# PROFIT EFFICIENCY OF SWEET POTATO PRODUCTION IN KWARA STATE, NIGERIA

**BY**

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This thesis, written by OKEKE Patience Amaka has been read, approved and adjudged to meet part of the requirements for the award of M.Sc. Degree in Agricultural Economics of Obafemi Awolowo University, Ile-Ife, Osun State, Nigeria.


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## DEDICATION

This thesis is dedicated to God, the author and the finisher of my faith who has always been there and will always be there for me. May His mighty name be praised forevermore. Amen

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## ABSTRACT

The study described the socio-economic characteristics of sweet potato farmers and farms; determined level of profit efficiency; factors affecting profit efficiency of sweet potato production; and identified and ranked the constraints to sweet potato production in the study area with a view to enhancing the efficiency of sweet potato in Kwara State, Nigeria.

A multistage sampling technique was employed for selection of 180 sweet potato farmers in the study area. The first stage was purposive selection of one agricultural zone. At the second stage, purposive selection of three Local Government Areas. The third stage was random selection of five villages in each of the Local Government Areas. The final stage was random selection of twelve sweet potato framers from each of the villages. Primary data were collected from each farmer with the use of pre-tested and structured questionnaire. Data were analyzed using descriptive statistics, budgeting analysis, stochastic frontier production function and importance ranking indices.

Results revealed that male (87%), married (93.9%) and formal education (83.3%). Mean age, mean farming experience and household size were 42.73 ± 9.28, 13.63 ± 8.67 years and 8.72 ± 3.25 respectively. Budgeting technique showed that the estimated Total Variable Cost of ₦86,472.86 was incurred while Total Fixed Cost was ₦5,998.61. Total Revenue generated was ₦129,997.20 while Net Income and Gross Margin of the farmers were ₦37,525.73 and ₦43,524.34, respectively. The farmers' levels of profit efficiency ranged from 0.11 to 0.98 with a mean of 0.87. The mean level of profit efficiency was 87% which indicates that 13% loss in profit was due to combination of technical efficiency and allocative efficiency. Among the factors affecting the profit efficiency of the famers were labour, agrochemicals and planting materials which were positively related and statistically significant at 1%. Constraints of sweet

potato production in the study area were ranked in descending order of importance is; inadequate personal funds, non-availability of market and poor storage facilities.

The study concluded that sweet potato farmers were over 40 years of age and most of them were married. This study revealed that sweet potato farming in Kwara State was profitable and profit efficiency was affected positively by labour, agrochemicals and planting materials.

# CHAPTER ONE

# INTRODUCTION

## 1.1 Background to the study

The importance of sweet potato is increasing in the farming and food systems of developing countries because it is easy to plant, matures early and has enormous industrial and economic potentials (Chukwu, 1999).Sweetpotato is regarded as a food security crop, mainly because of its reliable yields. It is a tolerant crop and iseasily propagated on soils of varying fertility levels. It grows with minimal inputseven in spite of bad climatic conditions. It has frequently proven its value as a disaster recovery crop, proving to be a tremendous advantage for poor households whose members depend on diverse livelihood strategies(Andrade *et al.,* 2009).

Asia produced 82.3% of global sweet potato outputwhile Africa contributed about 14% of global production in 2010(Food and Agriculture Organization, 2010). One hundred and fifteen countries produced 106,569,572 tons of sweet potatoes in 2010. China, with 81,175,660 tons, produced by far the largest part and possesses a little less than half the global acreage dedicated to sweet potato.A minor player in the global sweet potato arena, Latin America produced 1.97million metric tonnesin 2010, i.e. a little more than 2% of global supply. Brazil holds first place on the continent, followed by Cuba and Argentina. As for the United States, they produce relatively little (around 1.0 Mt in 2010) but is the leading global exporter. In Europe, only Spain, Portugal and Italy produce sweet potatoes, albeit in very limited quantities on a global scale (Hinson and picha, 2006)

Sub-Saharan Africa produces more than seven million tonnes of sweet potatoes annually, which constitutes 5% of global production (Ewell, 2002). The most important sweet potato producer in Africa is Uganda with a harvest that increased from around two million tons in 1999 to 2.83

million tons in 2010. Sweet potato is Uganda's third most important agricultural product in terms of volume after plantain and cassava.This expansion in production in Africa is explained by an increased demand linked to a strong demographic growth (Awaisu, 2015; FAO, 2012)

Moreover, sweet potato plays an essential role in food security, especially in those regions prone to drought and with poor soils like Shinyanga and Kagera in Tanzania (FAO, 2010). In contrast to the Asian countries, in sub-Saharan Africa, the crop is cultivated mainly for human consumption. Africa's yields are quite low about one third of Asian yields indicating huge potential for future growth.

As indicated in Table 1, Nigeria is the second largest sweet potato producing country in sub-Saharan Africa (SSA)with annual production estimated at 2.8 million metric in 2010 (Food and Agricultural Organization Statistics, 2012). Sweet potato is grown in all the 36 States of Nigeria, with significant production in each ofthe six geo-political regions, and about a thirdof total production concentrated in the North-Central States. According to (Food and Agricultural Organization Statistics, 2015) from 2007 to 2011, sweet potato ranked seventh in terms of aggregate national production in Nigeria after cassava, yam, rice, maize, sorghum and millet. Sweet potato is the fourth most important root and tuber crop, after cassava, yam and taro.

**Table 1: World Sweet Potato Production by Country**
Source: FAOSTAT (2012)

| Country | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|
| China | 81,039,000 | 75,600,000 | 78,830,000 | 76,772,393 | 81,175,660 |
| Indonesia | 1,854,230 | 188,868,652 | 1,876,944 | 2,057,913 | 2,050,810 |
| Vietnam | 1,460,900 | 1,437,600 | 1,325,600 | 1,207,600 | 1,317,060 |
| India | 1,066,500 | 1,067,200 | 1,094,000 | 1,119,700 | 1,094,700 |
| Japan | 988,900 | 968,400 | 1,011,000 | 863,600 | 1,026,000 |
| Philipines | 566,773 | 573,734 | 572,655 | 560,516 | 541,525 |
| Uganda | 2,628,000 | 2,602,600 | 2,707,000 | 2,710,000 | 2,838,300 |
| Nigeria | 3,462,000 | 2,432,000 | 3,318,000 | 2,746,817 | 2,838,000 |
| Tanzania | 1,396,400 | 1,322,000 | 1,379,000 | 1,381,120 | 1,400,000 |
| Angola | 684,756 | 949,104 | 819,772 | 982,588 | 986,563 |
| Kenya | 724,646 | 811,531 | 894,781 | 930,784 | 386,563 |
| Madagascar | 869,000 | 890,000 | 941,355 | 910,857 | 919,127 |
| Mozambique | 929,826 | 875,216 | 890,000 | 900,000 | 920,000 |
| Rwanda | 777,034 | 841,000 | 826,000 | 801,376 | 840,072 |
| Ethiopia | 388,814 | 388,814 | 526,487 | 450,763 | 401,600 |
| Brazil | 518,541 | 529,531 | 548,438 | 477,475 | 479,200 |
| Cuba | 303,000 | 414,000 | 375,000 | 437,000 | 384,700 |
| UNITED State | 743,937 | 819,641 | 836,560 | 883,099 | 1,081,590 |
| Papua New Guinea | 560,000 | 580,000 | 485,181 | 534,085 | 376,00 |

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