

Comparative Analysis of Groundnut Production among Cooperative and Non-Cooperative Women Farmers in Kajuru Local Government Area of Kaduna State, Nigeria

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Date of Submission: 15-08-2020

Date of Acceptance: 31-08-2020

ABSTRACT: This study investigated the production of groundnut by cooperative and non-cooperative women farmers in Kajuru local government area of Kaduna State between 2018 and 2019 cropping season. A multi stage sampling procedure was employed to select 80 respondents using well structured questionnaire to collect relevant information for the study. Statistical tools such as frequency distribution, mean, percentages, net farm income (NFI) were employed to achieve the objectives of the study. The distribution of socio-economic characteristics revealed that 35 percent of the respondents were aged between 31-41 years for both cooperative and non-cooperative farmers. On the basis of experience, 37.50 percent of the cooperative farmers have been producing groundnut for about 1-10 years while 52.60 percent of non-cooperative have a farming experience ranging between 11-20 years. An average yield of 1842.50Kg (18bags of 100Kg) per hectare and 1075.00 kg (10 bags) for the cooperative and noncooperative farmers respectively were obtained. The net farm income for the cooperative was ₦125,488.59 and ₦89,640.00 for the non-cooperative. The major constraints were low priced produce, cattle interference and poor extension contact. It was recommended that more women farmers should be encouraged to join cooperative societies to afford them the benefits of group action for better pricing of produce, access to input and reduce production cost.

Key Words: Comparative, Cooperative, Non-Cooperative and Groundnut Women Farmers

I. INTRODUCTION

Groundnut (*Arachis Hypogaea* L.), a species in the family leguminosa is an annual

legume. It is known by many local names, including peanut, earthnut, monkey-nut and goobers. Groundnut originated from Latin America and was introduced to African continent from Brazil by the Portuguese in the 16th century (Hommons, 1994; Abaluand Etuk, 2002). The crop is mainly grown for oilseed, food, and animal feed. It is the world's 13th most important food crop, 4th most important source of edible oil and third most important source of vegetable protein (Muktahar, 2009; Taru, 2010). The kernels can be eaten raw, roasted or boiled and the groundnut vines are used as fodder for cattle. It can be used for producing industrial materials, such as oil-cakes and fertilizer. Extracted oil from the kernel is used as culinary oil and other crop extracts are used as animal feeds, the crop can be used in over three hundred ways (Idama, 2000). Almost every part of the crop is used in some ways the multiple uses of the groundnut plant make it an important food and cash crop for domestic consumption and export in many developing and developed countries. Groundnut is grown in nearly hundred (100) countries. Globally, it is grown on almost 23.95 million hectares with total production of 36.45 million tons and an average yield of 1,520kg/acre in 2009 (FAOSTAT, 2011). Its production is considered a profitable venture. Global production increased from 35,880,941 tonnes in 2001 to 38,614,053 tonnes in 2011 (FAOSTAT, 2011).

According to FAOST (2011), groundnut production in Africa in 2011 was 9,435,493 tonnes with Nigeria producing 1,051,397 tonnes. Yields in Nigeria are also higher compared with other African countries. Taru (2010) asserted that globally, 50 percent of total groundnut production is used for oil extraction, 37 percent for confectionery use and 12 percent for seed.

Groundnut is mainly grown in the northern part of Nigeria; over 85.00 percent of the groundnuts cultivated in the country were accounted for by northern states. It is either cultivated solely or in mixture with crops like maize, cowpea, millet or cassava. The leading producing states include; Niger, Kano, Jigawa, and Taraba (National Agricultural Extension Research Liaison Services, NAERLS, 2011).

The problem of access to farm inputs by farmers seems to have persisted and is impacting negatively on the overall agricultural production in Nigeria. The institutions of cooperative societies provide support and sustainability to rural economic activities. According to (Dayo et al., 2009), cooperative societies seem to have comparative advantage over non-cooperative farmers in agricultural production. In view of this, the broad objective of this study was to compare the output and income of the cooperative and non-cooperative groundnut women farmers in the study area. The specific objectives were to;

- (i) describe the socio-economic characteristic of women groundnut farmers
- (ii) determine the cost and return of cooperative and non-cooperative farmers
- (iii) identify the constraints to groundnut production in the study area.

II. METHODOLOGY

Study Area

The study was conducted in Kajuru LGA, Kaduna state with the headquarters in Kajuru town. The L.G.A was carved out of Chikun Local Government Area in March, 1977. It is located on longitude 9° 59'N and 10° 55'N and latitude 7° 34'E and 8° 1'3E. The total land area is about 2464 km square. The Local Government shares boundaries with Igabi Local Government Area to the North, Chikun Local Government to the west, Kaura Local Government to the east, Zango Kataf Local Government Area and Kashia Local Government Area to the South-West and South respectively. Kajuru Local Government Area has a projected population estimate of about 148,200 according to 2016 National Bureau of Statistics (NBC, 2017). The major ethnic group is Adara, they are otherwise known as Kadara by the Hausas. Other ethnic groups include; Gbagyi, and settlers such as Hausa, Fulani, Ibo and Yoruba. The area usually experience high temperature all year round, the mean temperature can be as high as 34⁰C between March and May and as low as 20⁰C during December to January while the relative humidity ranges from 65-70 in the rainy season and between 18 and 38 percent during the dry season. The

annual rainfall is about 1152mm. The Local Government Area is dominated by farmers who produce crops such as rice, maize, groundnut, sugarcane, etc and among the livestock rear in the area are; goat, sheep, cow, chicken, etc.

Sampling Technique and Sample Size

A multi stage sampling procedure was employed to select 80 respondents for the study. Kallah and Kufana districts were purposively selected out of the fourteen districts in the first stage due to high intensity of groundnut production activities. Furthermore, Kufana, Doka, Iburu and Ibra were selected from the two districts because of the presence of cooperative activities in the villages. The last stage involved random selection of ten (10) members of cooperative and non-cooperative women farmers from each of the four villages (i.e selection of 20) respondents per village. Thus, a total of forty (40) cooperative and (40) non-cooperative members were sampled

Data Collection

In this study, primary data were collected through the use of structured questionnaire, this was designed to elicit information on the socio-economic characteristic of the respondents such as; age, household size, level of education, etc and input and output data such as farm size(ha), labour requirement (manday), fertilizer(Kg), quantity of yield obtained(Kg) and revenue derived(₦) from groundnut during the 2018/2019 cropping season.

Analytical Technique

Descriptive statistics such as frequency distribution, mean, percentage, was used to achieve objective (i) and (iii), Objective (ii) was achieved using Gross margin analysis.

The Gross Margin Analysis: The gross margin analyses was used to evaluate the cost and returns to groundnut production, this involved the use of gross income (GI). The gross margin indicates how much profit an enterprise makes after paying off its operating. (Ayodele et al., 2018) The specification is as shown below

Model specification

According to Olukosi and Erhabor, (2008):

$$GM = GR - TVC$$

$$\dots\dots\dots (1)$$

Where,

GM = Gross Margin

GR = Gross revenue (Output (Kg) multiply by price (₦))

$$i.eGR = \sum P_i Q_i$$

.....
(2)

TVC = Total Variable Cost (TVC)

III. RESULT AND DISCUSSION

Socio-Economic Characteristics of Respondents

According to the age of the respondents, 35.00 percent of both groups of women are within 31-40 years while those between 41-50 years are 22.50 percent for cooperative and 32.50 percent of non-cooperative. The household size distribution shows that 32.50 percent of the cooperative farmers had between 1-5 persons while 42.50 percent of the non-cooperative has a household size of 6-10. This implies that the respondents have relatively large families. This may not be unconnected with the fact that most of the farmers used the members of their families as source of labour. This finding was similar to what Aasa, (2006) and Aasa, et al, (2011) observed in their different studies where majority of the small scale farmers are poor and usually employ family labour.

Educational level of the women farmers shows that 45.00 percent and 22.50 percent of the cooperative farmers and 47.50 percent and 22.50 percent of the non-cooperative farmers have secondary and primary education respectively. The level of education of the respondents is sufficient for farmers to comprehend some scientific innovations and technologies. Moreover, respondents with good education have access to information, more receptive to improved farming techniques. They could also be versatile in their ability and willingness to adopt technologies Aasa, (2006) and Ejechi, (2015). Furthermore, empirical result from the study revealed that 34.50% of the cooperative farmers have been into groundnut farming for about 1-10 years while 52.60% have farming experience of 11-20 years. According to Asogwa (2005) farming experience is one of the variables that significantly influence efficiency among farmers in Nigeria therefore farmers in study area may be said to have acquired enough experience to positively influence the efficiency.

Table 1. Socio-economic Characteristics of the Respondents

| Characteristics | Cooperative Farmers | | Non-cooperative farmers | |
|----------------------------------|---------------------|------------|-------------------------|------------|
| | Frequency | percentage | Frequency | percentage |
| Age(Yrs.) | | | | |
| 21-30 | 12 | 30.00 | 7 | 17.50 |
| 31-40 | 14 | 35.00 | 14 | 35.00 |
| 41-50 | 9 | 22.50 | 13 | 32.50 |
| 51 and above | 5 | 12.50 | 6 | 15.00 |
| Farm size (Hectares) | | | | |
| 1 – 2 | 5 | 12.50 | 10 | 25.00 |
| 2.1 – 3 | 6 | 15.00 | 24 | 60.00 |
| 3.1 – 4 | 9 | 22.5 | 6 | 15.00 |
| 4.1- 5 | 20 | 50.00 | - | - |
| Level of education (Yrs.) | | | | |
| Primary | 9 | 22.50 | 19 | 47.50 |
| Secondary | 18 | 45.00 | 9 | 22.50 |
| Tertiary | 10 | 25.00 | 2 | 5.00 |
| No formal Edu | 3 | 7.50 | 10 | 25.00 |
| Farming experience | 40 | 100 | 40 | 100 |
| 1-10 | 15 | 37.50 | 5 | 12.50 |
| 11-20 | 1.25 | - | 21 | 52.50 |
| 21-30 | 11 | 27.50 | 12 | 30.00 |
| 31-40 | 4 | 10.00 | 2 | 5.00 |
| Source of Labour | | | | |

| | | | | |
|------------------------------|-----------|------------|-----------|------------|
| Family labour | 4 | 10.00 | 20 | 60.00 |
| Hired Labour | 24 | 60.00 | 16 | 40.00 |
| A and B | 12 | 30.00 | 4 | 10.00 |
| Source of Finance | | | | |
| Cooperative | 16 | 40.00 | 12.30 | 30.00 |
| Commercial Bank | 8 | 20 | - | - |
| Personal Savings | 20 | 50.00 | 24.60 | 60.00 |
| Friends | - | - | - | 10 |
| Quality of yield/bags | | | | |
| 10-20 | 6 | 15.00 | 22 | 55.00 |
| 21-30 | 12 | 30.00 | 10.25 | 25.00 |
| 31-40 | 20 | 50.00 | 4 | 10.00 |
| 41-50 | 2 | 5 | - | - |
| Total | 40 | 100 | 40 | 100 |

Source : Field survey 2019

Considering the farm size of respondents, the minimum land cultivated by the non-cooperative was 0.50ha while the maximum was 3.00ha. Also, the minimum and maximum land used for planting groundnut by the cooperative farmers was 1 and 5 hectares respectively (see table 2). Hitherto, the annual yield per hectare in Nigeria has not increased substantially. However, factors associated with low groundnut yields in Nigeria are neither known nor well documented. Aasa et al., (2015), in their study on “analysis of factors affecting the marketing and demand for certified maize seed in Birnin-Gwari zone of Kaduna state” pointed out that farmers obtained between 1000-

2000kg of maize grain per hectare hence, there is a great disparity between what the seed producers (firms) claimed per hectare and what the farmers actually obtained. The seed firms claimed that an average of 6000kg per hectare could be obtained from hybrid maize whereas medium scale farmers obtain an average yield of about 3000kg per hectare. On the other hand, factors that could be responsible for this include poor ridging, low seed rate and low fertilizer rate. In addition, the inability of the non-cooperative women to purchase hybrid seed for planting are some of the constraints hindering them from achieve maximum yield per hectare in this study.

Table 2 Input and output Structure

| | Cooperative | | | | | Non-Cooperative | | | | |
|------|-------------|----------------|-----------------|----------------|------------|-----------------|----------------|-----------------|----------------|------------|
| | Seed (Kg) | Farm size (ha) | Fertilizer (Kg) | Labour (Manhr) | Yield (Kg) | Seed (Kg) | Farm size (ha) | Fertilizer (Kg) | Labour (Manhr) | Yield (Kg) |
| Max | 50 | 5 | 250 | 420 | 3250 | 30 | 3 | 150 | 216 | 1750 |
| Min | 10 | 1 | 50 | 120 | 600 | 8 | 1 | 50 | 90 | 400 |
| Mean | 30.80 | 2.65 | 137.5 | 225.9 | 1842.5 | 19 | 2 | 100 | 153 | 1075 |

Source : field Survey 2018

Cost and Return Analysis

According to Olukosi and Erhabor (2008), the cost incurred in running the farm and the returns accruing from it shows whether the farm business is profitable or not. If the returns are higher than the cost, there is a surplus that could be put into economic uses. The gross margin as presented in table (3) and the net farm income of groundnut produced per hectare for cooperative was ₦173,940.00 naira while that of non-

cooperative was ₦125,000.00. However, the total variable cost ₦47,501.41 and 33,060.00 for the cooperative and non-cooperative respectively. Thus, the net farm income for the cooperative was ₦125,488.59 and ₦89,640.00 for the non-cooperative. These indicate that groundnut production is profitable. This finding agreed with the findings of other researchers such as Emokoro (2007). The cost of land clearing for the cooperative include cost of ploughing and

harrowing whereas for the non cooperative is only cost of ploughing.

Table 3. Average Cost and Return per Hectare for Cooperative and Non-cooperative Groundnut Women Farmers

| Items | Cooperative Cost (₹/ha) | Non Cooperative Cost (₹/ha) |
|---------------------------|----------------------------|--------------------------------|
| Variable input | | |
| Fertilizer | 6,200.00 | 1420.00 |
| Herbicide | 3800.00 | 3600.00 |
| Land Clearing | 5,076.92 | 2,960.00 |
| Ridging | 6,189.19 | 6,310.00 |
| Planting | 3,168.75 | 2,070.00 |
| Weeding | 2,733.30 | 4,980.00 |
| Harvesting and processing | 9282.75 | 3,670.00 |
| Seed variable cost | 8,300.50 | 6,850.00 |
| Transportation | 2,750.00 | 1,200.00 |
| TVC | 47,501.41 | 33,060.00 |
| Fixed Cost (field) | | |
| Rent (Land) | 750.00 | 2300.00 |
| Interest | 200 | - |
| TFC | 950.00 | 2300.00 |
| TC(TVC+TFC) (Kg) | 48,451.41 | 35,360.00 |
| Yield (Kg) | 33.45 | 25.00 |
| Total Revenue | 173,940.00 | 125,000.00 |
| Cost / bag | 5200 | 5000 |
| NFI(GR-TC) | 125,488.59 | 89,640.00 |
| BCR | 3.60 | 2.34 |
| ROR | 2.5 | 1.3 |

SOURCE ; Field Survey 2018

Constraints to groundnut production in the study area

The constraints to groundnut production in the study area as shown in table (4) revealed that inadequate capital ranked first among the non-cooperative farmers while low price was ranked first by their cooperative counterpart. This is because personal savings was the only source of finance available to them, on the other hand, the cooperative women farmers pointed out that the price of a bag of groundnut produced was just a

little above the cost/bag of hybrid groundnut seed at the period of harvesting. This was a disincentive to farmers who may want to dispose their products immediately after harvest. Furthermore, destruction of farm by cattle and high cost of input ranked high among the cooperative farmers. Conversely, poor extension visits the low price of produce and high cost of inputs e.g labour ranked highest among the non-cooperative farmers. The poor extension services and high input cost may be due to poor group action among the farmers.

Table 4. Constraints to Groundnut Production by respondent

| Constraints | Freq | Cooperative | | Non-Cooperative | | |
|--------------------------------|------|-------------|-----------------|-----------------|------------|-----------------|
| | | Percentage | Rank | Freq | Percentage | rank |
| Inadequate capital | 3 | 3.75 | 7 th | 25 | 10.68 | 8 th |
| High cost of Labour | 12 | 14.28 | 3 rd | 30 | 12.82 | 3 rd |
| High Cost of input | 10 | 11.9 | 4 th | 31 | 13.24 | 4 th |
| Lack of quality seed | 8 | 9.52 | 5 th | 28 | 11.96 | 5 th |
| Low Price of Produce | 22 | 26.19 | 1 st | 32 | 13.67 | 2 nd |
| Destruction by Cattle | 20 | 23.80 | 2 nd | 26 | 11.11 | 7 th |
| Incidence of Pest and Diseases | 7 | 8.30 | 6 th | 27 | 11.53 | 6 th |
| Contact with extension Agent | 2 | 2.39 | 8 th | 35 | 14.95 | 1 st |
| Total | 84 | 100 | - | 234 | 100 | - |

Source: field Survey 2018

IV. CONCLUSION AND RECOMMENDATION

The study revealed that groundnut farming is profitable for both cooperative farmers and non-cooperative farmers however; it is recommended that, women should be encouraged to join credible associations and cooperative societies as they take up groundnut production. Provision of farming assistance in form of extension services, enhanced access to credit, improved varieties, farm Mechanisation implements will go a long way at improving the income and the living standard of the farmers.

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