

Seizing the Moment and Controlling the Future of Rice Production with Agricultural Transformation Agenda Programme in Nigeria

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Abstract— This study examined the contribution of Agricultural Transformation Agenda Programme (ATA) on Rice Production in Ondo and Kwara States, Nigeria. A total of 360 respondents were sampled using multi-stage sampling procedure. The study revealed among others that the majority of the respondents were male (60.3%), the mean age of the respondents was 44 years. The majority of the respondents (80.0%) were married, 68.1% of the respondents had one form of education or the other. The majority of the respondents have manageable household size of five (5) persons that can assist on the farm. The result showed that Radio and fellow farmers were the major sources of information available to the farmers on ATA programme. Some of the positive perception towards ATA programme are; ATA programme has increased the quantity of my farm product ($\bar{x}=3.7$), quality of their product was positively affected ($\bar{x}=3.5$) and the programme served as a sure source of good planting materials for them ($\bar{x}=3.5$). The result showed that household size, year of farming experience and farm size had a positive and significant effect on rice production in the study areas. This implies that an increase in the farmers' family will lead to increase in the labour available to cultivate the land and this shows the relationship between increase in farm size and household size. This also implies that there will be meaningful contribution to food security in the country when farming experience, farm size and household size increase at the same pace.

Keywords— Rice, Production, ATA, Future and Nigeria.

I. INTRODUCTION

Agriculture is broadly divided into four sectors in Nigeria—crop production, fishing, livestock and forestry. Crop production remains the largest segment and it accounts for about 87.6% of the sector's total output. This is followed by livestock, fishing and forestry at 8.1%, 3.2% and 1.1% respectively. Agriculture remains the largest sector in Nigeria contributing an average of 24% to the nation's GDP over the past seven years (Oyaniran, 2020). Agriculture is a proven path to wealth creation prosperity and poverty alleviation. It is expected that by the year 2030 the

population of Africa will be about 1.8 billion and agricultural productivity on a large scale is required to improve food security (Okunlola, 2019). Agriculture is an important sector in the economic development and poverty alleviation drive of many countries. The vision of the agricultural transformation agenda programme strategy is to achieve a hunger-free Nigeria through an 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 (Ajani & Igbokwe, 2014).

There was transformation action plan for some priority agricultural commodities in the six geopolitical zones of the country. The commodities were rice, cassava, sorghum, cocoa cotton, maize, dairy, beef leather, poultry, oil palm and fisheries. This was carried out through the value chains of each of the commodities while recognizing roles the actors/stakeholders along the nodes of the chain, inputs requirements in achieving production targets, constraints faced and expected output. The main target of the plan was to grow the agricultural sector through the various commodities and also to generate employment opportunities (FMARD, 2016). For instance, rice transformation as implemented involved local production of milled rice aimed at substituting parboiled (imported) rice. The mills were set up with the objective of having high quality lower cost milled rice that will make a significant portion of demand in the domestic rice market to shift from parboiled rice to milled rice. Transformation of the agricultural sector has become a development imperative for many African countries, including Nigeria, in order to achieve the Millennium Development Goals (MDGs) focused on improved food security and reduced hunger.

The broad objective of the study was to examine the Contribution of Agricultural Transformation Agenda Programme to Rice Production in Ondo and Kwara States of Nigeria while the specific objectives were to:

- i. ascertain the socio-economic characteristics of the respondents;
- ii. examine the effects of ATA programme on respondents' level of output and
- iii. determine the perception of respondents towards ATA programme.

The hypothesis of the study is:

H₀₁: There is no significant relationship between farmers' socio-economic characteristics and the output produced after participating in ATA programme.

II. METHODOLOGY

The study was carried out in Ondo and Kwara States. A multi-stage sampling procedure was used for this study. At the first stage, two States were randomly selected using simple random techniques from the list of all the states that participated in the programme. The second stage involved the random selection of three (3) local government areas (LGAs) from eighteen (18) L.G.A in Ondo State and three

L.G.A. from sixteen (16) local government areas from Kwara State respectively making a total of six (6) L.G.A. from the two States. In Ondo State, Ondo East, Akoko South West and Owo LGAs were randomly selected while Ilorin West, Ilorin East and Asa LGAs were also randomly selected from Kwara State. The third stage involved random selection of three (3) communities from the six chosen local government areas out of the six hundred communities from the two States. For the purpose of this study, the communities were divided into four sections out of which two (2) sections were randomly selected; this formed the fourth stage of the sampling techniques. The fifth stage involved the random selection of ten (10) farmers from each of the wards; the random selection was possible through the help of the extension agents in both states that provided the list of registered farmers that participated in ATA programme. Thus, making a total of twenty (20) farmers per community and a total of sixty (60) farmers from each of the L.G.A. and a total of one hundred and eighty (180) farmers in Ondo State and 180 respondents from Kwara State respectively thus a total of 360 farmers were interviewed in the two (2) States. Data collected were analyzed using descriptive and inferential statistics (regression and t-test).

III. RESULTS AND DISCUSSION

Socio-Economic Characteristics of the Respondents

Table 1 reveals that the majority of the respondents (63.9%) were between 31 and 50 years of age, 17.6% between 51 and 60 years, 15.3 % between 21 and 30 years while only 3.6% were above 60 years of age. The mean age was 44 years which implies that the majority of the respondents were still very young and were in their youthful, active and productive age needed for successful farm operations. This is in line with the findings of Famakinwa *et. al.* (2017) that the mean age of respondents was 44 years. This is in contrast with the findings of USAID (2005) that the average age of farmers in Nigeria is about 50 years; it was also reported by FAO (2008) that the age bracket (31 – 50 years) which was more dominant and within the mean age contain strong and virile farming population. Table 1 indicates that the majority of the respondents (60.3%) was male, married (80.0%) and had one form of education or the other (68.1%). This suggests that the use of ATA-based mobile phone for agricultural information sourcing most notably for the advancement of rice production is effective in the study areas. About 46.1% of the respondents earned less than one million naira in a year, 45.6% earned between 1,000,001 naira and 3,000,000

naira annually, 7.7% earned between 5,000,001 naira and 7,000,00 naira annually while just 0.3% of the respondents earned above 9,000,001 naira annually. According to the world Poverty Clock, 2019 the World Bank classifies a person to be living in extreme poverty if he/she lives below

the poverty line of 1.90 USD which translates to 693.5 naira per day. The mean for the respondents' annual income was 1,300,000 naira. This implies that the respondents in the study areas were living above poverty line.

Table 4.1: Distribution of respondents by their socio economic characteristics (n= 360)

| Options | Frequency | Percent | |
|------------------------------|-----------|---------|---------------------|
| Age grouping (years) | | | |
| 21-30 | 55 | 15.3 | |
| 31-40 | 109 | 30.3 | |
| 41-50 | 121 | 33.6 | 44.0 |
| 51-60 | 62 | 17.2 | |
| Above 60 | 13 | 3.6 | |
| Sex | | | |
| Male | 217 | 60.3 | |
| Female | 143 | 39.7 | |
| Marital status | | | |
| Single | 70 | 19.4 | |
| Married | 288 | 80.0 | |
| Widowed | 2 | | 0.6 |
| Educational status | | | |
| No formal education | 115 | 31.9 | |
| Attempted primary schl | 12 | 3.3 | |
| Completed primary schl | 47 | 13.1 | |
| Attempted Junior Sec | 19 | 5.3 | |
| Completed Junior Sec | 1 | 0.3 | |
| Attempted Senior Sec | 20 | 5.6 | |
| Completed Senior Sec | 66 | 18.3 | |
| Attempted Tertiary | 12 | | 3.3 |
| Completed Tertiary | 68 | | 18.9 |
| Annual income (Naira) | | | |
| < 1,000,000 | 166 | 46.1 | |
| 1,000,001-3,000,000 | 164 | 45.6 | |
| 3,000,001-5,000,000 | 21 | 5.9 | |
| 5,000,001- 7,000,000 | 8 | 2.2 | 1,300,000.00 |
| 7,000,001- 9,000,000 | - | - | |
| Above 9,000,001 | 1 | 0.3 | |

Source: Field Survey, 2019

4.2. Sources of Information on ATA Programme

Findings in Table 4.2 indicates that the radio was the most frequently of source information on ATA programme in the study area as attested to by 83.6% of the respondents. This outcome was very much expected as most farm information in most parts of Nigeria is spread mainly through the radio. This is in tandem with Oyekunle *et al.*, (2018) who found out that majority (96.9%) affirmed radio as the major available source of information. About 62.2% of the respondents frequently sourced information through their fellow farmers. This means that farmer-to-farmer communication is very effective in the study area and this may be as a result of the good relationship among the farmers. The result indicated that 55.8% of the respondents became aware of agricultural information through their friends, which are their loved ones that were into agricultural production. According to Madukwe, (2008), bulk of farm knowledge generation and utilization resided in individuals and transfer depended on interpersonal interaction that ran along family lines and groups. The use of television in the study area to source agricultural information was 45.3% this may be as a result of erratic power supply in the rural areas. The low percentage in the frequency of use of newspaper (0.8%) may be as a result of the unavailability of newspaper vendor in the rural areas.

According to Olowu, (1990), only about 5% of Nigerian dailies' news is agricultural, and this may not sufficiently complement the dissemination of information from other sources.

Table 4.2 also reveals that the respondents do source information from the extension agents but with low frequency (17.2%) this may be a result of the low ratio of extension worker to farmers in the country where extension agents cannot adequately cover all the farmers in the rural areas. From the result of 2018 Agricultural Performance Survey (APS) conducted by National Agricultural Extension and Research Liaison Service (NAERLS), which was publicly presented by the Minister of Agriculture and Rural Development, during the World Food Day celebration on October 16, 2018. The minister said that the average farm families' ratio in the country stands at 1:5,000 which is against FAO's recommendation of 1:800. This will definitely lead to stress fatigue and equally result in poor quality delivery in the extension system. A resident in Odore village in Ilorin East LGA of Kwara State said that:

'extension agents visit us once in a while especially when they have agricultural programme that want us to register for; it is only those villages that are close to the city that usually enjoy them'.

Table 4.2: Sources of information on ATA programme

| Source of Information | Always Freq/percentage | Sometimes F/percentage | Not at all Freq/percentage | Mean | Standard Deviation | Rank |
|---------------------------------------|---------------------------|---------------------------|-------------------------------|------|-----------------------|-----------------|
| Radio | 301 (83.6) | 44 (12.2) | 15 (4.2) | 1.8 | 0.5 | 1 st |
| Fellow farmers | 224 (62.2) | 108 (30.0) | 28 (7.8) | 1.5 | 0.6 | 2 nd |
| Friends | 201 (55.8) | 96 (26.7) | 63(17.5) | 1.4 | 0.8 | 3 rd |
| Relations & Family | 128 (35.6) | 164 (45.6) | 68 (18.8) | 1.2 | 0.7 | 4 th |
| Extension agents | 62 (17.2) | 187 (51.9) | 111 (30.9) | 0.9 | 0.7 | 5 th |
| Television | 176 (48.9) | 163 (45.3) | 176 (48.9) | 0.6 | 0.2 | 6 th |
| Group/Cooperative society meetings | 91 (25.3) | 39 (10.8) | 230 (63.9) | 0.6 | 0.9 | 7 th |
| Newspaper | 3 (0.8) | 61 (16.9) | 296 (82.3) | 0.2 | 0.4 | 8 th |
| Agric Bulletins | 9 (2.5) | 67 (18.6) | 284 (78.9) | 0.2 | 0.5 | 9 th |

Source: Field Survey, 2019

4.2 Effect of ATA programme on respondents’ output

4.2.1 Quantity of rice produced before and after participating in GES under ATA

Programme

Before the farmers participated in the programme, the mean of quantity of rice produced in year 2010 and 2011 were 2206kg and 2241kg respectively while in year 2012, 2275kg of rice were produced. After participating in ATA programme, the average rice produced in year 2013, 2014 and 2015 were 2586kg, 2689kg and 2827kg respectively. This implies that ATA programme had positive effects on the quantity of output produced by the farmers in the study areas. This is because when there is increase in the quantity

of output produced, the farmers will have more money from the sales of the product which can either be used to increase the size of their rice farm or to diversify into other areas of agriculture. This is in line with the findings of Ositanwosu and Qiquan (2016) that ATA programme made an appreciable impact on the income of smallholder rice farmers in Adani-Omor Zone, Southeast of Nigeria. A resident in Kajola community in Ondo State reported that: ‘I heard that the rice transformation sub component is aimed to transform Nigeria from a nation that depends greatly on imported parboiled rice to a nation more dependent on locally produced parboiled rice. If the government can continue with this intervention; then Nigeria will soon join one of the top producers of rice producers in the world’.

Table 4.2.1: Output of rice cultivated before and after participating in ATA programme

| Output (Kg) | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|------------------|----------------------|-------------|-------------|---------------------|-------------|-------------|
| | Freq/% | Freq/% | Freq/% | Freq/% | Freq/% | Freq/% |
| | Before participation | | | After Participation | | |
| <2000 | 24(82.8) | 23(79.3) | 22(75.9) | 16(55.2) | 14(48.3) | 11(37.9) |
| 2001- 4000 | 4(13.8) | 5(17.4) | 6(20.7) | 9(31.0) | 10(34.5) | 12(41.4) |
| Above 4000 | 1(3.4) | 1(3.4) | 1(3.4) | 4(13.8) | 5(17.4) | 6(20.7) |
| Mean (Kg) | 2206 | 2241 | 2275 | 2586 | 2689 | 2827 |

Source: Field Survey, 2019

4.3. Respondents Perception about ATA Programme

Table 4.9.0 reveals the respondents’ responses to the following positively and negatively worded statements on perceived contribution of ATA to the improvement of the three crops under review. Majority of the respondents have high perception that ATA programme has increased the quantity of their farm product ($\bar{x}=3.7$). This is due to the fact that the inputs are subsidized. This corroborate the findings of Kareem, (2015) that ATA based inputs can increase yield. Respondents believed that their participation in the programme has affected the quality of their product positively ($\bar{x}=3.5$) this is because they had access to subsidize good /original inputs other than the adulterated ones. Result in Table 4.9.0. Indicated that the programme had reduced cost of farm inputs been used by the farmers ($\bar{x}=3.5$) and also the programme served as a sure source of good planting materials for them ($\bar{x}=3.5$) and most importantly that the programme gave them the opportunity to have more

money to purchase other germane inputs used on the farm ($\bar{x}=3.5$). The implication is that respondents had a positive perception about ATA Programme in the study area which could affect their participation in the programme positively. This is in line with the findings of Meludu et.al. 2017 and Adebo, 2014 that respondents had favorable perception towards ATA Programme with high participation and utilization of ATA programme in the study areas.

Respondents ($\bar{x}=2.7$) want the government to be timely in distributing inputs supply under GES programme while few of them believed that the quantity of inputs given to farmers under GES should not be increased ($\bar{x}=1.8$). The respondents made it known that participating in ATA programme did not affect their income negatively ($\bar{x}=3.1$) and also the quantity of inputs given to farmers should be increased so as to cater for farmer with large hectare of land. Result in Table 4.9.0 indicated that the respondents believed that the number of redemption centers available are not enough for the successful collection of inputs in the study areas ($\bar{x}=3.6$) this is due to the long queue during the

collection of inputs. The respondents did not agree to the statement that ATA programme is not fruitful and effective in their areas ($\bar{x}=2.6$) and this is in line with Meludu et. al. 2017 who found that the majority (59.2%) of the respondents perceived ATA as a good programme and that its continuity should be encouraged.

While the respondents strongly disagreed with the following statements about ATA programme: there should not be provision of improved seeds to farmers under the programme ($\bar{x}=1.8$), fertilizer racketeering should not be reduced by the government ($\bar{x}=1.9$) this is because if government eradicate fraudulent activities the right quantity

of inputs will get to the farmers at the right time, agricultural planner should not be mindful of `Arm-char` farmers when planning programme ($\bar{x}=1.8$) the respondents disagree with this statement because if influential people are not stopped from hijacking inputs it will definitely not get to the real farmers and this can mar the success of the programme. The farmers also disagreed with these statements; that ATA programme has not enhanced their interest in Agriculture ($\bar{x}=2.1$), the programme has not given me opportunity to market my farm produce ($\bar{x}=2.5$) and it has not improved timeliness of fertilizer and agrochemical application ($\bar{x}=2.8$).

Table 4.3: Respondents perception about ATA programme

| S/N | Statements | Strongly Agreed | Agreed | Undecided | Disagreed | Strongly Disagreed | Mean | Stan Dev | Remark |
|-----|--|-----------------|-----------|-----------|-----------|--------------------|------|----------|-----------|
| 1 | The ATA programme has increased the quantity of my farm product | 121(33.6) | 149(41.4) | 2(0.6) | 24(6.7) | 64(17.8) | 3.7 | 1.0 | Agreed |
| 2 | Participation in the programme has affected the quality of my product positively | 89(24.7) | 174(48.3) | 2(0.6) | 22(6.1) | 73(20.3) | 3.5 | 0.9 | Agreed |
| 3 | The programme has reduced cost of farm inputs | 116(32.2) | 129(35.8) | 6(1.7) | 47(13.1) | 62(17.2) | 3.5 | 0.9 | Agreed |
| 4 | The programme has served as a sure source of good planting materials for farmers | 116(32.2) | 140(38.9) | 8(2.2) | 34(9.4) | 62(17.2) | 3.6 | 1.0 | Agreed |
| 5 | I have more money to purchase inputs | 111(30.8) | 130(36.1) | 3(0.8) | 41(11.4) | 75(20.8) | 3.5 | 0.9 | Agreed |
| 6 | There is timeliness of inputs supply under GES programme to the farmers | 38(10.6) | 118(32.8) | 8(2.2) | 85(23.6) | 111(30.8) | 2.7 | 0.4 | Disagreed |
| 7 | The programme has affected my income negatively | 54(15.0) | 44(12.2) | 15(4.2) | 104(28.9) | 143(39.7) | 2.3 | 0.4 | Disagreed |
| 8 | The quantity of inputs given to farmers under GES should not be increased | 17(4.7) | 27(7.5) | 11(3.1) | 107(29.7) | 198(55.0) | 1.8 | 0.1 | Disagreed |
| 9 | Redemption centres are not enough | 111(30.8) | 132(36.7) | 11(3.1) | 72(20.0) | 34(9.4) | 3.6 | 0.9 | Agreed |

| | | | | | | | | | |
|----|--|-----------|-----------|---------|----------|----------|-----|-----|-----------|
| 10 | The ATA programme is not fruitful/effective | 101(28.1) | 132(36.7) | 8(2.2) | 58(16.1) | 61(16.9) | 2.6 | 0.6 | Disagreed |
| 11 | Fertilizer racketeering should not be reduced by the government | 148(41.1) | 148(41.1) | 8(2.2) | 34(9.4) | 22(6.1) | 1.9 | 0.3 | Disagreed |
| 12 | There should not be provision of improved seeds to farmers under the programme | 157(43.6) | 156(43.3) | 7(1.9) | 28(7.8) | 12(3.3) | 1.8 | 0.1 | Disagreed |
| 13 | Agricultural planner should not be mindful of `Arm-char` farmers when planning programme | 162(45.0) | 160(44.4) | 11(3.1) | 17(4.7) | 10(2.8) | 1.8 | 0.1 | Disagreed |
| 14 | ATA programme has not enhanced my interest in Agriculture | 156(43.3) | 124(34.4) | 14(3.9) | 44(12.2) | 22(6.1) | 2.1 | 0.4 | Disagreed |
| 15 | The programme has not given me opportunity to market my farm produce | 150(41.7) | 126(35.0) | 7(1.9) | 49(13.6) | 28(7.8) | 2.5 | 0.4 | Disagreed |
| 16 | The programme has not enhance value addition of products | 135(38.0) | 100(27.8) | 12(3.3) | 74(20.6) | 39(10.8) | 2.8 | 0.5 | Disagreed |
| 17 | ATA programme has not boosted availability of credit facility available to me | 120(33.3) | 79(21.9) | 15(4.2) | 80(22.2) | 66(18.3) | 2.9 | 0.5 | Disagreed |
| 18 | It has not improved timeliness of fertilizer and agrochemical application | 110(30.6) | 79(21.9) | 14(3.9) | 88(24.4) | 69(19.2) | 2.7 | 0.4 | Disagreed |

Source: Field survey, 2019

4.4 Factors motivating farmer's interest in participating in ATA programme.

Table 4.4 presents the factors that motivate respondent's interest in participating in ATA programme. The result revealed that all the listed factors motivated the farmers in participating in ATA programme. Findings from Table 4.4 showed that search for quality inputs was one of the factors that motivated farmers to participate in GES under ATA programme ($\bar{x}=5.0$). This is because, quality input brings bountiful harvest and once this factor is overcome there will be more increase in the quantity of crops harvested on the farm. This is in tandem with Adebó, 2014 who found out that

majority of the respondents participated in GES because of quickened accessibility to improved seed, enabled access to fertilizer and subsidized farm input.

The need for increase in farmers farm production motivated them in participating in GES ($\bar{x}=5.0$) this is because when there is increase on the farm (quantity) there will be more money that will be available for diversification into other sector of agriculture. Findings from Table 4.4 revealed that advice received from the extension agents during visitation motivated the farmers to participate in the programme ($\bar{x}=4.7$). This is because the extension agents have first class information from both the government and the research institutes so participating in the programme will

expose them to more agricultural information. Higher price of inputs in the market made farmer to show interest in ATA programme ($\bar{x}=4.7$) this is because inputs under GES programme are subsidized and are of better quality. Involvement of other farmers in the study area also motivated farmers in participating in GES programme ($\bar{x}=4.7$) this is because they do not want to be left behind by others and this support result in Table 4.2 where farmers source information from their fellow farmers. The need for more money to purchase inputs recorded high mean ($\bar{x}=4.8$)

because when some of the inputs are subsidized by the government then there will be money to buy other inputs that were not given. Findings from Table 4.4 indicated that low interest rate ($\bar{x}=4.8$), short period of loan disbursement ($\bar{x}=4.8$), perishable nature of farm products and price reduction on processing ($\bar{x}=4.7$) motivated farmers interests in participating in ATA programme but it is so unfortunate that the components that they featured under did not operate in the study area.

Table 4.4: Factors motivating farmer's interest in participating in ATA programme

| Statements | Very high | High | Moderate | Low | Very low | Mean | Std.Dev | Remark |
|---|-----------|-----------|----------|----------|----------|------|---------|-----------|
| Search for quality inputs | 102(28.3) | 206(57.2) | 52(14.4) | | | 5.0 | 0.7 | Very High |
| Need for increase in my farm production | 74(20.6) | 229(63.6) | 56(15.6) | | 1(0.3) | 5.0 | 0.8 | Very High |
| Advice from the extension agents | 75(20.8) | 178(49.4) | 84(23.3) | 14(3.9) | 9(2.5) | 4.7 | 1.1 | Very High |
| Higher price of inputs in the market | 81(22.5) | 158(43.9) | 95(26.4) | 21(5.8) | 5(1.4) | 4.7 | 1.1 | Very High |
| Source of affordable and sure inputs | 106(29.4) | 163(45.3) | 66(18.3) | 23(6.4) | 2(0.6) | 4.8 | 1.0 | Very High |
| Involvement of other farmers | | 151(41.9) | 56(15.6) | 41(11.4) | 7(1.9) | 4.7 | 1.3 | Very High |
| Need more money to purchase inputs | 122(33.9) | 135(37.5) | 71(19.7) | 28(7.8) | 4(1.1) | 4.8 | 1.2 | Very High |
| Low interest rate | 88(24.4) | 179(49.7) | 70(19.4) | 17(4.7) | 6(1.7) | 4.8 | 1.0 | Very High |
| Short period of loan disbursement | | | 84(23.) | 14(3.9) | 9(2.5) | 4.8 | 1.0 | Very High |
| Perishable nature of my farm products | 87(24.1) | 153(42.5) | 87(24.2) | 24(6.7) | 9(2.5) | 4.7 | 1.2 | Very High |
| Price Reduction on processing | 103(28.6) | 120(33.3) | 93(25.8) | 38(10.6) | 6(1.7) | 4.6 | 1.3 | Very High |

Source: Field survey, 2019

4.5. H₀₁: Relationship between farmers' socio-economic characteristics and their output after participating in the ATA programme.

To determine the relationship between farmers' socio-economic characteristics and their output after participating in the ATA programme, regression analysis was used. As shown in Table 4.5, the correlation coefficient (R) was calculated as 0.71, i.e. the correlation between the dependent

(farm output) and the independent variables (sex, house hold size, education, farm size and age of respondents). The value of 0.71 implies a high and positive correlation between the dependent and the independent variables. The coefficient of determination (R-square) is estimated to be 0.525, which implies that about 53% of changes in farmers' outputs are accounted for by the included independent variables. The remaining 47% is attributed to extraneous (others) factors

that are not included in the model. Though, sex, educational status and age of the respondents exert positive effect on the output of the farmers but do not have significant effect on the output.

The estimates of regression coefficients revealed that sex (15.141), education (12.015), age (0.895), household size (16.315), farming experience (3.447) and farm size (4.592) have a positive relationship with their total output but only the estimated coefficients of household size, farming experience and farm size were significant at 5% level. In the same vein, a unit increase in farm size results in 4.592 units increase in the farmers' outputs. The implication of this is that when farmers cultivate more land there will be increase in output and this is also a function of inputs available to maintain the farm and the number of labourers available to do the job. An increase in the farmers' family will lead to increase in the labour available to

cultivate the land and this shows the relationship between increase in farm size and household size.

This also implies that there will be meaningful contribution to food security in the country when in farm size and household size increase at the same pace. The result also revealed that years of farming experience was significant; this implies that experience is an essential tool in farming and it is acquired and improved by practice, time and age spent. This is because as number of year's increases in farming; experience also increases. Table 4.5 shows that one of the objectives of ATA which is to increase the domestic food requirement of the nation is achievable. Therefore, the hypothesis that there is no significant relationship between farmers' socio-economic characteristics and their output after participating in ATA programme is hereby rejected.

Table 4.5: Relationship between farmers' socio-economic characteristics and their output after participating in the ATA programme.

Coefficients

| Model | Unstandardized coefficients | | Standardized coefficients | T | |
|---------------------------|-----------------------------|------------|---------------------------|--------|-----------------------|
| | B | Std. Error | Beta | | |
| Constant | 63.24 | 42.490 | | 1.183 | R square value = .525 |
| Actual age of Respondents | .895 | .823 | 0.80 | 1.087 | R value = .712 |
| Sex of respondents | 15.14 | 16.167 | .61 | .936 | |
| Household size | 16.31 | 3.972 | .308 | 4.108* | |
| Educational status | 12.01 | 15.782 | .047 | .761 | |
| Total farm size | 4.592 | 2.338 | .126 | 2.964* | |
| Years of experience | 3.447 | 1.063 | .024 | 3.002* | |

*P ≤ 0.05

Source: Field survey, 2019

IV. SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary of Findings

This study examined the effects of agricultural transformation agenda programmes on farmers' output in Ondo and Kwara States, Nigeria. The study specifically described the socio-economic characteristics of the beneficiaries of Agricultural Transformation Agenda

Programme in Ondo and Kwara States. A total of three hundred and sixty questionnaires were administered using a multi-stage sampling procedure. The study revealed among others that majority of the respondents were male (60.3%). The mean age of the respondents was 44 years. The implication of this is that majority of the respondents are still very young and in their youthful, active and productive age needed for farm operations. Furthermore, majority of the respondents (80.0%) were married. On educational

attainment, 68.1% of the respondents had one form of education or the other. The implication of the high literacy level among the respondents is that they will easily participate in any programme that will bring about high productivity, efficiency and profitability in their business enterprises.

The conclusion that could be drawn from this study is that ATA programme has a significant positive effect on the output of the beneficiaries. The studies found that majority of beneficiaries were literate and that could have accounted for the successful participation in the study. The study revealed that there was an increase in the output produced by the respondents after participating in ATA programme.

Based on the findings of this study, the following recommendations were made:

- i. Government should be consistent in the implementation of policies like agricultural transformation agenda programmes which has brought improvement to agricultural production in Nigeria this is because ATA programme has been modified to Agricultural Production Policy.

Contribution to knowledge

The study provided empirical evidence of the variables that increased the output level of the farmers in the study area. It also established that the input subsidizing programmes had a positive effect on farmers' farm size and their output levels. This will encourage the governments and various stakeholders to focus more on inputs subsidizing programmes to expand farm size of the farmers and ultimately better their standard of living.

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