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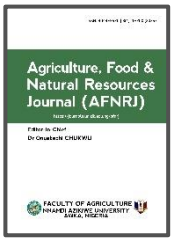

Original Article

Training needs of agro-input dealers in disseminating agricultural information to farmers in Kwara State, Nigeria

OPEN ACCESS

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ABSTRACT

This study analyzed the training needs of agro-dealers on agricultural information dissemination in Kwara State, Nigeria. One hundred and eighty-three (183) agro-dealers were randomly selected for the study. Primary data were collected using a questionnaire. Data collected were analysed using descriptive and inferential statistics. The finding showed that the majority (73.2%) of the respondents were male. The average years of experience in agro-input service delivery was 11 years. The leading agro-inputs and advisory services delivered to farmers by agro-input dealers were insecticides (mean=3.98), improved crop seeds (mean=3.86), and herbicides (mean=3.82). Boric model analysis showed that the topmost ranked training on delivering agro-input services to farmers was storage of viable seeds (Mean Weight Discrepancy Score [MWDS]=1.81), use of viable seeds such as maize (MWDS=1.31), and use of simple agro-equipment maintenance skill (MWDS=0.99). Regression analysis results showed that years of experience (β = 0.112), size of trade (β = 0.626), and access to credit (β = 0.978) were significantly related to the training needs of respondents at the 5% level. The study concludes that training is needed in disseminating agricultural information among agro-dealers and thus needs training to improve their skills in disseminating storage of viable seeds, use of viable seeds, and use of simple agro-equipment maintenance. Therefore, the research recommended that relevant government agencies in collaboration with private/non-government organizations should organize training programmes to improve the skills of agro-dealers in the identified areas.

KEYWORDS: *Agricultural information, Agro-dealers, Boric model, Training needs,*

INTRODUCTION

Agricultural Extension is an out of school adult education that involves the transmission of agricultural information and innovations to farmers in such a way that they can understand and help themselves to make a progressive and sustainable change in their farming activities thus improving their living standard (Singh *et al.*, 2021). Agricultural Extension is a service which helps farmers through educational procedures in improving farming practices and standards of living of rural life (Ndem *et al.*, 2020).

Agro-dealers in this study refers to individual who keep either small or big shops where they sell and supply a combination of viable seeds, fertilizers, agricultural equipment and crop protection products (herbicides, insecticides etc.) to people that

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need them most especially farmers (Staudacher *et al*., 2021). There is an increasing emphasis on the advancement of core competencies as they are required by agro-input dealers in order to perform at maximum capacity so as to attain expected results in service delivery (Singh *et al.,* 2021). Competency is the ability to achieve set goals and is equally a personal characteristic that is demonstrated in manners that contributes to exceptional performance in a profession (Schneider, 2019). Competency assessment will appraise knowledge, education, skills, experience and expertise for any given role or assigned tasks (Narayanan *et al.,* 2021) including those of agro-input dealers.

In recent times, Health and Agriculture experts have expressed fear over the increasing misuse of agro-input by farmers in Nigeria. The situation became more disturbing when the European Union banned some agricultural food exports from the country in 2015. The food items under suspension from Europe till June 2016 are beans, melon seeds, sesame seeds, peanut chips, palm oil, dried fish and meat. Findings revealed that the rejected beans were found to contain between 0.03mg/kg to 4.6mg/kg of dichlorvos pesticide which is beyond the acceptable level. The maximum residue limit is not to exceed 0.01mg/kg so as to avoid poisoning (Staudacher *et al*., 2021). According to Owoade *et al.,* (2022), there were 120 cases of food poisoning among students in 2008 as a result of consumption of lindane contaminated beans. Following the research by Madhu *et al.,* (2022), it was discovered that some restricted and or banned pesticides in industrialized countries are still being used in many developing countries.

In Nigeria, some of the agro-chemicals which have been forbidden by government but are still found in nooks and cranny of the country and used by farmers include; Toxaphene, Chordane, Captafol and Parathion.

The aforementioned problems have attested to the fact that there is need to ascertain competency gap to recommend training needs of the agro-dealers in order to complement the effort of agricultural extension agents in Kwara State. It therefore becomes necessary to assess the competency of agro-input dealers in Kwara State, Nigeria. To the best knowledge of the researcher of this study, no record of previous research that focused on competencies of agro-input dealers in Kwara State, Nigeria. Ogunlade *et al*. (2012) conducted an empirical study that examined the ability of agro-input dealers to provide advisory services to maize farmers in Kwara State, Nigeria. As a result, this study is unique in that it examines, for the first time, the skills of agro-input dealers in the provision of agro-input/advisory services in Kwara State, Nigeria. Hence, the general objective of the study is to assess the agro-dealers' competencies on agricultural information services delivery in Kwara State, Nigeria.

MATERIALS AND METHOD

Study Area

Kwara State was the site of the study. The North Central geopolitical zone includes Kwara. Kwara State is located between latitudes 8° and 10° north and longitudes 3° and 6° east. Kwara State consists of sixteen (16) local government areas with capital and the seat of government located in Ilorin. Kwara state share boundaries with Niger state in the north, Kogi state in the east, Oyo, Ekiti and Osun State in the south and an international boundary with the republic of Benin in the west. The population of Kwara was about 2,365,353 as at 2006 census, with 2.6% annual population growth rate in Nigeria, Kwara state projected population should be 3,551,000 people in the year 2022 (NBS, 2022). Kwara State has an annual rainfall range between 1,100 and 1,500mm (Oloyede *et al.,* 2021) from March until early September, although this is gradually shifting forward due to climate variations; while the dry season used to be from October to March. Again, this is also on the moving trend as temperature continues to be on the high side up until April/May. Temperature is uniformly high and ranges between 25 °C and 30 °C in the wet season; while the dry season ranges between 33 °C and 34 °C. On average, the state is occupied by subsistence tuber, legume, and cereal farmers who depend solely on rain-fed agriculture.

Population, Sampling Procedure and Sample Size of the Study

The population of the study involved all members (336 persons) of West Agro Input Dealers Association (WAIDA) Kwara State, who provide agro-inputs and advisory services to farmers in Kwara State. A proportionate random sampling technique was used to get (54.6%) of WAIDA members (183 agro-input dealers) as respondents during meeting days. This percentage was determined using the Taro Yammane formula.

Instrument for Data Collection

Data from the respondents was gathered using a structured questionnaire. A team of specialists in agricultural extension, economics, and rural development examined and revised the tool. This is to guarantee that the structured interview schedule is suitable for gathering data regarding the study's stated objectives. The evaluation method was applied to measure the instrument's reliability. To test its reliability, the interview schedules were given to the same respondents (15 agro-input dealers in Osun State) twice, separated by two weeks. The correlation coefficient was calculated by applying Pearson Product Moment Correlation (PPMC) statistics to the responses collected during the test and retest exercise. A PPMC coefficient of correlation (r) of 0.71 was obtained suggesting that the research tool is trustworthy for gathering data from the participants.

Measurement of areas of training needs of agro-dealers in service delivery to farmers

This study used Borich need assessment model to identify areas of competency needs of agro-dealers in agro-input/advisory service delivery to farmers.

a. Importance of skill to efficiently deliver agro-input/advisory services to farmers: The 20 specific technical skill area important for agro-input dealers to efficiently deliver agro-input/advisory services to farmers were presented to respondents. Importance of these skills will be place of on a Likert type scale as follows: not important (1), of little importance (2), somewhat important (3), important (4) and very important (5). Weighted Mean Score (WMS) and standard deviation (SD) of importance for each skill/task to deliver agricultural information to farmers were generated to rank importance from 1 – 20 positions starting from the highest - lowest WMS respectively.

b. Competence to deliver agro-input/advisory services to farmers: The respondents were asked to rate their self-perceived level of ability to deliver agro-input/advisory services to farmers in the 20 competence areas by using a Likert type scale to be measured as: (1) as not competent, (2) little competence, (3) somewhat competent, (4) competent and (5) very competent.

Hypothesis

The study null hypothesis stated thus: H_0 (Null): There is no significant relationship between the socio-economic characteristics of the agro-dealers and their training needs to deliver agro-input/advisory services to farmers.

Data Analysis

Data from the study were analyzed with the aid of descriptive and inferential statistical tools. The descriptive statistics used were frequency counts, mean, percentages, standard deviation, range, and rank order while the inferential statistical tools used for the study include Chi-square test and Linear Multiple Regression. The data analysis was performed using Statistical Package for Social Science (SPSS) Version 23.0 statistical package.

Model Specification

Borich Need Assessment Model

Borich need assessment model was used to assess competency needs of agro-input dealers to efficiently deliver agro-input/advisory services to farmers. The use of mean weighted discrepancy score (MWDS) was computed for each of the competencies by applying the following statistical procedures:

The difference between the importance rating and the ability rating (competency) of each skill were be calculated for each respondent to generate the discrepancy score (DS)

The discrepancy score was then multiplied by the mean importance rating to generate the weighted discrepancy score (WDS) of each skill/competency for the respondents. Summation of the weighted discrepancy scores divided by the number of observations was used to compute the MWDS for each of the competencies. The model is shown thus:

$$MWDS = \frac{\Sigma(I_{ith} - C_{ith}) \times \bar{X}_i}{N} \quad (1)$$

Where I is the importance rating for each item, C is the competency rating for each item, Xi is the mean of the importance rating, I is the agro-input dealers, t is the competency areas, and N is the number of observations. The higher the Mean Weighted Discrepancy score MWDS, the greater the competency needs of agro-input dealers to efficiently deliver agro-input/advisory services to farmers (Olatinwo *et al*., 2018).

RESULTS AND DISCUSSION

Socio-Economic Characteristics of Respondents in Kwara State

Based on sex of the respondents, result in Table 1 show that majority (73.2%) of the respondents were male. This finding pointed to the fact that agro-input services agents in the study area are dominated by male folk. A study on Gender Responsive Approaches by also indicated that most agro-dealer businesses in Africa are owned by men, but women may be co-owners (Adam *et al.,* 2019). Also, the average year of age for all respondents was 47.9years. This indicates that the agro-input dealers are relatively young and are expected to carry out the dissemination of agro-input duties effectively. This finding agrees with Tambo *et al.* (2024) that agro-input dealer in Uganda is young with average of 33 years. The average income of the respondents was ₦1,896,393.44. The average years of experience in agro-input service delivery was 11years. This shows that agro-input dealers had long years of experience in agro-input service delivery. Finding on years of experience is similar to finding reported by Owoade *et al.* (2022). This experience is expected to improve their effectiveness in agro-input service delivery.

Table 1: Socio-economic characteristics of respondents (n=183)

Variables	Percentage (n=183)	Mean±Std. Dev.
Sex		
Male	73.2	
Female	26.8	
Age (years)		47.9±11.8
Household size (persons)		3.7±1.8
Annual income		1,896,393.44
Agro-input trading experience		11.2±5.9

Source: Field survey, 2024

Agro-inputs and advisory services deliver to farmers by agro-dealers

Presentation of results in Table 2 indicated that agro-inputs and advisory services render to farmers by agro-input dealers. Finding showed that insecticide types, doses, method of application and storage quality, etc. (mean=3.98) ranked first, Improved crop seeds, seed rate, planting date & spacing (mean=3.86) ranked second, Herbicide types, doses, method of application and storage quality, etc. (mean=3.82) ranked third, Fertilizer types, doses, method of application and storage quality, etc. (mean=3.53) ranked fourth, Agric. Input consultancy services (mean=3.43) ranked fifth, and Spraying machine and handling (men=2.98) ranked sixth position as the least indicted by respondent. This shows that agro-input dealers in the study area were mainly rendering services related to insecticide types, doses, method of application and storage quality, etc., improved crop seeds, seed rate, planting date & spacing; and herbicide types, doses, method of application and storage quality, etc. Earlier study has shown that agro-input dealers mainly provide pesticides to farmers (Tambo *et al*. 2024). Findings further corroborate studies that indicated that agro-input dealers provide services to their customers when buying agro-inputs (Staudacher *et al*., 2021, Bamigbose *et al*., 2022).

While the services related to selling improved seeds and agrochemicals such as insecticide and herbicide of different were common among the agro-dealers, services on linking farmers to sources of credit, farm tools, implements or tractor and protective/safety wears or kits and farm precautionary measures were the least they provide to farmers. This indicates that farmers purchase agrochemicals without accompanying them with the necessary protective/safety equipment. This is troubling because using pesticides without wearing Personal protective equipment (PPE) items poses high health risks. The unavailability of PPE in local shops has been recognized as one of the major reasons for their limited use among smallholder farmers in some African countries (Tambo *et al.*, 2021). This factor may be associated with about 40% smallholder farmers experiencing acute pesticide-related symptoms such as headaches, dizziness, skin irritation, and fatigue, respectively in Nigeria (Moda *et al*., 2022). Also, nearly 30% of agro-input shops reported that at least one staff member had experienced acute pesticide-related symptoms, such as headache, sneezing, eye irritation, skin irritation, and nausea in Africa (Tambo *et al.*, 2024). This is not surprising, given the limited use of standard PPE items by agro-dealers when working with pesticides.

Table 2: Agro-inputs and advisory services deliver to farmers

Sales and advisory services	Mean	Rank
Fertilizer types, doses, method of application and storage quality, etc.	3.53±0.6	4th
Herbicide types, doses, method of application and storage quality, etc.	3.82±0.5	3rd
Insecticide types, doses, method of application and storage quality, etc.	3.89±0.35	1st
Improved crop seeds, seed rate, planting date & spacing	3.86±0.46	2nd
Spraying machine and handling	2.98±0.43	6th
Farm tools, implements or tractor	2.35±0.54	11th
Protective/safety wears or kits and farm precautionary measures	2.6±0.59	10th
Offer linkage to other farmers	2.66±0.56	8th
Linking farmers to sources of credit	2.27±0.6	12th
Linking farmers to buyers and provision of market information	2.62±0.55	9th
Linking farmers to extension agents	2.71±0.69	7th
Agric. Input consultancy services	3.43±0.79	5th

Always = 4, Sometimes = 3, Rarely = 2, Never =1

Identification of Training Need of Agro-Input Dealers

Results in Table 3 presents the training needs of agro-input dealers in disseminating agro-input services to farmers using Boric need assessment model of ranking mean weight discrepancy score (MWDS) (Boric, 1980). Through this method, the topmost ranked MWDS, implies the higher the training needs of the agro-input dealer to render agro-input services to farmers (Boric, 1980).

Findings showed that the topmost ranked training on rendering agro-input services to farmers were **s**torage of viable seeds (MWDS=1.81) ranked first, use of viable seeds e.g. maize (MWDS=1.31) ranked second, use of simple agro-equipment maintenance skill (MWDS = 0.99) ranked third, use of protective/safety wears or kits (MWDS=0.95) ranked fourth, use of pest control skill (MWDS=0.69) ranked fifth. The least areas of training needs were computer skill (MWDS= - 0.38), use of insecticides (MWDS= - 0.48), and protective/safety wears or kits (MWDS= - 0.82) ranked twentieth. The implication of the finding is that the agro-input dealers were least competent to render extension services delivery on storage of viable seeds, use of viable seeds e.g. maize, use of Simple agro-equipment maintenance skill and thus need training more in these particular areas. This finding is in agreement with studies across the world that agro-dealers required being trained and certified in judicious agro-input service delivery to farmers and related topics (Staudacher *et al.*, 2021; Ogunalde *et al.*, 2012; Owoade *et al.*, 2022). Training programs to address these needs should aim to equip agro-dealers with the necessary

knowledge and skills to effectively cater to the needs of farmers, improve their business operations, and contribute to the overall development of the agricultural sector (Ogutu *et al.,* 2022). Singh *et al.* (2021) highlighted the need for training in scientific agriculture, product knowledge, and customer service skills for agro-dealers to effectively serve the farming community.

The implication of the finding is that the agro-input dealers were least competent to render extension services delivery on storage of viable seeds, use of viable seeds e.g. maize, use of Simple agro-equipment maintenance skill and thus need training more in these particular areas. This further buttress the report that agro-dealers tend to lack the prerequisite training and technical knowledge to be able to provide appropriate agricultural advisory services to farmers on agro-inputs (Kwakye *et al.,* 2019). Because their ultimate aim is to make profit, they may have conflicts of interest when providing advice that might affect product sales. Many of them also engage in poor pesticide practices, including sales of fraudulent products (Haggblade *et al*., 2019; Staudacher *et al.,* 2021).

Hypothesis of the Study

Ho1: There is no significant relationship between the socio-economic characteristics of the agro-dealers and their training needs to deliver agro-input/advisory services to farmers.

Regression analysis in Table 4 shows the socioeconomic determinants of agro-input dealers' training needs to disseminate agro-input services to farmers. The result in Table 4 indicated that years of experience (β =0.112, $p<0.01$), size of trade (β=0.626, $p<0.05$) and access to credit (β =0.978, $p<0.05$) showed positive significant relationship with the agro-input dealers' competencies to disseminate agro-input services. On the whole, the socioeconomic characteristics of the agro-input dealers contributed 64.3% to competencies possessed to disseminate extension services related to agro-inputs to farmers in the study. Thus, the null hypothesis is rejected while the alternative is accepted. These findings imply that an increase in the years of experience in agro-input delivery services, size of trade and access to credit facilities will result to a corresponding increase in the professional competencies of the extension agents to disseminate extension services related to agro-inputs by 0.112, 0.626 and 0.978 units respectively.

Table 3: Competency gap of agro-input dealers using Boric Model

Competency areas	Importance Mean±SD	Competence Mean±SD	MWDS	Rank
Use of fertilizer	2.98±0.74	3.08±0.75	-0.30	17th
Use of herbicides	3.14±0.60	3.4±0.60	-0.82	20th
Use of insecticides	3.23±0.54	3.38±0.69	-0.48	19th
Use of viable seeds e.g. maize	3.54±0.59	3.17±0.70	1.31	2nd
Storage of viable seeds	3.54±0.58	3.03±0.72	1.81	1st
Use of spraying machine	3.04±0.69	3.05±0.64	-0.03	14th
Use of storage chemicals	3.01±0.64	2.91±0.75	0.30	10th
Use of simple farm tools	2.85±0.81	2.81±0.86	0.11	12th
Use of tractor driven implements	2.7±0.90	2.49±1.05	0.57	8th
Protective/safety wears or kits	2.87±0.87	2.54±1.00	0.95	4th
Advisory services skill	3.03±0.81	2.89±0.86	0.42	9th
Reading and writing skills	3.31±0.84	3.32±0.76	-0.03	15th
Communication skill	3.37±0.72	3.28±0.76	0.30	11th
Record keeping skill	3.15±0.77	2.95±0.74	0.63	6th
Computer skill	2.95±0.85	3.08±0.76	-0.38	18th
Farming skill	3.18±0.74	3.2±0.70	-0.06	16th
Business skill	3.28±0.63	3.25±0.75	0.10	13th
Pest control skill	3.3±0.68	3.09±0.69	0.69	5th
Disease control skill	3.45±0.69	3.27±0.65	0.62	7th
Simple agro-equipment maintenance skill	3.55±0.65	3.27±0.83	0.99	3rd

Source: Field survey, 2024

Table 4: the relationship between the socio-economic characteristics of the agro-dealers and their training needs

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	14.98	1.382		10.838	0.000
Years of experience	0.112	0.04	0.26	2.78	0.006*
Size of trade	0.626	0.291	0.17	2.15	0.033*
Access to credit	0.978	0.429	0.191	2.281	0.024*
Access to information	1.065	0.605	0.133	1.76	0.08

R square 0.643; Adjusted R square = 0.587; Std Error = 2.463; F=2.405

CONCLUSION AND RECOMMENDATION

The study concludes that competency gap in disseminating agricultural information among agro-dealers and thus need training to improve their skills in disseminating storage of viable seeds, use of viable seeds such as maize, and use of simple agro-equipment maintenance. Socio-economic factors that support the training need were agro-dealers' years of experience, size of trade and access to credit.

Based on the findings of this study, the following recommendations can be made: Relevant government agencies in collaboration with private/non-government organisations should organize training programmes to improve their skills of agro-dealers in disseminating storage of viable seeds, use of viable seeds such as maize, and use of simple agro-equipment maintenance. Such programme should ensure of agro-dealers with appreciable years of experience, trading large scale of agro-inputs and access to credit facilities are adequately enrolled.

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Authors contributions:

OSO Conceptualization of research work, execution of field and data collection and analysis of data and interpretation. LKO Supervised the research, Execution of field and data collection. OLA Supervised the research, Analysis of data and interpretation and reparation of manuscript.

Ethical Statement

Not applicable

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