, it improves the standard of living of the rural dwellers and reduces the rural urban drift to the minimum level [2].

This programmed of Hadejia- Jama'are River Basin Development has the mandate of tapping the area that has Dams and Rivers to produce variety of crops under irrigation after rain fed cropping activities. This includes mobilization of farmers into Fadama User Association (FUA) and provision of necessary infrastructures [4].

According to [3], that positive impact of irrigation on Agricultural environmental resources management worldwide has been noted. However, irrigation development has been going on amidst a variety of constraints in Nigeria. On this basis the study assessed the effect of the Hadejia – Jama'are River Basin Development Authority project in the study area.

Problem Statement

The study provides the answers to the following research questions.

(i)What are the socio-economic characteristics of the irrigation farmers in the study area?

(ii)How profitable the dry season farming production in the study area?

(iii)What are the constraints affecting dry season farmers in the study area?

Objectives of the study

Overall objective of this study was to analyze the effects of Hadejia-Jama'are River Basin Development Authority in dry season farming in Kura Local Government Area of Kano State.

The specific objectives are:

(i)To determine the socio-economics characteristics of the farmers involved in irrigation in the study area.

(ii)To determine the profitability of the dry season farming in the study area.

(iii)To identify the constraints affecting dry season farmers in the study area.

MATERIALS AND METHODS

Description of the Study Area

The study was conducted in Kura Local Government Area of Kano state. It consist of eighteen villages, major villages with Headquarter at Kura town. It is about 30km south of Kano state along Kano-Zaria express road. It has average temperature of 35°**C** and rainfall of 1,100 mm respectively with projected population figure of 137,992. It shares boundaries with Dawakin Kudu, Bunkure, Garun Malam, Madobi and Kumbotso Local Government Areas by East, South, West and North. The area lies in Sudan savannah zone which is characterized with the abundance of grassland that makes the rearing of livestock easy and suitable; it is less prone to Tse-tse fly infestation which militates against rearing of livestock due to suitable environment with good intensity of sunshine. The area has two distinct seasons like any town in the Nigeria that is rainy season and dry season, with establishment of Rural Basin Development in the country.

Hadejia-Jama'are River Basin Development Authority established Kano River Project phase 1 almost entirely within Kura Local Government due to its suitability in irrigation development. This development makes it

possible in the area to crop two times annually that is dry and wet seasons. This climatic condition is for the growing of wheat, tomatoes, onions, rice and many other vegetable crops in dry season and rice, maize, sugar cane during wet season. As such the people of Kura are predominantly farmers and traders except for the few settlers.

Sampling Procedure and Size

Purposive sampling was used to select three (3) Villages in the Local Government Area (LGA) of Kura due to high number of dry season farmers in the area. Random sampling was used in selecting the respondents from each village (Kura, Kosawa and Karfi). The villages have 60, 35 and 25 respectively. A total of (120) one hundred and twenty respondents were selected in the study areas.

Data Collection

Primary data was used for this study. Data were collected using structure interview schedule. This was used because some of the respondents were illiterates and has to be guided. The questions were both closed ended and open ended for better understanding of the questions by the respondents.

Data Analysis

Data collected were analyzed by descriptive statistics such as range, frequency distribution and percentages to achieve the first and the third objectives. The second objective was achieved using farm budget model.

Farm Budgeting Model

Farm budget model is a tool used to determine the level of resources used and output realized in farm enterprises with a view to measuring the profit level of the enterprise [8]. The farm budget model was used to compute the cost and returns in dry season farming production in the study area.

This is :

NFI = GI – TC ---------- (1)

Where:

NFI = Net farm income (Profit), refers to the difference between gross income and total cost.

GI= gross income. This represents the sum of the total value of all the cost at the end of production

TC = total cost, this represents all the enterprises incurred in production by the farmers. This include seeds (X1), fertilizer (X2), chemicals (X3), labour (X4), Tractor (X5) and sprayer (X6).

RESULTS AND DISCUSSIONS

Socio-Economic Characteristics of the Respondents

Table 1. Distribution of respondents by socio-economic characteristics

Demographic factors	Frequency	Percentages
Gender		
Male	105	87.5
Female	15	12.5
Marital status		
Married	75	62.5
Single	45	37.5
Household size		
1-5	55	45.8
6-10	65	54.16
Educational level		
Illiterate	60	50
Primary	30	25
Secondary	20	16.6
Tertiary	10	8.3
Years of experience		
1-5	40	33.3
6-10	65	54.16
11-20	15	12.5
Types of crops grown		
Vegetables and cereals	55	45.8
Vegetable only	30	25
Cereal only	25	20.8
All of the above	10	8.33
Source of water		
Open stream	10	8.33
Dam	70	58.33
Wash bore/tube well	30	25
Local well	10	8.33
Level of extension agent activities		
Participatory	75	62.5
Satisfactory by training	40	33.3
No effect	5	4.16
Source of capital		
Kano state Agricultural loan scheme	60	50
Commercial Banks	50	41.66
Cooperative society	10	8.33

Source: Field survey 2019.

The socio-economic characteristics of the respondents consider in this study include gender, marital status, household size, educational level, years of farming experience, types of crop grown, source of water extension agents level of activities in irrigation and source of capital.

The results in the table above show that, most of the respondents were males at the proportion of (87.5%) that engaged in dry season farming activities. This confirmed the popular belief about the study area that farming was the major occupation which male folks dominate in the activities. Majority of the respondents (75%) are married. This shows that the society places high premium on marriages and can be considered responsible and rational in taking decisions that affect agricultural productivity and income. Table 1 also reveals that most of the respondents have large household size. The household size plays a very important role as it serves as source of family labour requirement and cost saving. Hence, the number of people in a household determines the availability of labour in the family. The larger the family sizes the less cost of hired labour which increases profit for the farmers. The level of education of the respondent's shows that most was illiterate indicating that if the farmers to be educated the level of their production will improved and earned more profit. The result shows 54.16% of the respondents have 11-20 years of experience in dry season farming which indicates that the higher the years of experience of the farmers the more output realized which increase higher net farm income. It is expected that the years of experience in dry season farming production usually determines the effectiveness of farmer's decision with respect to resources allocation. Table 1 reveals that 45.8% of the respondents mostly produce vegetable and cereals that will help them to earned higher net farm income.

It indicates that if one's fail the other one's raised him up. Table 1 also indicates that majority of the dry season farmers (58.33%) used Dam water as their source provided by the Hadejia-Jama'are river Basin Authority Development. Also Table 1 shoes that 62.5% of the respondents get access to participatory level of extension agents' FADAMA1 development activities that would enable them to grasp new innovation and perception. Table 1 reveals that 50% of the respondent's access to credit that would enable them to improve their productivity and income

Net farm income analysis of dry season farming

The cost and returns analysis was employed to determine the profitability of this production, the returns to be compared with total costs, if the total return is greater than total cost, the enterprise is said to have profit. Thus, the profitability or net return of an enterprise is taken as total revenue less total production, these consist of costs incurred on inputs such as seed, fertilizer, chemicals, labour, tractor and sprayers.

From Table 2, it could be seen that average net farm income obtained from all the respondents 308,811.26 Naira. This finding is consistent on the profitability of dry season farming production. The size and the positive value of the net farm income show that the respondents were able to cover their total expenses with level of sizeable proportion as a return to farmers. This shows dry season farming production is profitable.

Table 2. Average Cost and Returns of Dry Season Farmers Per 120 Respondents in the Study Area

Cost Items (Naira)	**Amount (Naira)**	**Percentages**
Variables		
Seed	45,200	22.32
Fertilizer	75,800	37.44
Chemicals	30,000	14.82
Labour (family and hired)	48,500	23.95
Total variables costs	202,500	98.53
Fixed costs		
Depreciation on tractor	8,540	0.03
Tractor	45,261.86	0.16
Sprayers	15,400	0.05
Total fixed costs	69,201.86	0.25
Total costs	271,701.86	99.02
Total revenue	37,109.4	
Net farm income	308,811.26	
Return to naira invested	2	

Source: field survey 2019.

In the study area, the average returns per naira invested the farmer will realize 2 Naira. The implication of this is that farmers raising dry season farming will survive both in the short and long run because the resources engaged in its production were efficiently utilized.

Constraints facing the dry season farmers

The dry season farmers in the study area were faced by many problems. The problems encountered were capital, irrigation pumps and accessories, marketing system, seed, fertilizer, diseases and pests.

Table 3. Distribution of the respondents according to the constraints militating against dry season farming

S/N	Types of constraints	Frequency	Percentage
1.	Lack of capital	20	16.6
2.	Irrigation pumps and accessories	20	16.6
3.	Marketing system	40	33.3
4.	Seed and fertilizer	25	20.8
5	Diseases and pest	15	12.5

Source: Field Survey, 2019.

Table 3 indicates that 33.35 % of the respondents mostly reported that marketing system was their major problems followed by the seed and fertilizer respectively.

CONCLUSIONS

It has been concluded convincingly from the study that much income can be generated from small unit of land within shortest period of time.

Recommendations:

-Based on the technical and management skills required standard of Agricultural productivity, education of farmers must be given timely attention.

-Necessary inputs and other irrigation facilities should be available to farmers well ahead of planting season to enable farmers adopt correct planting dates.

-Government should give more emphasis to credit facilities

-Government should make provision of market environment for the farmers to sell out their products.

REFERENCES

[1]Abdullahi, A., 2003, Agricultural Education As A Catalyst for Attaining National Food Security And Self Sufficiency. A Convocation Lecture at University Of Agriculture, Makurdi On Thursday, 16th January.

[2]Ahmed and Musa, 1985, Irrigation Development in Kano State, The Need for Control Lacement Erosion and Water Reserviour CSER ABU.

[3]Aniekwe, S., Lyam, 1998, An appraisal of National Fadama Development Project (NFDP) case Study of Makurdi L.G.A. Benue State. An Unpublished Post Graduate Seminar Paper.

[4]Goes, B.J.M., Zabudun, A.N., 1996, Water Management issues in the Hadejia River System. Paper Presented at the 9th National Conference Association of Hydrologist, Sokoto 17-21, November.

[5]Ibabu, I.C., Nwas, B.T, Traxer, G.J., 1996, Irrigation Development and Degradation in Developing Countries: A Dynamic Model of Investment Decisions and Policy Options. IFPRI Paper; 337:1-15.

[6]Lawal, A.O., Yiljep, Y.D., Othman, M.K., Akpolo, J.G, Murtala, G.B., 2007, The Level of Adoption of and Use of Irrigation and Drainage Technologies in Nigeria. 13th National Irrigation and Drainage Seminar; Managing Irrigation Projects towards Achieving MDGs. IARS/NEARLS, ABU, Zaria, Nigeria. 11-13 June.

[7]Ministry Of Agriculture And Natural Resources (MANR), 1975, Final Report Hadejia Valley Feasibility Study Kano, State, Nigeria Overview, FMC International, S.A. April.

[8]Olukosi, J. O., Abraham, O.O., 2008, Introduction to Agricultural production Economics, Principles and Applications Abuja, Nigeria. G.U Publications 3rd Ed. p.112.

[9]Wende, J.I., 1997, Concept of Fadama Development for farmers and Cooperative Societies group officials. 8th -9th October, 1997. BNARDA. Human Resources, Development Publication 1998.