INFORMATION NEEDS ON ORGANIC FARMING BY SECONDARY SCHOOL AGRICULTURAL SCIENCE GRADUATES FOR SELF-RELIANCE IN FEDERAL CAPITAL TERRITORY (FCT), ABUJA

Alleh, Anthony Ogbomeda & Cajethan U. Ugwuoke (Ph.D)
Department of Agricultural Education, University of Nigeria, Nsukka. allenanthonyprince@gmail.com

Abstract
The study was conducted to identify the information needs by Secondary School Agricultural Science Graduates on organic farming for Self-Reliance in Federal Capital Territory (FCT), Abuja, Nigeria. A descriptive survey research design was adopted for the study which was carried out in FCT Abuja, Nigeria. Three research questions were formulated to guide the study. The population of the study was 176 respondents consisting of 140 Agricultural Secondary School Teachers and 36 Extension Agents in FCT Abuja. Due to the manageable size of the population, the entire population was used for the study. Structured questionnaire was employed as instrument for data collection. The instrument was face validated by three experts one, from University of Abuja and two from University of Nigeria Nsukka. Cronbach Alpha reliability test was used to determine the internal consistency of the instrument which yielded a coefficient of 0.76. Data collected were analyzed using mean and standard deviation to answering the research questions. The study identified 7 information needs in methods and materials adopted in organic farming, 10 information needs in principles guiding organic farming and 8 information needs on skills/competence in organic farming for Agricultural Science Graduates on organic farming. It was recommended among others that; the curriculum planners in secondary schools such as NERDC should integrate the information needs in various organic farming areas into the secondary school curriculum, government should provide adequate funds for training and retraining of extension agents and agricultural science teachers on the information needs of students in organic farming.
Keywords: *Agriculture, Organic farming, Information Needs and self-Reliance*

Introduction

Organic farming is an agricultural system that relies on ecological principles, natural inputs, and traditional farming techniques to produce crops and livestock without the use of synthetic pesticides, fertilizers, or genetically modified organisms (GMOs), as well as involving a holistic system designed to optimize the productivity and fitness of diverse communities within the agro-ecosystem. It also come with environmental benefits, such as to reduced soil erosion, improved water quality, and increased biodiversity (Ejiofor et-al 2020).

Organic farming involves the use of materials that are natural in crop and animal production. According to Oluwole (2007), organic farming is a specialized form of farming involving selected application of organic manures, crop residues, green manure crops, earthworm casts etc., to enrich soil with adequate nutrients, provide good soil structure and soil health with the aim of creating a sustainable form of farming system. The information that agricultural science secondary school graduates need so as to be self-reliant through organic farming includes reasons for organic farming, the principles of organic farming, the methods and skills needed in organic farming (United Nations, 2008).

Organic farming is usually practiced for some reasons. Nemes (2009) found out that most times, organic farms are more economically profitable, and this was attributed to economic profitability due to reduction of production input costs, increased variety of total farm products and organic premium market prices. UN (2008) noted that organic farming promotes recycling of organic wastes, use of renewable energy as well as application of system-worthy low-cost and appropriate technologies using local resources. Henry Doubleday Research Association (HDRA) (2007) noted that the methods and materials that organic farmers adopt are as follows: utilization of recycled and composted crop wastes and animal manures, using the right soil cultivation at the right time, using crop rotation, using green manures and legumes as well as using mulching on the soil surface. The general principles of organic farming according to Canadian Organic Standards (COS) in Martin (2009) include to; protect the environment, minimize soil degradation and erosion, decrease pollution, optimize biological productivity and promote a sound state of health. Furthermore, the skills that the agricultural science secondary school graduates should have to undertake organic farming include; ability to handle flame weeder and should be well versed in sustainable farming practices (Markham, 2014). Penn State Extension (2016) identified skills required by secondary school graduates for organic farming to include competency in; identifying the

particular weed type in the farm, using crop rotation to control weeds and pests and creating a weed control calendar are parts of the information needed by agricultural science secondary school graduates for successful organic farming to become self- reliance

Information is what is known about a particular topic or person. According to Ellis et al (2013), information is stored knowledge. The author further noted that traditionally, the storage medium has been books but increasingly, electronic media are becoming important. Information provision is crucial to knowledge, which in turn, is the bedrock of every kind of transformation and development in varying aspects of life. Information is the only strategic resource, which contributes directly to socio-cultural, economic, scientific, technological and personal development; it is therefore indispensable for education and fulfillment of public life. For agricultural science secondary school graduates, information needs for organic farming is imperative for self-reliance.

Self-reliance is the ability of an individual or group to do or decide things on their own rather than depending on other people or group for help. According to Eschenroeder (2017), self-reliance involves living a life in which an individual makes decisions and has opinions with primary respect to the individual's experience of the world. One way of ensuring that students are self-reliant is by providing the information for transiting from conventional farming to an organic farming which requires a new mindset of doing business. The organic farming requires a new caliber of skilled personnel and professionals that can work across sectors and be able to work as part of multi-disciplinary teams (Eco Canada, 2010). Transiting to organic farming in the context of this study requires preparing agricultural science secondary school graduates in environmentally sustainable activities through training, seminal, workshop and formal education. In order to achieve the objective, vocational training packages should be developed with focus on organic farming for self-reliance for agricultural science in secondary schools.

Agricultural Science Secondary school graduates in this study are youths who have completed their six years of secondary school education who offered Agricultural Science as a vocational subject at senior secondary school level but have not be admitted into tertiary institutions or be employed. The graduates do not possess information on organic farming as they only possess the general knowledge of farming. They lack the information needed on organic farming for self-reliance which could helped them to become self-reliance to alleviate poverty in Federal Capital Territory (FCT), in Nigeria. There is inadequate information on organic farming provided to agricultural science secondary school graduates for self-sustenance in the Nigeria's Federal Capital Territory (FCT), Abuja (Oviakwe, 2014).

The FCT is the capital of Nigeria. It has six area councils namely; Abaji, Abuja Municipal, Gwagwalada, Kuje, Bwari and Kwali (Brinkhoff, 2017). Agricultural science is among the vocational subjects studied in Senior Secondary School (SSS) in Abuja. One of the major goals of agricultural science in Senior Secondary Schools is to make students self-reliant. The goal of self-reliance in most senior secondary schools is not being achieved (Ndem, 2013). Even in the FCT which should be an example to other states of the Nigerian federation, agriculture has failed to meet its cardinal goal of education for self-reliance (Oviakwe, 2014) and that one of the reasons agriculture failed to meet its goal of self-reliance is due to lack of information needed on organic farming by agricultural science secondary school graduates in the FCT. In line with this, authors such as Yakubu (2012); Akpan and Udo (2014) found out that lack of information on organic farming is one of the causes of unemployment as many secondary school graduates are not adequately prepared to fit into the productive sector of the economy and cannot provide the services that can generate sustainable income. This consequently led to increase in crime rate as a result of large number of unemployed secondary school graduates trying to survive. It is a sad situation that the FCT has not fully utilize the opportunities in organic farming because it has the human and material resources needed for organic farming. Having seen that organic farming leads to job creation, it became necessary to ascertain the information needs on organic farming by agricultural science secondary school graduates for self-reliance in the FCT. This will enable youth take advantage of opportunities for self-employment and self-reliance which organic farming provides which will lead to food production, thereby contribute to economic transformation and diversification

Purpose of the Study

The general purpose of the study is to determine the information needs on Secondary School Agricultural Science Graduates organic farming for Self-Reliance in the Federal Capital Territory, Abuja. Specifically, the study sought to determine the information needs on

1 Methods and Materials Adopted in Organic Farming for self-reliance

2 Principles Guiding Organic Farming for self-reliance

3. Skills/Competencies required for Organic Farming for self-reliance

Research Questions

1. What are the information needs in Methods and Materials Adopted in Organic Farming for self-reliance by Secondary School Agricultural science Graduates?
2. What are the information needs in Principles Guiding Organic Farming for self-reliance by Agricultural science Secondary School Graduates?
3. What are the information needs in Skills/competencies required in Organic Farming for self-reliance by Secondary School Agricultural science Graduates?

Methodology

The design of the study was a descriptive survey research design. Nworgu (2015) described a descriptive survey research as "those studies which aim at collecting data and describing in a systematic manner the characteristic, features or facts about a given population". The design was adopted because the study involves the use of structured questionnaires to elicit responses from the respondents on information needs on organic farming by Secondary School graduates for Self-Reliance in the Federal Capital Territory, Abuja. Nigeria.

Study was carried out in Federal Capital Territory (FCT). Abuja the Capital of Nigeria and is located north of the confluence of the Niger River and Benue River. The FCT is divided into six area councils which are: Abaji, Abuja Municipal, Bwari, Gwagwalada, Kuje and Kwali. The city is known for agricultural practices of production of yams, sorghum, millet, maize and beans amongst others and animal production as well which include poultry, goat/sheep and others. It has an area of 7,315 square kilometers with a population of 1,406,239 according to 2006 census (Britannica, 2024). The population of the study is 176 consisting 140 Senior Secondary Schools Agricultural Science Teachers and 36 extension agents in FCT. The 140 SSS Agricultural Science teachers was obtained from Ministry of Education while the 36 extension agents were obtained from Ministry of Agriculture and Water Resources. There was no sampling since the population is manageable, therefore, the entire population was used for the study. The instrument for collection of data is a structured questionnaire titled Information needs on organic farming for self-reliance The questionnaire had two sections – A and B with a four ()point scales of Strongly Agreed (SA), Agreed (A), Disagreed (D), and Strongly Disagreed (SD) with corresponding values of 4, 3, 2, and 1 respectively. The instrument was validated by three experts, two from the University of Nigeria Nsukka and one from the University Abuja. A reliability index of 0.76 was obtained using Cronbach Alpha method to determine the internal consistency of the questionnaire. One hundred and seventy-six copies of the instrument were administered to the respondents by the researchers. The researchers retrieved the questionnaire immediately after the administration. Data collected were statistically analyzed using mean and standard deviation to answer the research questions. In taking decision, any item whose mean value is 2.50 or above an average on 4-point scale was considered as Agreed while any item whose mean value below 2.50 was considered as Disagreed.

Results

The results of the descriptive statistics were presented in Tables as follows:

Research Question 1: What are the information needs in Methods and Materials Adopted in Organic Farming for self-reliance by Secondary School Agricultural science Graduates?

Table 1: Mean Ratings of Agricultural Science Teachers and Extension Agents on the Methods and Materials Adopted in Organic Farming for self-reliance (N= 167).

S/N	Item Statement	X	SD	Decision
	Methods and Materials Adopted in Organic Farming			
1	Use of recycled and composted crop wastes and animal manures	3.58	0.58	Agreed
2	Early cultivation crops during raining season	3.70	0.46	Agreed
3	Use of crop rotation	3.59	0.55	Agreed
4	Using green manures and legumes	3.67	0.61	Agreed
5	Use of mulching on the soil surface	3.62	0.62	Agreed
6	Use of resistant crop species	3.22	0.71	Agreed
7	Encouraging useful predators that eat pests	2.83	0.62	Agreed
8	Zero tillage	2.31	0.58	Disagreed
9	Hand picking of pests	2.28	0.59	Agreed

Keys: X = Mean, SD = Standard Deviation, N = Number of Respondents

Data in Table 1 revealed that 7 out of the 9 items had values ranging from 2.69 – 3.75 which are above 2.50. This means that the 7 items belong to the category of Agree and shows that the 7 items were the

information needs in Methods and Materials Adopted in Organic Farming for self-reliance by Secondary School Agricultural Science Graduates. The remaining 2 items had mean values of 2.28 and 2.31 indicating that the 2 items were in the category of Disagree.

Research Question 2: What are the information needs in Principles Guiding Organic Farming for self-reliance by Agricultural science Secondary School Graduates?

Table 2: Mean Ratings of Agricultural Science Teachers and Extension Agents on the Principles Guiding Organic Farming for self-reliance (N= 167).

S/N	Item Statement	X	SD	Decision
	Principles Guiding Organic Farming			
1	Soil degradation/ soil erosion has to be minimized	3.20	0.75	Agreed
2	Reduction in pollution	3.46	0.57	Agreed
3	Optimal biological productivity	3.26	0.59	Agreed
4	Biological diversity has to be maintained within the system	3.21	0.62	Agreed
5	Recycle materials and resources to the greatest extent possible	3.38	0.62	Agreed
6	Organic integrity needed in processing and handling of organic products	3.28	0.59	Agreed
7	Rely on renewable resources in locally organized agricultural systems	3.22	0.69	Agreed

Keys: X = Mean, SD = Standard Deviation, N = Number of Respondents

Data in Table 2 revealed that all 7 items had mean values ranging from 3.20 – 3.46 which are above 2.50. This means that the 7 items belong to the category of Agree and shows that the 7 items were the information needs in Principles Guiding Organic Farming for self-reliance by Agricultural science Secondary School Graduates.

Research Question 3: What are the information needs in Skills/competencies required in Organic Farming for self-reliance by Secondary School Agricultural science Graduates?

Table 3: Mean Ratings of Agricultural Science Teachers and Extension Agents on the Skills/competencies required in Organic Farming for self-reliance (N= 167).

S/N	Item Statement	X	SD	Decision
	Skills/competencies Required for Organic Farming			
1	Ability to use flame weeder to control weeds	3.05	0.78	Agreed
2	Ability to use insects/predators to control pests	3.07	0.73	Agreed
3	Ability to use neem oil to control pests	3.10	0.71	Agreed
4	Skill in creating a weed control calendar	3.07	0.66	Agreed
5	Ability to use floating row cover to control pests and diseases	3.10	0.61	Agreed
6	Prepare and use of compost manure to replenish lost nutrients	3.29	0.61	Agreed
7	Skill in Recycling farm wastes to be used as manure	3.36	0.55	Agreed
8	Skill in incorporating weed slashes into the soil	3.44	0.50	Agreed

Keys: X = Mean, SD = Standard Deviation, N = Number of Respondents

Data in Table 3 revealed that all 8 items had mean values ranging from 3.05 – 3.44 which are above 2.50. This means that the 8 items belong to the category of Agree and shows that the 8 items were the information needs in Skills competencies required in Organic Farming for self-reliance by Agricultural science Secondary School Graduates.

Discussion of the Findings

The results of the study in Table 1 identify that Secondary School Agricultural Science Graduates in FCT needs information on methods and materials adopted in organic farming which include; Use of recycled and composted crop wastes and animal manures, early cultivation crops during raining season, use of crop rotation, using green manures and legumes, use of mulching on the soil surface, use of resistant crop species and encouraging useful predators that eat pests for self-reliance. The findings are in agreement with HDRA (2007) that the materials and methods adopted to keep and build good soil structure and fertility in organic farming include using recycled and composted crop wastes and animal manures, using the right soil cultivation at the right time, using crop rotation, using green manures and legumes as well as using mulching on the soil surface. Therefore, it can be deduced that all the 7 Information identified by the study are information

needs in methods and materials adopted in organic farming for self-reliance needed by Secondary School Agricultural Science Graduates in FCT

The results of the study in Table 2 identify that Secondary School Agricultural Science Graduates in FCT needs information in Principles Guiding Organic Farming which include; Soil degradation/ soil erosion has to be minimized, Reduction in pollution, Optimal biological productivity, Biological diversity has to be maintained within the system, Recycle materials and resources to the greatest extent possible, Organic integrity needed in processing and handling of organic products, Rely on renewable resources in locally organized agricultural systems, provide adequate nutrient requirements of the crops, Provide a medium for soil organisms to survive and There has to be prevention of soil pathogens. The findings of the study are in cognizance with Martin (2009) that the principles guiding organic farming include; protect the environment, minimize soil degradation and erosion, decrease pollution, optimize biological productivity and promote a sound state of health as well as maintain long-term soil fertility by optimizing conditions for biological activity within the soil. Therefore, it can be deduced that all the 10 Information identified by the study on Principles Guiding organic farming for self-reliance needed by Secondary School Agricultural Science Graduates in FCT

The results of the study in Table 3 identify that Secondary School Agricultural Science Graduates in FCT needs information on the skills/competence in organic farming which include; Ability to use flame weeder to control weeds, ability to use insects/predators to control pests, ability to use neem oil to control pests, skill in creating a weed control calendar, ability to use floating row cover to control pests and diseases, prepare and use of compost manure to replenish lost nutrients, skill in recycling farm wastes to be used as manure and skill in incorporating weed slashes into the soil. The findings also agree with that of Nemes (2009) that the competencies required for success in organic farming include ability to use flame weeder to control weeds, skill in using insects to control pests, ability to use neem oil to control pests and skill in creating a weed control calendar. Therefore, it can be deduced that all the 8 Information identified by the study on the skills/competence in organic farming for self-reliance are needed by Secondary School Agricultural Science Graduates in FCT.

Conclusion

Based on the findings of this study, it was concluded that organic farming areas such as Methods and Materials Adopted in Organic Farming, Principles Guiding Organic Farming and Skills/competencies need in Organic Farming can lead to self-reliance by Secondary School Agricultural Science Graduates. This would make agricultural science students at the SSS level in the FCT take advantage of the opportunities in the organic farming and be self- reliant.

Recommendations

1. Government should adequately provide funds for training/retraining of extension agents and agricultural science teachers in information needs of students for self-reliance in various areas of organic farming to enable teachers and extension agents master the skills which they will eventually inculcate in Agricultural Science students.
2. Government should organize seminars and workshops regularly for Agricultural Science teachers and extension agents using methods of organic farming identified by this study.
3. The curriculum planners in secondary schools such as the Nigerian Educational Research and Development Council (NERDC) should integrate organic farming methods identified by this study into the curriculum for Senior Secondary School.

References

Akpan, E.O. & Udoh, O.A (2014). Wealth creation in Nigeria: The need for science, vocational-technical and technology education. *International Journal of Vocational & Technical Education, 3* (1), 9-15.

Brinkhoff, T. (2017). *Federal Capital Territory (Nigeria)*.Retrieved on January 22, 2019 from www.citypopulation.de/php/nigeria-admin.php?adm1id=NGA015.

Eco Canada (2010). *Defining the green economy for the Canadian Federation*. Canada: Author.

Ejiofor, T.E., Alleh, A. O. & Nwakile, T.C. (2020). Information needs on green economy for Self-reliance by agricultural science students in senior secondary schools in the Federal Capital Territory, Abuja. *Journal of Agricultural Education Teachers Association of Nigeria, 4*(1), 190 – 198.

Ellis, D. (2013). *Meaning of information*. Oxford: Blackwell publishers

Eschenroeder, K. (2017). *A man's guide to self-reliance*. Retrieved on February 21, 2019 from www.artofmanliness.com/2017/01/16/finding-true-north-guide-self-reliance/

Federal Capital Territory (FCT), (2024). Federal Capital Territory (FCT), Nigeria, Location, Map and Geography. https://www.britannica.com/place/Abuja-federal-capital-territory- Nigeria

Federal Republic of Nigeria (2013). *National Policy on Education*. Lagos: NERDC press.

Henry Doubleday Research Association (2007). *What is organic farming?* Retrieved from www.hdra.org.uk

Markham, D. (2014). *Green business ideas: Organic farm*. Retrieved from http://ecopreneurist.com/2014/02/26/green-business-ideas-organic-farm/

Martin, H. (2009). *Introduction to organic farming*. Ontario: Ministry of Agriculture, Food and Rural Affairs. Retrieved from http://www.omafra.gov.on.ca/english/crops/facts/09-077.htm.

Ndem, J.U. (2013). Achieving food security through effective skill training in agriculture at the secondary school level. *Journal of Qualitative Education in Nigeria, 9*(3), 108-114.

Nworgu, B.G. (2015). *Educational research. Basic issues & methodology* (3rd ed). Nsukka: University Trust Publishers

Oluwole, Y.A. (2007). Effective production agriculture in Nigerian Secondary Schools: Issues at stake. *International Journal of Educational Development, 7* (4) 227 – 242.

Oviakwe, J.I (2014). Reforms and innovation needed in secondary education for convergence to skill acquisition and development. *The Nigerian Academic Forum, 19*(1), 1-5.

Penn State Extension (2016). *Creating a weed management plan for your organic farm.* Retrieved May 21, 2017 from creating-a-weed-manmagement-plan-for-your-organic-farm.extension.psu.edu/business/startfarming/vegetables/factsheets/.

United Nations (2008). Organic Agriculture and Food Security in Africa. UNCTAD/DITC/TED/2007/15s.

Yakubu, E.Y. (2012). Re-engineering vocational and technical education for youth empowerment and sustainable development. *A Multidisciplinary Journal, 26* (3), 45-49.