

COST AND RETURN ANALYSIS OF IRISH POTATO PRODUCTION IN TWO LOCAL GOVERNMENT AREAS OF PLATEAU STATE

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ABSTRACT

Root and tuber production has occupied an important position in the farming system of the Guinea savannah in the north - central States of Nigeria. The increasing demand for Irish Potato as food, the medicinal importance, its income and employment generation possibilities during the wet season have stimulated the need for increasing its production. This paper examines the cost and returns of Irish Potato production and identified the constraints associated with its production. A sample of 120 small-scale farmers was purposively selected from Bokkos and Riyom local government areas (LGAs) of Plateau State (that is, 60 farmers were selected from each local government). Data was obtained from these farmers through the administration of structured questionnaire and oral interviews. The analysis of the collected data was done using descriptive statistics and budgeting technique. The cost and return analysis indicated that the cost of fertilizer (3.875.15/ha), seed (₦2.395.50) and weeding (₦1,948.50/ha) accounted for 30% of the total variable cost incurred in Irish potato production. It was also found that Irish potato production was highly profitable as indicated by a net income of ₦3,676.07/ha. Despite the high profit margin, farmers were confronted with problems of high cost of labour, inadequate funds to sustain production, security challenges in the area, poor marketing channel outlets, high cost of inputs, and poor information network.

1. INTRODUCTION

Irish potato (*Solanum tuberosum L.*) is the world's fourth largest food crop after wheat, rice and maize (Ani., Ogunbameru., and Undiandeye 2008). World production reached a record of 320 million tons in 2007 and production in the developing countries has almost doubled since 1991, with a corresponding increase in consumption (Nkonya et al., 2007). Potato is an important source of food, employment and income generation in developing countries (FAO, 2008).

Irish potato's high energy content and ease of production have also made it an important component of urban agriculture which provides jobs and food security to about 800 million people globally (Nkonya et al., 2007). Potatoes have the potential to relieve the pressure of increasing cereal prices on the poorest people and contribute significantly in the reduction of poverty, hunger and starvation. Potatoes are grown and eaten locally, with little significant international trade compared to cereals, so they are particularly valuable as food in the developing countries.

In Nigeria, Irish potato in recent years has become a major commodity in the northern part of the country particularly during the raining season. Despite the domestic and industrial importance of the crop as raw materials, and for revenue generation, its production is still on

a low scale. The low level of production of the crop is associated with the limited attention devoted to the crop and other root/tuber crops (Lopez and Libas, 1992; Ahmed et al. 2000).

The increasing demand for Irish potato as food, its biological and medicinal importance, its employment generation opportunities for the unemployed, calls for the need to increase its production (FAO, 2008; Lopez and Libas, 1992). The paper was designed to determine the costs and returns of Irish potato production and the constraints encountered by its production in Plateau State. The information made available by the study would assist the farmers and policy makers in making right decisions in boosting the production of the crop.

2. METHODOLOGY

The study utilized primary data collected from 120 small-scale farmers in Bokkos and Riyom Local Government Areas of Plateau State (that is 60 farmers from each LGA). The farmers were purposively selected based on their involvement in Irish potato production. Data was collected with aid of structured questionnaires based on the year 2018 cropping season and analyzed using descriptive statistics and budgeting technique. The budgeting tool was used to determine the Net Farm Income (NFI). Net farm income, according to Olayide and Heady (1982), Oluksi and Erahbor (1988) is expressed as $NFI=TR-TC$; where:

TR=Total Revenue (N/ha)

TC=Total Cost (N/ha)

The depreciation value of assets was determined using a straight-line depreciation method.

3. RESULTS AND DISCUSSIONS

Table 1: Cost and Returns Analysis of Irish Potato Production in Plateau State Cost and return analysis of Irish potato production usually involves the use of resources which have costs.

Table 1: shows the cost and returns of Irish potato production. The major components of the variable costs are cost of fertilizers (20.63%) and labor (33.81%). The higher labour cost percentage implies that more time was devoted to land preparation than harvesting and both activities increase the cost of production. Oluyole, 2018 revealed in their findings that family labour is the most important component in small farmers' production which is the most predominant in Nigeria and most part of Africa. This implies that the family labour as an important variable, when properly harnessed reduces the cost of production thereby increasing the income of farmers. His findings therefore, agree with the result of this study.

The higher percentage of fertilizer which formed a major component of variable cost is attributed to the subsidy removal which made the commodity very expensive in the open market. The study in agreement with Lister (2018), who suggest that the use of Agricultural inputs is fundamental in modern agriculture while the provision of subsidies on inputs is an effective tool of bringing economic and social change to a developing country.

The study also revealed that fixed cost was very small (6.37%) and it includes depreciation charges on equipment (sprayers, hoes and cutlasses).

The cost and returns analysis of Irish Potato production as shown in Table 1, clearly shows that Irish Potato production was profitable as indicated by a net income of ₦3,676.07/ha. However, when compared with other root/tuber crops such as yam and

Items	Revenue	
	Cost/ha (N)	Percentage
Variable cost		
Fertilizers	3875.15	20.1
Seeds	2395.5	12.42
Pesticides	335.87	1.74
Fungicides	1570.6	8.15
Jute bags	760	3.94
Herbicides	1615	8.38
Land rent	980.5	5.09
Labour input (man-Hour)		
Land preparation	1268.7	6.58
Ridging	1379.61	7.15
Planting	480	2.49
Fertilizer application	550	2.85
Weeding	1948.5	10.1
Spraying	245	1.27
Harvesting	649.15	3.37
Total Variable cost	18053.58	93.63
Fixed Cost		
Depreciation charges (hoes, cutlasses and sprayers)	1229	6.37
Total Cost (Total Variable Cost + Total Fixed Cost)	19282.58	
Gross Revenue	22958.65	
Net Farm Income (TR-TC)	3676.07/ha	

cassava as indicated by studies conducted by Idowu (1997) in Ibokun LGA of Osun State, a net profit of ₦77, 560.50/ha was obtained in the case of yam, while cassava has a net profit of ₦52, 800.30/ha in the study conducted in the Federal Capital territory (FCT), Abuja. Nevertheless, the high profit margin recorded in the case of yam and cassava could be attributed to the high demand of the two commodities in the study areas.

PRODUCTION CONSTRAINTS

Table 2: Distribution of respondents according to Irish potato production constraints

Production constraints	Total number of respondents interviewed	Number of respondents indicating particular constraints	Percentage of total respondents
High cost of labour	120	104	87
Inadequate fund to sustain production	120	102	85
Security challenges in the area	120	88	73
Poor marketing channel outlets	120	83	69

High cost of input	120	67	56
Poor information network	120	42	35

Note that the response add up to more than 100% in the percentage column because of multiple responses.

Table 2 shows the Distribution of respondents according to Irish potato production constraints.

Most farmers (87% 85% and 73%) indicated that high cost of labour, inadequate fund to sustain Irish production and security challenges in the study area were the most important constraints for effective and efficient Irish potato production the study area. Other important constraints include poor marketing channel outlets (69%), high cost of production inputs (56%) and poor information network (35%).

The insecurity that characterized by the activities of farmers-herdsmen clashes, banditry and kidnappings hindered prompt farming activities and contributed to the increase in cost of labour that is very essential for Irish potato production. This is in line with Babagario (2019) who reported that the wave of insecurity rocking the country in the form of communal clashes, militancy, farmers-herders conflict and the rise of Boko Haram insurgency has further threatened the development of agricultural sector as most Northern Farmers have been killed, displaced from their native lands and their farm produce destroyed; therefore, many farmers have been forced to abandon their farmlands in search of security and safety posing negative effect agricultural productivity and hence, impedes its growth and development of the sector and its contribution to Nigeria's GDP .

The insufficient funds as indicated in Table 2, affected the output realized by some farmers who intended to put into use more available and fertile land. These inadequacies of fund grossly affected their level of productivity and profit. The study also revealed that inadequate supply and high cost of production inputs (improved seeds and fertilizers) and delay in their accessibility, posed some serious challenges to farmers, thus creating room for a reduction in yields.

4. CONCLUSION AND RECOMMENDATIONS

The study has shown that Irish potato production was profitable as indicated by a net income of ₦3676, 07/ha. However, Irish potato producers were confronted with the problem of high cost of labour, inadequate funds to sustain production, security challenges in the area, poor marketing channel outlet, high cost of input, and poor information network. Thus, for increase in productivity of Irish potato and profitability of Irish potato production to be fully realized it is recommended that all the necessary production inputs must be made available to the farmers at the right time and at affordable prices.

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