



Impacts Of Modern Farm Practices On Socio-Economic Empowerment Of Rural Women Crop Farmers In Niger Delta Region

Nnodim, A.U. & Ejimofor, D.N.

**Department of Vocational and Technology Education
Rivers State University, Nkpolu, Oroworukwo, Port Harcourt, Nigeria
Ukachi68@gmail.com**

ABSTRACT

This study focused on the impacts of modern farm practices on socio-economic empowerment of rural women in Niger Delta Region. The sample size was 140 rural women (60 women from Bayelsa and 80 women from Rivers) purposively selected based on their farm size. Three (3) specific objectives and three (3) research questions were formulated to guide the study. Data were collected from respondents using sets of questionnaires structured in 4 point rating scale of agreement. The data were analyzed using mean and standard deviation, while z-test statistics was used to test the hypotheses. The findings revealed that mechanical power helps rural women in increasing production capacity, improve productivity and their financial and economic status. The study also indicated that the use of agro-chemicals enhances crop growth and increase varieties of food crops available in the market, while the use of improved cultivars enhances plant vigor and growth. The study recommended that government should provide adequate extension programmes to enlighten the rural women on the benefits in adopting modern farm practices and provide interest-free loan to enable rural women purchase improved seeds and cultivars for production among others.

Keywords: Impacts, modern, farm practice, women, socio-economic, development.

INTRODUCTION

There has been much discussion on the need to increase productivity and sustainability in agriculture globally from the medium to long terms, but much information is not available on specific means to achieve this aim. Agriculture is a source of food and cash for those who are engaged in the sector and those not directly involved in the production. Most agricultural households get the food they consume and the cash they need to cover other expenses only from selling their farm produce, therefore the improvement of agricultural productivity is very important to them (CSA, 2011).

Agricultural products are very crucial products that generate significant amount of foreign exchange and contributes to Gross Domestic Product (GDP), thereby enhancing the development of the country. Since the size of the farm land used for agricultural production does not increase in years, but the number of population in need of food and fibre increases from year to year, the households may lack the land to cultivate in future. This situation informs the concern of Merga (2010) who stated that to have new farmlands for agricultural production compared to increasing number of population is not promising.

Agriculture in Niger Delta region is subsistence-oriented, that is, households in the agricultural sector mostly produce on the basis of their demand. However, in order to achieve the food security and nutrition for all, reduce poverty and improve the income of rural women, there is a need to progressively transform the agricultural sector away from subsistence oriented production towards an integrated economy. This transformation process can be attained through the use of modern farm practices among rural women (CSA, 2011).

Modern farm practices are therefore crucial in the socio-economic development of rural farmers and thereby reduce poverty by meeting food demands without irreversible degradation of the natural resource base (Merga, 2010). An increase in modern farm practice is a prevailing motive for farmers and a driving force in Nigeria's agricultural policy. Thus, increasing productivity of rural women in agriculture is government's top priority. According to the analysis conducted by Mulugeta (2009), low production and productivity are mainly associated with poor application of farm practices. Adoption of modern farm practice is one of the most promising ways to increase productivity and improve socio-economic status of rural women. Socio-economic empowerment of rural women can be driven by improved farm practices such as mechanized farming, use of improved seeds, cultivars, and agro-chemicals among others.

Agricultural practices are collection of principles and their application to farm production processes to get better agricultural products. According to Brown (2017), agricultural practices are simply practices used in agriculture to facilitate farming. Therefore, modern farm practices can be viewed as the adoption and use of improved variety of seeds, seedlings and higher equipment in agricultural production. Modern farm practices include all kinds of improved systems which affect the growth of agricultural output. Some of them are high-yielding varieties of seeds, chemical fertilizers, pesticides, herbicides and use of machinery. Ajewole (2010) stated that women who adopt improved farm practices increase their productions, leading to increase in productivity.

To reduce poverty and improve socio-economic status of rural women throughout the developing world, where large population is dependent on agriculture for livelihood, improved rural farmers' adoption of modern farm practice in agricultural production is essential (Doss, 2008). According to Amadi and Nnodim (2011), the use of farm machines and mechanization by rural dwellers is still at low level, as farmers still use crude tools to farm. In same vein, Mulugeta (2009) asserts that low income and productivity of rural women are mainly associated with poor adoption of modern farm practices.

Mechanized farming is a crucial contribution to agricultural production and improved food security in developed countries. Several studies have indicated that there was significant increase in cropping intensity due to the use of tractors and irrigation as a consequence of mechanization (Monayem, 2015). According to FAO (2012), the end objective of mechanized farming is to enhance the overall productivity and production with the least cost of production. FAO (2012) asserts that tubewell and mechanical power help farmers in raising the cropping strength of their farms as it was mainly dependent on farm power availability. Adopting mechanized farming is one of the strategies for improving rural women socially and economically, through agricultural production (Hussain, 2004). According to Elwell (2009), adoption of mechanized irrigation system increases productivity, improves rural women incomes and nutrition, employment creation, food security and drought relief savings among women.

Roder (2005) noted that mechanized farming has been successful in enabling rural women to obtain a significant amount of wealth and substantially empowered them. This suggests that rural women who adopted mechanized system of crop production schemes earn higher incomes than conventional farmers. Availability of machines and utilization in mechanized farming helped in reducing the rural to urban migration by offering the rural populace an alternative source of empowerment and income generation. The assertion corroborates the observations of FAO (2012) that the use of tractors, plough, irrigation system and other mechanized farm equipment have brought many successes to rural women, as they are now able to grow high value crops both for the local and export markets, thus effectively improving their socio-economic level.

Fertilizer Industry Association has defined agro-chemicals as materials containing five percent more of the three essential plant nutrients (Adrian, 2014). The goal of applying Agro-chemicals on plants is to make them grow faster by supplying the elements that are needed in readily available forms (Hussain, 2004). The advantages of fertilizer include: increasing crop yield and improving the quality of the land, improving soil texture and faster growth of crops.

The use of chemical pest control has immensely help rural women fight disease outbreak on the crop field. According to Adebayo and Adekunle (2016), when chemical pest control are properly used, it provides an effective and easy control on crop pest. Agrios (2005) opined that rural women who adopted pest control on crop production realize marketable surplus that leads to higher income generation, thereby

reducing poverty among rural farmers. Omolehin, Ogunfeditimi and Adenji (2007) posited that herbicides enable rural farmers control competing weeds in the farms, thus increasing yields in crop production.

A lot of extensions activities have been on for many years on the need for rural farmers to adopt the use of improved seeds and cultivars in crop production in Nigeria. To ensure household food security and improved living standards of the rural population, agricultural agencies continue to encourage farmers on the use of improved seeds in farming (Ibeawuchi, Okoli, Alagba, Ofor & Emma-Okafor, 2015). Treated seeds for agricultural production increases healthy food crops in the market and improves rural farmers' economic livelihood. In the same vein, Agrios (2005) opined that rural women use of improved seeds consequently increase productivity and leads to improved quality of harvested crop.

Brown (2012) observed very dramatic yield increase when yam farmers adopt the application of improved yam seedlings. Abdusalam (2004) asserts that the use of improved cultivars enhances rural women's food security as it helps prevent crop wastage. A study by FAO (2012) on cassava production showed that treated cultivars enhance plant vigor and healthy growth. Alimi, Olubode and Idowu (2006) revealed in their study that rural farmers who adopted improved varieties of maize seeds had significant gains than the non-adopters.

Statement of the problem

It is no longer possible to meet the food and fibre needs of the increasing number of world population and to achieve food security objectives by expanding areas under cultivation since the fertile land is not increasing over time. Amadi and Nnodim (2011) assert that most rural farmers still use crude tools to farm. The continuous use of these crude tools is what has left the rural farmers where they are today. They are only capable to feed their household, with little or no income from farm activities. However, it is suggested that the adoption of modern farm practices could change the fortune of these rural farmers, especially women as suggested by many scholars. The question now is, could the adoption of mechanized farming, use of agro-chemicals and improved seeds and cultivars enhance productivity and thereby empower rural women crop farmers socially and economically? This is the problem this study tends to address.

Purpose of the study

The main purpose of this study was to examine the impact of modern farm practices on the socio-economic empowerment of rural women crop farmers in Niger Delta Region. The specific objectives were to:

1. Determine the impact of mechanized farming practice on socio-economic empowerment of rural women crop farmers in Niger Delta Region.
2. Examine the impacts of use of agro-chemicals in farming practice on socio-economic empowerment of rural women crop farmers in Niger Delta Region.
3. Ascertain the impacts of improved seeds and cultivars usage on socio-economic empowerment of rural women crop farmers in Niger Delta Region.

Research Questions

The following questions were generated from the purpose of the study

1. What is the impact of mechanized farming practice on socio-economic empowerment of rural women crop farmers in Niger Delta Region?
2. What is the impact of agro-chemicals usage on socio-economic empowerment of rural women crop farmers in Niger Delta Region?
3. What is the impact of improved seeds and cultivars usage on socio-economic empowerment of rural women crop farmers in Niger Delta Region?

Hypotheses

Ho₁: There is no significant difference in the mean responses of Bayelsa and Rivers States rural women on impact of mechanized farming practice on socio-economic empowerment of rural women crop farmers in Niger Delta Region.

Ho₂: There is no significant difference in the mean responses of Bayelsa and Rivers States rural women on impact of agro-chemicals usage on socio-economic empowerment of rural women crop farmers in Niger Delta Region.

METHODOLOGY

The Niger Delta Region is an oil and agricultural producing region. The region is made up of Rivers, Bayelsa, Cross Rivers, Delta, Akwa Ibom and Edo states in the South-South geopolitical zone. With good vegetation and all year round distribution of rainfall the environment favours agricultural activities, especially food crop production for rural livelihood. The design of the study was descriptive survey. The target population was 1,501 members of farmers’ cooperative societies in Rivers and Bayelsa States. The sample size was 140 rural women (60 women from Bayelsa and 80 women from Rivers) purposively selected based on their farm size. Instrument for data collection was structured questionnaire in a 4-point rating scale of agreement. The instrument was face and content validated while the internal consistency of the instrument was established using Cronbach Alpha reliability, which yielded 0.83 reliability coefficient. Data collected were analyzed using mean and standard deviation, with mean value of 2.50 established as the criterion mean for acceptance while z-test statistical tool was used to test the hypotheses at 0.05 level of significance.

RESULTS AND DISCUSSION OF FINDINGS

Research Questions 1: *What is the impact of mechanized farming on socio-economic development of rural women in Niger Delta Region?*

Table 1: Mean response on impact of mechanized farming on socio-economic empowerment of rural women crop farmers in Niger Delta Region.

S/N	Statements	Bayelsa Women (N=60)			Rivers Women (N=80)		
		\bar{X}_1	SD	Remark	\bar{X}_2	SD	Remark
1.	Use of machine enhances rural women capacity in crop production	3.00	0.57	Agreed	2.89	0.76	Agreed
2.	Use of machine in land preparation reduces cost of labour	3.01	0.56	Agreed	3.05	0.82	Agreed
3.	Use of machine increases interest in farming	3.00	0.87	Agreed	2.97	0.78	Agreed
4.	Expansion of production using machine improves productivity hence rural women income	3.05	0.76	Agreed	3.12	0.86	Agreed
5.	Enhanced productivity encourages formation of farmers cooperatives	2.75	0.65	Agreed	2.97	0.57	Agreed
6.	Removal of drudgery assisted with farming using machines improves the well-being of women farmers	3.07	0.95	Agreed	3.18	0.76	Agreed
Grand Mean		2.98	0.78	Agreed	3.03	0.75	Agreed

Field Survey: 2019

The findings in Table 1 showed that the respondents agreed that use of machine enhances rural women capacity in crop production (3.00 & 2.89), use of machine in land preparation reducing cost of labour (3.01 & 3.05). This finding is in line with Singh (2001) who asserts that adoption of tubewell and mechanical power help farmers in raising the cropping strength of their farms. The study also revealed that use of machine increases interest in farming (3.00 & 2.97), expansion of production using machine improves productivity hence rural women income (3.05 & 3.12), enhanced productivity encourages formation of farmers cooperatives (2.75 & 2.97) and also removal of drudgery assisted with farming using machines improves the well-being of women farmers (3.07 & 3.18). This finding is in line with

Elwell (2009) who opined that adoption of mechanized farming result in increased productivity, improved rural women incomes and nutrition, employment creation, food security and drought relief. The finding also corroborates with Roder (2005) who posited that mechanized farming has been successful in enabling rural women to obtain a significant amount of wealth.

Research Questions 2: *What is the impact of agro-chemicals on socio-economic development of rural women in Niger Delta Region?*

Table 2: Mean response on impact of agro-chemicals on socio-economic development of rural women in Niger Delta Region.

S/N	Statements	Bayelsa Women (N=60)			Rivers Women(N=80)		
		\bar{X}_1	SD	Remark	\bar{X}_2	SD	Remark
1.	Fertilizer use enhances crop productivity, hence improves rural women livelihood	3.12	0.76	Agreed	3.05	0.76	Agreed
2.	Use of herbicides reduces cost of manual labour and enhance farm size of rural women	3.00	0.90	Agreed	2.98	0.89	Agreed
3.	Adoption of agro-chemicals enhance rural women target to meet market demand for income generation	3.11	0.77	Agreed	3.03	0.63	Agreed
4.	It enhances food security for rural household	3.03	0.76	Agreed	3.01	0.78	Agreed
5.	Use of pesticides to control pest on crop enhance household income for rural women	2.75	0.65	Agreed	2.97	0.57	Agreed
6.	It increases marketable surplus	2.84	0.85	Agreed	3.00	0.65	Agreed
7.	Reduces cost of crop production	3.05	0.87	Agreed	2.89	0.69	Agreed
Grand Mean		2.97	0.79	Agreed	3.00	0.71	Agreed

Table 2 revealed that the respondents agreed that fertilizer use enhances crop growth, hence improves rural women livelihood (3.12 & 3.05), use of herbicides reduces cost of manual labour and enhance farm size of rural women (3.00 & 2.98), enhance rural women target to meet market demand for income generation (3.11 & 3.03) and enhance food security for rural household (3.03 & 3.01). This finding is in line with Morris (2014) who stated that the use of agro-chemicals in agricultural production increase varieties of food crops in the market and improves rural farmers' economic livelihood. Also the finding corroborates with that of Eze (2012) who stated that the adoption of agro-chemical enable rural farmers to grow varieties of crops. The study also revealed that pesticides use enable rural women control pest attack on crop/crop produce (2.75 & 2.97) and reduces cost of crop production (3.05 & 2.89). These findings are in line with Adebayo and Adekunle (2016) and Agrios (2005) who opined that chemical pest control provides an effective and easy control on crop and enhance marketable surplus that leads to higher income generation among rural farmers.

Research Questions 3: *What is the impact of improved seeds and cultivars on socio-economic development of rural women in Niger Delta Region?*

Table 3: Mean response on impact of improved seeds and cultivars usage on socio-economic development of rural women in Niger Delta Region.

S/N	Statements	Bayelsa Women (N=60)			Rivers Women(N=80)		
		\bar{X}_1	SD	Remark	\bar{X}_2	SD	Remark
1.	Use of hybrid seeds increases healthy food crops for rural women	2.87	0.79	Agreed	3.07	0.87	Agreed
2.	Improved cultivars increases quality of crop produce and enhance economic status of rural women	3.02	0.57	Agreed	2.95	0.81	Agreed
3.	Leads to significant gains from market consumptions	3.11	0.64	Agreed	3.05	0.87	Agreed
4.	Use of treated seeds improves rural women economic livelihood.	2.96	0.68	Agreed	3.17	0.71	Agreed
5.	Improved seeds consequently increases productivity of rural women's crop	3.12	0.53	Agreed	3.09	0.68	Agreed
6.	Leads to improved quality of harvested crop	3.10	0.64	Agreed	3.15	0.71	Agreed
Grand Mean		3.03	0.66	Agreed	3.06	0.77	Agreed

Field Survey: 2019

The findings Table 3 revealed that the respondents agreed that use of hybrid seeds increases healthy food crops for rural women (2.87 & 3.07), improved cultivars increases quantity of crop produce and enhance economic status of rural women (3.02 & 2.95), leads to significant gains from market consumptions (3.11 & 3.05), use of treated seeds improves rural women's economic livelihood (2.96 & 3.17), consequently increase productivity (3.12 & 3.09). The findings are in agreement with Morris (2014) who revealed that the use of treated seeds for agricultural production increases healthy food crops in the market and improves rural farmers' economic livelihood. The finding is also in line with Agrios (2005) who opined that the adoption of improved seeds consequently increase productivity of rural women. The findings also showed that improved seeds and cultivars lead to good quality of harvested crop (3.10 & 3.15). Agrios (2005) buttressed this finding, stating that rural women use of improved cultivars lead to improved quality of harvested crop, more income and general well-being of farmers.

Hypothesis 1: There is no significant difference in the mean responses of Bayelsa and Rivers rural women on impact of mechanized farming on socio-economic development of rural women.

Table 4: Z-test on impact of mechanized farming on socio-economic development of rural women

Groups	N	Mean	SD	DF	Z-cal	Z-crit	Decision
Bayelsa Women	60	2.93	0.78	138	1.32	1.96	Accepted
Rivers Women	80	2.95	0.75				

Result in Table 4 showed that rural women in Bayelsa State have mean and standard deviation scores of 2.93 and 0.78 while rural women in Rivers State have mean and standard deviation scores of 2.95 and 0.75 respectively. The hypothesis test yielded z-cal value of 1.32 as against z-crit value of 1.96. Since the z-cal was less than the z-crit, therefore the null hypothesis of no significant difference in the mean responses of Bayelsa and Rivers rural women on impact of mechanized farming on socio-economic development of rural women in Niger Delta Region was accepted.

Hypothesis 2: There is no significant difference in the mean responses of Bayelsa and Rivers rural women on impact of agro-chemicals on socio-economic development of rural women

Table 5: Z-test on impact of agro-chemicals on socio-economic development of rural women

Groups	N	Mean	SD	DF	Z-cal	Z-crit	Decision
Bayelsa Women	60	2.97	0.79	138	0.98	1.96	Accepted
Rivers Women	80	3.01	0.71				

Result in Table 5 shows that rural women in Bayelsa State have mean and standard deviation scores of 2.97 and 0.79 while rural women in Rivers State have mean and standard deviation scores of 3.01 and 0.71 respectively. The hypothesis test yielded z-cal value of 0.98 as against z-crit value of 1.96. Therefore, the null hypothesis of no significant difference in the mean responses of Bayelsa and Rivers rural women on impact of agro-chemicals on socio-economic development of rural women in Niger Delta Region was accepted.

SUMMARY AND CONCLUSION

Based on the findings it was therefore, concluded that adoption of modern farming practices by rural women crop farmers in Niger Delta region enhanced their production capacity, as more lands were cultivated, more crops produced and marketed. This improved significantly their income from farming activities and boosts their chances of belonging to associations and groups.

RECOMMENDATIONS

Based on the finding, the following recommendations were made:

1. Government should provide adequate extension programmes to enlighten the rural women on the benefits in adopting modern farm practices.
2. Governments (Federal, State and Local) in collaboration with other agricultural agencies should provide farm machineries for lease by the farmers, as outright purchase would be beyond their financial capacities.
3. Seminars and workshops should be organized by the extension agencies to train the rural women farmers on the use of agro-chemicals for crop production.
4. Government should encourage banks to make finance available to farmers through policies that are friendly, possibly without asking for collateral.

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