

**DETERMINANTS OF ADOPTION OF IMPROVED TECHNOLOGICAL  
PACKAGES AMONG UNDERUTILISED INDIGENOUS VEGETABLES FARMERS  
IN SOUTH WEST NIGERIA**

**BY**

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## ABSTRACT

This study characterized the adoption of Improved Technological Packages (ITP) by Underutilized Indigenous Vegetables (UIVs) farmers; determined the factors affecting the adoption of the technological packages; and evaluated the difference in income between adopters and non-adopters of the technologies, with a view to identifying factors that influenced the adoption of the ITPs by UIVs farmers in southwestern Nigeria.

Secondary data obtained from the MICROVEG data bank were employed for this study and a total of 553 respondents were used. Institutional variables such as farm size, membership of Farmer Organisation (FO), contact with extension agents and socioeconomic variables such as age, gender, marital status were extracted and analyzed for this study. Analytical tools such as descriptive statistics was used to characterize the adoption of the ITPs, Poisson regression and Heckman selection models were used to determine the factors affecting the adoption of the technological packages while the Budgetary technique was used to evaluate the difference in income between adopters and non-adopters of the technologies.

The results showed that the women (68.5%) predominated the production of the UIVs with the average age of the farmers being 37.47 ( $\pm 16.48$ ) years. Most (68.5%) of the farmers were married while 54.9% had family sizes fewer than 5 persons. The farmers were mostly literate with only 11.4% having no type of formal educational training, also, 80.9% of the respondents belonged to one FO or the other. A total of 276 farmers (46%) adopted the Fertilizer Microdosing component of the ITP while 174 farmers (29%) and 150 farmers (25%) adopted the Seed production and Water management practices respectively. Furthermore, only 167 farmers (34.9%) adopted one component out of the 3 technologies introduced to them, 139 (28.86%) adopted 2 while 174 farmers (36.24%) adopted all the three ITPs. The Poisson Regression results showed that income, land, education, membership of Farmer Organisations (FOs), Awareness of Fertilizer Microdosing (AFMD), and Awareness of Water Management Practices (AWMP) influenced the adoption of the ITP introduced to the farmers. In addition, the results obtained from the two-stage Heckman selection model revealed that indigeneity (location) of the farmers and awareness of the ITP did not encourage farmers' membership of the FOs while gender, marital status and their educational qualifications were factors that encouraged them to be members of the FOs. Further results obtained from the model revealed that land, gender, awareness of innovation and marital status were the determinants of adoption of the ITP by the farmers through the FOs. Also, the result from the gross margin analysis showed that adopters and non-adopters of ITP had an average difference in margin of ₦12,649.58 per season. The average seasonal margin obtained by the adopters was ₦18,013.81 while that of non-adopters was ₦5,364.23 and the difference was statistically significant at 5%.

The study concluded that adequate information, income, FO membership, gender and education were important factors that influence adoption of ITP among UIV farmers.

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## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background to the Study

Underutilised indigenous vegetables (UIVs) refer to vegetables that are peculiar to a locality with little or no awareness about its existence or nutritional value. They are fleshy plants whose leaves and stems are consumed as food. Underutilised Indigenous Vegetables have over the years been neglected with preference for exotic vegetables (Abubakar, Ogbadu, Usman, Segun, Olorode and Samirah, 2012), and have same or less nutritive value as the underutilised ones. UIVs constitute a source of vitamins A, B, C and E and also phytochemicals, minerals and dietary fibre (Amujoyegbe, Oyedele, Idowu, Ayinde and Adebooye 2015). Underutilised Indigenous Vegetables are a cheap source of attaining nutritional requirement in diets especially for the rural poor as they are affordable and are very important in complementing the nutrition which comprises mainly of starch. Some of these vegetables includes: *Telfairia occidentalis* (ugu), *Solanum macrocarpon* (Igbagba), *Amaranthus viridis* (Tete atetedaye). Underutilised Indigenous Vegetables naturally contains high amount of protein, high dietary fibre, iron and calcium, carotenoids and other anticarcinogenic compounds which provide the various benefits derived from their consumption. The World Health Organisation (WHO) attributed the death rate of approximately 1.7million

(2.8%) to low consumption of vegetables while the 2003 report of the joint WHO/FAO consultation on diet nutrition and prevention of chronic diseases states evidence that adequate consumption of vegetables decreases the risk of obesity and even that of diabetes. The production of these UIVs is also a very lucrative venture for farmers as it requires less inputs for production and has a shorter production period compared to other staple crops since harvest of these UIVs can be achieved at an interval of two weeks, hence the crop serves as a quick source of income for farmers. Furthermore, with the adequate application of technology, the yield obtainable can be significantly increased and thereby increasing farmers' income as well as the chances of attaining food security.

The use of technology packages in agriculture keeps evolving in a quest to increase the efficiency of production. In an attempt to meet up with the production requirement and to exploit the potentials available in UIVs, the introduction and use of Improved Technological Packages is a necessary step in the right direction. This technology could be an entirely new procedure of carrying out production activities or an improvement in the way old activities are being done. One of the extension projects that introduced some technologies to UIVs farmers was the Nigerian Canadian Vegetable project. The primary aim of introducing these Technological Packages was to help farmers improve quantity and quality of production, improve the shelf life of produce and ensure the technology is user friendly so as to encourage both genders together with the farmers of all age brackets to venture into the production.

The Nigerian Canadian Vegetable (NICANVEG) project commenced in 2011 with the aim to bring about mass awareness of UIVs, its benefits to smallholder farmers in terms of food security and improved income. This project has carried out detailed research to bring to light

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