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Comparative Training needs' Assessment of Actors within the Ecological Organic Agriculture value chain in Northern Nigeria

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Abstract

The study assessed the training needs of EOA practitioners in Northern Nigeria, with a view to identifying core areas where interventions are required. Purposive sampling procedure was used in selecting one state from each of the three (3) zones in Northern Nigeria, viz; Yobe state in North-east, Kebbi state in North-west and Niger state in North-central because these states are prominent in practicing organic farming in Northern Nigeria. Simple random sampling procedure was then used to select fifty-one (51) farmers, fifty-two (52) extension agents and fifty-two (52) marketers across the states, giving a total of one hundred and fifty-five (155) respondents sampled for the study. Data were collected using a structured questionnaire and analyzed using descriptive statistical tool while 'Response Mapping' of mean score was used for comparative analysis of actors' training needs. Results showed that majority of the respondents were male {farmers (92.2%), extension agents (82.7%) marketers (76.9%)}. Mean age of farmer was 53.9 years, while those of extension agent and marketers were 39.0 and 40.1 years, respectively. EOA actors mostly sourced information through training/workshop, NOAN and TV. Response mapping of training needs indicated that 'composting/vermin composting', 'Biological method of Pest andDisease control', 'Bio-fertilizer' and 'Bio-rotation method of Pest and Disease management techniques' were EOA components where actors mostly needed training. The study concluded on urgent need for gender mainstreaming and young farmers' involvement in organic agriculture.

Introduction

Organic agriculture as a way of farming seeks to be in harmony with natural world. While seeking to produce healthy food, giving cognizance to maintaining ecological balance is a priority. To meet the objective of producing healthy food while preserving natural resources, organic agriculture farmers need to implement a series of practices that optimize nutrient and energy flows and minimize risk, such as crop rotations and enhanced crop diversity, different combinations of livestock and plants, symbiotic nitrogen fixation with legumes, application of organic manure, and biological pest control. All these strategies seek to make the best use of local resources, including solar or wind energy, beneficial biodiversity such as soil organisms, predators, parasitoids, pollinators, etc., and biologically fixed nitrogen and other nutrients released from organic matter or from soil reserves(Altieri *et al*., 2016). Technical capabilities of smallholder organic farmers in developing countries in undertaking the above series of practices are often major constraints in the implementation of organic agriculture. In addition, other challenges, according to Seufert, (2017) facing organic farmers in developing countries include access to international markets, costly certification and increased demand for labour. These constraints constitute shortcomings which hamper the potentials of organic systems in attaining sustainable agricultural development in developing countries.

In addressing the foregoing, organic farmers' capabilities, knowledge and abilities required to operate successfully within the organic system must be upgraded. This requires a sort of training after

first identifying the gap in knowledge, skills and capabilities of the farmers. As farmers are only a component within the organic agriculture system, a holistic approach focusing on other important stakeholders of the organic system necessitates a value chain approach. Therefore, not only farmers, who are producers of organic product, should be the target. Extension agents who, apart from disseminating information to farmers on novel practices, also have responsibility of building their capacities to function well in their enterprises are also focused on in the study. In the same vein, marketers, who are middle-men between the producers (i.e farmers) and final consumers of organic products, are equally targeted in the study.

Several studies on organic agriculture often focused on either the producers/farmers or extension professionals or academic experts separately, thus eliciting information based on a single component or actor of the EOA value chain. For instance Yadav *et al*. (2013) assessed training needs of extension workers about organic farming in North-western Himalayas, while Altarawneh's (2016) determined barriers to organic agriculture implementation in Jordan focusing on experts within the ministry of Agriculture and Universities as subject of the study. Similarly, Bamigboye *et al*. (2014) assessed utilization of organic farming practices among arable crop farmers, in Ekiti State, Nigeria. While, study by Yekinni and Ladigbolu (2017)assessed training needs of actors about ecological organic practices in south-western Nigeria, focused on several actors of the organic system value chain, the current study did not only dothis, but further provided disaggregated data of these actors thus facilitating comparative responses among them. This study therefore aimed at undertaking comparative training needs assessment of actors within the ecological organic agriculture value chain in Northern Nigeria. Specifically, the study described socio-economic characteristics of EOA actors (producers, extension agents and marketers), documentedactors' information sources about ecological organic agriculture and determined their training needs.

Methodology

The study was carried out in Northern Nigeria. The region comprises North-central, North-western and North-eastern geopolitical zones. The respondents were actors involved in EOA. Specifically, smallholder farmers, extension agents and marketers were subjects of the study. Purposive sampling procedure was used in selecting one state from each of the three (3) zones in Northern Nigeria, viz; Yobe state in North-east, Kebbi state in North-west and Niger state in North-central because these states are prominent in practicing organic farming in Northern Nigeria. Simple sampling procedure was then used to select fifty-one (51) farmers, fifty-two (52) extension agents and fifty-two (52) marketers across the states, giving a total of one hundred and fifty-five (155) respondents sampled for the study. Data was collected with structured questionnaire and analyzed using descriptive statistical tools. Actors' personal characteristics such as age, sex, type of crop grow were measured at ordinal, nominal and interval level of measurement as the case dictates. The training needs of the respondents about ecological organic agriculture (EOA) was measured at ordinal level of measurement by stating some subject matter that actors need training on and they were asked to state whether their needs was high (3), moderate (2), low (1) or not needed (0). Weighted mean score was then computed for each subject matter. Comparative assessment was done through response mapping of WMS obtained among the EOA actors by comparing and contrasting their responses.

Results and Discussion

Selected personal characteristics of EOA actors

Results in Table 1 show that majority (92.2%) of the farmers sampled for the study was male. Very few (7.8%) were female. Similarly, majority (82.7% and 76.9%) of the extension agents and marketers

included in the study were equally male. The results indicate that males were more prominent in practicing of organic agriculture in the study area. The result is similar to that obtained in a related study in Southwestern Nigeria by Yekinni and Ladigbolu (2017) where about of the 73% of the respondents of the study were male. This finding underscore for the need for gender mainstreaming in organic agriculture. Efforts have to be exerted to ensure female practitioners are equally engaged as males in the practice of organic agriculture in Nigeria. As shown in Table 1, slightly above half (51%) of the farmers were aged between 41 and 60 years, while close to half (47.1%) were aged between 21 and 40 years. Mean age of farmer was 53.9 years. On the other hand, while most (57.7%) of the extension agents fell between 21 and 40 years age bracket, slightly above half (51.9%) of the marketers were aged between 41 and 60 years. However, mean age of extension agent (39.0 years) and marketers (40.1 years) were about same. While it may be said that the duo of extension agent and marketers were more vibrant and within productive age range, the farmers, however, were much older among the practitioners of organic agriculture sampled in the study. The findings imply the non-involvement of youth in the practice of organic agriculture in the Northern region of Nigeria.

Table 1. **Personal characteristics of respondents**

Personal characteristics	Farmer (n=51)	Extension Agent (n=52)	Marketer (n=52)
Gender			
Male	47(92.2)	43(82.7)	40(76.9)
Female	4(7.8)	9(17.3)	12(23.1)
Age (years)			
21-40	24(47.1)	30(57.7)	25(48.1)
41-60	26(51.0)	22(42.3)	27(51.9)
60 and above	1(2.0)	0(0.0)	0(0.0)
Mean	53.9	39.0	40.1

Source: Field survey, 2017

Information sources used by EOA actors

Results of response mapping in Table 2 show that training/workshop, NOAN and TV were mostly used information sources by the actors in Northern Nigeria. Also, mobile phones and print media recorded high extent of use common to both extension agents and marketers. The findings underscore the significant role of the National Organic Agriculture Network in championing the course of organic agriculture Nigeria.

Training needs of EOA actors

Response mapping of training needs of actors, as shown in Table 3, indicate that 'composting/vermin composting', 'Biological method of Pest and Disease control', 'Bio-fertilizer' and 'Bio-rotation method of Pest and Disease management techniques' were EOA components where training are mostly needed across board. The findings underscore significance of plant protection as core area of training needs among the actors. This is similar to the submission of Yadav *et al.* (2013) who reported high training needs of respondents in this area.

Table 2. **Response mapping of five most prominent information sources used by EOA actors**

Information source ranking Actors	**1**	**2**	**3**	**4**	**5**
Famer	Extension Agent	Training/ Workshop	NOAN	Radio	TV
Extension Agent	NOAN	TV	Training/ Workshop	Print media	Mobile phones
Marketer	NOAN	Training/ Workshop	TV	Internet	Print media/ phone

Source: Field survey, 2017

Furthermore, results in Table 3 show 'market location' and 'credit sources' were EOA components where both farmers and extension agents needed training most, while 'weed control' was an area common to both farmers and markers. The foregoing areas common across actors in the value chain indicate EOA components where priority attention should be given to mostly during intervention endeavours. However, for overall improvement of the organic system, enhancing the knowledge, skills and capabilities actors in all areas where mean score of training needs were 2 and above becomes very necessary. The findings are similar to those obtained by Okanlawon (2014) and Olajide, (2009) who reported need for more training on core organic agricultural practices and minimal training on land dispute, land tenure system and commercial insurance issues among vegetable and fruit farmers.

Table 3. **Response mapping of training needs (TN) of EOA actors**

TN-	1	2	3	4	5	6	7	8	9
Ranking Actors									
Farmers	Credit Source	Current& future market price	Biological method of Pest& Disease control	Bio-fertilizer	Bio-rotation method of Pest & Disease mgt. tech	Weed control	Market Location	Composting/ Vermin Composting	Crop rotation
EA	Composting/ Vermin Composting	Credit Sources	Market location	Biological method of Pest & Disease control	Bio-fertilizer	Bio-rotation method of Pest & Disease mgt. tech	Green manuring	Record keeping	**Grading/ Packaging & marketing of produce; Storage methods & procedure; Biodynamic Farming
Marketers	Composting/ Vermin Composting	Compost application	Weed Control	Biological method of Pest & Disease control	Seed treatment	Bio-rotation method of Pest & Disease mgt. tech	Bio-fertilizer	Land preparation	*Green manuring; Bio-dynamic farming; Credit sources

Source: Field survey, 2017

Conclusion and Recommendation

Males were more prominent in practicing of organic agriculture in the study area. Farmers were much older among the practitioners thus signifying non-involvement of youth in the practice of organic agriculture. TV, training/workshop and NOAN were mostly used information sources 'Composting/vermin composting', 'Biological method of Pest and Disease control', 'Bio-fertilizer' and 'Bio-rotation method of Pest and Disease management techniques' were EOA components where actors mostly needed training. Urgent need for gender mainstreaming and young farmers' involvement in organic agriculture is recommended. Prominent information sources, such as TV, training/workshop, NOAN, print media should be exploited as avenue for increasing technical capabilities, skills and knowledge of actors about ecological organic agriculture. There is also need by concerned stakeholders to organize capacity building training workshops or seminars for practitioners covering all identified areas of training needs to enhance their skills and technical capabilities in the practice of organic agriculture.

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