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**BRANDED RADIO PROGRAM AND ADOPTION OF  
UNDERUTILISED INDIGENOUS VEGETABLES  
INNOVATIONS IN SOUTHWESTERN**

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**BRANDED RADIO PROGRAM AND ADOPTION OF  
UNDERUTILISED INDIGENOUS VEGETABLES  
INNOVATIONS IN SOUTHWESTERN NIGERIA  
(INFLUENCE OF RADIO ON ADOPTION)**

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### Abstract

**Purpose:** This study assessed the influence of Micro-Veg radio program tagged “Ramo-Elefo” on the awareness and adoption of the innovations introduced as well as its effects on adoption of the innovations among the listeners in south-western Nigeria.

**Methodology:** Data was collected through structured pretested questionnaire administered on 383 respondents who were randomly selected in two states (Oyo and Osun) in south-western Nigeria. Descriptive statistics as well as the binary probit regression model were used to analyse the data.

**Findings:** Results show that more females listen and therefore are more aware of the program and the innovations. Of all those who are aware, most are simply satisfied. Most of the respondents that got aware of innovations on land selection and bed preparation through the radio program eventually adopted them. The innovation that most respondents created interest in was value addition. Most adopted the innovation on harvesting techniques. Membership of MicroVeg group, assistance from family members as well as depth of exposure to the program encourages the likelihood of adoption of the UIV innovations while awareness and satisfaction with the contents of the program are also important motivators of adoption.

**Theoretical implications:** Results from the study shows that the presumed theoretical linkage between awareness and adoption of innovations may not hold in all circumstances, but a series of exposure to the message will encourage adoption.

**Originality:** The study establishes the usefulness of the Radio as a means of propagating beneficial agricultural innovations among the rural populace especially in developing countries.

**Keywords:** Under-utilised Indigenous Vegetables; branded radio program; adoption of innovations; Nigeria; influence.

## 1.0 INTRODUCTION

Agricultural information is defined as all published and unpublished knowledge on all aspects of agriculture (Aina, 1990; Agbamu, 2006). Agricultural information is needed by farmers, marketers and even consumers. The information need in agriculture is different for each user based on what aspect is being dealt with. The farmers need information basically to improve on production practices which eventually translates to improved productivity. The marketers need the information to make appropriate marketing decisions that will optimise revenue, minimise costs and losses. Consumers also need it in order to provide adequate nutritional requirements to ensure good health for the household at minimum cost. Therefore, information is required to be able to make meaningful use of the factors of production (Camble, 1992). This then means that information must first be generated then transferred with appropriate feedback.

Agricultural information can be generated in form of innovations and improved farm practices or technologies, through different means. The Food and Agricultural Organisation (1993) even suggested that in order to enhance agricultural development, new commodities and new methods of production must be developed. According to Aina (1995) and Ilevbaoje (1998), these innovations are developed through various agencies, agricultural research institutes, Universities of Agriculture, Faculties of Agriculture in conventional universities, agro-based industries, government legislation, service institution and non-governmental organizations. The information so generated are then disseminated to appropriate users as required. The primary goal of institutions that disseminate this information is to transform the agricultural sector of the national economy through promotion of rapid adoption and utilisation of improved farming technologies by the farmers (Ilevbaoje, 1998). These institutions include agricultural extension agencies, agricultural change agencies, private extension organizations and they were the major forms of disseminating agricultural information in times past. Traditionally, there was high dependence on interpersonal contact as means of dissemination. However, CTA (1996), Ozowa (1997), Conroy (2003) and Sam and Dzandu (2015) insisted that the quantum of agricultural technology information available in the Nigerian systems developed by research institutes, and faculties of agriculture in universities yet to be disseminated is quite enormous. This means that the traditional means of disseminating information is inadequate and the problem of dissemination still persists. Soyemi (2014) classified the dissemination means into two major categories which are traditional information and modern information sources. Even more recently, Njoku (2016) suggested that there is no effective information delivery system. And so recent additions to the traditional means of dissemination have evolved over time and these are information and communication technologies (ICTs).

ICTs encompass a range of electronic technologies that facilitate the production, storage and dissemination of information. A distinction is often made between new ICTs such as computers, Internet and mobile phones and older ICTs such as newspapers, radio, television and landline telephony. The new ICTs are known for their digital transmission mechanisms, greater interactivity, wider geographical coverage, cost-effectiveness, and availability on regular basis (Sam and Dzandu, 2015). Of all these devices, radio proves to be the cheapest, fastest and at the same time the most effective means of dissemination. Radio was found to be appropriate as the agricultural information programs are broadcast in the local languages

that are understood by the illiterate farmers. Radio is favoured as a means of information dissemination in rural communities because it transcends the barriers of illiteracy and demands less intellectual exertion than the print media messages (Rite FM, 2011). Abubakar *et al.*, (2009); Manyozo, (2009); Hassan *et al.* (2010) and Parvizian *et al.* (2011) have suggested that access to agricultural information in most developing countries has been provided through radio. However, radio had the constraint of only-audio possibility but the current technological convergence makes it possible to have a two-way interaction by having programmes where participants can call into the programme. The importance of information dissemination through the radio is clear particularly to the production and marketing of agricultural products, which mostly have the problem of high perishability and require rapid dissemination of production innovations through agricultural programmes.

A typical radio-agricultural farmer programme is a joint effort of an agricultural expert and a communication expert (radio-presenter) disseminating agricultural technologies/information to farmers. It aims at teaching and transferring modern technologies to farmers in order to increase their agricultural production in all the components of agriculture namely, crop, animal, agro-forestry, agro-fishery, and soil conservation. In summary, the rationale for using radio in extension and advisory services came from an understanding that radio is an excellent, cost-effective means of sharing knowledge, building awareness, facilitating informed decision making and supporting the adoption of new practices by small-scale farmers (Chapota *et al.*, 2014). Radio agricultural programmes can then be general or specific. The general one simply covers all aspects of agricultural production. However, the specific ones are particularly directed towards production innovations of a specific product.

Studies have been carried out to investigate the use of radio in supplementing extension services. These studies concentrated largely on agricultural programmes generally without any definite programme in particular. Olaleye (2009) determined the effectiveness of radio in the dissemination of agricultural information in Kwara State, Nigeria, using Chi square and Likert scale. Mtega and Msungu (2013) assessed how ICTs enhance the accessibility of agricultural information for improved agricultural production in Tanzania. Nabusoba (2014) also evaluated the effects of radio agricultural programmes on small scale farmers in Kenya. Despite previous studies, there is yet to be adequate empirical verification on the impacts of targeted radio programmes on the possibility of adoption of specific innovations. Given the fact that radio is a major channel of dissemination, there have been efforts targeted towards using radio to disseminate innovations on vegetables that have received little attention over the years. These vegetables are particularly those native to a location and the potentials of these vegetables have not been fully exploited. They are the under-utilised indigenous vegetables (UIVs).

The Ni-Can-Veg project was launched in 2011, lasting forty-two months. It had the aim of creating sustainable production and utilisation of UIVs in Nigeria in order to enhance rural food security and income for resource-poor women farmers. Its objective was to improve the deliberate and conscious cultivation and utilisation of UIVs. The project provided new management practices, developed new food products as well as changed farmers' attitudes to growing, cooking and consuming the UIVs. The project also raised the level of awareness on the nutritional values and usability of the UIVs by disseminating information to the resource poor women farmers, scientists, non-governmental organisation and government (Adebooye, 2013). In realisation of the project objectives, a branded radio program "**Ramo Elefo**" - (Ramo the vegetable seller) was initiated in 2012. The intention of the program was to create

awareness of the project activities by focusing on the production, processing, marketing and consumption of indigenous vegetables. Initially, the programmes started on two prominent radio stations, Orisun 89.5 FM in Ile-Ife, Osun State and Ekiti 91.5 FM in Ado-Ekiti, Ekiti State (VegNews 2012). It later extended to four (4) other FM Radio Stations, which have signals that extend to the rural/farming communities of the savannah areas of Oyo, Ogun and Kwara States as well as the rainforest of Lagos State (Adebooye *et al.*, 2016). A follow-up intervention acronymed “Micro-Veg” was initiated in 2015 with the aim of refining and deploying technologies for fertilizer micro-dosing, water management, seed production and valued addition in a bid to scale up production, increase yields and income through large-scale adoption of these innovations. In line with the project intentions, this study intended to provide answers to the following research questions: what is the level of adoption of these UIV innovations? Can we say that the radio program has an impact on the adoption of these innovations?

The main objective of this study is to evaluate the impact of the agricultural radio program “*Ramo Elefo*” on the adoption of UIV innovations.

The specific objectives were to:

- a. determine the level of adoption of the UIV innovations
- b. determine the depth of respondents’ exposure to the radio program, and
- c. analyse the effects of the radio programme on the level of adoption of the UIV innovations

The justification for the study is to ensure an increase in the uptake of agricultural innovations. The intention is to provide accurate verification of how the radio program has caused a boost in the adoption of UIV innovations that have been developed. Once there is an increase in the adoption of these innovations, the productivity of farmers will improve, losses and costs will be reduced.

### **Theoretical Review**

Communication theories evolved from the All powerful Media Effect theories which held that the media has the ability to get the audience to always comply with their messages. The Magic Bullet and Hypodermic Needle theories of the media are in this category (Borah 2016)

Then emerged the limited effects theories of mass communication that show that certain factors affect the way media messages are received by the audience. The Active audience theory proposed by Stuart Hall (1973) holds that the receivers of media messages are not just a passive but active audience who decode messages and respond according to their social context where factors such as family background, beliefs, values, culture, interests, education and experiences come to play. (Morley, 1994)

The selective exposure theories are also limited media effects theories that hold that the audience do not receive media messages passively. According to these theories, people select messages to which they want to expose themselves. Festinger's (1957) cognitive dissonance theory suggests that human beings seek to hold all their attitudes and behavior in harmony and avoid disharmony (or dissonance). This is called the principle of cognitive consistency. The occurrence of a situation involving conflicting attitudes, beliefs or behaviors, a feeling of mental discomfort, leads to an alteration in one of the attitudes, beliefs or behaviors to reduce

the discomfort and restore balance (McLeod, 2018). In a situation where demand is placed on an individual to change a particular way of operating, the individual may resist to avoid dissonance.

Building on the work of Festinger, Joseph Klapper (1960) advances that mass media messages do not directly influence people. He identifies mediating factors and conditions that affect people which include their pre-dispositions, the groups, and the norms of the groups to which the audience members belong, the exercise of opinion leadership and the nature of mass media in a free enterprise society. He presents three concepts which are selective exposure whereby people keep away from communication that is contradictory to their views, selective perception whereby people do not give consideration to opposing views and selective retention when they don't retain the contradictory message in their mind; they just decide to forget the material. (Stroud, 2017).

While the All powerful Media theories and Limited Media Effects theories focused on what the media does to people, the Uses and Gratification Theory (UGT) focuses on what people do with the media.

### **Theoretical Framework**

The theory of uses, gratification, and mass communication propounded and formalized by Blumler and Katz (1974) and Griffin (2009) were adopted for this study. These theories are premised on the presumption that the audience actively use an mass media to meet their needs, that people observe the popularity of the media and assume that any information communicated on mass media will spread, must be good, will spread rapidly and will, hence, be readily adopted. Many listeners are optimistic about mass media's potential to be a business opportunity, an educator, a watchdog, and an entertainer (Griffin, 2009). Therefore, scientists and agricultural facilitators use the media to disseminate new ideas (innovations) to farmers to enhance food security.

Mass media communication may result in intended or unintended consequences for farmers. Many of the key theories in mass communication rest on the assumption that the media affect audience members. The degree and type of effect varies. Some effects are more difficult to study and more difficult for people to accept because they are long-term and/or more personal.

For example, media may influence farming pattern, crop choice, perceptions of new technologies, or value additions to farm produce, just as the farmer's own free will, parents, or friends do. It may be difficult, however, to determine, in any specific case, how much influence the media have on a belief or behaviour in proportion to other factors that influence the farmer. Media messages may also affect listeners in ways not intended by the scientists and agricultural facilitators (McQuail, 2010).

The theory (of uses, gratification and mass communication as stated above) are relevant to the current study in that the previous project, the Nigeria-Canada Indigenous Vegetables Project (NICANVEG Project 106511), successfully developed new technologies that improved farming practices, post-harvest handling and value addition for indigenous vegetables. These technologies offered great opportunities for food security and economic empowerment of the poor rural population, especially the poor rural women of southwest Nigeria, and they were transmitted through mass media (radio) in the study area. The linkage

between media communication (Radio program) and listeners' adoption needs to be empirically validated, especially in the context of UIVs.

## **2. 0 Materials and methods**

### **2.1 Study area**

The study was conducted in two states within the Southwestern region, Osun and Oyo states where the project was undertaken. The study area has a total population of 7,794,605 with a total landmass of 37,705Km<sup>2</sup> and population density of 440 per km<sup>2</sup>. It is bounded by Ogun State, Ondo and Ekiti States in the East, by Kwara State in the North and the Republic of Benin to the west. The study area lies between 7°N and 9°N latitude and within longitudes 2°30'E and 5°30'E of the Greenwich Meridian. The landscape is gently undulating comprising old hard rocks and dome shape hills. Its relief is within 300m and 1,219m above sea level (NPC, 2006).

The region experiences 7 - 8 months of rainfall (April to October) that ranges between 1,100 to 2,000 mm and peaks in July and September respectively while the remaining four months (November to March) is dry. The mean annual temperature is between 25°C (77°F) and 35°C(95°F). The soil types range from the sandy to clayey in texture with soil pH ranging from acidic to slightly basic (NPC, 2006).

The study area is well drained with rivers flowing from the upland in the North-South direction. The vegetation pattern ranges from lowland rain forest in the south, derived savannah in the central part and guinea savannah towards the north.

### **2.2 Data collection**

The random sampling method was used to elicit information from the listeners of Orisun, Oke -Itase, Ile-Ife and the Broadcasting Corporation of Oyo Station (BCOS), Ibadan, radio stations. The study covered six communities namely; Ibadan metropolis, Osogbo, Iwo, Moro, Ilesa and Ile-Ife, in two states (Oyo and Osun) based on their proximity to the radio stations. About 383 respondents were interviewed.

### **2.3 Method of Data Collection**

Primary data were collected through well-structured and pre-tested questionnaire. Data were obtained on socio-economic characteristics of respondents (such as; age, gender, family size, education level, marital status, farm size, religion, income and farming experience) and other features (such as; source of awareness, adoption stages, satisfaction with the contents of the program, relevance and usefulness of the radio program, UIVs adopted, support received from Micro-Veg and the depth of exposure to the programme) among others.

### **2.4 Analytical Technique**

The data collected were analysed using descriptive statistics, and the maximum likelihood estimation model of the Binary probit regression analysis on the STATA package. Binary probit regression analysis was used in estimating the relationship between the adoption of UIV innovations and the depth of exposure to the radio program. In this case, the dependent variable took the form of a binary variable: 1= adopters of the UIV innovations; and 0=non-adopters of the UIV innovations. The model is expressed thus:



$$Y_i = \begin{cases} 1 & \text{if } Y_i^* > 0 \\ 0 & \text{otherwise} \end{cases}$$

$$Y_i^* = X_i B_i + e_i$$

$$\text{Where } Y_i = \begin{cases} 1 & \text{if adopter} \\ 0 & \text{otherwise} \end{cases}$$

$X_i$  = independent variables  $X_1 - X_9$

$X_1$  =sex (male/female)

$X_2$  = religion (Christian= 1, Muslim=2 and Traditional= 3)

$X_3$  = experience (number of years)

$X_4$  = awareness (yes/no)

$X_5$  = satisfaction (very satisfied = 1, satisfied = 2 and not sure= 3)

$X_6$  = relevance (yes/no)

$X_7$  = membership (yes/no)

$X_8$  = family assistance (yes/no)

$X_9$  = depth of exposure (no of times per week of listening to the program)

### 3.0 Results and discussions

#### 3.1 Socioeconomic characteristics

The results in table 1 show that most of the respondents (64.75%) are females while 35.25% are males. Most of them (58.22%) are Christians, 40.73% are Muslims while a few (1.04%) are traditional worshippers. More people (55.35%) have years of experience in vegetable production ranging from 12-23 years while 44.65% have less than 12 years of experience. More (59.51%) are aware of the radio program while 40.49% are not aware. About 52.11% are satisfied with the contents of the program, 46.32% are very satisfied while a few (1.58%) are not satisfied with the contents of the program. The radio program is relevant to most (81.05%) of the respondents and irrelevant to 18.95% of the respondents. Most (84.6%) are not members of the Micro-Veg group while 15.4% are members implying that most of them are not directly entitled to benefits derived from Micro-Veg. Most (60.31%) do not get assistance with the operations related to UIV production from their family members while 39.69% get assistance from family members implying that most of them rely on self or hired labour.

**Table 1: socioeconomic characteristics**

<b>Socio-economic characteristics</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Sex</b>		
Male	135	35.25
Female	248	64.75
<b>Religion</b>		
Islam	156	40.73
Traditional	4	1.04
Christianity	223	58.22
<b>Experience</b>		
<12	171	44.65
12-23	212	55.35
<b>Awareness</b>		
Yes	219	59.51
No	149	40.49
<b>Satisfaction</b>		
Very satisfied	88	46.32
Satisfied	99	52.11
Not satisfied	3	1.58
<b>Relevance</b>		
Yes	154	81.05
No	36	18.95
<b>Membership</b>		
Yes	59	15.40
No	324	84.60
<b>Family assistance</b>		
Yes	152	39.69
No	231	60.31

Source: Field survey, 2017 \*Total reflects the number of respondents that answered the question

### 3.2 Level of adoption of UIV innovations

Table 2 shows the respondents by stages of adoption of the UIV innovations. The table shows that most (42.6%) of the respondents created interest in the UIV value addition component. On the other hand, the innovation that elicited the least interest of 26.1% was bed preparation. The table show that 4.2% of the respondents evaluated the innovation on seed treatment. This means that the most evaluated innovation is the treatment of UIV seed. The results further show that the least evaluated innovation with 1.8% of the respondents was the transplanting innovation.

The results show that most (4.2%) of the respondents have actually tried the innovations on nursery preparation and water management respectively. However, only 1.8% of the respondents have actually tried the innovations on harvesting and marketing respectively. The results further show that most (27.4%) of the respondents have adopted the innovation on

harvesting UIVs. While the least (18.3%) of the respondents have adopted the bio-chemical pest control.

It can be seen from the results that more people have created interest in the innovation on land selection, a good portion have adopted the innovation, a few have either tried or evaluated it. These results are similar concerning the innovations on bed preparation, seed treatment, nursery preparation and management, transplanting, water management, bio-chemical pest control, harvesting, seeding, seed production and marketing where most simply created interest, a good portion adopted while only a few either evaluated or tried these innovations. On the other hand, more people have created interest in the innovation for fertilizer micro-dosing, a good portion have either tried or adopted while only a few evaluated the innovation. More people have created interest in the innovation for value addition while a small percentage adopted and a few either evaluated or tried the innovation.

**Table 2:** Stages of adoption of UIV innovations

Stage of Adoption	Interest		Evaluation		Trial		Adoption	
	Freq	%	Freq	%	Freq	%	Freq	%
<b>Innovations</b>								
Land selection	111	29.0	12	3.1	14	3.7	92	24.0
Bed preparation	100	26.1	14	3.7	14	3.7	97	25.3
Seed treatment	119	31.1	16	4.2	9	2.4	79	20.4
Nursery preparation	116	30.3	12	3.1	16	4.2	81	21.2
Transplanting	117	30.6	7	1.8	16	4.2	95	24.8
Water management	108	28.2	10	2.6	10	2.6	89	23.2
Fertiliser Micro-dosing	108	28.2	13	3.4	94	2.4	92	24.0
Bio-chemical pest control	129	33.7	15	3.9	10	2.6	70	18.3
Harvesting	106	27.7	9	2.4	7	1.8	105	27.4
Seed production	118	30.8	8	2.1	9	2.4	90	23.5
Value addition/processing	163	42.6	9	2.4	10	2.6	40	10.4
Marketing	125	32.6	5	1.3	7	1.8	79	20.6
Seeding	126	32.9	6	1.6	7	1.8	85	22.2

Source: Field survey, 2017 \* Total reflects the number of respondents that answered the question

### 3.3 Depth of exposure

The depth of exposure was measured by how frequently the respondents listened to the radio programme (Ridwan *et al.*, 2014). Table 3 shows the depth of exposure of the respondents to the radio programme. About 40.53% of the respondents listen to the programme once a week, while only 3.68% listen to it seven times a week. This suggests that most of the respondents have low depth of the program, which may further translate to low level of knowledge of the contents of the programme.

**Table 3:** *Depth of exposure to the radio program*

Number of times per week	Frequency	Percentage	Mean	Standard deviation
1	77	40.53	2.19	1.48
2	59	31.05		
3	30	15.79		
4	4	2.11		
5	12	6.32		
6	1	0.53		
7	7	3.68		
<b>Total</b>	<b>190</b>	<b>100</b>		

Source: Field survey, 2017 \*Total reflects the number of respondents that answered the question

### 3.4 Adoption of UIV innovation and radio awareness

The Table 4 shows the UIV innovation adopters that got aware of each innovation through the radio. The table shows that about 10.7% and 10.4% of the respondents who are aware of the innovation on land selection and bed preparation through the radio program did adopt the innovations, respectively.

About 8.88% of those who became aware of the innovation on fertilizer micro-dosing through the radio have adopted. About 7.05% of those who became aware of innovation on transplanting through the radio have adopted. About 6.27% of the respondents that became aware of the innovations on seeding and nursery preparation and management through the radio have adopted the innovations. About 5.74% and 5.48% of the respondents that became aware of seed treatment and bio-chemical pest control respectively through the radio, have adopted. About 4.96% and 4.43% of the respondents who became aware of the innovations on water management and harvesting respectively through the radio, have adopted. About 3.13% and 0.78 of the respondents that became aware of the innovations on seed production and value addition respectively, through the radio, have adopted. It is shown that more people that got aware of the innovations on land selection and bed preparation through the radio have ended up adopting these innovations. This means that the radio programme is indeed performing the role for which it was intended.

**Table 4:** *Adoption of UIV innovation by radio awareness*

UIV innovation	Frequency	Percentage
Land selection	41	10.70
Bed preparation	40	10.44
Seeding	24	6.27
Seed treatment	22	5.74
Nursery preparation and management	24	6.27
Transplanting	27	7.05
Water management	19	4.96
Fertiliser micro-dosing	34	8.88
Bio-chemical pest control	21	5.48
Harvesting	17	4.43
Seed production	12	3.13
Value addition	3	0.78

Source: Field survey, 2017 \*Percentages do not add up to 100 because of multiple responses

### **3.5 The influence of exposure to the program on the likelihood of adoption of the UIV innovations.**

The influence of exposure to the radio program on the likelihood of adoption was explored with the binary probit regression model. The Maximum likelihood estimation model of the probit was used because the outcome variable constructed was binary with 1 for adopters and 0 for non-adopters. The explanatory variables used were mainly socio-economics features and the depth of exposure.

The result of the estimation is in Table 5. The results show that religion, experience, awareness, satisfaction, membership, family assistance and depth of exposure significantly influences the likelihood of being an adopter. The overall model is a good fit as obtained from the likelihood ratio, which is not only statistically significant but had good Pseudo  $R^2$  value of 53%.

The results show that the coefficient of religion was negative, which suggests that religion may not necessarily encourage adoption of agricultural innovations. This result seem plausible because most rural dwellers are more likely to be religious and therefore base their decision to adopt on religious inclinations, hence the sluggish rate of adoption may be due to the lack of active engagement of faith-based organisations. The likelihood of non-adoption by respondents due to religion is about 19%.

The coefficient of awareness of the radio program was negative but statistically significant with adoption. This result suggests that awareness of the projects' activities through radio program though necessary may not be sufficient to move the listeners towards adoption. In order words, mounting the radio program is necessary but may not be sufficient to convince the respondents to adopt these innovations. The likelihood of adoption of those who are aware of the program is about 30% that is, one in every three listeners who are aware will likely adopt the innovations.

The coefficient of satisfaction with the contents of the radio program suggests that satisfaction with the content of the radio program may also not be sufficient to encourage adoption. The fact that there are more people who are simply satisfied (52.11%) rather than very satisfied (46.32%) with the contents of the program, points to the need for a possible review of the contents of the radio program. The chances of satisfied listeners adopting the innovations is about 36%. The program content as it is now is not sufficient to motivate the respondents to adopt.

Membership of Micro-Veg group suggests that those who are members of the group are more likely to be adopters of the UIV innovation. This result points to the overall importance of interpersonal contacts of members of the Micro-Veg group with researchers and extension workers. The interpersonal contact encourages capacity building and training on these UIV innovations. Furthermore, membership enables participants to benefit from demonstration effects available to the members through which they can verify the authenticity of the claim by researchers. Indeed, membership increases the likelihood of adoption by about 60%, hence efforts should not be spared to encourage membership of the Micro-Veg group.

Receiving family assistance in the vegetable farming business encourages adoption of the UIV innovations. In the circumstances where there is support from the family members it becomes easier to put to practice all the innovations gained from the program since the

resources to implement is now available through the family support. The likelihood of adoption of the innovations by those who receive family assistance is about 12%.

The depth of exposure to the radio program suggests that those who have a higher depth of exposure to the program are more likely to be adopters of the UIV innovations. This is in line with *a priori* expectation, because the higher the frequency of listening to the program the more understanding the listener will have and thus the more convinced and higher the likelihood of adoption. The estimated percentage likelihood of adoption with deeper exposure is about 6%.

**Table 5: Maximum likelihood estimation results (Probit)**

Variables	Coefficient	Standard error	Marginal effects	Standard error
Sex	0.0537816	0.2996981	0.0125409	0.06978
Religion	-0.8083519*	0.3208562	-0.1884932*	0.07146
Experience	-0.0143549	0.0135695	-0.0033473	-0.0033473
Awareness	-1.058887*	0.3696185	-0.3010167*	0.11195
Satisfaction	-1.585273*	0.3474471	-0.3696573*	0.07774
Relevance	0.3458786	0.5204746	0.0718506	0.0924
Membership	1.899847*	0.3229925	0.5894394*	0.10219
Family assistance	0.5043938**	0.3229925	0.116748**	0.06985
Depth of exposure	0.2457498*	0.0991651	0.0573045*	0.02431
Likelihood ratio	120.21			
Prob>Chi <sup>2</sup>	0.0000			
Pseudo R <sup>2</sup>	0.5300			

\*=significant at 5%; \*\*= significant at 10%

Source: Computer analysis, 2017

#### 4.0 Conclusion

The study was carried out to assess the effect of Micro-Veg radio program tagged “Ramo-Elefo” on the listeners. The study covered the awareness and involvement in Micro-Veg project, their level of adoption of Under-utilized Indigenous Vegetables (UIVs) agronomic practices, value addition and UIV produce and products consumptions. The results show that there are more females. The prominent religion being practiced is Christianity. More respondents have above 12 years of experience. There are more people who are aware of the radio program and of all those who are aware, most are simply satisfied. The radio program is relevant to most of the respondents. Most do not get assistance with vegetable production operations from family members and most of them do not belong to the micro-veg group. The results reveal that the innovation that most respondents created interest in was value addition. The innovation mostly evaluated was seed treatment while those mostly tried out were transplanting, nursery preparation and management. The mostly adopted innovation was harvesting techniques. Most of the respondents listen to the program once a week. Most of the respondents that got aware of innovations on land selection and bed preparation through the radio eventually adopted them. Awareness of, satisfaction with and depth of exposure to the radio program makes the innovations relatively more adoptable, this is in addition to membership of Micro-Veg group and assistance from family.

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