

Impact of Agricultural Transformation Agenda Support Programme Phase-1 in Promoting Agricultural Extension Service Delivery in Kebbi and Sokoto States, Nigeria

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Abstract This study evaluated the impact of agricultural transformation agenda support Programme phase-1 in promoting agricultural extension service delivery in Kebbi and Sokoto states, Nigeria. A Multi stage sampling technique was employed to draw a sample of 480 respondents from sokoto and kebbi states comprising seven Local Government Areas (LGAs) in kebbi and one LGA in sokoto state, respectively. A set of structured questionnaires were used to obtain information from the respondents. Descriptive statistics and Logit regression analysis were used for data analysis. The result of the study showed that majority (87.5%) and (86.3%) for both participating and non-participating respondents were male while (12.5%) of the participating and (13.8%) of the non-participating farmers were females respectively. The research study also found out that Agricultural Transformation Agenda Support Programme Phase-1 (ATASP-1) provided agro-inputs to farmers such as improved varieties of seeds (95.8%), fertilizers (49.6%), Agro-chemicals (33.3%). It was found out that ATASP-1 constructed different kinds of infrastructural facilities such as market stalls (17.5%), dispensaries (12.5%), primary school classrooms (27.5%), overhead tanks (12.9%) etc to benefiting communities. The study further revealed that (87.5%), (96.7%) and (1.3%) respondents benefited from value addition techniques, capacity building and farmer training respectively. Logit regression analysis showed that the coefficient of age (0.028) positively and significantly enhanced adoption of ATASP-1. Similarly, the estimated coefficient of t-value of educational level (0.301), Household size (0.011) and farming experience (0.023) significantly influenced the adoption of ATASP-1 innovations. It is concluded that ATASP-1 impacted positively on the livelihood of the participating farmers. It is recommended that provision of extension services to farmers in groups should be encouraged due to scarcity of Agricultural Extension Agents (AEAS), provision of more improved inputs like seeds of various crops, fertilizers and agro chemicals etc, provision of extension services through non-visits such as radio and television programmes should be intensified by ATASP-1, organizing refresher courses and in-service training for extension staff to equip them with modern skills to effectively disseminate improved agricultural technology to farmers. Timely/prompt supply of funds for by Government for effective implementation of the programme.

Keywords: *impact, Agricultural Transformation Agenda Support Programme (ATASP-1), promoting, agricultural extension service delivery, kebbi and sokoto states*

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1. Introduction

The Agricultural Transformation Agenda (ATA) is aimed at making agriculture work for Nigerians especially rural farmers such that it becomes not just a development programme but also an income generating activity. Agricultural Transformation Agenda was established in

the year 2011 [1]. The transformation Agenda of the past administration was a policy package that proposes to reposition the economy by addressing issues of poverty, unemployment, insecurity and most particularly, the diversification of the entire economy from total dependence on oil to a significant reliance on non-oil to drive the economy. Transformation Agenda is a policy that revolves around good governance, power, security and development of non-oil sector such as manufacturing

and solid minerals, investment in infrastructure, education and anti-corruption crusade. (International Food policy Research Institute) [2].

The vision in the transformation strategy is to achieve a hunger-free Nigeria through agricultural sector that drives income growth, accelerates achievement of food and nutritional security, generates employment and transforms Nigeria into a leading player in global food markets to grow wealth for millions of farmers. In order to achieve this vision, the usual approach to agricultural sector through structural and institutional changes. Fertilizer procurement and distribution, marketing institutions, financial value chains and agricultural investment framework were restructured [3]. The subsistence farmers were to be moved from their high poverty level to market oriented/market surplus facilitated by Nigerian Incentive-based Risk Sharing for Agricultural Lending (NIRSAL) into a commercialized system that would facilitate trade and competitiveness. This was expected to be achieved through the Growth Enhancement Support (GES) investment that is targeted at 20 million farmers at an estimated cost per farmer per year of 5,000 naira [4]. Transformation action plan for some priority agricultural commodities were focused in the six geopolitical zones of the country [5]. The commodities are rice, cassava, sorghum, cocoa cotton, maize, dairy, beef, leather, poultry, oil palm, fisheries as well as agricultural extension. This was carried out through the value chains of each of the commodities. For instance, rice transformation plan would involve massive local production of milled rice which will be aimed at substituting parboiled (imported) rice. The expectation is that with the advent of high quality lower cost milled rice, a significant portion of demand in the domestic rice market will shift from parboiled rice to milled rice. Commodity value chain encompasses the whole lot of activities from production, processing distribution and marketing of specific traded commodity and identifies the main stakeholders involved at each stage, including research and development FGN, [6]. The government embarked on Agricultural Transformation Agenda (ATA) as part of its effort to revamp the agricultural sector to ensure food security, job creation, diversify the economy and enhance foreign exchange earnings. In the on-going ATA, for farmers to utilize/apply innovation generated by the knowledge/technology generating sub-system, there must be an efficient technology transfer sub-system [1].

According to Olatunji [7], the Transformation agenda sought to transform the Nigerian people into a catalyst for growth and national development. Under the transformation drive, government is expected to guide Nigerians to build an industrialized modern state that will launch the nation into the first 20 economies of the world by the year 2020. Federal Ministry of Agriculture and Rural Development [8].

The short comings of ATA and the improvements that were set to achieve the desired objectives led to the formation of ATASP-1 with the desire to achieve certain objectives. In achieving the desired objectives that ATA fail to achieve, ATASP-1 was established in 2015 to overcome the limitations of ATA which was part of the Federal Government of Nigeria's effort to revamp the Agricultural Sector, ensure food security, diversify the

economy and enhance foreign exchange earnings. The Federal Ministry of Agriculture and Rural Development (FMARD), embarked on Agricultural Transformation Agenda support programme-1 with a focus on the development of agricultural value chains, including the provision of improved inputs such as seeds, fertilizer, increased productivity and production, as well as the establishment of Staple Crop Processing Zones. It also aimed at addressing the reduction in post-harvest losses, improving linkages with industry with respect to backward integration, as well as access to financial services and markets. The Agricultural Transformation Agenda Support Programme-1 targets rural communities particularly women, youth and farmers associations as well as improving rural institution and infrastructure (Federal Government of Nigeria (FGN), 2015).

The Agricultural Transformation Agenda Support Programme Phase-1 is directly building on the short comings of ATA of previous administration. Agriculture is an important sector of the economy with a high potential for employment generation, food security and poverty reduction.

It is against this backdrop that the study examined the role of agricultural transformation agenda support programme phase-1 in promoting agricultural extension services delivery in Kebbi and Sokoto States, Nigeria. Specifically, the study objectives were:

1. Identify the socio-economic characteristics of the ATASP-1 participating and non-participating farmers in the study area.
2. Describe the various assistance rendered by ATASP-1 to participating farmers.
3. Assess the socio-economic factors influencing the adoption of ATASP-1 innovations by the participating farmers

2. Methodology

2.1. The Study Area

The research study was conducted in Sokoto and Kebbi States Nigeria. ATASP-1 is implemented as a pilot study in Seven Local Government areas of Kebbi State and one Local Government Area of Sokoto State. The LGEAs in which ATASP-1 is currently operating in Kebbi State, include (Argungu, Birnin Kebbi, Dandi, Suru, Bagudo, Shanga, and Ngaski) and Kware Local Government Area of Sokoto State in which ATASP-1 covers in the North-Western Zone of Nigeria. The choice of the study area was premised on the fact that it is among the Zones covered by ATASP-1 as a pilot study in the country.

Sokoto state was created in 1976 while Kebbi State was created out of the then Sokoto State in 1991. Both states lies in Northwestern region of Nigeria with capital of Kebbi State in Birnin Kebbi and Sokoto in Sokoto State. Kebbi State is bordered by Sokoto to the north and east, Niger to the south. Dosso region in the Republic of Niger to the Northwest and Republic of Benin to the west. Sokoto State shares its border with Niger Republic to the North, Zamfara State to the east, and Kebbi State to the south-east and Benin Republic to the west [9]. Agriculture is the main occupation of the people of the two states

especially in rural areas. Crops produced are mainly grains like Rice, Millet, Sorghum etc; animal rearing and fishing are also common agricultural activities that feature prominently in the two States. The weather of the States is often dry with lots of sunshine. The wet season last from May to October while the dry season lasts for the remaining period of the year. Mean annual rainfall is about 800mm-1000mm. Temperature is generally high with mean annual temperature of about 26°C and above in all locations of the states. This climatic peculiarity allows for meaningful investment in agriculture.

2.2. Sample Size and Sampling Procedure

To achieve the objectives of the study, a multi-stage random sampling technique was employed. In the first stage, all the seven (7) LGAs in Kebbi State and one (1) LGA in Sokoto State that constituted the pilot study locations i.e. eight (8) participating LGAs were used as the sampling frame for the study based on the fact that these eight (8) Local Governments constitutes the Local Governments that ATASP-1 is currently implemented in its pilot study. In the second stage, 3 Villages from each of the eight (8) Local Government Areas where ATASP-1 is implemented were selected giving a total of twenty four (24) Villages. In the third stage, ten (10) randomly selected Participating and non-Participating farmers each were drawn from the villages, thus making 240 participating and 240 non-participating farmers giving a sample size of 480 farmers for the study.

2.3. Data Collection Procedure

Both primary and secondary data were used for the study. Primary data were obtained through field survey with the use of structured questionnaire designed in line with the objectives of the study. The copies of which were administered to the respondents selected for the study. Data collected included information on the socioeconomic characteristics of the participating farmers, various assistance rendered to farmers by ATASP-1, socio-economic factors affecting the adoption of ATASP-1 innovations etc. Secondary data was collected from relevant text books, journals, seminar, conference articles, annual reports and other relevant materials.

2.4. Data Analysis

Data collected was analyzed using both descriptive and inferential statistics. Descriptive statistics such as frequency distribution count and percentages were used to analyze objectives 1 and 2 while objective 3 was analyzed using Logit Regression Analysis (LRA).

2.5. Logit Regression Analysis

Logit Regression Analysis (LRA) was employed to analyze objective 3. The Logit models is a statistical regression model that describes the relationship between a censored continuous dependent variable y_i and a vector of independent variables x_i was used. {Software used in the analysis was Special Package for Social Sciences (SPSS)}.

Y_i is the dependent variable and $x_i - X_{10}$ are the independent variables

The general Logit regression model is mathematically expressed as:

$$Y = \alpha + \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \dots + \beta_{10} X_{10} + U \quad (1)$$

Where Y = Level of farmers adoption of ATASP-1 Programme (1=for adoption, 0=for non-adoption)

X_1 =Age of farmer (In years)

X_2 =Marital status (1=Married, 0= if otherwise)

X_3 =Household size (Number)

X_4 = Level of education (Years)

X_5 =Sex (1 =for male, 0= for female)

X_6 =Access to Extension Services (1= for access, 0= for otherwise)

X_7 = Membership with Cooperative organizations (1=for member, 0=Non-member)

X_8 =Access to credit facility (Naira)

X_9 =Years of experience in farming (years)

X_{10} =Income Per annum (Naira)

U=Error term

β_i =Constant term

$\beta_i - \beta_9$ =Regression coefficient [10]

3. Results and Discussion

Table 1 shows the socio economic characteristics of the respondents on gender. The result showed that majority of the participating respondents with (87.5%) and non-participating respondents having (86.3%) were male, which is an indication that male dominated the agricultural workforce in the two states covered in North western zone especially in rural areas where agriculture is practiced on a subsistence level. While female with (12.5%) and (13.8%) relative percentages for both participating and non-participating respondents formed the minority in farming in the two states. The reason for greater number of male in the agricultural workforce could be because of the traditions, norms, values and customs of the people in the study area where female are mostly under seclusion or cultural purdah which does not allow their full participation in most of the developmental projects such as ATASP-1. The findings is in line with that of Annan [11] who supported that male usually form the majority in farming activities because of the fact that they are vested with the responsibilities of catering for their dependents such as provision of food for the households, finances for health care delivery and for educational pursuit. While female are known to be housekeepers, taking care of the children and other domestic chores. This according to him will not allow their full participation in agriculturally inclined activities, however they mostly engage in backyard farming such as growing vegetables, processing of agricultural produce and keeping small ruminants at home and poultry birds.

The age structure of rural households reflects the level of dependency of older and younger members of the household and can influence its production decision as well as livelihood strategies [11]. Analysis of the socio-economic variables on age distribution of participating

and non-participating respondents indicated that about 26.3% of participants and 36.7% of non-participants were between the ages of 31-40 years old while only 12.1% and 21.7% were above 50 years old from among participating and non-participating farmers respectively.

This result agrees with the view of Dakare [12] who opined that certain socio-economic characteristics such as age assist in enhancing youth and women participation in IFAD Programme. According to him, the socio-economic and institutional characteristics of farmers significantly affects their decision to participate in the Programme. He pointed out age, education, access to market, membership of association, extension contact and access to credit as significant determinants of participation to the Programme. The result also showed that majority of the respondents belongs to the age bracket (31-40) years old (26.3%) and (36.7%) for both participating and non-participating

respondents which means that majority belong to the active age group as only few (8.3%) and (3.8%) are above 60 years of age.

The findings of this research is in consonance with that of Koyeikan [13] that the mean age of farmers in his study was 45 years and that of females were 40 years. Age is a factor that is very important in farming as a primary occupation since it requires people of age group that are energetic and are independent. This also agreed with the assertion made by Adeola [14] that young people of ages between (20-35) tend to withstand stress, put more time in various agricultural operations and participate in programmes which can result to increased output. Young people are dynamic and willing to take risk connected with adoption of new agricultural technology which may explain the higher propensity for participation in developmental projects and programmes such as ATASP-1.

Table 1. Socio-Economic Characteristics of Participating and Non-Participating Farmers in ATASP-1 (n=240)

Variables	Participating Farmers	Non-Participating farmers
Gender		
Male	210 (87.5%)	207 (86.3%)
Female	30 (12.5%)	33 (13.8%)
Total	240	240
Age (years)		
20-30	47 (19.5%)	23 (14.5%)
31-40	63 (26.3%)	88 (36.7%)
41-50	81 (24.2%)	68 (28.4%)
51-60	29 (12.1%)	52 (21.7%)
Above 60	20 (8.3%)	9 (3.8%)
Total	240	240
Level of Education		
Qur'anic education	72 (30.0%)	71 (29.6%)
Adult Education	30 (12.4%)	22 (9.2%)
Primary Education	44 (18.3%)	69 (28.7%)
Junior Secondary Education	26 (10.8%)	30 (12.5%)
Senior Secondary Education	34 (14.2%)	27 (11.3%)
Tertiary Education	34 (14.2%)	21 (8.8%)
Total	240	240
Marital Status		
Married	202 (82.4%)	190 (79.2%)
Single	23 (9.9%)	24 (10.0%)
Divorced	7 (2.9%)	14 (5.8%)
Widow	4 (1.7%)	9 (3.8%)
Widower	4 (1.7%)	3 (1.3%)
Total	240	240
House hold size		
0-10	137 (57.1%)	143 (59.6%)
11-20	86 (35.8%)	82 (34.2%)
21-30	17 (7.1%)	15 (6.3%)
Total	240	240
Annual Income (₦)		
Less than 50,000	0 (0.0%)	6 (2.5%)
51, 0000---250,000	98 (40.8%)	140 (58.3%)
251, 0000---350,000	103 (42.9%)	40 (12.5%)
351,000----450,000	32 (13.3%)	37 (15.4%)
Greater than 450,000	7 (2.9%)	1 (0.4%)
Total	240	240

Source: Field Survey Data, 2018.

Table 2. Frequency distribution of various assistance rendered to farmers by ATASP-1 n=240 S/N Assistance

Rendered	Frequency *	Percentage
1. Agro-input supply		
-Seeds	230	95.8
- Fertilizer	119	49.6
- Agro chemicals	80	33.3
-Livestock	8	3.3
-Pest and disease control	42	17.5
-Cross breeding of livestock	8	3.3
2. Infrastructural facilities		
- Market stalls	42	17.5
- Dispensaries	30	12.5
- Primary school classrooms	66	27.5
-Motorized bore hole	10	4.2
-Overhead tanks	31	12.9
- Culverts	4	1.6
-Access roads	2	0.8
-Storage facilities	1	0.4
3. Advisory services		
-Value addition	210	87.5
-Advisory service on crop & animal	49	20.4
-Processing techniques	15	6.3
-Harvesting techniques	11	4.5
-Market information system	1	0.4
- Nutrition and hygiene practice	16	6.6
4. Capacity building		
-Farmer training	232	96.7
-Advocacy/sensitization	51	21.3
- Agric show	9	3.8
- Field days	14	5.8
-Entrepreneurship training	95	39.0

*Multiple responses were recorded
Source: Field Survey, 2018.

Table 3. Distribution of respondents based on Socio-economic factors affecting the adoption of ATASP-1 Innovation

Variables	Parameters	Coefficients	standard Error	t-value
Constant	X ₀	-0.949	1.060	- 0.895
Sex	X ₁	-0.442	0.401	- 1.103
Age	X ₂	-0.028	0.016	- (3.36) ***
Level of Education	X ₃	-0.301	0.334	- (2.92)* *
Marital status	X ₄	0.077	0.052	0.997
Household size	X ₅	0.011	0.021	(2.951) ***
Membership of Ass	X ₆	0.010	0.069	1.268
Farming experience	X ₇	-0.023	0.017	- (2.194) **
Access to extension	X ₈	0.109	0.194	(4.98) ***
Income per annum	X ₉	0.124	0.010	(2.09) **
Access to credit	X ₁₀	0.054	-0.159	1.701

Number of observations=240, $\text{Pro} < \text{Chi}^2 = 0.000$, $\text{T-value} = 0.012$, $\text{R}^2 = 0.4020$, Adjusted $\text{R} = -0.036$, * = Significant at 10%, ** = significant at 5%, *** = Significant at 1%
Source: Field Survey, 2018.

Education is a veritable tool for attitudinal change of an individual. The result in Table 1 shows that 30% participants and 29.6% non-participants had Qur'anic education. Then 12.5% and 9.2% for both the participating and non-participating respondents obtained adult education and 18.3% and 28.7% gained only primary school education while 10.8% and 12.5% respondents completed only junior secondary education as their

highest level of education. The result also showed that 14.2% and 11.3% of the farmers obtained only senior secondary education as their highest level of education and 14.2% and 8.8% respondents schooled up to tertiary level of education. This means that most respondents had attained certain level of education. The low level of formal education from among participants affected their level of awareness and adoption of modern farming techniques. In

contrast, the percentage of farmers from among non-participants with non-formal education is rather large, this could be a contributing factor to their lack of participation in ATASP-1. Asiabaka [15] in his studies on Fadama III posited that education is an important variable that influences farmer's decision to participate in any Programme because of its influence on farmers awareness, perception, reception, rejection and/or the adoption of innovations that can bring about increase in production or reduced production risk. Education is important for easy understanding of improved methods of agricultural production and makes farmers more receptive to advice from extension agencies or be able to deal with technical recommendations that requires a certain level of numeracy and literacy. The findings also agrees with that of Ekpo [16] who said that level of education may be able to positively modify people's behaviours. He added that education has a positive and significant impact on farmers efficiency in production and majority of both the participating and non-participating farmers does not possess formal education to guarantee the acceptance and adoption of new farming techniques introduced to them, as greater number of the respondents obtained only Qur'anic education for moral upbringing

The survey found out that most (majority) of the respondents with (84.2% and 79.2%) for both participating and non-participating respondents respectively were married. This implies that farmers interviewed in the study area have family responsibilities, which shows that majority were married and have children which will help in appreciable number of family labour supply to accomplish various farm operations. The significance of marital status in agricultural production and livelihoods activities can be explained in terms of the supply of agricultural family labour. It is expected that family labour would be more available where the household heads are married [17].

This findings is in line with Solomon [18] who opined that large household size assists more on farm and other household activities. However, only 9.6% and 14.2% for both the beneficiaries and non-beneficiaries were single and (2.9%, 1.7%, 1.7% and 3.8%, 1.7%, 1.3%) were either divorced, widows or widowers from among participating and non-participating farmers respectively.

The findings was corroborated by Daramola, *et al* [19] who found out that majority of respondents (90% and 81%) for both the two groups respectively were married and that about 18% and 11% were either widowed or divorced from among participants and non-participants respectively.

The result in Table 1 showed that about 57.1% of participants and 59.6% non-participants had between 0-10 people as household size, 35.8% and 34.2% had between 11-20 people as household size and 7.1% and 6.3% had between 21-30 people as their dependents. This implies that farmers in the study area might have advantage of family labour availability if many household members participate in farm work. However, the implication of large household size is that it will increase household consumption expenditure which will compete with production for

Limited financial resources within the household. This findings is in consonance with [20] who noted that size of household was associated with labour availability that can

be used for different agricultural and non-agricultural activities.

The findings of the study showed that 40.8% participating farmers earn annual income of 51,000-250,000 and 2.5% non-participating respondents earn annual income of less than 50,000. 42.9% participants earn between 251,000-350,000 annually as income while 12.5% non-participating farmers earn between 251,000-350,000 annually. Furthermore, 15.8% and 15.4% participants and non-participants respectively earn an annual income of 351,000-450,000 and only 0.4% and 2.9% participating and non-participating respondents earn greater than 450,000. Meaning that the annual income of most farmers especially the participating farmers increased considerably as none of them earn an annual income of less than 50, 000. Although, comparatively the income of the two groups of the farmers is still very low. But with ATASP-1 in progress the income of many farmers is likely to increase as can be seen from the expansion in their farm sizes as a result of introduction of the Programme to them. Annan [11] opined that annual income of farmers depends largely on the sizes of their farm lands, management practices employed and adequacy of precipitation received during the growing season. Surprisingly, many farmers own small land holdings and this determines to a greater extent their level of annual income

Table 2 shows the various assistance rendered to farmers by ATASP-1 in Sokoto and Kebbi states. The table shows that 95.8% respondents across the two states were provided with improved seeds and only 42% respondents were not able to benefit from the improved seeds. Improved seeds (sorghum and rice) provided to farmers by ATASP-1 improved to greater extent their productive capacity based on the responses obtained when interviewing the farmers. 49.6% respondents were provided with fertilizers (NPK or Urea) and greater percentage of (50.4%) could not benefit from the gesture, and fertilizer is known to improve soil structure, fertility and consequently the yield of crops. Efforts are being made by the Programme to ensure that most of the participating farmers benefits from the incentive for increased agricultural output.

Furthermore, 3.3% respondents were provided with livestock (small ruminants) for fattening/flushing so as to serve as example for the non-participating farmers to encourage them to get enlisted in the Programme. However, a very large proportion of 96.7% respondents were not provided with livestock, 17.5% respondents were enlightened on ways of controlling pests and diseases on their farms and 3.3% farmers were educated on cross breeding of livestock techniques. Similarly, 33.3% respondents benefited with agro-chemicals. Agro-chemicals such as herbicides, pesticides, acaricides, rodenticides etc assists farmers to tackle many challenges associated with weeds pest and rodent infestation on farms and stored produce. Greater percentage could not benefit from this very important agro-input.

Results of the study discovered that 17.5%, 12.5%, 27.5% 1.6 and 0.8% respondents benefited with construction of infrastructural facilities such as market stalls, dispensaries, primary school classrooms, culverts, and access road construction respectively. However,

greater percentage of 82.5%, 87.5% and 72.5% respondents does not benefit from the construction of the above stated infrastructures. This could be due to the fact that, the Programme is a pilot study and still in progress. Based on the responses obtained from the respondents, those communities that benefited with the social infrastructures have witnessed a turnaround in their marketing services, access to health facilities and educational transformation. Many of the villages benefited were lacking such amenities prior to the introduction of ATASP-1.

The table further revealed that 4.2% and 12.9% respondents were provided with hand pumps and overhead tanks for water supply in their communities while 95.8% and 87.1% who constituted the majority were not provided with the water sources. The problem of water supply was tackled in the communities where these facilities were provided. ATASP-1 is intensifying effort to reach out to those communities that have not benefited with water supply infrastructure and are participants to the Programme. In the same vein, the table further showed that 87.5% and 96.7% respondents respectively benefited from value addition techniques, capacity building/Training and while 12.5%, 3.3% and 98.8% respondents could not benefit from the gestures rendered by ATASP-1. The main priority of ATASP-1 is value addition enlightenment, intensive farmers training which enlightened the farmers on new and improved techniques of farming for better output. The Programme is exploring ways to link farmers to sources of credit facilities in order to enable farmers improve their level of production.

The Programme has succeeded in training large number of farmers through mass extension programmes such as radio and television programmes, seminars, group discussion etc and the siting of demonstration plots in farmers communities to make the training real, receptive, concrete, responsive and relatively permanent in nature for sustained and improved agricultural productivity in the two states

Similarly, 20.4%, 4.5%, 0.4, 6.6%, 21.3%, 3.8%, 5.8% and 39.0% respondents respectively benefitted from advisory services on crop and animal production, processing techniques, market information system, nutrition and hygiene practice, advocacy/sensitization, agricultural show, field days, and entrepreneurship training respectively. All the above were provided to farmers by ATASP-1 to enable farmers improve productivity of both crops and animals for improved standard of living.

Logit regression analysis indicated in [Table 3](#) showed that age - (3.36) negatively and significantly enhanced participation and adoption of ATASP-1 innovations at 1% level of significance. This could imply that older farmers accept and adopt new farming innovations brought to them because of perhaps their years of experience in farming activities than the younger ones. This may be surprising as older farmers who have passed their productive age are known to be physically weaker than younger ones and may find it more difficult to face the challenges of the acceptance and utilization of new farming technologies introduced to them.

Educational attainment -(2.92) and farming experience -(2.194) were negative and significant at 5% level of

significance implying that educated farmers are known to possess more skills and knowledge to tackle challenges, participate in programmes and adopt new technologies and adapt to changing environment and situations. Also farmers who have spent more number of years in farming activities are known to have gathered more skills and knowledge to tackle challenges and constraints more vigorously than the ones with less experience. The findings of this studies is in line with that of Dakare [12] who supported that older farmers are assumed to have gained experiences in farming and thus stand a chance to accept and adopt new technologies or government programmes.

Similarly, house hold size (2.951) and access to extension (4.98) positively influenced participation/adoption of ATASPS-1 innovations .Large household size enhances acceptance and adoption of new farming innovation, particularly households headed by male heads who are saddled with the responsibility of providing nutritional needs of their members. This responsibility might stimulate quick acceptance of new farming ideas. Access to extension had a positive coefficient (0.109). This implied that the more the access to extension services, the higher the probability for improved adoption of new technologies. Access to extension services improves productivity. Higher level of productivity translates to improved extension services. The findings of Dakare contradicts that of Ekpo [16] who believed that youth stand a better chance to accept and adopt new programmes. He lamented that full participation in ADPS by youth was guaranteed because youth generally have greater knowledge acquisition propensity and are always eager to learn, very receptive to ideas, looking for ways to be productive and searching for avenues to direct their energies.

Furthermore, yearly income (2.09) of participating farmers were significant at 5%. This indicated that ATASP-1 participating farmers who have more income are more equipped to employ improved services that could lessen the constraints and challenges associated with adoption of new farming technologies. However, majority of the participating respondents have very low annual income prior to the introduction of ATASP-1, but with its introduction, their income grew considerably.

Additionally, many of the respondents neither have access to credit nor extension services prior to introduction of ATASP-1. This is known to positively enhance improved productivity but farmers were seriously constrained with it due to poor linkages to sources of credit and inadequate extension field staff. With ATASP-1 in progress, efforts are being intensified to link farmers to sources of credit and more extension agents were recruited to meet the challenges of its inadequacy. This studies is in agreement with the findings of Annan [11] who is of the opinion that access to market, extension agents, credit and membership with corporative association were significant determinants of participation in IFAD. According to him, access to the above stated parameters could stimulate interest, motivate famers and trigger their willingness to adopt new farming innovations. However, some villages in the study area lack market structures, suffers lack of access to extension services, lacks access to credit facility and does not have functional farmer's cooperative

societies. This is known to negatively affect the level of acceptance and/or adoption of new farming technologies

4. Conclusion

The study evaluated the impact of Agricultural Transformation Agenda Support Programme Phase-1 in Promoting Agricultural Extension Service Delivery in Kebbi and Sokoto States, Nigeria. The age distribution, Marital status, household size and farming experiences of the two groups of farmers (participating and non-participating) showed a lot of similarities. However, the farm size of participating farmers especially when ATASP-1 was introduced was observed to be generally bigger than those of the non-participating farmers and subsequently their agricultural output was also higher. The main source of information utilized regarding ATASP-1 by the participating farmers was predominantly through ATASP-1 staff, family and friends and radio broadcast on the programme, while there was no much regard for contact farmers by the participating farmers than was accorded to ATASP-1 Local Government Extension Agents. Logit Regression Analysis showed that level of education, years of experience in farming, and income per annum of the respondents were significantly related to level of participation/adoption of ATASP-1 innovations at 5% level of significance. Statistical analysis showed a lot of difference between the two groups of farmers. ATASP-1 participating farmers had higher income level and mean output than the non-participating farmers by a wide margin and their standard of living was also higher. It was also found out that ATASP-1 provided various forms of assistance to the participating farmers such as improved seeds, agro-chemicals, fertilizers, primary school classrooms, market stalls, Dispensaries among others.

The study therefore established that enhanced effectiveness in the organization of Agricultural extension services by ATASP-1 staff in the zone could tremendously transform traditional Agriculture into a modern one for improved living standards of rural people. A mere provision of Agricultural extension services by ATASP-1 may not be able to transform traditional Agriculture without adequate training, monitoring and evaluation, provision of improved agro-inputs and frequent supervision of farmers by the coordinating staff/their Agricultural Extension Agents (AEAs).

5. Recommendations

The following recommendations were proffered to promote virile extension service delivery in the study area.

- i. Provision of extension services to farmers in groups should be encouraged due to scarcity of AEAs and logistics but the number of farmers in each group should be manageable or small such as maximum of 10. This is to help the members of the group to actively participate or involve themselves in extension service activities.
- ii. To improve implementation and boost the morale of the teeming peasant farmers, there is the need for ATASP-1 to provide more improved inputs

like seeds of various crops not only sorghum and rice, fertilizers, agro-chemicals e.t.c.to farmers.

- iii. Provision of extension services through non-visits by AEAs should be promoted by ATASP-1 particularly through radio and television programmes. This will help many farmers in the zone and the country at large to access extension services in the comfort of their homes since many of them own radio sets.
- iv. Provision of simple mechanized farming implements such as planters, threshers and combine harvesters to the teeming peasant farmers should be embarked upon by the Programme so as to boost increased Agricultural output/productivity.
- v. Non-formal education providers should be empowered and the facilitators equipped by ATASP-1 to give education to the rural farmers. This is to increase the knowledge and skills of the farmers before or while receiving the extension services. In this way, the AEAs would have little difficulties in the dissemination of the agricultural technology to farmers.
- vi. Quick intervention by government in providing utility vehicles and motorcycles to extension field staff should be made a top priority for the smooth delivery of extension services in the operational zone.
- vii. Refresher courses and in-service trainings should be organized regularly by ATASP-1 for the extension field staff without waiting for donors and NGO's to finance them before they are organized. In this way, the AEAs would be equipped with modern knowledge and skills to effectively disseminate improved agricultural technology to farmers.
- viii. Timely provision of incentives to extension staff should be encouraged by Federal Ministry of Agriculture and Rural Development (FMARD) and ATASP-1 in order to stimulate and motivate the AEAs to effectively deliver the services needed by them.

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