



Information needs of agricultural extension workers on post-harvest management of groundnut in Edo State, Nigeria



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ABSTRACT

The study assessed the effectiveness and needs of agricultural extension workers on post-harvest management of groundnut (PHMG) in Edo State. The specific objectives were to describe the socio-economic characteristics of extension workers, identify their constraints and ascertain their effectiveness and needs of information on post-harvest management of groundnuts. Primary data for the study were obtained with the use of structured questionnaire administered to 50 extension workers sampled across the three agricultural zones of the State. Data obtained were analyzed using descriptive (mean, frequency, percentage) and inferential statistics (Logit regression). Results from the descriptive statistics showed that majority of the extension workers were male (64%) and were married (76%). Majority (48%) of respondents were HND holders and (38%) were B.Sc degree holders. Only a few (14%) were OND certificate holders. The study showed that majority (60%) of the respondents were within the age bracket of 30 to 49 years and most of them belong to a household size of less than members. Respondents were effective in information dissemination of groundnut processing into groundnut oil cooling ($\bar{x} = 2.33$), income statement ($\bar{x} = 2.39$), inventory record ($\bar{x} = 2.24$), size reduction ($\bar{x} = 2.22$) and storage ($\bar{x} = 2.52$). The study showed that the respondents need information on packing ($\bar{x} = 2.42$), decorticating ($\bar{x} = 2.34$), filling ($\bar{x} = 2.40$), balance sheet ($\bar{x} = 2.26$) and pest attack during storage ($\bar{x} = 2.04$). Logit regression analysis showed that, level of education ($r = 5.17^{**}$), Age ($r = -2.19^{**}$) and working experience ($r = 3.63^{**}$) of respondents were significant variables since their P -values were ≤ 0.05 . This study concluded that extension workers were effective in some post-harvest management practices of groundnut in the study area but need information on decorticating ($\bar{x} = 2.34$), balance sheet ($\bar{x} = 2.36$), packaging ($\bar{x} = 2.06$), form of storage ($\bar{x} = 2.20$), pest attack during storage ($\bar{x} = 2.04$), packing ($\bar{x} = 2.42$), expelling ($\bar{x} = 2.14$) and cooking ($\bar{x} = 2.24$). They were however, constraint by limited funds ($\bar{x} = 3.84$), poor storage facilities ($\bar{x} = 3.72$) inadequate training of personnel ($\bar{x} = 3.62$) among others. As a result, funds should be made available to build more storage facilities, extension workers should be properly trained with more information on post-harvest management and materials should be provided to enhance effectiveness.

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INTRODUCTION

Post-harvest losses present one of the major problems not only in grain production but also in other staple food

production. Important parts of staple food production are wasted throughout crop value chain from the initial

agricultural production down to final household consumption. Post-harvest losses of farm produce occur between harvest and the moment of human consumption. Food is lost at both quantitative and qualitative levels. An effective agricultural extension services on post-harvest technology can contribute a lot to the food loss reduction, improve farmers' income status, standard of living and reduce poverty. Sound strategies to prevent or limit post-harvest losses remain key issues to deal with food insecurity in most of the developing countries (Kitinoja et al., 2011).

If post-harvest losses are reduced, the world food supply can be increased by 30-40% without cultivating additional hectares of land or increasing any additional expenditure on seed, fertilizer, irrigation and plant protection measure to grow the crop.

In Nigeria, groundnut production is dominated by small holder farmers, and the crop is considered to be one of the most important food crops as well as cash crops (Tsusaka et al., 2016). The grain is consumed in diverse forms: raw, roasted, salted, boiled unshelled, etc. Nuts are grounded into coarse flour and mixed with leafy vegetables as part of the traditional diet (Hendriks and Msaki, 2009). It is also used for oil extraction and butter production, while the residual cake is processed into animal feed as well as for human consumption. Due to its wide usage, groundnut has become one of the important cash crops income earners for smallholders and is a source of foreign currency for the country's agro-based economy (Msere et al., 2015). Despite the numerous uses of groundnut, the crop has been faced with several challenges that results in its massive lost (both quantitative and qualitative) among which are the poor quality of produce traceable to inappropriate handling right after harvesting, processing and through distribution to the point of consumption leading to food and income insecurity in the country (Plahar, 2006).

The effectiveness of the extension approach in enhancing capacity building, technological adoption and ultimately improved agricultural output especially in the area of groundnut production depends on key factors relating to the extension method used, capacity and management structures of the extension approach, as well as underlying contextual factors such as the policy environment, market access, characteristics of beneficiary communities and weather conditions. A good agricultural extension services establishment at post-harvest technology can contribute a lot to the food loss reduction, improve farmers' income status, standard of living, increase income and reduce poverty. Several experts suggest that investing in PHL reduction can be an effective

intervention to attain food security but no previous study has been conducted on the effectiveness of agricultural extension workers in disseminating information and technologies on post-harvest management on groundnut in Edo State, hence this study is carried out to address the gap.

The general objective of the study is to highlight the effectiveness of agricultural extension workers in disseminating information on post-harvest management on ground nut. The specific objectives were to:

- Describe the personal characteristics of the extension workers in the study area,
- Examine respondents' effectiveness on post-harvest management operations of groundnut in the study area,
- Identify respondents needs on post-harvest management operations of groundnut in the study area and,
- To examine the constraints to postharvest management practices in the study area.

Hypothesis of the study

H₀₁: There is no significant relationship between extension workers socio-economic characteristics and their effectiveness in the dissemination of available information and technology.

METHODOLOGY

The study was carried out in Edo State. Edo state is in the southern region of Nigeria and occupies a land area of about 17,802 km² and a population of 3,233,366 (National population commission (NPC, 2006). Edo State is located between latitude 5°5'N–7°33'N and longitudes 5°E–6°40'E. It shares common boundary with Ondo State in the west, Delta State in the east and Kogi State in the north.

The major occupation of the people is agriculture and the main food crops grown are cassava, yam, plantain, and cocoyam, as well as beans, rice, yam, okra, peppers, and ground nuts. They also produce cash crops such as rubber, timber, oil palm and cocoa. Sixty two point five percent (62.5%) of the extension agents in Edo State ADP were randomly selected and used for the study. The above percentage of the total population gives 50 respondents used for the study.

Data for the study were collected from both primary and secondary sources. The primary data was obtained from the field using a structured questionnaire that was administered to the respondents. The secondary data were obtained from journals and books with related topics. The data collected were analyzed using both descriptive and inferential statistics. The former included frequency, percentages and mean statistics, while logit regression,

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an inferential statistic, was used to test the hypothesis.

Demographic characteristics of respondents

- Age: This was measured in years and categorized into groups
- Gender: This was measured by asking respondents to indicate whether they are male (coded 1) or female (2)
- Household Size: Respondents were asked to indicate the total number of people in their family\household. This was grouped and coded appropriately.
- Working Experience: Respondents were asked to indicate their working experiences in years.
- Educational level of respondents': Respondents were asked to indicate their educational level.
- Grade level: Respondents were asked to indicate their grade levels
- Income level of Respondents: Respondents were asked to indicate their income group per annum. This was measured in Naira and coded appropriately.

Respondents' effectiveness and information needs on post-harvest management operations

A list of different post-harvest management operations was given to the extension workers and their levels of effectiveness on the operations were measured according to their responses. Their responses were captured as either 'yes', 'no' or not sure. To determine effectiveness, the responses were aggregated per respondent and the mean of the aggregate scores taken. Judgement was based on average score of 2.0. Scores greater than (>) 2.0 were considered to be effective, why scores equal to (=) or lesser than (<) 2.0 was considered non effective.

Also, the respondents were asked to indicate areas of information needs on post-harvest management operations and their levels of needs was measured according to their responses. Their responses were captured as either 'yes', 'no' or not sure. To determine their information needs, the responses were aggregated per respondent and the mean of the aggregate scores taken. Judgement was based on average score of 2.0. Any need with a score below 2.0 is considered less important need while a score above 2.0 is considered more important need.

Respondents perceived constraints to post harvest management practices

A list of twelve probable constraints was given to the respondents to ascertain the extent they are affected by the constraints. This was measured by rating constraints on a four point Likert-type scale of 'very severe' (coded 4),

'severe' (3), 'little severe' (2) and 'not severe' (1). The mean score for each variable was computed by dividing the total respondent score by the number of respondents as used by Omoregie et al. (2020). Judgement on each of the variable was based on an average score of 2.50. A constraint score greater (>) than the weighted mean of 2.50 is considered severe and scores lower than 2.50 is not severe.

Logistic regression

It is used in statistical software to show the relationship between the dependent variable and one or more independent variables by estimating probabilities using a logistic regression equation.

The logit regression formula is given as:

$$\log(\pi/1-\pi) = \beta_0 + \beta_1x_1 + \beta_2x_2 + \dots + \beta_mx_m$$

Where: X, Independent variables (demographic characteristics; xi, gender; xii, age; marital status; working experience (years), highest level of education, household size (number); grade level; annual/ monthly income (₦).

Working experience (years)

π , Dependent variable (respondents effectiveness); β_i , the regression coefficients associated with the respondents group.

RESULTS AND DISCUSSION

Percentage distribution of respondents according to their personal characteristics (N = 50)

Table 1 show that majority (64%) of respondents were males while a few (36.0%) were females. This result indicates that percentage of male extension workers surpasses that of the female in the study area and the result is in agreement with the findings of Ibrahim and Ajayi (2020) who stated that in the past, extension job was reserved for men only believing that it was only men that were farmers and that men needed to reach them. However presently, accepting the fact that women are also farmers and need to be reached in order to achieve increased productivity has necessitated the employment of female extension workers who are believed to be in a better position to do the job of reaching women (Omoregie and Onemolease, 2021). Also, as would be expected, the population of the agricultural extension workers in Edo State, Nigeria is male-dominated as in many other places. This finding corroborates the work of Omoregie and Koyenikan (2021) that male-dominated the field of

Table 1. Socio-economic characteristics.

Gender	Frequency	Percentage	Mean	Std. Dev
Male	32	64		
Female	18	36		
Age (years)				
<30.00	9	18		
30.00 - 39.00	18	36		
40.00 - 49.00	12	24	10.44	4.11
50.00+	11	22		
Marital status				
Single	11	22		
Married	38	76		
Divorced	1	2		
Widowed				
Working experience (years)				
<=10.00	34	68		
11.00-20.00	8	16		
21.00-30.00	8	16	10.44	8.11
Highest level of education				
OND	7	14		
HND	24	48		
B.Sc	19	38		
Household size (number)				
<5.0	35	70		
5.00+	15	30	10.34	2.75
Grade level				
<8.00	5	10		
8.00+	45	90		
Annual/ Monthly income (₦)				
30000.00 - 49999.00	1	2		
50000.00 - 69999.00	17	34		
70000.00 - 89999.00	12	24	88100.00	31588.72
90000.00 - 109999.00	2	4		
110000.00+	18	36		

Source: Field survey, 2021.

agricultural extension work in Nigeria. Also, Table 1 result shows that more of the respondents (36.0%) were in the age group of 30 to 39 years. 24% of the respondents were between the age range of 40 – 49 years. This was closely followed by those within the age bracket of 50 and above with 22%, 18% of the respondents were below 30 years of age. The mean age of respondents was 35. This result agrees with the report by Omoregie and Koyenikan (2021) that most of the extension workers in Edo State ADP were young. The mean age of the respondents (\bar{x} = 10.44) indicated that they are still in their economically productive age hence, may have the ability to synthesize information or instructions accessed from various sources to meet their information needs (Uddin and Osasogie, 2016).

Also, it could be speculated that this profession might not be attractive to the young graduates due to the nature of the work.

The result shows that majority of the respondents (76.0%) were married while 22.0% were single, only 2% were divorced. The results are consistent with the findings of Omoregie and Koyenikan (2021) which shows that most of the extension workers in in Edo State were married. The results further suggest that there is a direct relationship between age and marital status. The higher the age, the higher the chances of being married. With an average age of 40 years, most people should ideally be married and settled. It is also possible that married people in most cases, tend to be spared the unnecessary distractions

that attend the lives of most single persons and this could help them focus better to achieve set objectives in their workplace (Uddin and Osasogie, 2016).

The distribution of extension workers by working experience shows that majority of the respondents (68%) had work experience of 1–10 years, while 8 respondents representing 16% had a working experience of 11–20 years. Also, 16% of the respondents had a working experience of 21–30 years. The mean years of working experience was 10 years and this implies that respondents were quite experienced in extension work. This also implies that extension workers are very experienced in extension work and delivery hence they are more effective in their role. This corresponds with the findings of Sinkaiye (2011) who reported a mean working experience of extension personnel to be 10 years in Edo State.

On the level of education of extension workers findings indicated that more 48.0% of the respondents were HND holders, 38.0% held B.Sc. and 14.0% held OND. The highest level of education of the correspondents revealed that they are either First Degree or OND, certificate holders. The results implied that extension workers in the study area were literate and due to their high educational attainment, the extension personnel in the study area are able to understand and work with agricultural technologies and information they seek from different information sources. Similar findings were reported by Ogunsumi (2016).

The household size distribution of extension workers as shown in Table 1 indicated that more 70% of the respondents had a household size of less than 5 members, 30.0% had a household size of more than 5 members. With a mean household size of more than 3 members, this implies that the extension workers will spend more of its productive resource on consumption needs.

The result of Table 1 indicated that majority (90%) of the respondents were on grade level 8 and above (≥ 8), while only (10%) were on grade level less than eight (8). The mean grade level of the respondents in the study area was 8. This implied that respondents in the study area are acquainted with their roles as extension workers and how they should be performed because a high grade level indicates high working experience. The annual income distribution of extension workers provided in Table 1 shows that majority (36.0%) had annual income of ₦11,000.00 and above, 34.0% had annual income of between ₦50,000.00 and ₦69,999.00, 24% had annual income of between ₦70,000.00 and ₦89,999.00. 4% had annual income of between ₦90,000.00 and ₦109,999.00 and only 2% had annual income of between ₦30,000.00 and ₦49,999.00. The mean annual income of respondents in the study area was ₦88,100.00. There is a positive relationship between grade level and annual income. When the grade level increases, the income increases. This implied that the extension worker can conveniently take care of his household without sourcing for external

help.

Respondents' effectiveness on post-harvest management operations of groundnut production

Processing into groundnut oil

The result of the study shows effectiveness of respondents in cooling (\bar{x} = 2.33), oil filtration (\bar{x} = 2.24), seed clearing and grading (\bar{x} = 2.22) operations as mean was higher the bench mark (2.00). They were however not effective in cooking (\bar{x} = 1.96), packaging and expelling (\bar{x} = 1.94) and decortications (\bar{x} =1.84). The results implied that the respondents had information needs on cooling the most. The mean that expressed significant information needs was ≥ 2.0 , this implies that respondents had significant information needs on cooking, packaging and expelling and decortications operations in groundnut production and methods. The respondents expressed need for information related to groundnut value chain, irrespective of their knowledge and perceived effectiveness in information dissemination. This is necessary to be abreast of technological changes and to update their knowledge.

Processing into peanut butter

Selecting had the most significant mean (\bar{x} = 2.28) and it was therefore ranked first position (1st). This was followed by cooling (\bar{x} = 2.26), degassing (\bar{x} = 2.26) and storage (\bar{x} = 2.20), packaging (\bar{x} = 2.16), threshing (\bar{x} =2.12), mixing and grinding (\bar{x} = 2.08), filling (\bar{x} = 2.02) and roasting (\bar{x} =2.00). The results implied that the respondents had information needs on selecting the most. The mean that expressed significant information needs was ≥ 2.0 , this implies that respondents had significant information needs on all the operations involved in preproduction.

Harvesting

Table 2 shows respondents' information needs on harvesting. Storage had the most significant mean (\bar{x} =2.42) and it was therefore ranked first position (1st). This was followed by de-shelling (\bar{x} = 2.34), picking and selection (\bar{x} = 2.24), collection of raw materials (\bar{x} = 2.04), dry blanching (\bar{x} = 2.00) and packaging (\bar{x} = 1.90). The results implied that the respondents had information needs on storage the most. The mean that expressed significant information needs was ≥ 2.5 , this implies that respondents had significant information needs on all the operations involved in production.

Marketing

From the result of the study, it was observed that the

Table 2. Effectiveness of information on postharvest management and information needs.

Processing into groundnut oil	Effectiveness		Information Needs	
	Mean	Std. Dev	Mean	Std. Dev
Seed cleaning and Grading	2.22	0.93	2.06	0.62
Decorticating	1.84	0.65	2.34	1.06
Size reduction	2.30	0.93	2.24	0.66
Cooking	1.96	0.60	2.24	1.04
Cooling	2.33	0.97	2.28	0.81
Expelling	1.94	0.55	2.14	0.99
Oil filtration refining	2.24	1.06	2.10	0.58
Packing	1.94	0.65	2.42	1.05
Processing into peanut butter;				
Threshing	2.12	0.85	2.08	0.72
Roasting	2.00	0.73	2.28	1.07
Cooling	2.26	1.05	2.26	0.83
Filling	2.02	0.82	2.40	1.03
Selecting	2.28	1.07	2.20	0.73
Grinding	2.08	0.78	2.32	1.00
Storage	2.20	1.03	2.20	0.67
Mixing	2.08	0.78	2.24	0.96
Degassing	2.26	0.83	2.12	0.75
Packaging	2.16	0.77	2.30	0.89
Marketing;				
Grading	2.28	1.03	2.36	0.92
Packaging	2.00	0.78	2.14	0.99
Distribution of produce	2.34	0.75	2.16	0.74
Transportation	2.00	0.70	2.34	1.00
Exportation	2.28	0.86	2.28	0.81
Harvesting				
Collection of Raw material	2.04	0.67	2.34	0.89
De-shelling	2.34	0.96	2.20	0.78
Dry blanching (Removal of red skin and heart)	2.00	0.81	2.16	0.89
Picking and inspection (Removal of damages nut and impurities)	2.24	1.02	2.12	0.69
Packaging	1.90	0.68	2.06	0.89
Storage	2.42	1.14	2.06	0.82
Storage Operations;				
Form of storage	1.92	0.78	2.20	1.05
Duration of groundnut in storage	2.18	0.87	1.96	0.74
Pest attack during storage	1.92	0.83	2.04	0.90
Disease attack during storage	2.24	1.13	2.18	0.92
Production				
Grading	2.30	0.74	2.24	1.06
Roasting and Blanching	2.28	1.14	2.06	0.74
Grinding	2.24	0.77	2.10	0.84
Cooling	2.18	1.02	2.12	0.85
Packaging	2.24	0.72	2.00	0.86
Financial Operations;				
Budgeting	2.22	1.02	1.96	0.78
Inventory Records	2.24	0.82	1.98	0.89
Production records	2.18	1.10	1.92	0.78
Balance sheet	1.88	0.69	2.26	1.05

Table 2. Contd.

Income statement	2.39	1.04	2.02	0.82
Regulatory Operations;				
Agricultural Laws	2.28	0.70	2.28	1.07
Farm policies	2.08	0.97	2.08	0.78

Source: Field Survey, 2021.

Mean >2.0 = Effective and training needed.

distribution of produce had the most significant mean ($\bar{x} = 2.34$) and it was therefore ranked first position (1st). This was followed by exportation and grading ($\bar{x} = 2.28$), packaging and transportation ($\bar{x} = 2.00$). The results implies that the respondents had information needs on distribution of produce the most. The mean that expressed significant information needs was ≥ 2.0 , this implies that respondents had significant information needs on all the operations involved in marketing.

Financial operations

From the result of the study, it was observed that income statement had the most significant mean ($\bar{x} = 2.39$) and it was therefore ranked first position (1st). This was followed by inventory records ($\bar{x} = 2.24$), budgeting ($\bar{x} = 2.22$), production records ($\bar{x} = 2.18$) and balance sheet ($\bar{x} = 1.88$) which ranked 2nd, 3rd, 4th and 5th position respectively. The results implies that the respondents had information needs on balance sheet the most. The mean that expressed significant information needs was ≥ 2.0 , this implies that respondents had significant information needs on all financial operations.

Regulatory operations

Result of the study shows that agricultural policies had the most significant mean ($\bar{x} = 2.28$) and it was therefore ranked first position (1st). This was followed by farm policies ($\bar{x} = 2.08$) which ranked 2nd position. The results implies that the respondents had information needs on agricultural law the most. The mean that expressed significant information needs was ≥ 2.0 , this implied that respondents had significant information needs on all regulatory operations.

The overall results showed that respondents were not effective in the following practices: decortication ($\bar{x} = 1.84$), balance sheet ($\bar{x} = 1.88$), packaging ($\bar{x} = 1.90$), form of storage ($\bar{x} = 1.92$), pest attack during storage ($\bar{x} = 1.92$), packing ($\bar{x} = 1.94$), expelling ($\bar{x} = 1.94$) and cooking ($\bar{x} = 1.96$). These operations were respondents are not effective can affect groundnut post-harvest management and enhance spoilage. This findings revealed that the respondents need more information in all the areas were they were not effective. Hence, the mean scores for the

listed practices above in the information needs section of the table were greater than the bench mark of 2.0 ($\bar{x} \geq 2.0$) as shown below: decortication ($\bar{x} = 2.34$), balance sheet ($\bar{x} = 2.36$), packaging ($\bar{x} = 2.06$), form of storage ($\bar{x} = 2.20$), pest attack during storage ($\bar{x} = 2.04$), packing ($\bar{x} = 2.42$), expelling ($\bar{x} = 2.14$) and cooking ($\bar{x} = 2.24$).

It is however, imperative to stress that the result in Table 2 shows that though the respondents were effective in the performance of some of the operations like filling, transportation and collection of raw materials yet they still needed more information. Table 2 Shows effectiveness of information on post-harvest management and information needs.

Constraints to post-harvest management practices

The result in Table 3 showed that respondents were faced with serious problems as the mean (\bar{x}) in all the variables listed were greater than the 2.5 ($\bar{x} > 2.5$) bench mark. This result is consistent with that of Ibrahim et al. (2010) which showed that Ground-nut farmers in North Central Nigeria were experiencing serious problems in the processing and other post-harvest management practices. This was corroborated by Okoedo-Okojie (2015) whose finding reveals that inadequate training was a major constraint to diffusion and adoption of innovation. The result will certainly affect respondents' performance negatively as a result optimal performance cannot be attained. This suggests that such problems be solved by providing adequate funds, adequate storage facilities, adequate training of extension personnel on ground nut post management practices among others. The above is hinged on the fact that you can only give what you have. As a result well trained extension workers in post-harvest management of ground-nut will ultimately add value to the produce because they will disseminate the attitudes, knowledge and skills (AKS) acquired to the farmers.

Relationship between Personal characteristics and effectiveness in information dissemination on groundnut

Table 3 shows the relationship between respondents' personal characteristics and their effectiveness in

Table 3. Constraints to postharvest management practices.

Constraints	Mean	Std. Dev
Inadequate funds	3.84	0.42
Improper planning of extension program	2.98	0.80
Knowledge deficiencies	3.40	0.78
Improper administration and supervision	3.16	0.84
Inadequate extension materials	3.62	0.49
Inadequate training of personnel	3.62	0.57
Inadequate incentive for Extension workers	3.66	0.48
Poor transportation facilities	3.68	0.47
Poor storage facilities	3.72	0.54
Inadequate agricultural policies	3.60	0.67
High cost of labour	3.78	0.42
Poor mechanization	3.86	0.35

Source: Field Survey, 2021.
 $\bar{x} > 2.5$ = Serious constraint.

Table 4. Relationship between personal characteristics and effectiveness in information dissemination on groundnut.

Variables	Coefficient	P-value	Decision
Level of education	5.17**	0.16	Significant
Age	-2.19**	0.17	Significant
Working experience	3.63**	0.18	Significant
Household size	0.23	0.09	Not Significant
Grade level	0.70	0.19	Not Significant
Annual income	0.17	0.12	Not Significant

**Correlation is significant at the 0.01 level (2 tailed).

information dissemination on groundnut value chain. The variables, level of education ($r = 5.17^{**}$), age ($r = -2.19^{**}$) and working experience ($r = 3.63^{**}$) were significant variables since their P-values were ≤ 0.05 . The result signified that there is a positive relationship between respondents' level of education and their effectiveness (Table 4). This implied that an increase in level of education of the respondents causes an increase in their effectiveness in information dissemination on groundnut value chain. Age though significant have a negative relationship with extension agents effectiveness in information dissemination on ground nut. This means that younger agents were more effective in information dissemination than older ones. This may be due to the fact that younger agents are full of vigour and are very active. There was also a positive relationship between working experience and effectiveness and this implies that the higher the working experiences of the respondents, the higher their effectiveness in information dissemination on groundnut value chain. This findings rejects the null hypothesis that, 'There is no significant relationship

between respondents' personal characteristics and their perceived effectiveness in groundnut value chain'.

Conclusion

The study results showed that a high proportion (36%) of respondents were between the age group of 30-39 years with (76%) of them married, consisting of (64%) male and (36%) female. The result indicates that male extension workers surpass that of the female in the study area. More of respondents (36.0%) were in the age group of 30-39 years. 24% of the respondents were between the age of 40-49 years. The result also shows respondents' high level of knowledge in groundnut production methods and processing of groundnut oil (cooking) ($x = 3.66$). This was followed by seed cleaning and grading ($x = 3.58$) and cooling ($x = 3.50$). The respondents indicated effectiveness in information dissemination of groundnut production methods in the area of cooling ($x = 2.33$) size reduction ($x = 2.30$) and oil filtration refining ($x = 2.24$). The

constraint to respondents effectiveness in information dissemination on groundnut post-harvest management include poor mechanization ($x= 3.86$), inadequate funds ($x=3.84$) and high cost of labour ($x= 3.78$). Respondents' information needs on post-harvest operation include packing ($x= 2.42$), decorticating ($x= 2.34$) and cooling ($x= 2.28$). The relationship between respondents socio-economic characteristics and perceived level of effectiveness shows that level of education ($r= -0.58$) and working experience ($r= -0.20$) were significant to respondent effectiveness at 0.05 level.

It can be said that the younger and less experienced extension workers were more effective in the dissemination of information on post-harvest management. The most preferred sources of information is the research institution, internet and colleagues. The most serious constraints faced by respondent include poor mechanization, inadequate funds, high cost of labour, poor storage facilities and poor transportation facilities.

RECOMMENDATIONS

- Proper training of extension workers in form of seminars, lectures on post - harvest management practices, this will help improve the level of knowledge on various information and effectiveness on post-harvest managements of groundnut.
- Funds should be made available to extension workers for the purpose of building more storage facilities, transportation facilities, extension materials for demonstration and training purpose.
- As part of means to stimulate interest in post-harvest management, extension workers should be encouraged by allowing them access to credit to enable them carry out various operations in post-harvest management.
- Provision of adequate funds for extension workers to visit research institution participate in workshops, access to internet and interaction with other colleagues for enhanced and effective work.

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