



Evaluation of Agricultural Projects and Extension Services of the Bayelsa State Agricultural Development Programme (ADP)

E. O. Wauton ^a, A. B. Odinwa ^{b*} and C. O. Ekeogu ^a

^a Department of Agriculture, Ignatius Ajuru University of Education, Port Harcourt, Rivers State, Nigeria.

^b Department of Agricultural Education, Federal College of Education (Technical), PMB 11, Omoku, Rivers State, Nigeria.

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/AJAEES/2022/v40i931004

Open Peer Review History:

This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: <https://www.sdiarticle5.com/review-history/86945>

Original Research Article

Received 05 March 2022

Accepted 10 May 2022

Published 20 June 2022

ABSTRACT

The study evaluated the agricultural projects and extension services of the Bayelsa State Agricultural Development Programme. Three specific objectives and hypotheses were developed to guide the study. A descriptive survey design was employed to observe a cross-section of the population of the farmers in the three ADP zones, in Bayelsa State. Both purposive and proportionate sampling techniques were used to select two hundred and fifty – four (254) registered farmers for the study. Descriptive statistics such as percentage, arithmetic, and weighted mean scores were used, while inferential statistics - Analysis of variance (ANOVA) was used to test the hypotheses at a 0.05% level of probability. The findings showed that agricultural projects carried out in Bayelsa State within the past five years were: Fish farming (GM = 3.18), cropping practices of most crops (GM = 2.97), poultry production (GM = 2.71), seed multiplication/Yam minisetete technology (GM = 2.70) and snail farming (GM = 2.59), among others. The findings also cataloged the agro projects that have not been carried out in the area including Yam bag technology (GM = 1.83), Goat/sheep farming (GM = 1.94), Grasscutter/Rabbit farming (GM = 1.80), processing of tubers/grains/plantains into flour and farmers' cooperative formation with an equal grand mean (GM

*Corresponding author: E-mail: benodinwa@gmail.com;

= 2.32), among others. The result indicated that only: Fish farming (GM = 2.89), organic farming (GM = 2.76), poultry production (GM = 2.70), cropping practices of few crops, and snail farming with a marching grand mean (GM = 2.66) had high adoption rate in the study area. Finally, the findings showed that: Lack of insurance practices by farmers (GM = 3.68), when the farmers are not involved in the planning of the project (GM = 3.50), weak government policies/leap services in agriculture (GM = 3.30), when the projects are not guided by the needs of farmers (GM = 3.23), inadequate agricultural credits (GM = 3.14), lack of incentives for farmers (GM = 3.13) and when projects are gender-specific (GM = 3.10), among many other factors add up to the most serious challenges in adopting agricultural projects in Bayelsa State. All the ANOVA results in this study showed that the views of the registered farmers on the agricultural projects carried out by ADP in the past five years did not differ significantly among the three ADP zones in Bayelsa State at a $P > 0.05$ significant level. The study, therefore, recommended among others that: Agricultural Development Project (ADP) should beef up its extension package and extend worthwhile services to the farmers in their zones; Engagement of qualified Extension Agents in the Ministry of Agriculture with a clear mandate to assist the farm families to grow should be emphasized in Bayelsa State, and Registered farmers should be formed into cooperative groups and be involved in planning agricultural programs that concern them.

Keywords: Evaluation; agricultural projects; extension services; ADP.

1. INTRODUCTION

Evaluation is a systematic process of collecting and analyzing data in order to determine whether and to what extent progress was made or to be made. It is a process of value judgment by which one can judge whether a program is good or acceptable and the factors responsible for the outcome. According to Ani [1], evaluation is used to convey the meaning of the value of something. It could be used as a systematic determination of the value of a certain development program or project. It equally could as well be used to assess as objectively as possible, how a program or project is going and what effect it is having on the intended beneficiaries. Broadly speaking, evaluation has to do with an assessment of results which aims at determining whether the relevant program objectives set in terms of expected outputs, effects, and impacts are being or have been met [2].

An agricultural project is a planned and a more specific or directional undertaken which is a set of interrelated and coordinated farming operations intended to achieve certain specific objectives within the given budget and a specified period of time. Examples include borehole construction, setting up a model farm, the building of a youth farm center, setting up piggery, poultry, or fish farm units, seed multiplication centers, formation of farmers' cooperatives, etc. An agricultural project is a short time effort because the nature of attaining set goals is more directional and easily targeted.

Put differently, a project is the use of one or more scarce resources during a specific time period for the purpose of producing some economic return or output at a later time [3]. An agricultural project is an investment activity or venture in which financial resources are spent to create capital assets that produce benefits over an extended period of time. An agricultural project, as an activity, is a subset of a larger, less precisely identified program. The whole program may possibly be analyzed as a single activity or project, but by and large, it is better to keep agro activities rather small, close to the minimum size, that is, economically, technically, and administratively feasible [3]. The Agricultural Development Programme (ADP) of the Ministry of Agriculture and Natural Resources is carried out in bits as projects or activities for easy actualization of set goals.

ADPs are the State institutions with the mandate to carry out extension projects or services to raise agricultural production and improve rural living conditions since agriculture cannot be displaced from being the mainstay of the rural and national economy of Nigeria [4]. ADP is the extension arm of the State Ministry of Agriculture and Rural Development. The decree that established ADPs in all the thirty-six states (36) of the Federal Republic of Nigeria specifies that they should have major responsibilities for delivering extension services to farmers in their localities [5]. From history, the journey of ADPs commenced as pilot projects in Funtua, Gombe, and Gusau in 1974. The ADP extension system was based on the principle that

a combination of essential factors comprising the right technology, effective extension, access to physical production-enhancing inputs, adequate market, and other infrastructural facilities are essential to get agriculture moving.

According to Adegbola and Akinbode [6], in 1972, the Federal Government Negotiated a World Bank Loan to establish three pilot enclave Agricultural Development Projects in Funtua and other parts of the country such as; Kaduna, Sokoto, Gombe, and the Bauchi States. It was stated that the relative success achieved by these projects inspired the federal government to establish enclave ADPs in six more States Ayangba, Benue State, Lafia in Plateau State, Bida in Niger State, Ilorin in Kwara State, Shaki in Oyo State, and Ekiti-Akoko in Ondo State in the late 70s [7].

The central theme of these programs was to reassign the already developed agricultural technologies to the majority of the farmers in the rural areas through the Village Extension Agents (VEA). The search for a permanent universal remedy to the problems relating to technology generation, transfer, and diffusion brought about the idea of Agricultural Development Programmes (ADPs) in 1975. The success story recorded in the first and second generations of ADPs led to the full implementation of ADPs in all the States of Nigeria [8] including Bayelsa State in 1996.

Bayelsa State was created in 1996 and on creation, all the government ministries including the Ministry of Agriculture and Natural Resources were established in the State with the same mandate of delivering extension services to farmers in their localities across the State.

It was explained that the ADPs had employed the Training and Visit (T&V) system for managing the extension services. At first, concentration was limited to the crop sector. It was buttressed that the experiment was adjudged very successfully and upheld that consequently the use of T&V was applied to all other subsectors under a unified approach. Under the Unified Agricultural Extension System (UAES), an Extension Agent (EA) was assigned the responsibility of informing, advising, and teaching farmers new and improved agricultural practices as well as providing feedback to research and other input

agencies. An Extension Agent is expected to visit each of his 6-8 Representative Contact Farmer (RCF) groups every fortnight on a fixed day of the week with a view to disseminating production recommendations to them. He/she attends the fortnight Training Meetings (FNT) where he or reviews farmers' reactions to previous recommendations and is taught specific recommendations of technological innovations.

From 1996 to date, ADP has operated for twenty-five years in Bayelsa State shuddering the responsibilities of extending handy education to rural people, with emphasis on helping rural farmers to help themselves in improving their desired living conditions. But how well and how much have the extension activities of the ADP achieved this purpose in the Bayelsa States? Seventy-five percent (75%) of the foodstuff from crops and livestock consumed in Bayelsa State is still imported from neighboring States; the living conditions of the rural dwellers are not better off, and the migration of the youths out of the rural communities to urban centers are on the increase. This is where appraisal or evaluation of Bayelsa State ADP projects/services comes in, so as to examine whether the prescribed objectives of the program have been reached or abandoned.

Therefore, the study seeks to satisfy the following three specific objectives, to:

- i. identify the agricultural projects/services carried out by the Bayelsa State ADP in the past five years in the study area, and
- ii. investigate the level at which the agricultural projects/services carried out by the ADP were adopted by the farmers, and
- iii. examine the challenges associated with the adoption of such agricultural projects/services by the farmers in the study area.

Three hypotheses were also devised to pilot the study

Ho₁: The views of the farmers on the agricultural projects/services carried out by ADP in the past five years do not differ significantly among the three ADP zones in Bayelsa State.

Ho₂: The agricultural projects/services carried out were not equally adopted by the farmers in the three ADP zones in Bayelsa State.

Ho₃: The challenges associated with the adoption of agricultural projects by the farmers in Bayelsa State does not differ significantly from the three ADP zones in Bayelsa State.

2. METHODOLOGY

This study was conducted in Bayelsa State, Nigeria. It is located in southern Nigeria in the heart of the Niger Delta. Bayelsa State is on the coast and bounded by Delta State on the North and Rivers State on the east and the Atlantic Ocean on the west and southern part of the country. It has a total land area of 9,415.8km². About three-quarters of its total area lies underwater [9]. The State has a population of 1,704,515 [10], whose primary occupation is farming, fishing, petty trading as well as forestry activities such as hunting and timbering (lumbering) and gathering of wild snails and raffia palm tapping. The State also has an Agricultural Development Programme (ADP) which is divided into three zones; the Central zone with Yenagao, as the zonal headquarters; the Eastern zone with Brass as the zonal headquarters, and the Western zone with Sagbama as the zonal headquarter.

The study adopted a descriptive survey design to observe a cross-section of the population of the registered farmers in the three ADP zones in Bayelsa State for possible policy generation and economic intervention in the areas. A purposive sampling method was adopted to select one LGA each from the three ADP zones of Bayelsa State. The reason was to select LGAs that were very active in agricultural activities, which Ladele and Chah [11] also recognized as a fast technique employed when one wishes to gain a quick insight into a social incident. A simple random sampling method was used to select 3 ADP Blocks from each of the 3 ADP zones, making a total of 9 ADP Blocks for the study. A simple random sampling method was also engaged to select 2 ADP Cells from each of the zones, making a total of 18 ADP cells. Finally, a proportionate sampling technique that permits the same sample fraction from each stratum – ADP zone [12] was employed to select two hundred and fifty – four (254) registered farmers, which gave the representative sample size for the study. A structured questionnaire and interview schedule were used to elicit information from the respondents. The questionnaire was designed using a four-point Likert type rating scale which gave 2.50 as the critical mean used for a final judgment of findings. Both descriptive

and inferential statistics were used to evaluate the data. Descriptive statistics such as percentage, arithmetic means, and weighted mean scores derived from the rating scales were used. The inferential statistics used was the Analysis of Variance (ANOVA) to test the hypotheses at a 0.05% alpha level of significance. Where *f*-calculated was greater than the alpha level (0.05), the null hypothesis was rejected; otherwise, the results were accepted.

3. RESULTS AND DISCUSSION

3.1 Agricultural Projects carried out by ADP in the Past Five Years in Bayelsa State

The findings on the agricultural projects carried out in Bayelsa State within the past five years (Table 1) showed that: Fish farming (GM = 3.18); Cropping practices of crops (GM = 2.97); Poultry production (GM = 2.71); Seed multiplication/Yam minisette technology (GM = 2.70); Snail farming (GM = 2.59); Linkage to fertilizer/application and Organic farming with an equally grand mean (GM = 2.57); Introduction of new varieties of crops; and Integrated farming with similar Grand Means (GM 2.55) had been carried out in Bayelsa State by ADP within the past five years from 2016 for the purpose of increasing productivity of crops and animals. These projects have not created the expected impact in agro production in these zones, implying that the farmers may have relaxed the adoption of these agricultural projects delivered to them. This claim agreed with IITA [5] which reported that many agro production practices including the minisette technique using 25-50g sette to produce seed yam had been introduced to farmers in Nigeria but the rate of adoption was generally low.

However, the findings cataloged the following: Yam bag technology (GM = 1.83); Processing of tubers/grains/plantains into flour (GM = 2.32); Goat/Sheep farming (GM = 1.94); Feed milling (GM = 1.95); Grasscutter/Rabbit farming (GM = 1.80); Mushroom production (GM = 1.35); Farmers' cooperative formation (GM = 2.32); Linkage to agro credits (GM = 2.12); Linkage to markets (GM = 2.07); Processing of livestock products (GM = 1.59) and Packaging and storage practices (GM = 1.48) as agro projects that had not been carried out in the area for the past five years. These agro extension projects that have not been carried out in this State are

vital to increasing agricultural production in these ADP zones, hence demand effort in this direction. For instance, forming farmers into cooperative groups would increase access to information, opportunities, markets, and access to credits, which would, in turn, have an effect on the willingness of the farmers to participate in agricultural programs. This finding agreed with Odinwa, Isife, and Nlerum [13] who stressed that membership in farmers' groups influences participation in agricultural projects due to the fact that there is increasing interest in farmers' organizations as an effective approach to farmer participatory research (FPR).

The test of significance (Table 2) showed f – calculated as 0.72 and f – tabulated as 3.14 at $P > 0.05$ significant level, leading to the acceptance of the null hypothesis, which states that 'The views of the rural farmers on the Agricultural projects carried out by ADP in the past five years do not differ significantly among the three ADP zones in Bayelsa State'. This means that the views of the rural farmers concerning the agro projects introduced by ADP did not differ significantly among the three ADP zones in Bayelsa State. The implication of this finding is that the Agricultural Development Project is operating at the same sluggish pace in the three zones in the State, which demands an overhaul in the operation of ADP in Bayelsa State.

The level at which the Agricultural Projects were carried out was Adopted by the Farmers in Bayelsa State: The findings in Table 3 indicated in the order of adoption that only: Fish farming with a grand mean (GM = 2.89); Organic farming (GM = 2.76); Poultry production (GM = 2.70); Cropping practices of crops and Snail farming with an equally grand mean (GM = 2.66) had high adoption rate in the study area. Although the result showed that these agro projects scored high in adoption by the farmers in these zones, the impact of their adoption had not reflected positively in the agricultural productivity of the State, implying that their adoption was not extended above the subsistence level of the farmers.

The result also showed that among the agricultural projects carried out in the area: Linkage to fertilizer and its application (GM = 2.32); Integrated farming (GM = 2.29); Use of new varieties of crops (GM = 2.22) and Seed

multiplication/Yam minisetete technology (GM = 1.71) had low adoption by the farmers in the study area and had no reflection on the agricultural productivity of the State. This finding agreed with IITA [5] which reported that many agro production practices in crops had been introduced to farmers in Nigeria but the rate of adoption was generally low, leading to low crop productivity, especially in the Niger Delta.

Test of significance on the extent to which farmers have adopted the agricultural projects carried out in Bayelsa State within the past five years (Table 4) showed an f – calculated as 1.49 and an f – tabulated as 3.14 at a $P > 0.05$ probability level. The null hypothesis, which states that 'The agricultural projects carried out were not equally adopted by the rural farmers in the three ADP zones in Bayelsa State', was accepted. This implies that the low rate of adoption of agro projects introduced by ADP did not differ significantly among the three ADP zones studied in Bayelsa State, hence would call for motivation of farmers and ADP Extension Agents to improve the situation in the State.

Challenges Associated with the Adoption of Agricultural Projects by the Farmers in Bayelsa State: Findings on the challenges associated with the adoption of agricultural projects by Farmers in Bayelsa State (Table 5) showed in the order of seriousness that Lack of insurance practices by farmers (GM = 3.68); When the farmers are not involved in the planning of the project (GM = 3.50); Fear of taking a risk by the farmers (GM = 3.39); Weak government policies / leap services in agriculture (GM = 3.30); When the projects are not guided by the needs of farmers (GM = 3.23); When projects are too technical/complex to operate (GM = 3.17); Inadequate agricultural credits (GM = 3.14); Lack of incentives for farmers (GM = 3.13); and When projects are gender-specific (GM = 3.10) added up to the most serious challenges in adopting agricultural projects in Bayelsa State. These factors uncovered by this study were severe and may have adverse effects on improving agricultural production, hence the consequential low agro productivity in the studied ADP zones in Bayelsa State. For instance, inadequate access to credit facilities, Fear of taking a risk; when the projects are not guided by the needs of farmers; and when projects are too technical/complex to operate will limit a poor farmer from adopting high-risk agro-ventures, no

Table 1. Mean distribution of the farmers in the agricultural projects carried out by Bayelsa State ADP within the past five years

Agro Projects	Central Zone Weighted Scores n = 92	Mean	Eastern Zone Weighted Scores n = 95	Mean	Western Zone Weighted Scores n = 67	Mean	Grand Total scores N= 254	Grand Mean	Remark
Cropping practices	303	3.29	289	3.04	162	2.42	754	2.97	Carried out
Introduction of new varieties of crops	225	2.45	277	2.92	146	2.18	648	2.55	Carried out
Seed multiplication/Yam minisette technology	256	2.78	243	2.56	188	2.81	462	2.70	Carried out
Yam bag technology (Yam bagnology)	166	1.80	193	2.03	107	1.60	466	1.83	Not carried out
Linkage to fertilizer/application	216	2.35	266	2.80	172	2.57	654	2.57	Carried out
Organic farming	297	3.23	284	2.99	192	2.87	654	2.57	Carried out
Integrated farming	249	2.71	248	2.61	150	2.24	647	2.55	Carried out
Processing of tubers/grains/plantains into flour	253	2.75	203	2.14	133	1.99	589	2.32	Not carried out
Goat/Sheep farming	158	1.72	204	2.15	131	1.96	493	1.94	Not carried out
Feed milling	152	1.65	232	2.44	112	1.67	496	1.95	Not carried out
Poultry production	281	3.05	279	2.94	180	2.69	740	2.91	Carried out
Hatchery	137	1.49	240	2.53	102	1.52	479	1.89	Not carried out
Fish farming	314	3.41	281	2.96	213	3.18	808	3.18	Carried out
Spawning	118	1.28	142	1.49	98	1.46	358	1.41	Not carried out
Piggery/pig farming	158	1.72	166	1.75	108	1.61	432	1.70	Not carried out
Snail farming	277	3.01	263	2.77	117	2.64	657	2.59	Carried out
Grasscutter/Rabbit farming	197	2.14	136	1.43	124	1.85	457	1.80	Not carried out
Mushroom production	120	1.30	139	1.46	85	1.27	344	1.35	Not carried out
Farmers' cooperative formation	234	2.54	205	2.16	151	2.25	590	2.32	Not carried out
Linkage to agro credits	205	2.23	186	1.96	147	2.19	538	2.12	Not carried out
Linkage to markets	224	2.43	147	1.55	156	2.33	527	2.07	Not carried out
Processing of livestock products	125	1.36	179	1.88	101	1.51	405	1.59	Not carried out
Packaging and storage practices	125	1.36	173	1.82	77	1.15	375	1.48	Not carried out
Cumulative Mean		2.22		2.25		2.03		2.15	

Source: Field Survey, 2021 Critical Mean = 2.50

Table 2. Summary of ANOVA Result on the Agricultural Projects carried out by Bayelsa State ADP within the past five years

Source of Variance	SS	Df	MS	f-cal	f-tab	Remarks
B/W Group variance	0.49	2	0.25			
W/Group variance	21.58	251	0.34			
Total	22.07	253		0.72	3.14	NS

Source: Field Survey Data, 2021 NS – Not Significant at $P > 0.05$

Table 3. Mean distribution of the farmers on the extent to which they have adopted the agricultural projects carried out by Bayelsa State ADP within the past five years

Agro Projects	Central Zone Weighted Scores n = 92	Mean	Eastern Zone Weighted Scores n = 95	Mean	Western Zone Weighted Scores n = 67	Mean	Grand Total scores N= 254	Grand Mean	Remark
Cropping practices of crops	281	3.05	255	2.68	139	2.07	675	2.66	High adoption
Use of new varieties of crops	196	2.13	243	2.56	126	1.88	565	2.22	Low adoption
Seed multiplication/Yam minisette technology	160	1.74	177	1.86	98	1.46	435	1.71	Low adoption
Yam bag technology (Yam bagnology)	157	1.71	172	1.81	95	1.42	424	1.67	Low adoption
Linkage to fertilizer/application	216	2.35	234	2.46	139	2.07	589	2.32	Low adoption
Organic farming	291	3.16	244	2.57	167	2.49	702	2.76	High adoption
Integrated farming	246	2.67	196	2.06	141	2.10	583	2.29	High adoption
Processing of tubers/grains/plantains into flour	246	2.67	168	1.77	118	1.76	532	2.09	Low adoption
Goat/Sheep farming	169	1.84	160	1.68	114	1.70	443	1.74	Low adoption
Feed milling	128	1.39	193	2.03	98	1.46	419	1.65	Low adoption
Poultry production	275	2.99	236	2.48	174	2.60	685	2.70	High adoption
Hatchery	131	1.42	207	2.18	125	1.87	463	1.82	Low adoption
Fish farming	293	3.18	264	2.78	176	2.63	733	2.89	High adoption
Spawning	125	1.36	138	1.45	99	1.48	362	1.43	Low adoption
Piggery/pig farming	145	1.58	141	1.48	121	1.81	407	1.60	Low adoption
Snail farming	277	3.01	249	2.62	150	2.24	676	2.66	High adoption
Grasscutter/Rabbit farming	185	2.01	131	1.38	113	1.69	429	1.69	Low adoption
Mushroom production	135	1.47	110	1.16	89	1.33	334	1.31	Low adoption
Farmers' cooperative formation	273	2.97	182	1.92	148	2.21	603	2.37	Low adoption

Agro Projects	Central Zone Weighted Scores n = 92	Mean	Eastern Zone Weighted Scores n = 95	Mean	Western Zone Weighted Scores n = 67	Mean	Grand Total scores N= 254	Grand Mean	Remark
Linkage to agro credits	208	2.26	168	1.77	153	2.28	529	2.08	Low adoption
Linkage to markets	205	2.23	141	1.48	141	2.10	487	1.92	Low adoption
Processing of livestock products	137	1.49	176	1.85	104	1.55	417	1.64	Low adoption
Packaging and storage practices	134	1.46	170	1.79	80	1.19	384	1.51	Low adoption

Source: Field Survey Data, 2021 Critical Mean = 2.50

Table 4. Summary of ANOVA results on the extent to which Farmers have adopted the Agricultural Projects carried out by Bayelsa State ADP within the past five years

Source of Variance	SS	Df	MS	f-cal	f-tab	Remarks
B/W Group variance	0.79	2	0.40			
W/Group variance	16.74	251	0.27			
Total	17.53	253		1.49	3.14	NS

Source: Field Survey Data, 2021 NS – Not Significant at $P > 0.05$

Table 5. Mean distribution of the farmers on the challenges associated with the adoption of agricultural projects by farmers in Bayelsa State

Challenges	Central Zone Weighted Scores n = 92	Mean	Eastern Zone Weighted Scores n = 95	Mean	Western Zone Weighted Scores n = 67	Mean	Grand Total scores N= 254	Grand Mean	Remark
Inadequate awareness of agricultural projects	227	2.47	259	2.73	170	2.54	656	2.58	Serious
Cost of adoption	238	2.57	256	2.69	168	2.51	662	2.61	Serious
When the projects are not guided by the needs of farmers.	312	3.39	327	3.44	181	2.70	820	3.23	Serious
Fear of taking a risk by the farmers.	341	3.71	334	3.52	185	2.76	860	3.39	Serious
When projects are gender-specific	277	3.01	328	3.45	183	2.73	788	3.10	Serious
When projects are too technical/complex to operate	277	3.01	336	3.54	191	2.85	804	3.17	Serious
Illiteracy of rural farmers	234	2.54	191	2.01	123	1.84	548	2.16	Not serious
Inadequate agricultural credits	236	2.57	338	3.56	224	3.34	798	3.14	Serious
Insecurity of the project.	296	3.22	347	3.65	243	3.63	639	2.52	Serious
Low prices for the products of the agro projects.	252	2.74	237	2.49	204	3.04	693	2.73	Serious
Lack of insurance practices by farmers	353	3.84	360	3.79	222	3.31	935	3.68	Serious
Poor extension services.	225	2.45	215	2.26	158	2.36	598	2.35	Not serious
Inadequate labor for agricultural projects	228	2.48	185	1.95	154	2.30	567	2.23	Not serious
Attitudes of government towards agriculture.	232	2.52	290	3.05	199	2.97	721	2.84	Serious
Low perception of farming projects by the people	246	2.67	272	2.86	189	2.82	707	2.78	Serious
Not belonging to functional co-operative organizations.	240	2.61	259	2.73	170	2.54	669	2.63	Serious
Inadequate extension agents	236	2.57	229	2.41	207	3.09	672	2.65	Serious
When the farmers are not involved in the planning of the project	312	3.39	344	3.62	234	3.49	890	3.50	Serious
Lack of incentives for farmers	263	2.86	322	3.39	210	3.13	795	3.13	Serious
Weak government policies/leap services in agriculture	290	3.15	336	3.54	213	3.18	839	3.30	Serious

Source: Field Survey Data, 2021 Critical Mean = 2.50

Table 6. Summary of ANOVA result on the challenges of adopting agricultural projects by farmers in Bayelsa State

Source of Variance	SS	Df	MS	f-cal	f-tab	Remarks
B/W Group variance	0.28	2	0.14			
W/Group variance	14.65	251	0.27			
Total	14.93	253		0.52	3.17	NS

Source: Field Survey Data, 2021 NS – Not Significant at $P > 0.05$

matter how profitable the ventures are. This claim was supported by Mendola [14] who posited that asset-poor households cannot enter into high-risk activities because they do not own enough (and do not have access to credit) to deal with hitch risks.

Similarly, when these influential variables are positive in a friendly and political atmosphere, Nnadi and Akwivu [15] noted that rural farmers would be encouraged to access or participate in any agricultural innovation introduced to them, and once that is achieved and sustained, the multiplier effects would be experienced in increased agricultural production and improved productivity, value chain addition through the processing of farm outputs, increased income for expansion and extension of farm enterprises, etc, they said.

Other serious challenges pinpointed by the study include: Attitudes of government towards agriculture (GM = 2.84); Low perception of farming projects by the people (GM = 2.78); Low price for the products of the agro project (GM = 2.73); Inadequate extension agents (GM = 2.65); Not belonging to functional co-operative organizations (GM = 2.63); Cost of adoption (GM = 2.61); Inadequate awareness of agricultural projects (GM = 2.58); and Insecurity of the agro projects. These other enumerated challenges are also grievous in adopting agricultural innovations of any standard. These findings were supported by Odinwa, Nlerum, and Odinwa [13] who reported that inadequate access to credit and technical facilities, lack of required inputs at the right time, limited access to land, governments' leap services to farmer's needs, inadequate extension agents, poor/no incentive and reward to farmers by service providers and not belonging to functional co-operative organizations constitute serious challenges in satisfying the extension needs of yam farmers in Rivers and the Imo States.

ANOVA results on the challenges associated with the adoption of agricultural projects by the

farmers in Bayelsa State (Table 6) showed an f – calculated as 0.52 and an f – tabulated as 3.17 at a $P > 0.05$ significant level. This led to the acceptance of the null hypothesis, which states that 'The challenges associated with the adoption of agricultural projects by the farmers in Bayelsa State do not differ significantly among the three ADP zones in Bayelsa State'. This means that the challenges of adopting agro projects introduced by ADP to farmers in the State are similar in the three ADP zones. The implication of these findings is that the ADP extension structure and operations in these zones are the same and weak throughout the State. It requires stringent measures by the State government to administer real extension principles and operations if the sustainable increase in agricultural productivity is to be achieved in Bayelsa State.

4. CONCLUSION

From the findings, it showed that: Fish farming, cropping practices of most crops, poultry production, seed multiplication/yam minisetete technology, snail farming, linkage to fertilizer/application, and integrated farming, which are not enough to affect a substantial increase in productivity of crops and animals in the area, have been carried out in Bayelsa State within the past five years. Yet, the few introduced agro projects have not been fully adopted by the farmers, so as to increase productivity in these ADP zones of the State.

It also revealed that: Lack of insurance practices by farmers, when the farmers are not involved in the planning of the projects; fear of taking a risk by the farmers, weak government policies / leap services in agriculture, when the projects are not guided by the needs of farmers when projects are too technical/complex to operate, inadequate agricultural credits, lack of incentives for farmers and when projects are gender-specific add up to the most serious challenges in adopting agricultural projects/services in Bayelsa State. It

also indicated that the views of the registered farmers on all the tested hypotheses did not differ significantly among the three ADP zones in Bayelsa State.

5. RECOMMENDATIONS

Based on the findings, the study recommended the following:

1. The Bayelsa State Agricultural Development Programme (ADP) should beef up their extension packages and extend worthwhile services to the farmers in their zones.
2. The engagement of qualified Extension Agents in the Bayelsa State Agriculture Development Programme with a clear mandate to assist the farm families' growth should be emphasized in Bayelsa State.
3. Registered farmers should be formed into cooperative groups and be involved in planning agricultural programs that concern them.
4. Giving incentives and grants by the State Government to encourage farmers' adoption of new agro projects introduced to them is necessary for Bayelsa State.

CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Ani AO. Agricultural extension: A pathway for sustainable agricultural development (first edition). Apani publications, Kaduna, Nigeria. 2017;179.
2. Kaur L, Kaur S. Participatory monitoring and evaluation in extension programmes. *Asian Journal of Home Science*. 2019;14(2):458 – 462.
3. Adesope MO. Agricultural youth organizations: Introductory Concepts. University of Port Harcourt Press. 2017;4(ed):1-151.
4. Inusa BM, Daniel PC, Dauagal DF, Chiya NS. Nigerian Economic Growth and Recovery: Role of Agriculture. *International Journal of Economics & Management Sciences*. 2018;7(2):512.
5. IITA (International Institute of Tropical Agriculture). IITA Annual Report International institute of Tropical Agriculture, Ibadan, Nigeria; 2014.
6. Adegbola AA, Akinbode IA. A review of old and current agricultural development scheme in Nigeria: Lessons for future programme designs. *Ife Journal of Agriculture, special publication*. 1986;9(1):1-33.
7. Johnson I. Drop the Subsidies says the world bank, daily graphic of 28/06/2002. Graphic company, Accra; 2002.
8. Unamma RPA, Onwudike OC, Uwaegbute AC, Edega HO, Nwosu AC. Linkage Strategy for Sustainable Agriculture in Nigeria-Research-Extension-Farmer-Input-Linkage System (REFILS). Michael Okpara University of Agriculture, Umudike, Nigeria. 2004;213.
9. Bayelsa Development and Investment Cooperation. A law to Provide for the Establishment of the Bayelsa Development and Investment Corporation. A report from the Bayelsa State House of Assembly; 2012.
10. NPC. Natural Population Commission Census Result Federal Republic of Nigeria Official Gazette, Govt. Press, Abuja; 2006. Available:www.population.gov.ng/index.php/censuses.
11. Ladele AA, Chah JM. Sampling techniques in agricultural extension research. *A Guide to Research in Agricultural Extension*. Agricultural Society of Nigeria. 2014;35 – 53.
12. Odinwa AB, Isife BI, Nlerum FE. Analysis of the extension needs of yam farmers for increased productivity in Rivers and Imo States, Nigeria. *International Journal of Agriculture, Environment and Bioresearch*. 2019;4(6):162 – 178.
13. Odinwa AB, Nlerum FE, Odinwa AN. Challenges of satisfying the extension needs of yam farmers in Rivers and Imo States, Nigeria. *Kobia International Journal of Education Humanities and Social Science*. 2020;1(1):10 – 22.

14. Mendola M. Migration and technological change in rural households: Complements or substitutes. *Journal of Development Economics*. 2007;24(1):49-68.
15. Nnadi FN, Akwivu CD. Determinants of Youths' Participation in Rural Agriculture in Imo State, Nigeria. *Federal University of Technology Owerri* 2008;323-333.

© 2022 Wauton et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:

The peer review history for this paper can be accessed here:

<https://www.sdiarticle5.com/review-history/86945>