Profitability of Groundnut Production in Michika Local Government Area of Adamawa State, Nigeria

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KEYWORDS Profitability. Gross Margin. Groundnut Production

ABSTRACT The study examined the profitability of groundnut production in Michika Local Government Area of Adamawa State. Gross Margin analysis was strictly used. From the costs and return analysis, it is found that the total cost of production by farm size per hectare in the area is N133,812.68; the gross margin per hectare is N221348.68 while the average net return per hectare is N40,097.63. The findings also shows that, farmers in the area earned an average net revenue ranging between N17,217.00 and N445,011.35 depending on farm size which indicated that groundnut production is a profitable venture in the study area. Farmers should maintain output per hectare at a high level with the family labor at their disposal through good management and efficient use of modern inputs. Farmers with no family members should join communal labor arrangements where they will benefit from it for their farm operations.

INTRODUCTION Groundnut is the 13th most important food crop of the world. It is the world’s 4th most important source of edible oil and 3rd most important source of vegetable protein. Groundnut seeds contain high quality edible oil (50%), easily digestible protein (25%) and carbohydrate (20%). It is grown on 26.4million ha worldwide with a total production of 36.1 million metric tons, and an average productivity of 1.4 metric tons ha⁻¹ (FAO 2004).

Groundnut is grown in nearly 100 countries with China, India, Nigeria, USA, Indonesia and Sudan as major producers. Developing countries accounted for 96% of the global groundnut area and 92% of the global production. Asia accounts for 58% of the global groundnut area and 67% of the groundnut production with annual growth rate of 1.28% for area, 2.00% for production and 0.71% for productivity. Globally, 50% of groundnut produce is used for oil extraction, 37% for confectionery use and 12% for seed purpose. In India, 80% of the total produce is used for oil extraction, 11% as seed, 8% direct food uses and 1% is exported. Groundnut haulms (vegetative plant part) provide excellent hay for feeding livestock (Roland 1999).

Okolo and Utoh (1999) estimated that Nigeria’s cultivated area under groundnut cultivation is about 1.0 to 2.5 million hectares annually and yield in the range of 500 – 3000 kg/ha. Rowland (1999) reported that seed yield in Northern Nigeria is about 3000 Kg/ha.

Adamawa Agricultural Development Programme, ADADP (1996) enumerated groundnut varieties commonly grown in Adamawa State to include the following: Ordaaji; Local (2 nuts/shell), Kwamakuni; Local (3 nuts/shell), Local (2 nuts/shell but larger), Kwathrumthrum; Kampala (striped brown/white nuts) and Kwanyambi or Ex Dakar. According to Kadam (1995), the first three local types listed predominates production in the old days but recently most people prefer to grow the new Kampala type which attracts money due to its high yield and oil contents.

Idama (2000) reported that revenue generation is perhaps the most important responsibility of modern government. As the welfare needs of the people increase, sources of generating revenue to meet the need must be found. The author is of the view that, had we kept on investing heavily on such wealth generating activities as groundnut and other agricultural business, the lots of farmers would have greatly improved. Iyalla (2004) reported that the need to maximize yield per unit area of cultivated hectares of land is of great importance in farming, particularly in wet land farming, considering the cost of inputs in terms of plant nutrient and manpower.

In Nigerian agricultural sector, the small operators face pure competition both at production and marketing stages. Because of this structure,
output is sold at industry-determined price and profit depends on how large the per unit output price is compared to the unit cost of production. If the per unit output price is large, the operators earn pure profits in the short run. Invariably, the outcome of the pattern of structure and conduct is the performance, which is interpreted by the profit or marketing margins among other things (Eyo 2004). This study was done just to determine the profitability of groundnut production in the study area.

**Hypothesis**

*Ho:* Groundnut production is not profitable

**METHODOLOGY**

Multistage stratified and purposive sampling techniques were adopted for the study. This involved the selection of 4 districts, 8 wards, 24 villages and 143 farmers selected proportionate to the number of groundnut farmers in the villages. Primary sources of data were used. Primary data were collected using structured questionnaires, which was administered on the farmers. The input – output data were collected on each farm. These include hectarage of groundnut cultivated, quantity of fertilizer applied, quantity of seed used and quantity of input and output obtained. Information was also obtained on household characteristics such as age, family size, educational qualification, farming experience and farm size. The services of enumerators from the Ministry of Agriculture and Extension agents from Adamawa Agricultural Development Programme Michika were employed to facilitate the collection of data.

**Gross Margin Analysis**

The gross margin analysis was used to estimate the cost and return per hectare and per groundnut farmer. The GM is defined as:

\[
\text{Gross margin} = \text{TR} - \text{TVC}
\]

\[
\text{NFI} = \text{GM} - \text{TFC}
\]

Where:

\[
\text{GM} = \text{Gross Margin}
\]

\[
\text{TVC} = \text{Total Variable Cost}
\]

\[
\text{TFC} = \text{Total Fixed Cost}
\]

\[
\text{NFI} = \text{Net Farm Income}
\]

\[
\text{TR} = \text{Total Revenue}
\]

Value was imputed on family Labour by multiplying total man-days of family labour by the wage rate in each village.

Total Fixed Cost (TFC) is the depreciation on fixed assets (farm tools and implement) such as hoes, cutlass, sprayers etc., and straight-line depreciation method was used, that is;

\[
D = p - s \leq n
\]

Where:

\[
D = \text{present value of asset}
\]

\[
P = \text{Present value of asset}
\]

\[
S = \text{Salvage value}
\]

\[
N = \text{Number of useful years}
\]

Groundnut production is said to be profitable if the gross farm income is greater than total cost of production.

Average gross margin per hectare was estimated using thus;

\[
\text{ANR (Ha)} = \frac{(\Sigma \text{TR}_{ij})(\Sigma \text{FZ}_{ij}) - (\Sigma \text{TVC}_{ij})(\Sigma \text{FZ}_{ij})}{\Sigma \text{FZ}_{ij}} + \Sigma \text{DEP}_{ij}
\]

Average gross margin per farmer was estimated using thus;

\[
\text{ANR (N)} = \frac{(\Sigma \text{TR}_{ij})(\Sigma \text{FZ}_{ij}) - (\Sigma \text{TVC}_{ij})(\Sigma \text{FZ}_{ij}) + (\Sigma \text{DEP}_{ij})}{\Sigma \text{FZ}_{ij}}
\]

Where:

\[
\text{ANR (Ha)} = \text{Average net revenue per hectare}
\]

\[
\text{ANR (N)} = \text{Average net revenue per hectare}
\]

\[
\text{TR}_{ij} = \text{Total revenue accounting to the } i^{th} \text{ groundnut farmer in the } j^{th} \text{ local government area.}
\]

\[
\text{TVC}_{ij} = \text{Total variable cost incurred by the } i^{th} \text{ groundnut farmer in the } j^{th} \text{ local government area.}
\]

\[
\text{DEP}_{ij} = \text{Depreciation on fixed assets of the } i^{th} \text{ groundnut farmer in the } j^{th} \text{ local government area.}
\]

\[
\text{FZ}_{ij} = \text{Farm size of the } i^{th} \text{ groundnut farmer in the } j^{th} \text{ local government area.}
\]

\[
\text{N}_{j} = \text{Total number of groundnut farmer in the } j^{th} \text{ local government area.}
\]

**RESULT AND DISCUSSIONS**

**Cost of Production**

The average total cost per hectare of groundnut farm cultivated is presented in table 1. The total average cost consists of the following:
labour cost, seed cost, agro chemical cost, fertilizer cost, cost of transportation, cost of empty sacs and land preparation (mechanization/Tract-
ation) cost. The total fixed cost of production consist of the depreciated values of the follow-
ing; fixed inputs cost; cost of hoe, axes, rakes, sprayers and ox-drawn implements.

The average number of workdays required per hectare of groundnut farm is 166 workdays. Hired labor constitutes 29 percent while family labor accounted for 71 percent of the total labor supplied. The average cost of hired labor per day was N400. Labor cost account for about 51.3 percent of the total average variable cost of pro-
duction (Table 4). This agreed with Komolafe (1995) who reported that groundnut in Nigeria
is mainly produced by small-scale farmers with limited resources. Most of the operations are
done manually, which resulted in high labor de-
mand.

On the average, 117.2kg per hectare of seed
was used in the area. This is above the recom-

dended rate of 45-60kg of shelled nut per hect-
are. The average cost of a kilogram of ground-
nut seeds was N71. The total average cost of
groundnut seeds by farm size is N47, 431.50.
Seed cost accounted for 6.40 percent of the total average variable cost of production (Table 2).

On the average, 5.35 litres per hectare was
used. This is slightly above the recommended
rate of 4-5 litres per hectare. The average cost of
a litre of Agrochemical was N800. Agrochemical
accounted for 3.3 percent of the total average
variable cost of production (Table 2).

The average quantity of fertilizer applied on

<p>| Table 2: Relative input costs by farm size |</p>
<table>
<thead>
<tr>
<th>Variable input</th>
<th>Total variable cost</th>
<th>Relative percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labour</td>
<td>378716</td>
<td>51.30</td>
</tr>
<tr>
<td>Seed</td>
<td>47431.5</td>
<td>6.40</td>
</tr>
<tr>
<td>Agro chemical</td>
<td>24403</td>
<td>3.30</td>
</tr>
<tr>
<td>Fertilizer</td>
<td>59234.32</td>
<td>8.00</td>
</tr>
<tr>
<td>Transportation</td>
<td>26021.4</td>
<td>3.50</td>
</tr>
<tr>
<td>Empty sac</td>
<td>32201.4</td>
<td>4.30</td>
</tr>
<tr>
<td>Land preparation</td>
<td>170000</td>
<td>23.10</td>
</tr>
<tr>
<td>Mechanization/Animal traction</td>
<td>33812.05</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>738007.36</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Source: Field Survey 2006
The single super phosphate was the fertilizer used. Only 30.80% of sampled farmers applied fertilizer due to inadequate supply coupled with high cost. Inadequate fertilizer application may result in low yields. Fertilizer cost accounted for 8.0% of the total average variable cost of production (Table 2).

Transport costs averaged N120 per 100 kg of shelled groundnut. Two major markets were Michika town central market and Bazza town market. The cost accounted for 3.50% of the total average variable cost of production (Table 2).

Ploughing and harrowing for a hectare cost N6,000. More than 75% of sampled farmers relied on government and private individuals for tractor services. Less than 5% of the respondents had private tractors. This high dependence on government coupled with limited tractors often resulted in delayed ploughing and late planting.

The average yield was 11,618.03 kg per farmer and 3117.6 kg per hectare. The price per kilogram on average was N71, giving a gross revenue of N824,879.83 per farmer and N221,348.68 per hectare. The remaining 5 farmers had farm sizes over 8.1 hectares and had average gross revenue of N480,080 per farmer and aver-

Table 3: Average gross margin per farmer and per hectare.

<table>
<thead>
<tr>
<th>Farm size (ha)</th>
<th>Average</th>
<th>Number</th>
<th>Average gross revenue per farmer (N)</th>
<th>Average gross revenue per hectare (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;2.0</td>
<td>1.4</td>
<td>71</td>
<td>63436.63</td>
<td>453111.88</td>
</tr>
<tr>
<td>2.1-4.0</td>
<td>3.3</td>
<td>51</td>
<td>154392.3</td>
<td>46785.55</td>
</tr>
<tr>
<td>4.1-6.0</td>
<td>5.2</td>
<td>15</td>
<td>206930.9</td>
<td>39794.40</td>
</tr>
<tr>
<td>6.1-8.0</td>
<td>8.8</td>
<td>1</td>
<td>360040</td>
<td>45005</td>
</tr>
<tr>
<td>&gt;8.1</td>
<td>10.8</td>
<td>5</td>
<td>480080</td>
<td>44451.85</td>
</tr>
<tr>
<td>Total/Average</td>
<td>5.7</td>
<td>143</td>
<td>824879.83</td>
<td>221348.68</td>
</tr>
</tbody>
</table>

Source: Field Survey 2006

Gross and Net Revenue Analysis of Groundnut Production

Table 2 reveals that 71 farmers who had less than 2 hectares earned N63436.63 as average gross revenue per farmer and N453111.88 as average gross revenue per hectare. 51 farmers who had farm sizes in the range of 2.1-4.0 hectares earned average gross revenue of N1,154,392.3 per farmer and average gross revenue of N46,785.55 per hectare. 15 farmers whose farm sizes were in the range of 4.1-6.0 hectares had average gross revenue of N360,040 per farmer and N45,005 per hectare. The remaining 5 farmers had average gross revenue of N480,080 per farmer and aver-
Table 3 indicates that 71 farmers who operated less than 2.0 hectares earned an average net revenue of N17,217.05 per farmer and N9,419.32 as average net revenue per hectare. 51 of these farmers who had their farm size in the range of 2.1-4.0 hectares earned average net revenue of N500,259.81 per farmer and N8933.42 per hectare. 15 farmers who operated between 4.1-6.0 hectares of groundnut farm earned average net revenue of N65986.97 per farmer and N3730.35 per hectare respectively. The only one respondent whose farm size lies between 6.1-8.0 hectares earned an average net revenue of N124957.72 per farmer and N6185.62 per hectare. 5 farmers who operated between 8.1 hectares and above earned an average net revenue of N445011.35 per farm and N11828.92 per hectare respectively.

This reveals that groundnut production is a viable venture in the study area and hence disproves the hypothesis that groundnut production is not profitable.

CONCLUSION

From the costs and return analysis, it is found that, the total cost of production by farm size per hectare in the area was N133,812.68; the gross margin per hectare was N221348.68, while the average net return per hectare was N40,097.63. The findings also shows that farmers in the area earned an average net revenue ranging between N17,217.00 and N445,011.35 depending on farm size which indicated that groundnut production is a profitable venture in the study area.

REFERENCES


