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ECONOMICS OF COWPEA PRODUCTION IN SELECTED LOCAL GOVERNMENT AREA OF KWARA STATE.

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ABSTRACT

Cowpea is a major and very important food in the Nigeria consumption patter. The study examines the economics of cowpea production in the study area. It reveals that respondents cultivated land ranging from 0.01 to 8.00 hectares. The average area under cowpea production was 0.98 hectares. 81.37 per cent of the farmers acquired their farm lands through family inheritance and gifts. Most of the farmers were not able to get tractor services which had a negative effect on cowpea production. Usage of local variety of seeds was more popular than improved seeds. Seed rate was found to be very high among the farmers, 65 per cent of the respondents used 30kg or more per hectare.

Regression coefficients of land, labour and cost of variable input were significant at 5 per cent level and were positive for all input variables. The regression coefficient summed up to 0.8371 which implied that the farmers produced cowpea under diminishing return to scale. The marginal value produce (MVP) for land and labour, were N214.41 and N6.75 respectively. MVP of labour was lower than its average acquisition price in the study area, which shows that labour was used excessively and inefficiently.

KEY WORDS:Cowpea Production, Economics.

INTRODUCTION

Cowpea is commonly referred to as beans and it is an annual, warmth loving, herbaceous crop indigenous to Africa. It is grown under a very wide range of climatic and soil conditions but it is very sensitive to cold and can not survive frost. It can tolerate hot and dry conditions, which explains why it is an important crop in the dry sudan ecological zones of Nigeria. It needs an annual rainfall of between 600 - 1,200mm. The crop is mostly cultivated in Borno, Bauchi, Kano, Jigawa, Yobe, Katsina, Sokoto, Kebbi and some part of Kaduna, Plateau and Taraba State. It is also produced in the guinea savannah areas in the northern parts of Niger and Oyo States, Southern part of Kwara State and some part of Ondo, Edo and Delta States.

Many local varieties of cowpea are available, these include "Ibadan brown", "Ibadan white", "Kano white" "Mala" "Igbirra" , "Kaffisoli" which are mostly poor yielding but resistant to diseases and pests. Improved varieties are mostly erect and usually positively responsive to spraying with insecticides, resulting in very good yields. These include New Era, Bombay, Ife Brown, Ife Bimpe, TVX series and so on.

Planting is best done between july and August in the North and September in the South. It can be planted on flat soil or ridges depending on the soil and its slope. According to Oyenuga (1968), the true protein nutritive value of cowpea is 22.75 per cent of its dry matter. In Nigeria, the bulk of cowpea produced is for human consumption and it is the most prominent source of plant protein. It is consumed in various form as boiled bean, mixed and boiled with corn or Rice or Millet, made into soup, fried as 'Akara' balls or steamed as 'Moin-moin' in leaves or aluminum containers. In some countries, it is used as concentrates for livestock animals and it is a good supplement to groundnut cake for balancing cereal concentrates. However, its high value as human food makes its uses as cereal concentrates in livestock-feeds economically unprofitable.

Nigeria's economic environment is very harsh for minimal standard of living as food crisis problem become compounded with population increase. The effect of these situation is that the average Nigerian cannot afford to feed himself and his family quantitatively and qualitatively. There is an acute protein deficiency in the diet of most Nigerians which is traditionally typified by starchy foods. Cowpeas as a major source of plant protein need be produced more in order to achieve increase in its consumption and hence qualitative food intake.

A study of its production will help achieve improvement in both supply and consumption of this plant protein source of food. The broad objective of this study is to examine economics of its production in selected local government areasin Kwara State.

The specific objectives are to examine the:-

(i)socio-economic characteristics of Cowpea producers

(ii)resource availability and use in Cowpea production.

(iii)resource use efficiency in Cowpea production and make useful recommendations.

METHODOLOGY

This study was conducted in Ilorin, Irepodun and Ifelodun Local Government Area of Kwara State of Nigeria in 1989. Kwara State enjoy both wet and dry season with the former commencing towards the end of March. The dry season usually starts in November, and there is a short dry period referred to as the August break between August and September. The minimum temperature range between 21.1 - 25°C.

The vegetation ranges from rainforest in part of Oyun, Irepodun and Oyi Local Government Areas to wooded Guinea Savannah and grasslands in other parts of the State. Thus there is a great expanse of arable and rich fertile land and favourable climatic conditions for the cultivation of wide variety of food crops. As at 1989, Ilorin, Irepodun and Ifelodun areas were 946; 2,432 and 2,277 square kilometers respectively, while the estimated total population were 448, 536; 285; 568 and 217, 093 respectively. The estimated farming population of Ilorin, Irepodun and Ifelodun Local Government Areas are 97,437;231,880 and 182,369 respectively.

(Investors Guide to Kwara State, 1985)

The primary data were collected through the use of structured questionnaires and personal interview of the respondents on farmers' socio-economic characteristics, cowpea production activities, resource use and problems. Random sampling technique was used to select respondents from a list of all cowpea producers complied through the assistance of Kwara ADP staff in the LGAs. A total of 215 questionnaire were administered to cowpea producers in the three local government areas based on their farming population proportion involved in cowpea production. 165 questionnaires were recovered with only 145 found usable for the analysis.

Both sample descriptive statistics and multiple regression were used to present the analysis done. The multiple regression model specified that output of cowpea (Y) is a function of Farm Size (X_1), labour input (X_2), cost of variable inputs (X3) That is

$Y = f(X_1, X_2, X_3)$ where

Y = output of cowpea (kg)

X_1 = Cowpea Farm Size (Hectares)

X_2 = Labour used (Man days)

X_3 = Variable input cost (N) This is sum of the cost incurred on variable inputs like tractor hire,seed, fertilizer, chemicals and so no.

The multiple regression analysis was based on ordinary least square assumptions. Hence, the result should be used with caution.

RESULTS AND DISCUSSION

Socio-economic Characteristics

Respondent age distribution (Table 1) revealed that most of the farmers were 41 - 50 years old. About fifty - six per cent of the farming respondents were above 40 years old. These age distribution may be due to rural-urban migration, hence most of the youth were not available for farming activities with negative consequence on the quality of labour. About 74 per cent of the respondents had no formal eduction (Table 1). Cowpea production needs a lot of technological input usage and know - how, lack of formal eduction among the vast majority of the respondents may adversely affect the

farmers' production efficiency. All married farming respondents except 35.86% were polygamists, (Table 1). An indept look into the family size situation reveal that family labour supply constitutes a significant proportion of the total labour force used by these farmer with consequential reduction of hired monetary labour cost. However, if family labour is quantified monetarily, excessive use of family labour will negate cost minimization.

Resource Use Availability.

a. Land

Most of the respondents' total farm size were less than or equal to 2 hectares (Table 1). This agrees with the view of Subair (1986). Farm Size will determine both demand for other input resources and the level of output. Smallness farm size may be responsible for low income generally among the farmer with consequential effect of low living standard. About fifty-nine per cent of the respondents put less than or equal to 1 hectare of their total farm size under cowpea cultivation (Table 1). Virtually all the farmers produced other crop apart from cowpea, hence small cowpea farm size, output and its subsistence level of production. Family inheritance and gift constitute 81.37% of farm land acquisition (Table 1). This compare reasonably with the findings Alimi (1991) that 88% of the farmers obtained land through family inheritance. Generally, land was not sold for farming activities in the area of study, asking for permission alone will suffice in acquiring land for farming activities even when the farmer is not a member of the family that owns the land. Despite the land use decree, virtually all lands have ownership claim by the families, giving the impression that the land use decree is not practically operative. Distances of the farmers' homes from the farm ranged between 1.5 - 4.0km which were trekked to and fro since none of the farmers was mobile. This encouraged land fragmentation, as farmers prefer farming land closer to the homes with such family farming land being further fragmented. Bush following, intercropping and crop rotation were popular practices among the respondents (Table 1). This land usage cropping practices were advantageous in reducing risk, land maximization and soil nutrients replenishing.

b Labour

Both family and hired labour were employed by 92.41% of the respondents while 4.15% and 3.44% used hires labour only and family labour only respectively. Use of hired labour was restricted to the peak activities' period such as land clearing, ridging and harvesting of cowpea, while most of the other activities were done by the family members. Hired labour were not readily available at the time it was needed most and its high demand resulted in very high labour cost. Men constituted most of the hired labour while family labour consisted of men, women and children. Non-availability and poor timeliness of tractor services were the major factors responsible for high demand for hired labour. About 66% of the farmers were not able to get tractor services. Obviously, the adverse effect of SAP on tractor purchase and maintenance had mainly been responsible for the low supply of tractor service in recent time. According to Fadipe and Jeminiwa (1992), this trend of prohibitive cost of tractor will have an adverse effect on farmers' decision and willingness to increasingly adapt the technology of tractor drawn equipment. Poor tractor service timeliness and inaccessibility of the tractors to the farms due to bad roads, rough terrain and land fragmentation were other reasons given for not using tractors.

c Seeds

Local seed varieties were used by 69.66% of the respondent while others used improved seed varieties. The yield from the local varieties is lower than that of the improved varieties, hence the aggregate yield by the farmers was low. Reasons for low level of adoption in the use of improved seed include non-availability, non-awareness, high cost of improved seeds and chemical needed for spraying. 67.58% of the farmers got their seeds from local market and old stock, while 16.56% and 8.90% bought their seeds from private stores, Kwara State Ministry of Agriculture or KWADP and Cooperative Societies respectively. Low patronage of the MANR and KWADP by the farmers implies that

their impact with reference to the use of improved seed is low.

The seed rate of the respondents was very high with 65% of the respondents using 30kg or more per hectare. This may be attributable to the poor quality of seeds which are obtained from local market and previous year's stock. Only 33.79% of the respondents used fertilizer in cowpea production while the rest did not. Reason for this were both the high cost of fertilizer procurement and the general believe among the farmers in the area of study that fertilizer application was not necessary in cowpea production. Among the agro-chemicals, the insecticides were mostly used to combat the severity of pest infestation of cowpea during pro-flowering, flowering and post-flowering stages. Farmers get their agro-chemicals from three main sources namely, private agricultural stores, cooperative societies and the Kwara State Agricultural Development Project.

d Capital

Capital is a very essential resource in agriculture. This study revealed that all the respondents used their personal informal saving combined with other capital derived from friends and relatives, money lenders and Ajo or Esusu respectively. None of the respondents used the banks. The import of this is that the capital needs of the respondents have not been adequately met. Reasons given by these farmers for not benefiting from government loans or loans from commercial banks includes non-availability of these banks in their immediate locality, bureaucratic procedure involved and inability to satisfy the collateral security requirement. This confirms the findings of Alimi (1991) that farmers remarked that borrowing from banks and government agencies were not easy because the loan processing procedure was cumbersome, time consuming and the request for collateral security which they could not afford.

Resource Use Efficiency in Cowpea Production

In determining resource productivity several methods can be used, these includes Input-Output ratios, Linear programming technique and production function analysis. Production function method as used by Ogunfowora *et al* (1974) was used in this study. From the estimated production function the measures of resource use efficiency can be arrived by calculating the marginal productivities (MVP) of any input or resource and comparing it with the acquisition price of the resource in order to determine whether the resource is being used efficiently or not. A given resource is efficiently used when there is no divergence between its MVP and acquisition price.

The model used in this analysis is given as explained in the methodology. Four forms of production function were fitting to the data, which are Linear, Cobb-Douglas (double-log), Exponential and Semi-log. The Cobb-Douglas production function was eventually chosen as the lead equation because it has the highest (R2), its regression coefficients are positive as expected and significant as revealed by F-value test. (Table 2).The regression coefficient summed up to 0.8371 which implies that the farmers produced cowpea under diminishing returns to scale. The marginal value products for land and labour were N214.41 and N66.75 respectively. The MVP of land cannot be compared with its acquisition price because land is neither bought nor rented by the respondents. MVP of labour was lower than its average acquisition price in the study area. Hence, labour as a factor of production of cowpea was used excessively and inefficiently. This result is similar to the finding of Ogunfowora, Essang and Olayide (1974), like (1977), Eremie and Akinwunmi (1986). Cultivation of small sized holdings with crude and inefficient farm tools is responsible for this. The correlation matrix of variables (Table 3) revealed that there is a very strong relationship between Y and X3.

CONCLUSION AND RECOMMENDATION

The age distribution of the respondents is a pointer to the need for accelerated and integrated-rural development in the area of study to create a stay factor for the youths in rural agricultural production activities. Adequate attention should be given to the cowpea farmers' education to enhance increased technological adoption among the farmers. Further land fragmentation by the cowpea farmers should be stopped while close lands should be pulled

together for ease of tractorization. Tractor hiring services at affordable prices with an efficient availability, access and time liness service should be put in low yield is disturbing. Hence, increased usage of improved seed through grassroots distribution, frequent and effective contact with the farmers by extension agents and provision of other supportive technological inputs at affordable prices is recommended.

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Table 1: Summary of Socio-Economic Characteristics

CHARACTERISTICS	DISTRIBUTION %	MEAN
AGE (YEARS)		
20 - 30	9.65	
31 - 40	34.48	
41 - 50	43.44	
51 - 60	10.41	
60	1.02	43
EDUCATIONAL STATUS		
No formal Education	73.79	
Primary Education	5.54	
Secondary Education	2.75	
Post-Secondary Education	8.27	Not
Quaranic School/Adult Education	9.65	Applicable
NUMBER OF WIVES		
1	35.86	
2	38.62	
3 and 4	11.72	
4	13.80	2
NUMBER OF CHILDREN		
2 - 4	38.96	
5 - 6	21.37	
7 - 8	22.43	
8	17.24	4
TOTAL FARM SIZE (ha)		
0.01 - 0.2	45.54	
2.01 - 4.0	40.00	
4.01 - 6.0	9.65	
6.01 - 8.0	2.75	
8.0	2.06	1.58

COWPEA FARM SIZE(ha)		
0.01 - 1.0	59.31	
1.01 - 2.0	34.48	
2.01 - 3.0	5.53	
3.01 - 4.0	0	
4.01 - 5.0	0.68	
5.0	0.	0.98
Land Acquisition Source		
Family gift	81.37	
Community	17.26	
Purchased	0	Not
Lease holding	1.37	applicable

Table 2: Results of Multiple Regression Analysis

Form of Equation	Constant	X_1	X_2	X_3	R^2	F value
Linear	265.781	59.143 (2.473)**	3.586*** (5.249)	2.513*** (12.321)	78.25	129.96+
cobb-Douglas	4.086	0.2048 (5.789)**	0.2905 (9.721)**	0.3350 (10.434)**	85.54	207.135+
Exponential	-717.36	126.309 (1.905)*	333.045 (5.948)***	532.924 (8.860)***	69.83	81.015+
Semi-Log	6.230	0.08264 (3.282)***	0.00281 (3.905)***	0.00118 (5.499)***	59.49	51.40+

NOTE * t-values significant at 10%
** t-values significant at 5%
*** t-values significant at 1%
\+ F-values significant at 5%
Figures in parenthesis are the t-values

Source: Computer print out

Table 3: Correlation Matrix ov Variables

	X1	X2	X3	Y
X1	1.0000			
X2	0.1031	1.0000		
X3	0.4048	0.2100	1.0000	0.6185
Y	0.4338	0.3942	0.8487	1.0000

Source: Computer print out