

## **COST AND RETURNS TO CONTRACT SEED PRODUCTION IN NIGERIA: EVIDENCE FROM OSUN STATE**

**BOLARIN TITUS OMONONA**

Department of Agricultural Economics, University of Ibadan, Ibadan  
E-Mail: btomonona@yahoo.com, Tel: +234-8042120025 and +234-8062731665

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### **ABSTRACT**

The need to continuously multiply new improved seeds for onward delivery to the farmers, with the sole aim of attaining food self-sufficiency, necessitates this study. Data were collected from 17 maize and soybean out growers randomly selected from a list of out growers provided by the seed manager, using structured questionnaire. The data were analyzed using percentages and gross margin analysis.

The analysis reveals that the variable costs were 97.38 and 97.07 percent of the total cost of maize and soybean production respectively. The fixed costs, on the other hand, were 2.62 and 2.93 percent of the total cost of production respectively. The component analysis of revenue shows that 83.72 and 84.00 percent respectively of total revenue from maize and soybean were obtained from the good quality seed while 16.28 and 16.00 percent of revenue came from the poor quality seed (rejects). The economic efficiency analysis revealed a value of 0.69 and 0.83 respectively for maize and soybean. These imply that a profit of 0.69 Naira (₦) and ₦0.83 is made for every naira spent by the out growers in maize and soybean production respectively. It was recommended that the out growers be motivated by making available the needed material inputs at reasonable prices.

**Keywords:** Improved seeds, contract production, cost and returns, and Osun State.

Note that ₦ is the symbol of Naira, the Nigerian currency.

**INTRODUCTION**

Seed constitutes an important input in arable crop production. Without seeds, it would be virtually impossible to develop a stable agricultural system by man. [1] poetically posits that “desolate indeed would be our world without seeds and without men’s propensity to culture them.” Thus, even if all other factors of production are available, meaningful crop production may be virtually impossible without viable seeds. And hence, seed has the most profound influence on crop yield because it is the carrier of genetic potential of crop plants, while other inputs simply build favorable environment for the manifestation of the genetic potential of the crop. Producing enough seed is one of the most difficult problems facing many countries. [2] strongly asserts that a country’s seed programme takes a giant step towards success if it is able to find answers to certain questions and establish clear policies on the seed industry. These questions are: should seeds be produced locally or imported? Who should produce the seed? How can a seed enterprise be started and who is involved in its management? Can foreign seed firms help get a commercial seed industry started? And what is actually involved in getting a seed industry started?

In Nigeria, seed production for major crops is primarily a government undertaking. Private sector’s participation is limited to the commercial production of certified seeds of grains. In the public sector, the most important organizations responsible for the production and distribution of certified seeds are the National Seed Service (NSS) and the Agricultural Development Projects (ADPs). These organizations no longer undertake direct production of seeds but rely on the contract growers especially small farmers.

The attainment of self-sufficiency in the production of basic staple food as well as agro-industrial raw materials depend mainly on the availability and widespread use of high quality, improved planting materials and other complementary inputs such as fertilizers and plant protection chemicals. In Nigeria, various agricultural research institutes, through their breeding and crop adaptation programmes have made considerable studies over the years. For many of the most important food as well as industrial crops, improved varieties have been introduced [5]. The problem has been lack of effective, well co-coordinated seed multiplication and seed policy which would make it possible for improved seeds to replace the traditional, usually, retained by the farmers, and low yielding species grown by the farmers [4]. [3] further observed that the current production of improved seeds for different crops by public sector agencies in Nigeria is just about 8-12 percent of the total seed

requirements. Substantial increase over this level can be met with the active participation of the private sector in the seed industry, of which the contract out growers scheme seem to be the only hope at achieving this aim. It is against this background that this study hopes to assess the profitability and the economic efficiency of contract production of Osun State Agricultural Development Project (OSSADEP) out growers of maize and soybean seeds.

**METHODOLOGY**

**The Study Area and Data Collected**

The study was conducted in Osun State of Nigeria. Seventeen contract producers of maize and soybean seeds for OSSADEP were randomly selected from a list of out growers provided by the seed manager. The data collected include those on cost and revenue from contract seed production with the aid of a structured questionnaire.

**Analytical Techniques**

The cost-benefit ratio and percentages were used for the analysis. The profitability of improved seed production involves the use of budgetary analysis specified below.

$$AGM_i = ATR_i - AVC_i$$

$$ANFI_i = AGM_i - AFC_i$$

where  $AGM_i$  is the average gross margin of seed  $i$ ,  $ATR_i$  is the average total revenue of seed  $i$ ,  $AVC_i$  is the average variable cost of seed  $i$ ,  $ANFI_i$  is the average net farm income of seed  $i$  and  $AFC_i$  is the average fixed cost of the  $i$ th seed.

The economic efficiency ( $e_i$ ) for the  $i$ th seed is mathematically expressed as

$$e_i = ANFI_i / ATC_i$$

when  $e_i > 0$ , the production of the  $i$ th seed is economically efficient. When  $e_i < 0$ , the  $i$ th seed’s production is economically inefficient. But when  $e_i = 0$ , the production of the  $i$ th seed is said to be at the breakeven point.

**Results of Analysis**

**Analysis of Cost per Hectare of OSSADEP Certified Seed Out growers**

The table below shows the various items of cost in the production of certified seeds of maize and soybean by OSSADEP out growers.

From table 1, the percentage of cost of materials to total cost of production per hectare for maize and soybean certified seed out growers are 39.83 and 35.87 percent respectively. No cost was incurred on fertilizer for soybean because they can fix atmospheric nitrogen through the nitrogen-fixing bacteria in their root nodules.

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The operational costs account for more than half of the total cost of producing the certified seeds. While the percentage of operational costs to total cost was 57.55 percent for maize, it was 61.20 percent for soybean. The fixed costs of production (the rent for a hectare of land) in the production of maize and soybean are 2.62 and 2.93 percent respectively.

Generally, the cost of materials and operations are higher for maize production than for soybean production. In addition, the cost of operations is higher than that of the materials for the two crops.

### Analysis of Revenue per Hectare of OSSADEP Certified Seed Out growers

The analysis of the revenue per hectare of the OSSADEP certified seed contract growers is presented in table 2 below.

The table above shows that a larger proportion of the revenue for the OSSADEP certified seed out growers comes from those seeds accepted (high quality seeds). These were 83.72 and 84.00 percent for maize and soybean respectively. Those seeds that are not of good quality are rejected and these constitute 16.28 percent for

Table 1: Cost per Hectare (₦) of OSSADEP Certified Seed Out growers

Items of Cost	Maize	Soybean
<b>Cost of Materials</b>		
Seed	750 (3.93)	1900 (11.13)
Fertilizer	1600 (8.39)	-
Chemical	4000 (20.96)	3080 (18.04)
Bags	1250 (6.55)	1145 (6.71)
Sub-total	7600 (39.83)	6125 (35.87)
<b>Operational Costs</b>		
Land preparation	2000 (10.48)	2000 (11.71)
Planting	1000 (5.24)	1400 (8.20)
Fertilizer application	1600 (8.34)	-
Pesticide application	400 (2.10)	500 (2.93)
Weeding	2400 (12.58)	2600 (15.23)
Harvesting	2100 (11.01)	1500 (8.78)
Shelling/Bagging	880 (4.61)	1750 (10.25)
Transport	600 (3.14)	700 (4.10)
Sub Total	10980 (57.55)	10450 (61.20)
Total Variable Cost	18580 (97.38)	16575 (97.07)
<b>Fixed Cost</b>		
Rent on Land	500 (2.62)	500 (2.93)
<b>Total Cost</b>	<b>19080 (100.00)</b>	<b>17075 (100.00)</b>

Figures in parentheses are percentages of items of total cost.  
Source: Derived from survey data 1998.

Table 2: Revenue of Hectare (₦) of OSSADEP Certified Seed Out growers

Item	Maize	Soybean
Seeds accepted	27000 (83.72)	26250 (84.00)
Seeds rejected	5250 (16.28)	5000 (16.00)
<b>Total</b>	<b>32250 (100.00)</b>	<b>31250 (100.00)</b>

Figures in parentheses are percentages of total revenue.  
Source: Derived from survey data 1998.

Table 3: Gross Margin Analysis of OSSADEP Certified Seed Out growers (₦/ha)

Item	Maize	Soybean
Gross Revenue	32250	31250
Cost of Material	7600	6125
Operational Costs	10980	10450
Total variable cost	18580	16575
Gross Margin	13670	14675
Fixed Cost	500	500
Net Revenue/Profit	13170	14175
Total Cost	19080	17015
Economic Efficiency	0.69	0.83

Source: Derived from Survey data, 1998.

maize and 16.00 percent for soybean.

**Economic Efficiency in OSSADEP Certified Seed Production**

The table below shows that profitability analysis in certified seed production of OSSADEP out growers.

From the table above, the amount of profit per hectare from maize and soybean production is ₦131.70 and ₦141.75 respectively. This shows that certified soybean seed production is profitable than its maize counterpart. This is not unconnected with the higher materials and operational cost involved in the production of maize despite having higher gross revenue than soybean. This scenario was better revealed by the economic efficiency indices. While certified maize seed production has an index of 0.69, while that of the soybean was 0.83. This means that for every ₦1 spent in the production of certified seeds of maize and soybean, ₦0.69 and ₦0.83 are respectively realized as profit. This shows that the contact grower scheme is profitable.

**CONCLUSION AND RECOMMENDATIONS**

This study reveals that

- (a) the percentage of the cost of materials to the total cost is less than that of the operational cost but far greater than that of the fixed cost for the certified seeds.
- (b) the high quality certified seeds accounted for the higher percentage (83.72 and 84.00 percent) of the total revenue from the maize and soybean seed production respectively.
- (c) the OSSADEP certified seeds production is highly profitable. The economic efficiency indices are 0.69 and 0.83 respectively for maize and soybean.

In the light of the above, it is recommended,

among others, that

- (a) the seed producing agency should help reduce the cost of operation by using modern methods that will reduce human effort in the performance of these operation. Wherever mechanization is possible, the out growers should be encouraged to adopt these practices in order that cost might be reduced considerably
- (b) in addition, the agency should make available the inputs (materials) required for production at the right time because of the timeliness required in the performance of the operations involved in certified seed production.

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