



Impact of Agricultural Education on Agricultural Productivity of Women Farmers in Omuma Local Government Area of Rivers State

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ABSTRACT

The study investigated the impacts of agricultural education on agricultural productivity of educated and non-educated women farmers in Omuma Local Government Area of Rivers State. Taro Yemene formula were used to select a sample size of 850 out of 4890 registered educated and non-educated women farmers used as population from the ten wards in Omuma. Data was collected by the use of an instrument titled ‘Agricultural Productivity of Women Farmers Questionnaire’ (APWFQ). 850 copies of the instrument were administered on the respondents out of which 800 copies were completed and returned. Data was analyzed using mean and standard deviation for the research questions and the hypotheses was tested using Z-test at 0.05 level of significance. Questionnaire was face validated by three experts, and the reliability was tested using Cronbach’s alpha reliability estimate to determine the internal consistency of the questionnaire; this yielded a reliability coefficient (r) of 0.877. The findings revealed that timely application of pesticides to reduce pest attack and increase yield was rejected by both the educated and non-educated women farmers. Educated women farmers apply selective herbicides, fertilizers and plant on ridges these helped to increase yield while non-educated women farmers use non-of these applications. The Z-test result revealed that there is significance difference in the agricultural productivity of the educated and non-educated women farmers on both food crops and domestic animals production. Recommendations made include agricultural education should be encourage for women farmers in rural areas by sending agricultural extension agents from ministry of agriculture and natural resources to enlighten women farmers on modern farming techniques.

Keywords: Agricultural Education, Agricultural Productivity, Women Farmers, Educated Women, Non-Educated Women.

INTRODUCTION

Food had always remained a basic necessity of man; this is why the earliest men were wandering; moving from one place to the other in search of food. In many developing countries there had been a steady rise in the population of the citizenry, Egbule {2004} stated that majority of the food produced in developing countries came from the rural areas particularly woman using crude implement. With urban focused development young men and women migrate to the cities, food production is now left

for the aged and women, and the number of women with requisite education in agriculture willing and able to enter into farming had never been enough.

Agriculture today is not only farming, it is also a business, and this implies that a good farmer should use little of his inputs to produce more outputs according to Nlebem [2018]. He must be able to manage his resources-land, labour and capital most efficiently so that production cost are as low as possible, he must be able to evaluate risks, combat problems and make intelligent decisions so as to make profit. These are the key requirements of agricultural education that lead to agricultural productivity. Therefore agricultural productivity according to Ordu (2018) is diverse actions taken to increase yield, it is a measured ratio of all agricultural inputs used. World Bank (2014) defined agricultural productivity as a total factor of productivity (TFP) used to calculate and compare an index of inputs to that of index of outputs.

World Bank (2014) also described agricultural productivity as the growth of outputs produced from all inputs, which includes anything that makes outputs grow faster than the combined inputs used. Agricultural productivity facilitates efficient distribution of scarce resources such as land, labour, minerals, energy, capital and human development skills to deal with difficulties in farm operation, and achieve the goal of efficiency. Engaging in agricultural productivity helps practitioners adopts alternative use of land for aqua pomes, hydrophones, poly cultures, irrigation techniques, integration, pest management, bio-intensive horticultural practices and designs, forest conservations, animal and crop production. Food and Agricultural Organizations FAO (2011) asserted that agricultural productivity is a kind of practice that help both the farmer and the rural dwellers gain food security at low price, agricultural productivity and agricultural education are linked together.

Agricultural Education could be defined as a process of impacting knowledge, skill and attitude in agriculture to the learners at any level, be it primary, secondary special school to tertiary institutions.. Obibuaku (2004) described agricultural education as training given in agriculture from primary school through secondary and special school to the university. Agricultural Education is therefore an important school programme that is offered at all levels of education ranging from home to the school and the community; implying that it can be formal informal and non-formal. Agricultural education according to Nlebem (2012) emphasizes skill development in all aspects of agribusiness such as planning, management, safety, finance and leadership. It also furnishes learners with the necessary communication and interpersonal skills as well as knowledge of technical agriculture to would be farmers. It equips learners to be self-employed or work in agricultural extension services, agri-business or industry.

According to Egbule (2004), the focus of agricultural education is on man's total existence. Hence it is not sufficient to make a one sentence definition of agricultural education. In Nigeria agriculture and its products have continued to be the mainstay of the economy, beside all, the major occupation of rural women in Omuma Local Government Area of Rivers State is farming, which include cassava, maize and okra production, palm oil processing, cracking of palm kernel, harvesting of natural snails and mushroom from the forest, involvement in agro- business, such as processing of cassava into garri, tapioca and loi-loi for family consumption and for local market, cloth-making, plaiting of hair, mat and basket making, vegetable growing and some of the women engage in fish trading, also some are employed as teachers, nurses and local government workers, they all are involved in agricultural production. Therefore require knowledge in agriculture to increase their life-long career. From the above if agricultural education is properly emphases will help the women farmers in Omuma Local Government Area to reconstruct their attitudes, feeling, and belief, actions to exploit natural resources within their reach and improve their socio-economic status, since historical records showed that women in Omuma Local Government Area had been good farmers.

Historical Development of Agricultural Education and Role of Women in Agriculture in Omuma in Particular and Nigeria in General

Before the coming of the early missionaries and following the establishment of formal schools in Omuma in particular and Nigeria in general, parents, guardians, other elders and experienced members of Omuma community served as teachers or instructors to the children and youths on the principles and methods of traditional agriculture, this type of training is called apprenticeship method according to Nlebem (2018). They practice agriculture using crude implement which was accepted by the community. The British government made significant improvement in the development of

agricultural education in Nigeria in the year 1918 when it committed itself to improving agricultural resources. As a result of this development, five schools of agriculture were established in the country from 1920 and 1960, these schools of agriculture were located at Akure, Umudike, Moore plantation in Ibadan, Kebbi, and Zaria according to Egdule (2004). The purpose for the establishment of these schools of agriculture was to train; initiate youths and women to embrace improve farming practices instead of traditional farming method used in the apprenticeship system. Other important institutions of agriculture at this period include Forestry school at Samaru Zaria, opened in 1938 and a Veterinary school opened in Vom Jos in 1935. Also courses in agriculture had already started in Ibadan and Samaru in 1930. In 1932 the Yaba Higher College was established and various courses including engineering, agriculture and teacher education were offered. From 1961 till date many schools of agriculture have been opened in most states of Nigeria to encourage agricultural training and development and this benefitted significantly women farmers. Women farmers are described by the researcher as the female race or persons who directly or indirectly engaged in agricultural production for livelihood. These are women above 18 years of age, and are independent in nature through self-decision-making either married or unmarried. They play major roles in both social and economic in the society, such as provision of food, home making, role model, social activist, business owners, skilled workers, trainers and developers of children-this made their role in agricultural production very crucial.

Role of Women in Agriculture; Women remain vehicle for rural-urban transformation, Machete (2015), asserted that women engagement in agriculture gave them rights and access to land, enhanced their leadership skills and helped them secure food to feed current and future generations. Alkire [2013] agreed that women who involved in agriculture are independent and self-decision makers and had become good beneficiaries to household and societal assets. It is known that woman who practices agriculture has marketable skills and agricultural networking to improve production.

Statement of the Problem

Agriculture had always remained the basic necessity of man, providing man with food, shelter, income and other basic needs of life. According to Nlebem [2012], the earliest people of Rivers State in the present Niger Delta region were almost hundred percent practicing agriculture, either planting and harvesting of crops, fishing in the river, oceans, sea, streams, or hunting of animals in the wild forest, some engage in mat, basket and cloth weaving using agricultural products and crude implements which were accepted by the communities. This later resulted into apprenticeship system where fathers, uncles and other older men instructed the younger men on how to farm, climb palm trees, fish in the river and hunt wild animals in the forest, while mothers and elder women taught younger women how to plant cassava, weed the farm, process cassava into garri, cook and other home making activities. With urban focused development young men and women migrate to the cities; agriculture was left for the aged. The number of young men and women with requisite education in agriculture, willing and able to enter farming to replace the aged farm operators had never been enough.

Agriculture today is not only farming, it is a business requiring adequate education-to enable the farmer manage his resources-land, labour, capital most efficiently, so that production cost are as low as possible. Till date most women farmers in Omuma Local Government Area lack adequate knowledge in agricultural education, exposing them to continuous use of traditional method of crop production, poor management of livestock, poor fish production and forest conservation. If nothing is done to educate the women farmers in Omuma Local Government Area, they will remain in their poor state of agricultural production, as Osinew (2017) rightly observed that education in agriculture will motivate, develop and give a better career orientation in agriculture to the farmers. Based on the above the researcher want to know what will be the impact of agricultural education on agricultural productivity of women farmers in Omuma Local Government Area of Rivers State.

Purpose of the Study

The main purpose of the study was to ascertain the impacts of agricultural education on agricultural productivity of woman farmers in Omuma Local Government Area of Rivers State. Specifically, the study sought to;

1. Ascertain the impacts of agricultural education on agricultural productivity of educated and non-educated woman farmers on food crops production in Omuma Local Government Area of Rivers State.
2. Ascertain the impacts of agricultural education on agricultural productivity of educated and non-educated women farmers on domestic animals production in Omuma Local Government of Rivers State.

Research Questions

The following research questions guarded the study;

1. What is the impacts of agricultural education on the agricultural productivity of educated and non-educated woman farmers on food crops production in Omuma Local Government Area of Rivers State.?
2. What are the impacts of agricultural education on the agricultural productivity of educated and non-educated woman farmers on domestic animals production in Omuma Local Governments Area of Rivers State?

Hypotheses

The following null hypotheses guarded the study;

1. There is no significant difference in the mean score rating of educated and non-educated woman farmers on the impacts of agricultural education on their agricultural productivity on food crops production in Omuma Local Government Area of Rivers.
2. There is no significant difference in the mean score rating of educated and non-educated woman farmers on the impacts of agricultural education on their agricultural productivity on domestic animals production in Omuma Local Government Area of Rivers State.

METHODOLOGY

The study employed descriptive survey design; the population comprised 4890 educated and non-educated registered women farmers from agricultural cooperatives societies in the ten wards in Omuma Local Government Area of Rivers State. The sample size consisted of 850 registered educated and non-educated women farmers in agricultural cooperative societies from the ten wards. Yaro Yamene Formula developed by Avwokeni (2007) was used to choose 85 women educated and non-educated farmers from each of the ten wards. Data was collected by the use of questionnaire titled "Agricultural Productivity of Women Farmers Questionnaire (APWFQ)". The instrument was used to elicit opinions from the respondents on the following, impacts of agricultural education on women farmers' productivity and impacts of agricultural education on variables that affects agricultural productivity of women farmers. The variables considered in section B is food crops production, C. domestic animals production. The (APWFQ) was subjected to face and content validation by two experts from Agricultural Extension Agents (AEAs) of Rivers State Agricultural Development Programme (RISADEP) Rumuodomaya, Port Harcourt; two experts form Ministry of Agriculture and Natural Resources Extension Office at Eberi, Omuma Local Government Area Headquarter. The reliability of the instrument was tested using 20 respondents who were not part of the sample, but equivalent in all respect using test-retest method. Cronbach`s Alpha reliability estimate was employed and a reliability coefficient of 0.877 was obtained which was considered adequate for the study. The researcher personally administered the questionnaire numbering eight hundred and fifty (850) copies with the help of two trained research assistants. Eight hundred completed questionnaires from the respondents were collected through the same process, giving a return rate of 90%. The results were analysed using, Mean and standard deviation for the research questions and Z-test for the hypotheses;

Research Question 1; *What are the impacts of agricultural education on the agricultural productivity of educated and non-educated women farmers on food crops production in Omuma Local Government Area of Rivers State.?*

Table 1 Impacts of agricultural education on women farmers' food crop production

S/N	Variables	Educated =400			Non-Educated=400		
		Mean	S.D	Decision	Mean	S.D	Decision
1	Application of timely pesticides to reduce pest and increase yield	2.30	1.2	Rejected	2.00	1.1	Rejected
2	Application of selective herbicides, fertilizers to increase yield	3.0	1.0	Accepted	1.3	0.6	Rejected
3	Early cassava planting produce better than late planting	3.0	1.1	Accepted	2.7	1.1	Accepted
4	Pumpkin production yield more income than Okra production	3.1	1.1	Accepted	2,8	1.2	Accepted
5	Palm oil processing	3.0	0.4	Accepted	1.7	1.2	Rejected
6	Food crops on ridges yield better than zero tillage	3.0	1.1	Accepted	2.0	0.9	Rejected
7	Women farmers cultivate rice to increase income	1.6	0.9	Rejected	1.5	0.7	Rejected
8	Maize cultivation boost women farmers income	3.5	0.6	Accepted	2.6	0.57	Accepted
9	Women farmers also plant yam in large quantity	2.4	1.2	Rejected	1.5	0.7	Rejected
10	Women farmers grow crops all year round	3.3	0.8	Accepted	2,5	0.7	Accepted
	Grand mean	2.79	0.8		1.91	0.91	

/S.D

Source: Field Survey 2019

Table 1; showed the responses of the respondents on the impacts of agricultural education on the agricultural productivity of woman farmers on food crops production in Omuma Local Government Area of Rivers State. From the result shown in the table educated women farmers engaged on application of timely pesticides to reduce pest attack on crops and increase yields (X=2.3), selective herbicides and fertilizer application (X=3.0), early cassava planting (X=3.0), pumpkin production (X=3.1), palm oil processing (X=3.0), planting on ridges yield better than zero tillage (X=3.0), rice cultivation (X=1.6), maize cultivation (X=3.5), yam planting (X=2.4) plant all year round (X=3.3). Non-educated women; timely application of pesticides (X=2.0) selective herbicides and fertilizer application (X=1.3), early cassava planting (X=2.7), pumpkin production (X=2.8), Palm oil processing (X=1.7), planting on ridges yield better to zero tillage (X=2.0), rice cultivation (X=1.5), Maize cultivation (X=2.6), yam planting (X=1.5), planting all year round (X=2.5).

Research Question 2; *What are the impacts of agricultural education on the agricultural productivity of educated and non-educated women farmers on domestic animals production in Omuma Local Government Area of Rivers State?*

Table 2: Agricultural Productivity on Domestic Farm Animals Production

S/N	Variables	Educated =400			Non-Educated=400		
		Mean	S.D	Decision	Mean	S.D	Decision
1	Women farmers produce eggs in commercial quantity	3.1	1.0	Accepted	1.4	0.8	Rejected
2	They produce broilers	3.0	1.0	Accepted	1.6	1.0	Rejected
3	They rear cockerel	3.5	0.6	Accepted	2.6	0.9	Accepted
4	They produce goat in commercial quantity	2.3	0.7	Rejected	2.1	0.7	Rejected
5	They produce fish in commercial quantity	1.5	0.8	Rejected	1.2	0.7	Rejected
6	They have snail farm	1.9	1.1	Rejected	1.3	0.5	Rejected
7	They produce sheep in commercial quantity	1.6	0.7	Rejected	1.4	0.6	Rejected
8	They process fish for sales	3.4	0.9	Accepted	3.1	1.0	Accepted
9	Banks and other financial institutions give loans to women farmers	1.3	0.5	Rejected	1.3	0.6	Rejected
10	They sale live chicken	3.1	1.0	Accepted	1.4	0.8	Rejected
	Grand mean	2.30	.084		1.8	0.73	

Source: Field survey (2019)

Data presented on Table 2 showed the following for educated women farmers, deep litter layers production (X=3.1), deep litter broiler production (X=3.0), cockerel production (X=3.5), commercial goat farming (X=1.5), commercial fish farming (X=1.5) snail farming (X=1.9), commercial sheep farming (X=1.6), fish processing for sales (X=3.4), bank loans to women farmers (X=1.3) sale of chicken (X=3.1). Non-educated women farmers; deep litter layers production (X=1.4), broiler production (X=1.6), cockerel production (X=2.6), commercial goat farming (X=3.0), commercial fish farming (X=1.2), snail farming (X=1.3), commercial sheep farming (X=1.4), fish processing for sales (X=3.1), banks and other financial institutions give loans to women farmers (X=1.3) chicken sales (X=1.4).

Hypothesis 1; There is no significance difference in the mean score rating of educated and non-educated women farmers on the impacts of agricultural education on their agricultural productivity on food crop production in Omuma Local Government Area of Rivers State.

Table 3; Z-test Analysis Showing Impacts of Agricultural Education on Women Food Crop Productivity

Categories	Mean	S.D	N	Df	Z-cal	Z-crit	Decision
Educated	2.73	0.96	400	795	13.12	1.97	Rejected
Non-Educated	1.85	0.89	400				

Source: Field survey (2019)

Table 3 above showed that the calculated Z- test of 13.12 is greater than the table Z-critical of 1.97, therefore the null hypothesis, which stated that there is no significance difference in the responses of educated and non-educated women farmers regarding to impacts of agricultural education on the agricultural productivity on food crop production was rejected. This implies that there is a significance difference in the agricultural productivity of the educated women farmers from that of non-educated women farmers on food crop production in Omuma Local Government Area of Rivers State.

Hypothesis 2; There is no significance difference in the mean score rating of educated and non-educated women farmers on the impacts of agricultural education on their agricultural productivity on domestic animals production in Omuma Local Government Area of Rivers State.

Table 4: Z- test Analysis Showing Impacts of Agricultural Education on Women Domestic Animal Production

Categories	Mean	S.D	N	Df	Z-cal	Z-crit	Decision
Educated	2.32	0.86	400	795	8.85	2.01	Rejected
Non-Educated	1.83	0.75	400				

Source: Field survey (2019)

Table 4; above showed that the calculated Z- test of 8.85 is greater than the table Z-critical of 2.01, therefore the null hypothesis, which states that there is no significance difference in the responses of educated and non-educated women farmers regarding to impacts of agricultural education on their agricultural productivity on domestic animals production was rejected. . This implies that there is a significance difference in the agricultural productivity of the educated women farmers from that of non-educated women farmers on domestic animal production in Omuma Local Government Area of Rivers State.

DISCUSSION OF THE FINDINGS

The finding of this study have been arranged according to the research questions and hypotheses formulated. The research questions first, followed by the hypotheses.

The result of the study presented in Table 1 showed that timely application of pesticides to reduce pest attack and increase yield was rejected by both the educated and non-educated women farmers in Omuma Local Government Area, this is in agreement with the work of Justruan (2010) that the use of pesticides and insecticides to control pest and insect is not popular in developing countries in both commercial and subsistence farms. The Table also showed that educated women farmers apply selective herbicides, used fertilizers, plant on ridges these help to increase yields, while non-educated women farmers use non-of these applications, this is in agreement with the work of Obibuaku (2004), that knowledge of agricultural education help in the use of scientific methods to increase food production particularly in the rural areas. The table still revealed that early cassava planting produce more than late planting, pumpkin production yield more income than okra, maize cultivation boost women farmers income, women farmers grow food crops all the year round were accepted by both the educated and non-educated women farmers in Omuma Local Government Area, this is inconsonant with the work of Simonds (2008), that plantain is one of the major staple food crops third after cassava and maize grown by farmers in Rivers State. Result presented in table 2; showed that educated women farmers in Omuma Local Government Area engage in commercial egg production, broiler production, commercial sales of live chicken, while the non-educated women farmers do not venture into these areas of agricultural activities, this agreed with the work of James (2010), that education enhances agricultural productivities, educated women were able to go into this areas because of their knowledge of agricultural education. Commercial goat, fish, snail and sheep farming were rejected by both the educated and non-educated women farmers Omuma Local Government Area; this is contrary to Crunkiton and Hemp (2006) that agricultural education enlightens men and women to engage in new viable areas of agricultural production. Processing of fish for sales and rearing of cockerel had been the traditional occupation of women in Omuma Local Area as both the educated and non-educated accepted the options. This is in agreement with the word of Osinem (2008), that rural women are addicted to a particular area of agricultural production. Tables 3 and 4 showed that there is significance difference in the agricultural productivity of the educated and non-educated women farmers on both food crops production and domestic animals production in Omuma Local Government Area of Rivers State. This is in consonant with the works of Nlebem (2018) that agricultural education play key roles in the agricultural development and food production in developing countries particularly in rural areas.

CONCLUSION

This paper had established that agricultural education play key role in the agricultural productivity of women farmers in Omuma Local Government Area of Rivers State. That educated women farmers engage in the production of certain food crops and domestic animals which non-educated women farmers do not produce, engaging in more varieties of food crops and domestic animals by educated

women farmers made their agricultural productivity to be higher than non-educated women farmers. Both the educated and non-educated women farmers in Omuma Local Government Area contribute a lot to the food production in Rivers State in particular and Nigeria in general. However lack of loans from banks and other financial institutions impact negatively on their overall productivity. Also some food crops and domestic animals are produced by both the educated and non-educated women farmers..

RECOMMENDATIONS

Based on the results, the following recommendations were made;

- 1 Agricultural education should be encouraged for women farmers in rural areas; this will help to boost their agricultural productivity.
- 2 Government of Rivers State should establish adult education centers in Omuma Local Government Area to enable the women to enroll in evening school classes to improve their knowledge
- 3 Ministry of agriculture and natural resources should send agricultural extension agents to rural areas including Omuma Local Government Area to teach the women farmers how to employ modern agricultural techniques.
- 4 Banks and other financial agents should extend their services to rural areas including Omuma Local Government Area.

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