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Cost and Returns of Cowpea Enterprise In Lafia Local Government of Nasarawa State, Nigeria.

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Abstract

The study was conducted to evaluate the costs and returns to cowpea enterprise and examine their constraints in Lafia Local Government Area, Nasarawa State of Nigeria. Sixty cowpea farmers were selected through purposive sampling of the population and structural questionnaires were used to collect the data. Data were analysed using descriptive statistics and gross margin analysis. Results show that most (75%) of the farmers were female and within the active age of 20 and above. About 13% of them had no formal education, while 87% have one form of education or the other. The gross margin for average output of cowpea/hectare is ₦39,983.77, the gross return per hectare was ₦64,980.55 while the total variable cost was ₦24,996.55. Inadequate fund was ranked the highest constraint faced by cowpea farmers in the study area. It was therefore, recommended that cowpea enterprise should be encouraged into the enterprise because it is a profitable enterprise.

Keywords; *Cowpea Enterprise, Cost and return, constraints*

Introduction

Cowpea is one of the most ancient crops known to man. Its origin and subsequent domestication is associated with pearl millet and sorghum in Africa. It is now a broadly adapted and highly valued crop, cultivated around the world primarily for seed, but also as a vegetable (for leafy greens, green pods, fresh shelled green peas, and shelled dried peas), a cover crop and for fodder. Cowpea is considered more tolerant to drought than soybeans and better adapted to sandy soils. Many cowpea cultivars have a vining growth habit, but modern plant breeding has also led to more upright, bush-type cultivars. There are cowpea breeding programs throughout the primary production areas, which include Arkansas, California, Texas and southeastern states. Yield information is available on the varieties released from these programs (Dugje, *et al* 2009). According to Dugje et al (2009), Cowpeas are an under-utilized indigenous crop, which have many advantages for both small-scale and commercial farmers. As a food for humans, cowpeas can be used as a spinach, green bean, protein-rich seed, meat or coffee substitute. For livestock, cowpeas can be used as grazing, or baled for hay or silage. Cowpeas are also an excellent cover crop and soil improver since they add nitrogen to the soil and improve soil structure.

Cowpea grow best in hot areas and can produce a yield of 1 ton seed and 5 ton hay/ha with as little as 300 mm of rainfall. One of the biggest advantages of the cowpea is its excellent drought tolerance; this is achieved by long tap roots and the plants is being able to restrict water use by mechanisms such as turning the leaves upwards to prevent them getting too hot and closing the stomata

The annual global cowpea grain production is estimated at 3 million (Singh *et. al*, 1997). Approximately 64% of this grows in west and central Africa, which account for 80% of total production in Africa. In Africa cowpea provides sources of income for women farmers who produce, make and sell snack foods from this nutritious legume. In Nigeria the production trend of cowpea has experienced about 44.1% increase in area planted and 41.% increase in yield from 1961 to 1995 (Ortiz 1998). According to Inaizume *et.al* (1999) several factors account for the impressive significant advances made by International Institution of Tropical Agriculture (IITA) over the last two decade in improving cowpea productivity in Sub - Saharan Africa. Singh *et al* (1994) also indicated that a number of varieties have been developed which combine diverse plant type, different maturity period, and resistance to several disease, insect pest and parasite as well as good agronomic traits . Economically, cowpea has a great value in the internals trade in country because it promotes trade between the production area and non producing area. It also serves as a source of income for middlemen who embark on transportation from one place: to another. If production potentials will be properly harnessed in the study area, it will improved the livelihood and standard of living of the people in the area.

Cowpea is an important crop in the international market. It can be transformed into so many forms, in several dishes in many houses. It is also a significant source of vitamins. Despite its importance; there is still the insufficiency of the crop due to some problem, that hinder its productivity, such as abiotic, biotic, socio ï economic, socio- cultural and political factors. The abiotic factors include erratic rainfall, high soil temperature, low soil fertility, the Biotic factors are insect pest, parasitic weed, disease induced by fungi, viruses and nematodes. The socioeconomic factors: include farmers in capacity to produce, limited input and poor input delivery systems. The socio-cultural factors are low acceptability of cowpea, low acceptance of new formulation of chemicals and improve post-harvest technologies. The political factors include negative or neglected position of the developing countries government to restore the problems associated with development of post-harvest systems (Singh *et. al*, 1997). The study was conducted to examine the cost and returns of cowpea enterprise in the study area but specifically, the objectives were to describe the socio-economic characteristics of cowpea enterprise, determine costs and returns in cowpea production and identify constraints in cowpea production.

Methodology

The study area is Lafia Local Government Area of Nasarawa State, Nigeria. It is located in Southern Senatorial Zone of Nasarawa State within Latitude 08^{o} 33ô N and Longitude 8^{o} 32ô E. The area has distinct wet and dry seasons. It has a mean temperature range from 25^{o}C in October to about 36^{o}C in March, while annual rainfall varies from 1373mm in some places to 1445mm in other places (Nasarawa State Ministry of Information, 2005). Nasarawa State covers an area of 27,117km^2 with estimated population of 1,863,275 people (NPC, 2006). Alluvial soils are found along the Benue trough and their flood plains. The forest soils which are rich in humus and literates are found in most part of the State. There are also sandy soils in some parts of the State. Solid minerals notable are salt and bauxite. The major occupations of the people residing in the area are farming, trading, marketing, food processing as well as civil servants. The crops types grown in the area include maize, cowpea, sesame, yam, cassava etc.

Sampling Techniques

Purposive sampling technique was used in selecting the respondents. One village each was selected from the five districts given a total of five villages. In each of the five (5) villages selected, twelve (12) cowpea farmers were further sampled. Therefore, a total of sixty (60) farmers were used for this study. Data were collected through a well-structured interview schedule. This was analyzed by the use of descriptive statistics and gross margin analysis to determine the cost and return

Mathematically:

The Gross Margin (GM) analysis of Cowpea in Nasarawa State was expressed as:

$$GM_{cp} = TR_{cp} - TVC_{cp}$$

Where GM_{cp} = Gross Margin (N/ha)
TR = Total Revenue (N/ha)
TVC = Total Variable Cost (N/ha)
CP= Cowpea
GM = Total revenue from cowpea production minus total variable costs incurred in the course of production of one hectare of cowpea.

Results and Discussion

Socio-economic Characteristics of the Respondents.

The socio-economic characteristics of the respondents is presented in Table 1. The result revealed that 95.0 percent of the respondents were still within their active age of

between 21 ï 60 years. The mean age of the respondents was found to be 42.6 years. This result agrees with the finding, of Abu (2007) that most farmers are within their active years and can positively contribution to agricultural production. Analysis of gender in cowpea production indicated that women comprised 75 percent while men comprised 25 percent. The result implies that cowpea production is still dominated by women in the study area.

The result also shows that 78.3 percent of the respondents were married. The high proportion of the respondents who are married is an indication that family labour could be available for cowpea farmers in the study area. The result revealed that 50 percent of the farmers were part- time cowpea farmers while 16.7 percent practiced cowpea on a full- time basis. This suggests that more than half of the farmers had alternative employment. The result of the study also indicated that most (58.3%) of the respondents used hired labour for their farm operation.

The proportion of cowpea farmers who had formal education were higher than those who did not go to school. . Njoku (1991) in his study on factors influencing adoption of innovation observed that formal education has a positive influence on adoption of innovation. In the sampled area 87.0 percent of the farmers had one form of former education or the other while 13.0 percent had no education. Analysis of farm size shows 72.7 percent of the farmers with farm size of between 0.2 and 3.0 hectares.

Furthermore, farmers experience in cowpea production was on the average 12.8 years, while about 58.3 percent of the respondents had an experience of cowpea production from 5 years and above. This depicts good signal for high productivity. The result of the size of the cowpea farmers household shows that majority (66.7%) of the respondents had a household of more than six (6) people. This implies that family labour would be readily available when needed for cowpea farming operation.

The study also revealed that most of the respondent (66.7%) never received any training on cowpea production from any government agencies. This depicts low level of information about cowpea production and may likely result to inefficiency in production. The analysis also indicate that majority (75.8%) of the respondents had no access to formal sources of credit/loan. This implies that only 24.2. Percent of respondents had access to formal credit/loan. The result agrees with the findings of Otubusin (1986) that access to formal credit is a major constraint to farmers in Nigeria. The implication is that the size of cowpea production will be low and other inputs will be affected since capital is not available to enhance production.

TABLE 1: Distribution of Cowpea Farmers Based On Socio-Economic Characteristics In Nasarawa State

Index	Frequency	Percentage
Age(years)		
<20	3	5.0
21 ï 40	20	33.3
41 ï 60	30	50.0
>61	7	11.7
Total	**60**	**100.0**
Mean	41.44	
Sex		
Male	15	25.0
Female	45	75.0
Total	**60**	**100.0**
Marital status		
Married	47	78.3
Single	10	16.7
Widow/Wiidower	3	5.0
Total	**60**	**100.0**
Status of farmer		
Full time	10	16.7
Part time	50	83.3
Total	**60**	**100.0**
Labour type		
Hired labour	35	58.3
Family labour	25	41.7
Total	**60**	**100.0**
Level of education		
No formal education	8	13.0
Primary	7	11.7
Secondary	27	45.0
Tertiary	18	30.0
Total	**60**	**100.0**
Mean	6.10	
Farm size (ha)		
Ò1.0	20	33.3
1.1 ï 2.0	21	35
2.1 ï 3.0	14	23.3
Ó3.1	5	8.4
Total	**60**	**100.0**
Mean	1.87	
Farming experience (years)		
Ò5	25	41.7
6 ï 10	25	41.7
Ó11	10	16.6

Total	**60**	**100.0**
Mean	12.97	
Household size		
Ò5	20	33.3
6 ï 9	30	50.0
Ó10	10	16.7
Total	**60**	**100.0**
Training in cowpea production		
Farmers trained	20	33.3
Farmers not trained	40	66.7
Total	**60**	**100.0**
Access to credit		
Access	10	24.2
No access	50	75.8
Total		**100.0**

Source: Field survey, 2011

Production Constraints of Cowpea in Lafia Local Government Area of Nasarawa State

The result in Table 2 summarized factors that constrain the production of cowpea. The major problems encountered were as follows

Inadequate Funds

Inadequate fund or capital was the most commonly expressed problem of cowpea production by the farmers in the study area. The study revealed that 96.7% of the farmers were faced with this problem. The implication of this result is that the acquisition of inputs such as improved seeds, fertilizer, agro-chemical, labour and farm expansion might be difficult by farmers.

High cost of fertilizer

High cost of fertilizer was the second ranked problem faced by the farmers in the study area. The study revealed that 90.0 percent of the respondents indicated that high cost of fertilizer is a constraint to sesame production. This implies that fertilizer was too expensive for the farmers to buy therefore influenced total variable cost and the profit in the production of cowpea.

High cost of Agro chemical

High cost of agrochemical was the third rank problem encountered by the

farmers in the study area. The study revealed that 83.3% of the farmers were faced with this problem. This implies that some of the farmers were able to acquire chemical and the high cost of chemical affected the total variable cost.

Weed Control Problem

The result of the study indicated weed control problem as the fourth ranked problem encountered by the farmers in the study area. The result revealed that 75.0% of them were faced with this problem; this implies that weed is a challenge to cowpea production and this had negative effect on production because it increased costs of labour and equally affected the performance of cowpea production in the study area.

Table 2: Respondents Response on Constraints For Cowpea Production In Nasarawa State

Constraint	**Frequency***	**Percentage***	**Rank**
Inadequate fund	58	96.7	1
High cost of fertilizer	54	90.0	2
High cost of chemical	50	83.3	3
Weed control problem	45	75.0	4
Inadequate improved seed	40	66.7	5
Inadequate labour supply	38	63.3	6
High cost of seed	36	60.0	7
Inadequate extension contact	34	56.7	8

Source: Field Survey, 2011 * Multiple responses

Cost and Return Analysis of Cowpea Production.

Cost and return analysis was undertaken to determine the gross margin of cowpea farmers in Lafia Local Government Area of Nasarawa State. Table 3 revealed that on the average the gross margin is ₭39,983.37 per hectare, the total Variable Cost is ₭24,996.55per hectare while the Total Revenue is ₭64980.34 per hectare. This implies that the total revenue is greater than the total variable cost which indicates that there was significant gross margin in cowpea production and the enterprise is profitable. The result also shows that cost of hired labour account for (29.25%) highest of the total cost in cowpea production with estimated cost of ₭7310.50 per hectare. This shows that the farmers spent more on hired labour than other inputs,that implies that if family labour can be use for the production process, variable cost will reduce and gross margin will increase. While cost of seed incurred less which accounted (4.90%) of the total cost of cowpea production.

Table 3: Cost and Return Analysis of Respondent

Variable		Cost(N)	Percentage
Cost of Seed	X1	1,225.10	**4.90**
Cost of Land	X2	2,100.05	8.40
Cost of Family Labour	X3	2,510.30	10.04
Cost of Hired Labour	X4	7,310.50	29.25
Cost of Fertilizer	X5	6,200.50	24.81
Cost of Chemical	X6	3,150.50	12.60
Cost of Mechanization	X7	2,450.10	9.80
Total Variable Cost		24996.55	
Total Revenue		64980.34	

Source: Field Survey, 2011. GM = TR ï TVC N64,980.34 ï N24,996.55 GM= N39,983.79

Conclusion

Cowpea enterprise is quite profitable with high gross margin and the enterprise is easy to start with low initial capital. The study review that labour is the highest variable cost incurred. The major constraints faced by cowpea farmers are inadequate funds and high cost costs of inputs. Cowpea enterprise is dominated by men in the study area and majority of them are within their active age.

Recommendation

Based on the research findings the following are recommended. There is need for provision of basic production inputs at subsidized rate such as fertilizer, chemicals and credit facilities which

will eventually enhance production and. Policies aimed at increasing total production through genetic improvement should be made.

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