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Participation of Rural Youths in Mushroom Production in Umuahia Agricultural Zone, Abia State, Nigeria

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Abstract

This study examined the participation of rural youth in mushroom production in the Umuahia Agricultural zone of Abia State, Nigeria. Specifically, the study described the socio-economic characteristics of the respondents and examined their level of participation in mushroom production technology in the study area. Purposive and multi-stage sampling procedures were used in the selection of 60 youths who participated in Mushroom Production Technology Training in Umuahia Agricultural Zone. Data were collected with a structured questionnaire and analyzed with the use of descriptive statistics, while ordinary least square regression analysis was employed to test the hypothesis. The findings show that 58.3% of the respondents were males, 65.0% had tertiary education and 63.3% had 1-4 years experience in mushroom production. Participation in mushroom production was high (mean=3.17). The regression analysis shows that the level of education, household size, years of experience, and level of income of the respondents significantly influenced the level of participation of youth in mushroom production technology in the study area. From the result, the null hypothesis was rejected and the alternate hypothesis was accepted given that the computed F-statistic of 72.136 was significantly higher than the critical F-statistic at 1% level. Based on the results of the study, it could be inferred that the socio-economic characteristics of the respondents influenced their level of participation in mushroom production. The study recommended that government should encourage youths to get involved in mushroom production by relating the production technology information in such a way that they can understand and practice.

Keywords:
Mushroom production, rural entrepreneurship, rural youth, technology

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INTRODUCTION

One of the pitfalls of the global economic crisis is the rise in unemployment, especially among youths (Abdullah & Sulaiman, 2013). It cannot be denied that attempts to develop the national economy based on agricultural production technologies have been taken seriously (Akande, 2014). Youth is the future of a nation with its limitless energy and ambition, a productive agricultural sector in that country is therefore required (Ajani et al., 2015). The willingness of the agriculture sector to create an environment so that young people are willing to participate in this field is very much required (Akpan et al., 2015). It has been noted that adequate funding must be provided for young people in Nigeria to start a business (Chidiebere et al., 2014; Gardiner et al., 2017). In a situation where working capital is insufficient or inaccessible, it becomes a problem for them to venture into business (Ofili, 2014). Given the right mix of inspiration, ideas and resources, young people are more than capable of creating productive and creative enterprises in the development of mushrooms that will change the youth paradigm from "job-seekers" to "job-creators" and from social dependency to self-sufficiency (Agbenyegah, 2013; Shams, 2016).

Mushrooms are edible macro-fungi usually grown above the soil; they grow at a temperature of 15-23^{o}C (Jahanet al., 2019). Joseph & Oku (2016) reported that mushroom mycelia may also grow well below 20-30°C. Mushrooms are nutritionally attractive due to their low energy quality, fiber content and high antioxidant potential (Kalac, 2013). Mushrooms have long been recognized as food items, delicacy and for their medicinal values. Mushrooms contain all essential acids, including abundant lysine content (which is too low in cereal grain) (Valverde et al., 2015; Rahi & Malik, 2016). Mushroom population has decreased significantly due to human and other anthropogenic factors, including deforestation, bush burning and improper use of chemicals for agricultural purposes (Bull & Maron, 2016). It has become very necessary to enhance the mass production of mushroom. Apart from being a veritable source of income for urban and rural people, it would complement the supply of basic nutrients, especially among rural populations (Onwubuya et al., 2015).

Despite the potential benefits of mushrooms, the majority of young people continue to look to the government for employment rather than developing their own jobs and employing others, such as engaging in mushroom production and processing technology (Zhang et al., 2014). The failure of young people to engage in mushroom production and processing technology has also been due to a number of factors: socio-cultural attitudes towards youth entrepreneurship, lack of entrepreneurship training in school curricula, insufficient market information, lack of business support and physical infrastructure, regulatory framework conditions and, in particular, poor access to finance (Asafo-Adjei, 2015).

However, in the past, mushrooms have not often been actively promoted by agricultural ministries and agencies in developing countries. Various reasons for this deficiency have been cited, including lack of technical capability in production techniques and poorly equipped government-supported advisory services, resulting in youth not being interested in mushroom production and processing technology. Thus, this study focused on the participation of rural youth in mushroom production technology in Umuahia Agricultural zone of Abia state, Nigeria. Specifically, the objective was to; (i) describe the socio-economic characteristics of youth in the study area, (ii) examined level of youth participation in mushroom production.

Hypotheses of the study

Ho: There is no significant relationship between the socio-economic characteristics of youth and their level of participation in mushroom production technology in the study area.

METHODOLOGY

Study Area

The study was carried out in Umuahia agricultural zone. Umuahia agricultural zone is one of the three agricultural zones in Abia State. By estimation of National Population Commission (NPC, 2016), Abia state has a population of 3,727,347 with its latitude and longitude of 5.4309°N and 7.5247°E respectively. Umuahia agriculture Zone has five local government areas, namely: Umuahia North, Umuahia-South, Ikwuano, Isiala-Ngwa North and Isiala-Ngwa South. The climate is tropical and humid all year round. Annual rainfall ranges from 2000mm to 2500mm while the temperature ranges from 22°C and 31°C. The population of the study comprises of all the youths that are participating in mushroom production in Umuahia agricultural zone.

Sampling procedure and sampling size

Purposive and multi-stage sampling techniques were adopted in the selection of 60 youths who participated in Mushroom Production Technology Training in Umuahia Agricultural Zone. Data were collected with the aid of structured questionnaire and analyzed with the use of descriptive and inferential statistics. Objective one, which deals with the description of the socio-economic characteristics of the respondents, was analyzed using descriptive statistics such as frequency distributions, percentages and mean, while Objective two, which examines the participation of youths in mushroom production technology was analyzed using four-point Likert type measurement; High = 4, Medium = 3, Low = 2, Never = 1. The value was calculated; Thus: 4+3+2+1 = $^{10}/_{4}$ = 2.5. The score (*X*) 2.5 and above show the high participation in mushroom production technology, while < 2.5 shows low participation in mushroom production technology. The OLS regression analysis model used to test the hypothesis that socio-economic characteristic of the respondents does not significantly influenced their level of participation in mushroom production technology in the study area was stated as follows:

$$Y = f(X_1,X_2,X_3,X_4,X_5,X_6,X_7,X_8,X_9)\ldots(3.1)$$

Where,

Y = Level of Participation in mushroom production.

X_1= Age (Year)

X_2 =Sex (1= male, 0= female)

X_3 =Marital status (1= married, 0=others)

X_4= Level of Education (Years)

X_5= Farmers experience (Years)

X_6= Farmers income (Naira)

X_7= Farm size (Hectare)

X_8= Occupation (1= farmer, 0= others)

X_9= Agricultural extension (1= use of extension service, 0= non-use of extension service)

RESULTS AND DISCUSSION

Socio-Economic characteristics of respondents

The distribution of the respondents by their socio-economic characteristics is presented in Table 1. The result shows that 58.3 percent of the respondents were males, while 41.7 percent of them were females. This indicates that there were more male participants than their female counterparts. This may be attributed to the chance of such men heading their families even when they may not be directly involved in farming. This is why (Nwachukwu, 2013) opined that more women are directly involved in agricultural production, while men usually control women as heads of families. The result in Table 1 also shows that 46.7 percent of the respondents were within the age bracket of 26-30 years old, while 10.0 percent and 6.0 percent of them were within the age brackets of 36-40 years and <25 years old respectively. A mean age of 31.6 years old was recorded which indicated that majority of the respondents were young and energetic and are in their active working age. This finding is consistent with (Ekwe et al., 2016) who noted that being young and active in age positions, one can be easily informed of new technology. It is expected that the age of the respondents will have significant effect on their perception and level of use of the technology.

It was also deduced from the result that 51.7

percent of the respondents were married, while 48.3 percent were single. Thus, married persons participated more in the adoption of technologies. Being married with children makes more responsible in terms of providing for family needs. Several researchers have stated that being married has a significant impact on how individual farmers participate in and handle their activities to meet the needs of their family members (Ekwe et al., 2016) and (Ominikari et al., 2017). Majority of the household (71.7%) had at most four (4) persons in their household while 28.3 percent of them had at least five (5) persons per household. This implies that the respondents had relatively small household size. The mean household size of the respondents was 3.9 persons per household. The result also shows that the larger proportion of the respondents (65.0%) had tertiary education as highest level of educational attainment, while the least proportion of them (3.3%) had primary education as their highest level of educational attainment. This means that the respondents have been trained and this is expected to influence their level of participation in technology adoption by improving their ability to generate income.

Table 1 also shows that all the respondents engaged in farming as their primary occupation. It is a known fact that people in the area are mostly farmers as the area is predominantly agrarian area. It was also observed that 63.3 percent of the respondents had at most four (4) years of experience in mushroom production, while the remaining 36.7 percent of the respondents had at least five (5) years of experience in mushroom production. The mean years of experience of the farmers in mushroom production was 3.9 years. This implies that most of the farmers are not vastly experienced in mushroom production. The study also shows that majority (35.0%) of the respondents earned an annual income of between ₦60,000 ($166) and ₦90,000 ($249) per annum. This was followed by 15 percent of them that earned between ₦20,000 ($55) and ₦50,000 ($138) per annum. This implies that the income levels of the farmers were small and this is consistent with the findings of (Nagaraj et al., 2017; Kamal & Kumar, 2016), which also found that the annual income of the mushroom farmers was low. Therefore, the farmers' level of income will influence the extent of technology they can adopt since most technology adoption is done at a cost.

Level of participation of youth in mushroom production

The mean score responses of the respondents on their level of participation in mushroom production technology packages exposed to them in the study area is presented in Table 2. The result in Table 2 indicates that 81.7 percent of respondents were highly involved in sawdust technology, while 18.3 percent respondents were moderately involved in sawdust technology for their mushroom production. Additionally, 68.3 percent of respondents were highly involved in the field of mushroom straw technology, while 1.7 percent of respondents were low-level participants in the technology. The result also indicates that 56.7 percent of respondents participated moderately in mushroom bran technology, while 8.3 percent of respondents participated at a low level. The result further indicates that 35.0 percent of respondents were highly involved in rice bran technology, while 8.3 percent of respondents were never interested in rice bran technology for mushroom production. A large proportion (46.7%) of respondents participated moderately in the production of calcium sulfate for mushrooms, while few (3.3%) of respondents never participated in the production of calcium sulfate. In addition, 43.3 percent of respondents engaged moderately in the use of sugar technology for the production of mushrooms, while 15.0 percent of respondents never participated in the use of this mushroom technology. The study also shows that a larger proportion (41.7%) of respondents engaged significantly in the use of compost and misel technology for the

Table 1
Socio-economic Characteristics of Respondents (n=60)

Variable	Frequency	Percentage
Sex		
Male	25	41.7
Female	35	58.3
Age		
< 25	6	10.0
26-30	28	46.7
31-35	20	33.4
36-40	6	10.0
Mean	31.6	
Marital status		
Married	31	51.7
Single	29	48.3
Household size		
2-4	40	71.7
5-7	20	28.3
Mean	3.9	
Educational level		
Primary	2	3.3
Secondary	19	31.7
Tertiary	39	65.0
Occupation		
Farming	60	100
Years of Experience		
1 - 4	40	33.3
5-8	76	63.4
Mean	3.9	
Income Level		
20,000 – 50,000 ($55-138)	9	15.0
60,0000 – 90,000 ($166-249)	21	35.0
100,000 – 130,000($276-359)	12	20.0
140,000 – 170,000($387-470)	6	10.0
180,000 – 210,000($497-580)	5	8.3
220,000 – 250,000($608-691)	2	3.4
≥ 260,000($718)	5	8.3

Naira to US dollar conversion rate: N362 to $1 US dollar

cultivation of mushrooms, whereas 5.0 percent of respondents never participated in this technology.

Concomitantly, the mean responses of the respondents indicate that the respondents primarily participated in all available mushroom processing technologies provided to them in the study area with a mean score response of >2.50. The overall mean score of 3.17 indicates that the respondents participated in all the mushroom processing technologies they were exposed to in the study area. This is expected to increase their knowledge and experience in a variety of ways in order to increase their production of mushrooms. The exposure of respondents to all of these mushroom production technologies would help them to find the most cost-effective approach to sticking to their mushroom production activities in order to increase their profits.

Table 2
Level of Participation in the Following Stage/Phase of Mushroom Production

Technology packages.	High	Medium	Low	Never	Mean	Remark
I participated in Sawdust technology	81.7	18.3	0.0	0.0	3.82	High
I participated in Mushroom straw technology	68.3	30.0	1.7	0.0	3.67	High
I participated in Mushroom bran technology	35.0	56.7	8.3	0.0	3.27	High
I participated in rice bran technology	35.0	31.7	25.0	8.3	2.93	High
I participated in Calcium sulfate technology	28.3	46.7	21.7	3.3	3.00	High
I participated in Sugar technology	16.7	43.3	25.0	15.0	2.62	High
I participated in Compost+Misel technology	26.7	41.7	26.7	5.0	2.90	High
Grand Mean		3.17	High			
Decision cut-point		2.50				

Hypothesis testing

The result of the OLS regression used to test the hypothesis that socio-economic characteristic of the respondents did not significantly affect their level of participation in the field of mushroom processing technology is shown in Table 3.

The linear model was chosen as the lead model based on the magnitude of the coefficient multiple-determination (R^2), the number of significant variables and the signs of the regression coefficients as they comply with a priori expectations. The model shows that the explanatory variables included in the model explained about 63.9 percent of the variance in youth involvement in the processing technology of mushrooms. The F-statistic value of 72.136 was significant at 1 percent level and confirms the significance of the entire model.

The level of education, the size of the household, the years of experience and the level of income of the respondents were the significant socio-economic characteristics of the respondents that affected their level of participation in the mushroom production technology packages they were exposed to.

The coefficient of level of education of the respondents was significant at 5 percent and positively related to youths' participation in mushroom production. This means that as level of education increased, youths' participation in mushroom production among the respondent also increased. Increased level of education could mean increased managerial ability needed in agribusiness. The coefficient of household size of the respondents was significant at 1 percent and positively related to youths' participation in mushroom production technology. This implies that increase in the household size of the respondents leads to increase in the youths' participation in mushroom production technology in the study area and vice versa. This is anticipated because the large size of the household beyond acting as a source of labour often means a decrease in the wellbeing of the family members in a situation where the bread winner does not earn enough to meet the needs of the family. This scenario would push young people in such households to search for means of survival and thus increase their ability to participate in the development of mushroom technologies that will help them take care of their personal needs and support their families.

The coefficient of years of experience of the respondents was significant at 1 percent and positively related to youths' participation in mushroom production. This means that as respondents rise in years of experience, increased production of mushrooms is achieved and vice versa. The coefficients of income level of the respondents were significant at 5 percent and positively related to youths' participation in mushroom production. This

Table 3
Effects of Socio-economic Characteristics of the Respondents on Their Level of Participation in Mushroom Production Technology Packages Exposed to Them

Variable	Linear+	Exponential	Semi-Log	Double Log
Constant	5.836(3.033)***	1.131(5.935)***	4.203(2.968)***	1.738(3.841)***
Sex	0.658(0.068)	0.033(1.911)*	-0.619(-2.278)**	0.039(1.841)*
Age of respondents	-1.492(-0.005)	0.002(0.442)	-0.039(-0.208)	-0.096(-1.847)*
Marital Status	-0.041(-0.005)	0.034(2.899)**	-0.209(-2.516)**	-0.008(-0.244)
Education level	0.307(2.320)**	-0.013(-2.448)**	0.050(0.145)	0.014(0.178)
Household size	1.166(2.236)**	-0.006(-0.416)	0.026(0.342)	0.066(1.081)
Years of Experience	0.955(4.039)***	-0.002(-0.154)	-0.825(-2.421)**	0.011(1.887)*
Occupational status	0.071(0.002)	0.001(-0.138)	0.063(0.463)	0.001(0.103)
Income level	7.15E-007(2.401)**	-2.11E-007(0.919)	0.124(-0.524)	-0.027(-0.966)
R^2	0.639	0.501	0.558	0.430
R^{-2}	0.613	0.482	0.532	0.414
F-ratio	72.136***	51.190***	54.602***	45.051***

NB: ***, ** and * represents 1%, 5% and 10% levels of significance. Values in parenthesis are t- ratio. + = lead equation.

means that as income increases, youth participation in the production of mushrooms is also likely to increase, and vice versa, as technology adoption is cost-effective.

Given that the computed F-statistic of 72.136 was significantly higher than the critical F-statistic at 1 percent level, we therefore reject the null hypothesis and accept the alternate hypothesis and conclude that the socio-economic characteristic of the respondents like their level of education, household size, years of experience and level of income significantly influenced their level of participation in mushroom production.

CONCLUSION AND RECOMMENDATIONS

The focus of the study on youths' participation in mushroom production technology in the Umuahia Agricultural Zone of Abia State, Nigeria, indicates that mushroom production technology is of interest to young people. The youths' were educated, often married with relatively small household sizes. They do not have extensive experience in the field of mushroom production technology and this enables them to participate actively in all of the seven (7) mushroom production technologies presented to them in the study area. The level of education, the size of the household, the years of experience and the level of income of the respondents significantly influenced the level of participation of youth in the field of mushroom production technology. The increase in years of experience would lead to an increase in the production of mushrooms. Increased education for youth will increase their willingness to participate in the production technology of mushrooms and will also lead to increased production of mushrooms. In addition, income has been identified as a significant factor in the participation of young people in mushroom production technology. There is, therefore, a high level of youth participation in mushroom processing technology in Abia State. Therefore, based on the findings of the study, it is recommended that policies that will drive increased production of mushrooms must take into account the youth population of the state. Also, government should encourage youths with low education background and low level of income to get involved by providing incentives that will motivate them to get involved in mushroom production business rather than to lose the expertise they have gained due to lack of fund to establish and develop themselves.

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