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Information needs and assessment of farmers involving in mushroom production in Oyo State, Nigeria.

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Abstract: The study examined the information needs of mushroom farmers in Oyo State. Two sampling procedure was used to select 143 mushroom farmers for this study. Data collected were analyzed using both descriptive and inferential statistics such as Chi-square and Pearson Product Moment Correlation (PPMC) at 0.05 level of significance. The result of the study shows that (38.5%) of the respondents were between 9the ages of 35 and 44 years. Also, (62.9%) were males. Majority (81.8%) of the respondents were married. Radio is the most common source of information available to farmers (97.2%) in the study area. On the overall, mean score (76.10) were classified as high information needs. Majority (63.6%) of the farmers doesn't have access to information on mushroom production, consequently this have led to low mushroom production in the study area. Therefore,There is need to improve and intensify on extension contact and other information source available to mushroom farmers in order to improve mushroom production in the study area.

Keywords: Information Needs, Mushroom, Assessment, Production, Chi-square.

Introduction

Agriculture plays crucial role in the economy of a country as it provides raw materials, employment opportunities to large percentage of the population (Praburaj, 2018). Most agricultural production especially processing generate waste which if unused constitute environmental menace (Cajethan, *et al*., 2018; Oluseun & Adebukola, 2021). Mushroom cultivation is a highly efficient method of disposing agricultural residues as well as producing nutritious food (Chang, *et al*., 1991; Daniel & Han, 2018).

Mushroom is a fungi, which plays a vital role to man in the field of Medicare, nutrition and pharmacology and it has generated a lot of interest in recent time (Akpaja, *et al*., 2003); Kidukali, et al., 2010). Mushroom consists of edible and poisonous varieties. (Kimole, 2012): Robert, et al., (2020) affirmed that most people consume mushroom out of ignorance, since they cannot differentiate between edible and poisonous mushroom. Edible mushrooms are rich in nutrient and desirable for use as food, with good flavor (Anthony & Joyce, 2007).

Edible Mushroom accumulates essential minerals such as copper, riboflavin, niacin Potassium and Selenium (Satish, 2021). Oyster (Agaricus biosporus) is the most cultivated mushroom. Oyster is whitish, highly prolific, with its characteristic round – shaped fruiting bodies. It has a good adaptability that are being able to grow in wide varieties of environment and resistant to disease (Kayode, *et al*., 2015). Productions of these substances are from the bioconversion of substrate to fruiting body (Zheng, *et al*., 2017). Nutritionally, mushroom protein content is about twice that of vegetables and four times that of oranges (Ahenkan, 2010).

In fact it is clear that apart the nutritional value of mushrooms, they have potential medicinal benefits described in prevention or treatment of certain diseases like hypertension, obesity, and high risk of stroke (Nayana & Janardhanan, 2000; Nagdeve, 2019). Mushroom also acts as immunological strengthener,

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which can be used to cure viral hepatics and various other diseases, additionally, they are cholesterol lowering agents (Oyetayo, 2011). Mushroom cultivation is easy to start since it required limited space and does not require large capital to start the production, they can be cultivated on a part time basis (Mahantesh *et al*., 2016: Oluwafemi, *et al*., 2016).

About 25 species of Mushrooms are considered desirable for use as food (Maria *et al*., 2015). Ethno-mycological survey utilization of mushrooms in North Central Nigeria reveals that most people consume mushroom based on their nutritional (81.7%) and palatability (93.5%) characteristics while 15% utilize mushroom based on their medicinal properties (Ayodele *et al*., 2009). Mushroom can be commercially grown both for local consumption and export market under controlled scientific conditions (Wakchaure, 2011; Joseph & Oku, 2016).

Mushroom cultivation also provides opportunities for improving the sustainability of small farming systems, so successful cultivation and good market opportunity will not only reduce vulnerability to shocks, in case of crop failure but also act upon other economic opportunities (Mabuza & Wale, 2012 ; Zhang *et al*., 2014). The outcome of recent studies carried out on mushroom production has not translated into feasible result as its production is still remains low. This shows that considerable gap exist between the target objective and the achievement.

Therefore, it becomes imperative to assess the information needs of farmers involved in mushroom production, describe the demographic characteristics of mushroom farmers, examine sources of information on mushroom production and ascertain the information needs of respondents on mushroom production in Oyo State, Nigeria.

Study area

The study was carried out in Oyo State, which was located in the South West geopolitical zone of Nigeria and is generally referred to as "Pacesetter state". Oyo state was one of the states carved out of the formal Western State or region of Nigeria in February 3rd, 1976. It is lies between latitude 70N–90N and longitude 2.5oE. The State covers an area of approximately 28, 454 sq Km representing approximately 4.08% of Nigeria's total area and is ranked 14th by size. Oyo State is an inland state in South – Western Nigeria, with its capital at Ibadan. It is bounded in the north by Kwara State, in the east by Osun State, in the South by Ogun State and in the west partly by Ogun State and partly by the Republic of Benin. The Climate is equatorial, notably with dry and wet seasons and with relatively high humidity. Agriculture is the main occupation of the people of Oyo State (Wikipedia, 2015). The climate in the state favour the cultivation of crops like maize, yam, cassava, millet, rice, plantains, cocoa, palm produce, cashew etc. A number of international and federal agricultural establishment are located in the state.

Materials and methods

The target population for the study was mushroom farmers in Oyo State. Two sampling procedure were used to select 143 mushroom farmers. The first stage involved the purposive selection of three (3) Research Institutes in Oyo State where training on mushroom production was prevalent. Thus; Forestry Research Institute of Nigeria (FRIN) which comprised trainees from Akinyele Local Government Area; National Horticultural Research Institute (NIHORT) comprising trainees from Ido, and National Bio-technology Development Agency (NABDA) in Ogbomoso comprising trainees from Surulere Local Government Area. The second stage involved the purposive selection of 50% of the mushroom farmers trained in these institutes; Akinyele (60), Ido (45) and Surulere (38). The data were analyzed using descriptive (percentages, mean scores) and inferential (Chi-square, PPMC) statistics at 0.05 level of significance.

Results and discussion

Distribution of respondent according to their demographic characteristics

The results from table 1 above shows that (38.5%) of the respondents in the study area were between the age of 35 and 44 years, (29.4%) of the respondents falls between 45 and 54 years, (19.6%) of respondent are between 25 and 34 years while those above 55 years constituted the least (12.5%) category. The mean age was 43.8 and standard deviation was 9.56. This implies that most of the mushroom growers were distributed among the age groups. This is an indication that all the age groups accepted the technology. The result of the analysis also shows also that about (63.0%) of the respondents were males while (37.0%) were females, implying that a large percentage of the male respondents got engaged in mushroom production.

This is an indication that males are more in mushroom production than female. Onwubuya *et al*. (2015) reported that 65% of farmers involving in mushroom production as examined in Abia state of Nigeria were male. The result of the analysis on their marital status showed that (81.8%) of the respondents were married while only (11.2%) were single. This indicates that the majority of the respondents were married. Odediran *et al*. (2015) reported that majority of mushroom farmers

were married, thereby their family sizes serve as additional labour in mushroom business.

Furthermore, the results from table 1 revealed that (47.6%) of the respondents had no formal education. This represents the largest category in the distribution of respondents by educational attainment. It simply reveals that about half of the respondents were not educated. The results from the table also showed the distribution of the respondents by their major occupation. More than half of the respondents (60.8%) were farmers. Despite the fact that high proportion of respondents are already involved in farming and mushroom but lack the technicality knowledge of its production (Memory *et al*., 2019). Therefore, they need Information on the production of mushroom.

The result on table shows that only one species is cultivated by all the farmers. Oyster mushroom is therefore the most popular Mushroom cultivated by the farmers. The table also indicated that about half (49.0%) of the respondents obtained their capital for mushroom production through personal savings. Those that obtained capital from cooperative society were about a quarter (23.8%) of the respondents. A little percentage (9.8%) of the respondents acquired their capital through bank loan. This result implies that mushroom farmers use their personal saving to produce mushroom. Whereas, Gabretsadkan (2015) revealed that farmers need financial support to grow their businesses.

Results from the Table 1, further reveals that (44.8%) of the farmer produce mushroom on medium scale, while few (18.1%) of the farmers produce on small scale production. This suggests that the higher the scale of production, the better the livelihood outcome of mushroom farmers. Odediran *et al*. (2020) also reported that the major reason why farmers undergo mushroom production is to generate income.

Farmers' source of information

Results from table 2 shows sources of information available to famers. In this study, radio is the most common source of information available to farmers (97.2%) ranked 1st. A large percentage (85.3%) ranked 2nd of the farmers also gets information that relates to their farming activities from family and friends. Other source of information available to the mushroom farmers includes farmers group (83.2%) ranked 3rd, extension agents (68.5%) ranked 4th and Internet (16.8%) ranked 5th. This was in line with Oguntade (2009), who found out that the leading sources of information available to mushroom farmers were family and friend, radio, growers association, extension agents, television and newspaper.

Table 1: Demographic characteristics of the respondents. (n = 143)

Variable	Frequency	Percentage (%)
Age		
25 – 34 years	28	19.6
35 – 44 years	55	38.5
45 – 54 years	42	29.4
Above 55 years	18	12.6
		Mean=43.18
	SD=9.56	
Sex		
Male	90	62.9
Female	53	37.1
Marital status		
Single	16	11.2
Married	117	81.8
Widowed	4	2.8
Separated	6	4.2
Educational level		
Primary	15	10.5
Secondary	37	25.9
Tertiary	23	16.1
No formal education	68	47.6
Primary Occupation		
Farming	96	67.1
Civil Service	16	11.2
Trading	15	10.5
Artisan	8	5.6
Retiree	4	2.8
Pensioner	2	1.4
Student	2	1.3
Source of credits		
Personal savings	70	49.0
Family and friends	25	17.5
Co-operative society	34	23.8
Bank loan	14	9.8
Scale of production		
Small	53	37.1
Medium	64	44.8
Large	26	18.1

Table 2: Distribution of respondents by sources of information (n = 143)

Sources of information	Frequency	Percentage	Rank
Radio	139	97.2	1st
Family and friends	122	85.3	2nd
Farmers group	119	83.2	3rd
Extension agents	98	68.5	4th
Internet	24	16.8	5th

Table 3: Distribution of respondents according to areas of information needs

Information needs	Frequency	Percentage	Rank
Method of absolute infection free	134	93.7	1st
Source of suitable Spore	130	90.9	2nd
Proper Inoculation method	129	90.2	3rd
Appropriate measurement of additives to sawdust	127	88.8	4th
Maintenance of substrate bag	126	88.1	5th
Incubation area period	122	85.3	6th
Essential of darkness after inoculation	120	83.9	7th
Temperature level area	117	81.8	8th
Contaminated bags isolation	115	80.4	9th
Method of harvesting	110	76.9	10th
Appropriate watering process	91	63.6	11th

Information needs of mushroom farmers

Result in Table 3, the table reveals that almost half of the mushroom farmers have high need for information on mushroom production. These information includes, method of absolute infection free (93.7%), source of suitable spore (90.9%), proper inoculation method (90.2%), appropriate measurement of additives (88.8%) and maintenance of substrate bag (88.1%). The result agrees with Ayanfunke (2019) who indicated that all sampled respondents require information in one area or the other, to expand the scope of their activities and maximizing profits.

The results from table 4 above, reveals that, the overall, information needs of farmers in all these stages were mapped into a score in order to determine the extent to which the farmers need information. Scores higher or equal to the mean (76.10%) score were classified as high information needs while those below the mean were classified as low information needs.

The results also reveals, that majority (63.6%) of the farmers have high information needs while only a few (36.4%) have low information needs. Therefore, the farmers need more information on mushroom production.

Hypothesis testing

Results in table 5 shows the summary of the chi-square analysis of the relationship between respondents' demographic characteristics and their information needs. The results reveals, that respondent's educational level (χ^2=9.347, p< 0.05) is significantly related to their information needs. The result above also shows that respondent's source of credit (χ^2=15.720, p< 0.05) is significantly related to their information needs. The significant relationship between educational level and their information needs is an indication that government should pursue rigorous adult education programme so as to improve the literacy level of the farmers. Also, the significants relationship between source of credit and information needs implies that access to credit may likely improve the production of mushroom in the study area.

Conclusion

The study therefore concluded that majority of the mushroom farmers were in their active age and mostly male. Majority had no formal education, it could be deduced that most of the mushroom farmers in the study area were illiterates which informs their high information needs on mushroom production. Respondents source of information based on the familiarity of the respondents in the study area are to radio, family and friends.

Table 4: Distribution of respondents by level of information needs (n = 143)

Information needs	Frequency	Percentage (%)	maximum	Minimum	Mean	Standard Deviation
High	91	63.6	120	12.0	76.10	26.93
Low	52	36.4				
Total	143	100.0				

Table 5: Chi-square analysis showing the relationship between respondents demographic characteristics and their information needs

Variables	χ^2	Df	p-value	Decision
Educational level	9.347	3	0.025	S
Source of credit	15.720	3	0.001	S

Recommendations

Research institutes, Governmental and Non-Governmental organizations should provide farmers with adequate information in order to sensitize the farmers' with knowledge on up-to-date principle and practice of mushroom production. There is need to improve and intensify on extension contact as a whole as major source of information available to mushroom farmers on mushroom production as this will lead to increase in mushroom production and food production.

Farmers should be encouraged to form cooperative groups among themselves in order to have access to loan from bank or other financial organizations. However, this will assist all members' in their financial needs as well as to increase mushroom production.

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