



POTENTIALS, PERCEPTION AND SUSTAINABILITY OF ORGANIC CROP PRODUCTION AMONG FARMERS IN IBARAPA REGION OF OYO STATE

LAWAL SULAIMON ABIDEMI PhD

Department of Agricultural Education, College of Education, Lanlate

ABSTRACT

The study investigated demography, perception and potential of Ibarapa farmers from Oyo State in producing organic crops. Descriptive survey research design was adopted for the study. Sample of Forty (40) farmers from four villages, Eruwa, Lanlate, Maya and Dagilegbo was used for the study. Frequency and simple percentage was used to determine

INTRODUCTION

Organic farming is the cultivation of crops and rearing of animals without the use of any synthetic farm inputs such as fertilizers, pesticides and the likes but the use of traditional inputs such as green manure, compost manure, crop rotation and other cultural practices to eliminate pests and manage diseases (Anderson *et al.*, 2005) It strictly limits the use of synthetic fertilizers, pesticides which include herbicides, insecticides or fungicides, plant growth regulators like hormones, antibiotics or food additives. It is the production systems that sustain the health of soils, ecosystem and people by relying on ecological processes, biodiversity and cycles adapted to local conditions. Organic farming combines tradition, innovation and science for the benefit of the environment and good quality of life. It strives for a high level of longevity or sustainability to ensure adequate food supply for future generations (Paul, 2011).

Organic farming not only results in an economic benefit but also reduces pollution due to reduced nutrient run-off and nitrogen leaching (Nyamangara & Bergstrom, 2008). It increases soil



organic matter, improves soil quality and enhances long term sustainability of agriculture (Laird et al., 2001). It helps to conserve and improve top soil nutrients, compaction, reduction of erosion and surface water. Synthetic pesticides used in conventional farming damage the environment with direct exposure, increased greenhouse gas emissions, toxic to human health and destroy beneficial insects. Run-off from synthetic pesticides kills fish, algae, crustaceans, contaminates drinking water

demographic characteristics and potentials of the farmers. A structured questionnaire was designed to collect data on profile of the respondents. Four-point Likert-scale of Strongly Agree (4), Agree (3), Disagree (2) and Strongly Disagree (1) was used for computation on perception of the farmers. The response with means 2.5 and above was regarded as Agree while mean less than 2.5 as Disagree. The data collected for the study were analyzed using mean and grand mean to answer the research questions. Demographic characteristics showed that majority of the farmers were educated, married, experienced, having small holding farm but not practicing organic farming. The perception of the farmers towards organic farming showed that organic manure (2.25) and pesticides (2.03) do not give satisfactory results as chemical pesticides and fertilizers, neither did they believe in effectiveness of crop rotation (2.33) nor close season (2.05) in reducing build-up of infestation or infection. However, the result on potentials showed abundance of organic manure and pesticides (90.0%), vast experience of majority of farmers in farming practices that favour organic farming (60.0%) and were much aware of toxicity and pollution of chemical pesticides and fertilizers (82.5%). It was concluded that Ibarapa farmers have a lot of potentials to practice organic farming. Therefore, government is advised to encourage production of organic foods for good health and safety of environment.

Keywords: Organic farming, Ibarapa farmers, Chemical pesticides, Synthetic fertilizers, Perception, Potentials



(Kemper, 2010). Synthetic pesticides even at low doses can increase the risk of certain cancers such as leukaemia, lymphoma, brain tumors, breast cancer and prostate cancer.

However, organic food is widely believed to be healthier than conventional food (Magkos, 2006). Consumers accept it to be tastier and healthier. Organic foods have higher levels of 8 out of 13 essential minerals analyzed which include magnesium, zinc, phosphorus and potassium than conventional oats (Kennedy *et al.*, 2014). Reganold & Wachter (2016) reported tastier organic apple and (Kennedy *et al.*, 2014) also reported tastier organic potatoes, this makes the consumers to be willing to pay more for their preferences (Reganold & Wachter, 2016). Organic foods are fresher and contain no preservatives, conventional food are treated with waxes or preservatives to maintain their freshness Organic foods often have more beneficial nutrients such as antioxidants than conventionally grown crops. They are more nutritious with fewer or no pesticide residues (Kovacs-Hostyanszki *et al.*, 2017).

Organic farming is still young in Nigeria with less than 15 years of practical existence (Abdullahi & Kutana, 2012). Less than 50 hectares of cultivation land out of 3154 which is less than 2% of the cultivation in Nigeria were fully used for organic farming (Wiler *et al.*, 2019). Organic farming is facing resistance presently in Nigeria as a result of so many reasons which range from lack of awareness, lack of knowledge on biofertilizer, biopesticides, compost making and application to output marketing problems (Magkos *et al.*, 2006). Amodio *et al.* (2007) and Hester *et al.* (2007) also identified high cost of production, shortage of biomass, difficulty in getting sufficient organic manure, inability of organic manure to meet all nutrient requirements and generally high input costs as other obstacles in Nigeria for farmers to embrace organic farming.

In spite of the nutritional and health benefit effects of organic farming over the conventional farming coupled with perceived obstacles and resistance among the farmers in Nigeria, it is therefore necessary to investigate the perception of farmers in Nigeria towards adoption of the organic farming and assess the potentials in terms of farmers' experience, skills and knowledge, and available material resources in the farmers neighbourhood. Therefore, the objectives of this study are to:



- i. investigate the demographic characteristics of farmers in Ibarapa Region of Oyo State from southwest Nigeria
- ii. to investigate the perception of the farmers in Ibarapa Region towards adoption of organic crop production.
- iii. assess the potentials of these farmers and available biomaterials to practice organic crop production in this region.

Research Questions

1. What are the demographic characteristics of farmers in Ibarapa Region of Oyo State?
2. What are the perceptions of respondents towards organic farming by the respondents?
3. What are the potentials and available biomaterials to practice organic crop production in Ibarapa Region

METHODOLOGY

Descriptive survey research design was adopted for this study. The design is appropriate because the study purposefully sought the responses of farmers in Ibarapa East cultivating one crops or the other. The research population was all the farmers involved only in crop cultivation in Ibarapa East Local Government. Ten (10) farmers from four (4) major villages in Ibarapa East Local Government were sampled for the study to make a total of Forty (40). The four villages were Eruwa, Lanlate, Maya and Dagilegbo.

A structured questionnaire was designed with three sections A, B and C. Section A was used to seek information on demography of the respondents. Section B probed to the perception of the farmers in this region. Their perception was base on structured questions to find out their feelings, thought and beliefs on organic crop farming. While section C probed into potentials and sustainability of organic crop production in this region. The potentials of farmers and sustainability of organic farming were measured using a structured questionnaire to assess available organic materials and farm practices in their locality, and to determine their level of experience and exposure to related organic farming practices. The question items in section B were structured on a four-point Likert-scale of Strongly Agree (4), Agree (3), Disagree (2) and



Strongly Disagree (1). The question items in C were structured on frequency and simple percentage of the respondents. To establish the reliability of the instrument, the responses were subjected to Combach Alpha Statistics to determine the consistency of the instrument which gave 0.8 as reliability coefficient. Frequency tables and simple percentages were used to represent demographic information obtained from the study

For decision to be made, the mean of the scaling point was computed as

$$\frac{4 + 3 + 2 + 1}{4} = 2.5$$

Therefore, the response with means 2.5 and above was regarded as Agree while mean less than 2.5 as Disagree.

Data Analysis

The data collected for the study were analyzed using mean and grand mean to answer the research questions.

RESULT AND DISCUSSION

Research Question 1: What are the demographic characteristics of farmers in Ibarapa Region of Oyo State

The result in Table 1 showed that crop production in Ibarapa is dominated by male (87.5%), which may be as a result of rigour involved in crop production.. Majority of them are married (75.0%) with household size of 4 to 6 (50.0%). Majority of them attended secondary schools (57.5%) which is supposed to contribute to their exposure and level of awareness Majority of them have been in farming for a long period of time with over 10 years experience (70.0%). This year of experience would give them idea of what organic farming is all about. This implies that majority are well experienced in crop production.

Majority of these farmers operate small holding farm of 1 to 2 acres (62.5%), this may be as a result of small capital for expansion or land tenure system that still persists in the region. The result also showed that majority are practicing conventional (inorganic) farming (100.0%), this may be as a result of many factors which was investigated in section B and C through personal interview and structured questionnaire.



Table 1: Socio-economic Characteristics of Respondents

Variables	Frequency	Percentage
(%)		
Sex		
Male	35.0	87.5
Female	5.0	12.5
Age		
18 - 40	15.0	37.5
>40	25.0	62.5
Marital status		
Married	30.0	75.0
Single	8.0	20.0
Divorce	2.0	5.0
Household size		
1 – 3	8.0	20.0
4 – 6	20.0	50.0
>6	12.0	30.0
Educational Qualification		
Primary	7.0	17.5
Secondary	23.0	57.5
Tertiary	6.0	15.0
No Formal Education	4.0	10.0
Farming Experience (Years)		
≤ 5	4.0	10.0
6–10	8.0	20.0
≥10	28.0	70.0
Farm Size		
≤ 1 acre	9.0	22.5
1 - 2. acre	25.0	62.5
≥3.acre	6.0	15.0
Types of farming practice		
Conventional (inorganic)	0.0	100.0
Organic	40.0	0.0

Source: Field Survey, 2020



Research Question 2: What are the perceptions of respondents towards organic farming by the respondents?

The result on perception of farmers in Ibarapa on organic crop production in Table 2 showed that majority of them are not favourable disposed to getting alternative to use of synthetic pesticides and mineral fertilizers in growing their crops (1.8). Majority of the farmers were of opinion that use of organic manure (2.25) and organic pesticides (2.03) only would not give the same result of getting good yield when compared with synthetic pesticides and mineral fertilizers. The mean rating of the respondents also showed that majority of them did not believe on the use of only soil amendments to control soil pathogens and nematodes (2.03), only mulching and cover cropping as alternative to herbicides (2.25), use of crop rotation only to maintain soil nutrients and control some pests and diseases (2.33) and use of close season to reduce build up of pests and diseases on the farm (2.05).

However, majority of respondents believed in adjusting planting date to control some infestation and infection (2.65), and as well believed in timely harvesting to reduce wastage from pest attack on the farm (3.12). Majority of the farmers are also of opinion that they have good knowledge and have expertise to carry out organic crop farming (3.00), but having the fear of losing their yield without using chemical pesticides or mineral fertilizers (3.10). Majority of the respondents also feel that though organic crop cultivation is labour intensive (2.88), but believe there is enough of labour for organic crop farming in their locality (2.98).

Table 2: Mean rating of response on awareness and perception towards organic crop production in Ibarapa

S/N, ITEMS,	SA	A	D	SD	ΣFX	F	X	REMARKS
1. There is alternative to synthetic pesticides and inorganic fertilizers in crop production	20	9	24	20	72	40	1.80	Disagree
2. Using only organic manure will give the same result as using mineral fertilizers.	40	15	20	15	90	40	2.25	Disagree
3. Application of organic pesticides would give the same results as synthetic chemicals.	20	21	24	16	81	40	2.03	Disagree
4. Incorporation of soil amendments alone is effective on soil pathogens and nematodes	48	18	20	12	81	40	2.03	Disagree
5. Using of mulching and cover cropping will give the								



	same results as synthetic herbicides	20	30	30	10	90	40	2.25	
	Disagree								
6.	Use of crop rotation maintains soil nutrients and reduce pests and disease incidence	24	33	26	10	93	40	2.33	Disagree
7.	Use of closed season is effective in reducing build up of pests and diseases	20	24	22	16	82	40	2.05	Disagree
8.	Adjusting planting date is effective against some pests	48	30	20	8	106	40	2.65	Agree
9.	Timely harvesting reduces wastage to infestation	80	24	18	3	125	40	3.13	Agree
10.	We have good knowledge and expertise to handle to handle organic crop cultivation	64	36	16	4	120	40	3.00	Agree
11.	We can lose our yield to soil infertility, pests and Diseases in organic farming	72	33	16	3	124	40	3.10	Agree
12.	Organic farming is labour intensive	60	30	20	5	115	40	2.88	Agree
13.	There is enough labour in the locality for organic farming	48	57	10	4	119	40	2.98	Disagree

Mean > 2.5 implies Agree; Mean < 2.5 implies Disagree

Research Question 3: What are the potentials of respondents and the available biomaterials available to practise organic crop production in Ibarapa Region?

The result on the potential of farmers of Ibarapa Region in Table 3 showed the abundance of organic materials like neem plants, pyrethrum, nicotine plants which are good source of organic pesticides (90.0%). Poultry manure, cow dung, compost material, wood ash were also found in abundance (90.0%). These materials were not only found in abundance but also readily available and cheap (87.5%). The result also revealed that the farmers have been using organic manure (75.0%) to supplement chemical fertilizers and have vast experience on how and when to apply these manure and organic pesticides (60.0%). However, the result also revealed that majority of the farmers have not been using organic pesticides despite their abundance to control pests and diseases (25.0%). It was shown in the result that majority of respondents were aware and have used adjustment of planting date on time or the other to avoid attack pests and diseases (92.5%). They are also aware that timely harvesting can be used to reduce wastage to infestation and infection (92.5%). Majority of them have used mulching or cover cropping before to reduce weed infestation (60.0%). Investigation on the potentials of Ibarapa farmers on the use of crop rotation and close season showed that majority of them lack this knowledge (5.0%) and they have not been



using these two practices to reduce build-up of pests and diseases. Neither do they have much knowledge and application of biological control of pests and diseases (35.0%), but are conscious and aware of toxicity of chemical pesticides to the users and environment as a whole (82.5%).

Table 3: Frequency and percentage of respondents on potential of the respondents and available biomaterials to practice organic crop production in Ibarapa

S/N. ITEMS,	Yes (%)	No (%)
1. Do we have organic manure, neem, pyrethrum and wood ash in abundance in your locality.	36 (90.0)	4 (10.0)
2. Are these materials cheap and readily available	35 (87.5)	5 (12.5)
3. Have you used organic manure before to supply soil nutrients	30 (75.0)	10 (25.0)
4. Have you ever used organic pesticides to control pests and diseases	10 (25.0)	30 (75.0)
5. Do you know when and how to apply manures and organic pesticides	24 (60.0)	16 (40.0)
6. Are you aware that planting date can be adjusted to control incidence of pests and diseases	37 (92.5)	3 (7.5)
7. Have you ever used mulch materials or cover crops to control weeds	24 (60.0)	16 (40.0)
8. Do you have knowledge of crop rotation and close season as a farm practice	2 (5.0)	38 (95.0)
9. Have you heard of biological control method of controlling pests	10 (35.0)	30 (75.0)
10. Are you aware of toxicity of chemical pesticides to the users and environment	33 (82.5)	7 (17.5)

CONCLUSIONS

Based on the findings of this study, the followings were concluded:

1. The majority of the farmers in Ibarapa region were male, married, educated, experienced operating small holding farm with no knowledge of organic farming.
2. They did not believe in the effectiveness of organic manure and pesticides as alternative to chemical pesticides and synthetic fertilizers
3. Majority of these farmers found some of organic practices like adjustment of planting date and timely harvesting effective in reducing infestation and infection.
4. Most of organic materials needed for organic farming were cheap and found in abundance in Ibarapa region.
5. These farmers have knowledge and sufficient labour require for organic farming

RECOMMENDATIONS

1. There should be organized lecture through radio and other mass media to sensitize awareness of farmers on the pollution and toxic effects of chemical pesticides and mineral fertilizers from conventional farming



2. More public lectures, seminars and workshops should be organized on the importance of organic foods on health and environment to encourage organic farming.
3. Provision should be made by government in terms of capital and monitoring to support Ibarapa farmers who have all the potentials and sustainability to carry out organic farming.
4. Government should be prepared to buy all the organic crops produced at high cost, since organic farming is expensive.

REFERENCES

- Abdullahi, A. & Kutama, A. S. 2012. Revamping the Nigerian Agricultural sector: An indispensable tool for national development and food security. *Inter. J. on Development Stud.* 5 (4): 113-120.
- Amodio, M. L., Coleli, G., Hasey, J. K., Kader, A. A. 2007. Crops problems and prospect of organic farming. A paper presented at Department of Dry-land Crop and Horticultural Sciences, Faculty of Dry-land agriculture and Natural Resources
- Anderson, J. B., Jolly, D. A. & Green, R. (2005). Determinants of farmer adoption of organic production methods in the fresh-market produce sector in California: A logistic regression analysis. A paper presented at the Western Agricultural Economics Association 2005 Annual Meeting, July 6-8, 2005. San Francisco, California.
- Heister, R. 2007. Biodiversity under threat. Royal Society of Chemistry, pp. 16.
- Kemper, K. 2010. Addressing Add Naturally. Xlibris, Corp pp. i.
- Kennedy, C. M., Lonsdorf, E., Neel, M. C., Williams, N. M., Ricketts, T. H., Winfree, R. 2014. A global quantitative synthesis of local and landscape effects on wild bee pollinator in agroecosystems. *Ecol. Lett.* 16, 584-599.
- Kovacs-Hostyanszki, A., Espindola, A., Vanbergen, A. J., Settele, J., Kremen, C. & Dicks, L. V. 2017. Ecological intensification to mitigate impacts of conventional intensive land use on pollinators and pollination. *Ecol Lett.* 20, 673-689.
- Laird, E. I., Tonhill, C. I. & Tony, H. 2001. History of organic farming, sourced from <http://www.westprice.org/farming>.
- Magkos, F., Arvanti, F., Zampelas, A. 2006. Organic food: Buying more safety or just peace of mind? A critical review of the literature. *Critical Reviews in Food Science and Nutrition* 46 (1): 23-56.
- Nyamangara, J. & Bergstrom, L. F. 2008. Vergleichende Qualitätsachungen Zwischenbiologisch und konventioneliangebauten production: Ein Kritische Betrachtung der forschungserbeiten Zwischa 1993 un 1998. Pp31 Coop Schweiz, frick, Switzerland.
- Paul, J. 2011. Nanometer in food and agriculture: The big and small matter for organic food and farming. Proceedings of Third Scientific Conference of ISOFAR, 28 September -1 October, Nanyang, Korea 2: 96-99.
- Reganold, J. P. & Wachter, J. M. 2016. Organic agriculture in the twenty-first century. *Nat Plants* 2, 15-21.
- Willer, H., Lernoud, J. & Kemper, L. 2019. The world of organic agriculture eds H. Willer and J. Lernoud, Frick: FIBL.