



Research Paper

Perceptions and Attitudes of Secondary School Agricultural Science teachers on Organic Agriculture in Emohua Local Government Area of Rivers State, Nigeria

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There is a growing awareness on sustainable agriculture in Nigeria. This work was aimed at determining the perceptions and attitudes on organic agriculture (OA) among secondary school agricultural science teachers in Emohua Local Government Area (EMOLGA), Rivers State, Nigeria. Structured questionnaire was used to generate the data. Twelve (12) out of the sixteen (16) secondary schools in the Local Government Area were randomly chosen and five (5) agricultural science teachers in each of these schools were administered with questionnaires and all retrieved. The result revealed that most of the teachers are trained teachers in agriculture (88.3%), males, have been in the teaching profession for less than 10 years (66.7%), with farming experience before their education, aware of OA, 75.0% and 18.3% of them having moderate and high perception of OA respectively.

Also, 70.0% of the teachers have a positive attitude towards OA and 96.7% of them willing to practice it. A greater percentage (96.7%) is willing to adopt OA and inform their teachers on the merits of OA. The majority of the respondents agreed that chemical fertilizers have negative effects on people's health and the environment. Most of the respondents agreed on the need for adequate knowledge and in-service training on OA and the low content of sustainable agriculture in the curriculum. They advocated for better teaching facilities and review the agricultural science curriculum in the secondary schools with the inclusion of sustainable agriculture.

Keywords: Perception, attitude, Emohua, organic agriculture, secondary school teachers, sustainable agriculture.

INTRODUCTION

The increase in the world population necessitated a global industrialization. Industrialization was a blessing to mankind but it has its negative effects as farmer's abandoned sustainable agriculture which is environmentally friendly to conventional farming with the use of inorganic fertilizers. Though sustainable agriculture is not easy, it must be vigorously pursued to preserve the environment which should be left as a legacy for the oncoming generation. Researchers and educators are stake holders in this noble venture and therefore should transmit it to the farmers and students

(Norman et al., 2015). Sustainable agriculture is based on providing long-term crops and livestock with reduced effects on the environment (Mader *et al.*, 2002; Cunningham, 2017). It attempts to maintain a balance between the demand for food production and preservation of the ecological system with the environment. There are several benefits derivable from this type of agriculture such as water conservation, reduced application of fertilizers and pesticides, enhancing biodiversity in plants grown and the ecosystem, preserving the human health, producing food

that are nutritionally better and is environmentally friendly (Kapoor, 2017; Sheeshan, 2017). However, there are challenges of sustainable agriculture among which are the high cost of food produced and its inability to produce much food as conventional agriculture. The primary concern of organic agriculture is the sustainable production of food with little or no effect on the environment (Herath and Wijekoon, 2013). Organic agriculture de-emphasized the use of synthetic/manufactured fertilizers, pesticides (such as fungicides, herbicides and insecticides, livestock antibiotics, plant growth regulators, food additives and generally modified organisms. It encourages the application of organic material from animal and plant origin and techniques such as crop rotation, green manure, biological pest control, etc. to produce high quality food.

There is need to make teachers have a clear understanding and the importance of organic agriculture and transfer it to their students. The philosophy of agriculture in Nigerian schools focuses on improving the living standard of the rural dwellers and producing nutritious food by improving the rural environment (Olaitan, 1984). Such will require agricultural science teachers knowledgeable in organic agriculture, availability of school farms, agricultural science laboratory and enough classrooms (Emeya and Ojimba, 2012). It is in school farms that agriculture science teachers teach the students farm practicals where students can develop their skills, have a better perspective of the environment and change their view where necessary and carry out research (Mama and Olaitan, 2001; Smith et al., 2006). There are also social and economic benefits of the school farm (Emeya and Ojimba, 2012). These can only be achieved if there are school farms. Ladele, (1998) revealed that most schools in Rivers State are in dire need of farm structures and implements which has led to the abandoning of school farms. This situation may not be farfetched in other states in the country. The students will study agriculture theoretically and leave school with no new knowledge acquired and nothing to impact on their parents/guardians. Agricultural science undergraduate students have roles to play in the transfer of knowledge of organic agriculture. It is disheartening to note that only very few universities in Nigeria study organic agriculture at their undergraduate level (Mgbenka et al., 2015). The study carried out by Iyagba and Amesi, (2016) showed that only 31.3% of those who studied agricultural science at their undergraduate level in Rivers State are aware of certified/organized organic farming though they do it unknowingly. In another study conducted by Iyagba and Ekpete (2017), it was revealed that secondary school agricultural science teachers in Ahoada East Local Government Area of Rivers State, Nigeria accepted that 10.0% and 52.5% have high and moderate perception of organic farming respectively. Ajzen and Fishbein, (1980) revealed that a person's

behaviour is determined by one's individual nature and perception of social pressure. Since this deals with the personal feelings, this factor is termed the "attitude towards the behaviour", Ajzen and Fishbein, (1980) and Herath and Wijekoon, (2013) revealed that knowledge about organic farming, environmental aspects and personal characteristics are the factors determining a grower's belief and assist towards shaping of behavioural beliefs for organic farming attitudes. Working on attitudes and perceptions of organic and non-organic coconut growers towards organic coconut farming in Sri-Lanka, Herath and Wijekoon, (2013) observed that knowledge of organic farming, environmental aspects, age, education and duration on organic farming played a major role in attitude formation. Adebayo and Oladele, (2013) indicated that the most attitudinal statements as ranked by vegetable farmers in South Western Nigeria were that OA improves the fertility of the soil and soil structure and encourages the use of local knowledge. Oluwasusi (2014) also noted that most of the farmers had a positive attitude on OA and that the most important attitudinal statements ranked by the vegetable farmers were that OA enhances the use of indigenous knowledge. In a depressed economy using organic materials which are readily available will be an added advantage rather than using inorganic fertilizers with its attendant problems.

The objective of this work is therefore to investigate the perceptions and attitudes of agricultural science secondary school teachers in Emohua LGA, Rivers State, Nigeria on organic agriculture and make recommendations on its adoption.

METHODOLOGY

A simple descriptive survey involving a structured questionnaire to elicit information on the subject matter was used in this study. The population for this research was made up of all the agricultural science teachers in the sixteen (16) secondary schools in Emohua LGA, Rivers State, Nigeria. The sample size consists of sixty (60) agricultural science teachers from twelve (12) secondary schools that were randomly selected. Five (5) teachers from each of the schools were randomly selected for this study. A total of 60 structured questionnaires were administered to these teachers to collect relevant information. The multi-stage sampling technique was used to collect data. The sixty questionnaires were retrieved for analysis using frequency distribution and simple percentages.

RESULTS AND DISCUSSION

The demographic characteristics of the respondents are presented in (Table 1). Majority of the respondents (88.3%) were trained Agricultural science teachers and

Table 1. Demographic characteristics of agricultural science secondary school teachers in Emohua LGA, Rivers State, Nigeria.

| Questions items | Variables | No. of responses | % Response |
|--|-----------------------|------------------|------------|
| Qualification of Agricultural Science teachers | NCE (Agric) | 7 | 11.7 |
| | NCE (Outside Agric) | 0 | 0 |
| | B. Sc./B.Ed. (Agric) | 46 | 76.6 |
| | Any other | 7 | 11.7 |
| Gender | Male | 37 | 61.7 |
| | Female | 23 | 38.3 |
| Marital Status | Single | 16 | 26.7 |
| | Married | 43 | 71.6 |
| | Divorced | 1 | 1.7 |
| | Widow/Widower | 0 | 0 |
| | Single Parent | 0 | 0 |
| Age of Agric. Science teachers | ≤ 25 years | 2 | 3.3 |
| | 26-30 years | 16 | 26.7 |
| | 31-35 years | 10 | 16.7 |
| | 36-40 years | 22 | 36.7 |
| | 41-45 years | 4 | 6.7 |
| | > 45 years | 6 | 10.0 |
| No. of years in teaching profession | < 10 years | 40 | 66.7 |
| | 10 – 20 years | 8 | 13.3 |
| | 21 – 30 years | 5 | 8.3 |
| | > 30 years | 7 | 11.7 |
| Farming experience before schooling | Yes | 36 | 60.0 |
| | No | 24 | 40.0 |
| Where teachers grew up | Farming family | 28 | 46.7 |
| | Rural non-farming | 18 | 30.0 |
| | Semi-urban/Urban area | 14 | 23.3 |

Source: Field report, 2016.

more male teachers. Agbaje (1998), Okeafor, (2002) and Iyagba and Ekpete, (2017) have reported that there are more males in teaching agricultural Science in Secondary Schools. Most of them are married and within the age bracket of 36-40 years (36.7%). However, similar work in Ahoada East Local Government Area of Rivers state showed that most of the Agricultural Science teachers were within the age bracket of 36-45 years (Iyagba and Ekpete, 2017). A greater proportion of the teachers have been in the teaching profession for less than 10 years (66.7%) while the least are those with more than 30 years' experience (11.7%). A longer teaching experience will enhance better skill and knowledge delivery (Borg, 2008). Majority of the teachers possess farming experience (40.0%) before their training in school and also from farming families. This will be an added advantage to the teachers as better farming skills will be acquired with longer farming experience (Oluwasusi, 2014).

Majority of the respondents are aware of OA (95.0%) but with moderate perception of 75.0% (Table 2). The teachers also have positive attitude towards OA, frequent use of organic materials (85.0%) and willingness to practice it. The level of perception, positive attitude and willingness to practice OA is as a result of their family background as they came from farming families and were rural dwellers. These observations were supported by the findings of Adebayo and Oladele, (2013) and Herath and Wijekoon (2013) that environmental background,

knowledge of OA, and period spent on farming contributed significantly in attitude formation. From Table 3, the commonly planted crop is cassava (63.3%) and the farming practice adopted in schools is crop rotation (51.7%). Crop rotation is one of the adopted farming practices in sustainable agriculture. There is availability of land to practice OA which is a favourable attitude on OA. Table 4 revealed that one of the major reasons for practicing organic agriculture is to increase crop yield (43.3%) and improve soil fertility (33.3%) and this helps in better attitude formation.

The majority of the respondents agreed to inform their colleagues of the benefits of OA. They also accepted that synthetic fertilizers have negative effects on people's health (91.7%) and the environment (93.7%). These enabled the teachers to have better perception of OA. The major constraint to their practicing OA is difficulty in the application (26.3%) and shallow knowledge in organic agriculture (certified/organized).

Generally, the teachers agreed that they need in-service training (88.3%) and elaborate knowledge (93.3%) on OA and better facilities to teach sustainable agriculture (Table 5). They accepted the need to review the agricultural science curriculum as the current curriculum did not include organic or sustainable agriculture.

These were also in line with the earlier findings of Iyagba and Ekpete (2017) in Ahoada East Local Government of Rivers State.

Table 2. Perception and attitude on organic agriculture by agricultural science secondary school teachers in Emohua LGA, Rivers State, Nigeria.

| Questions items | Variables | No. of responses | % Response |
|---|-------------------------------|------------------|------------|
| Aware of OA | Yes | 57 | 95.0 |
| | No | 3 | 5.0 |
| Perception of OA | Low | 4 | 6.7 |
| | Moderate | 45 | 75.0 |
| | High | 11 | 18.3 |
| Attitude of Agric Science teachers on OA | Positive | 42 | 70.0 |
| | Negative | 18 | 30.0 |
| Use fertilizers in school garden | Yes | 55 | 91.7 |
| | No | 5 | 8.3 |
| Fertilizer type used in crop cultivation | Natural fertilizer | 48 | 80.0 |
| | Chemical fertilizer | 12 | 20.0 |
| Frequency of use of organic materials in school | Very often | 51 | 85.0 |
| | Seldom | 7 | 11.7 |
| | Never | 2 | 3.3 |
| Organic material type used | Crop waste | 44 | 73.3 |
| | Green manure | 7 | 11.7 |
| | Wood ash | 3 | 5.0 |
| | Mulch | 6 | 10.0 |
| Willingness to practice OA | Yes | 58 | 96.7 |
| | No | 2 | 3.3 |
| Information source on OA in School | Agric Magazine | 3 | 5.0 |
| | Television | 15 | 25.0 |
| | Radio | 18 | 30.0 |
| | While in tertiary institution | 10 | 16.7 |
| | Seminar/Workshop | 8 | 13.3 |
| | Newspapers | 4 | 6.7 |
| | Internet | 2 | 3.3 |

Table 3. Farming methods adopted among secondary schools in Emohua LGA, Rivers State, Nigeria.

| Questions items | Variables | No. of responses | % Response |
|---|----------------------|------------------|------------|
| Commonly planted crop in school | Maize | 4 | 6.7 |
| | Yam | 10 | 16.7 |
| | Cassava | 38 | 63.3 |
| | Vegetables | 8 | 13.3 |
| Types of farming practice adopted in school | Crop rotation | 31 | 51.7 |
| | Shifting cultivation | 12 | 20.0 |
| | Bush fallow | 3 | 5.0 |
| | Mixed farming | 11 | 18.3 |
| | Intercropping | 3 | 5.0 |
| Availability of land to practice OA | Yes | 49 | 81.7 |
| | No | 11 | 18.3 |

Source: Field report, 2016.

Table 4. Dividends and difficulties of practicing OA among agricultural science secondary school teachers in Emohua LGA, Rivers State, Nigeria.

| Questions items | Variables | No. of responses | % Response |
|--|----------------------------------|------------------|------------|
| Reasons for practicing OA | To control weeds | 6 | 10 |
| | Improve soil fertility | 20 | 33.3 |
| | Absence of inorganic fertilizers | 5 | 8.3 |
| | Better food taste | 3 | 5.0 |
| | Increase in crop yield | 26 | 43.3 |
| Accept to inform co-teachers on benefits of OA | Yes | 46 | 76.7 |
| | No | 14 | 23.3 |
| Chemical fertilizer on people's health | Positive effect | 5 | 8.3 |
| | Negative effect | 55 | 91.7 |
| Chemical fertilizer on environment | Positive effect | 4 | 6.7 |
| | Negative effect | 56 | 93.7 |
| Constraints to practice OA | Shallow knowledge on OA | 14 | 23.3 |
| | Difficulty in application | 16 | 26.7 |
| | Labor intensive | 13 | 21.7 |
| | Expensive | 1 | 1.7 |
| | Scarcity of organic materials | 8 | 13.3 |
| | Lack of interest | 8 | 13.3 |

Source: Field report, 2016.

Table 5. Ways of improving OA among secondary schools in Emohua LGA, Rivers State, Nigeria.

| Questions items | Variables | No. of responses | % Response |
|--|-----------|------------------|------------|
| Need in service training of teachers | Yes | 53 | 88.3 |
| | No | 7 | 11.7 |
| Need elaborate knowledge in OA | Yes | 56 | 93.3 |
| | No | 4 | 6.7 |
| Adequacy of curriculum to teach sustainable Agriculture | Yes | 8 | 13.3 |
| | No | 52 | 86.7 |
| Need better facilities and methods of teaching sustainable agriculture | Yes | 58 | 96.7 |
| | No | 2 | 3.3 |

Source: Field report, 2016.

Conclusion

From the study, it can be concluded that most of the teachers are middle aged and trained and have good perception and positive attitude towards organic agriculture. The presence of land, willingness to practice OA and inform their fellow teachers, and their perceived negative effects of inorganic fertilizers on people's health and the environment are inducing factors which can attract positive and enhance the attitudes of most of the respondents to organic agriculture. For effective and efficient practice of organic agriculture, there is need for in-service training of teachers to update their knowledge especially on organized/certified organic farming, review the current agricultural science curriculum and the provision of better teaching facilities.

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