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# ADOPTION OF AGRICULTURAL ENTREPRENEURSHIP SKILLS AMONG ARABLE CROP FARMERS IN KWARA STATE, NIGERIA

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## *ABSTRACT*

***This study analysed the adoption of Agricultural entrepreneurial skills among arable crop Farmers in Kwara State. Specifically, it described the socio-economic characteristics of the farmers; examined the level of adoption of the skills disseminated; assessed the perceived effect of the adopted Agricultural entrepreneurial skills, and identified constraints to the adoption of the skills. A four-stage sampling procedure produced 165 arable crop Farmers on whom an interview schedule was administered. Data collected were analysed using descriptive statistics and the Pearson's Product Moment Correlation. The results show that the respondents' mean age, household size, farm size and years of farming experience were 45 years, seven persons, 2.72ha, and 20 years respectively. The level of adoption was low (45%), and significantly influenced by age (r=-0.323), household size (r= 0.306), level of education (r=0.255), frequency of extension visits (0.599) and membership of farmer-groups (0.485) at P<0.05. Inadequate access to inputs, markets, and start-up capital were the most severe challenges faced by the farmers. The study concluded that the level of adoption of the skills was low and influenced by some socio-economic characteristics of the farmers. It is recommended that stakeholders in the rural development processes should explore a multidimensional approach to resolve the identified challenges. The frequency of extension visit should be increased, and farmer-groups strengthened to play more visible roles in extension.***

**Keywords**: Agricultural entrepreneurship, Skills, Adoption, Arable crops, Agricultural Development Project.

## INTRODUCTION

Agriculture in developing countries is taking a new shape and expanding its scope beyond the borders of just crop cultivation and animal husbandry for the livelihood of the rural population. Activities such as diversification, value addition, precision farming, high-tech Agriculture, global marketing, and organic farming are getting due attention in redefining Agriculture (Ahmed *et al.*, 2011). Due to the ever-changing socio, political, economic, environmental and cultural dimensions, Farmers' and nations' options for survival and sustainably ensuring success in changing their respective economic environments has become increasingly critical. The emergence of the free market economies world over has resulted in the development of a new spirit of enterprise referred to as Agricultural entrepreneurial skill. The change is further strengthened by the increased individual need for responsibility for running their businesses.

Agricultural entrepreneurship is the profitable marriage of Agriculture and entrepreneurship. It is connected with finding ways and means to create and develop profitable farm businesses. The terms, entrepreneurship and Agricultural entrepreneurial skills are frequently used in the context of education and small business formation in agriculture. Agricultural entrepreneurial skill is a pertinent

vehicle in economic development because of its ability to create employment opportunities and generate income (Ahmed, *et al.*, 2011; Bairwa and Kushwaha, 2012). According to Bairwa, *et al.*, (2014) Agricultural entrepreneurial skill programmes are to develop entrepreneurs and management workforce to cater for Agricultural industries across the world. An examination of the situation in Nigeria justifies the focus on Agricultural entrepreneurship especially among people living in the rural areas of the country.

According to the International Institute for Tropical Agriculture IITA, (2017), over 60% of the 182 million Nigerian population live below the poverty line. Interestingly, most of the hungry people are farm families who reside primarily in the rural areas. Nigerian Agriculture is dominated by millions of small-scale resource-poor farmers many of who sees farming as a way of life (culture) rather than as a business or occupation. Giving the face of growing unemployment and poverty in the rural areas and the slow growth of Agriculture, the introduction of farmers in Nigeria to Agricultural entrepreneurship will no doubt improve both productivity and profitability of farming. The dissemination of entrepreneurship skills creates awareness of value addition to farm product as a means of increasing income, improving markets through product differentiation and also reducing post-harvest losses. Perhaps it is in the realisation of these facts that the agency charged with the responsibility for Agricultural extension services in Nigeria, i.e. the Agricultural Development Projects (ADPs) across the country have in the last decade, focused on disseminating agricultural entrepreneurial skills to farmers in the rural areas.

The Kwara State ADP has disseminated over twenty (20) Agricultural entrepreneurship skills to farmers in various locations across the state over the years. The skills range from basic Agribusiness skills, to value addition to the most prominent crops in the state. The crops are cassava, yam, rice, and sweet potato. Although the adoption of agricultural skills, technologies and innovations is germane to end rural poverty and food security, (Doss and Morris, 2001; Mendola, 2007; and Becerril and Abdulai, 2009), it has been affirmed that not all potential users of disseminated Agricultural technologies or ideas adopt them. According to Ajayi, *et al.*, (2003), improving the livelihoods of rural farm populace in developing countries, through agricultural productivity would remain a mere wish if the rate of adoption of new agricultural technology, innovations and practices are low. The study, therefore, carried out an analysis of the adoption of Agricultural entrepreneurial skills among arable crop farmers in Kwara State, Nigeria. The specific objectives of the study were to:

1. describe the socio-economic characteristics of the rural farmers in the study area;
2. examine the level of adoption of agricultural entrepreneurial skill by farmers;
3. assess the perceived effect of the adopted agricultural entrepreneurial skills on the farmers; and
4. identify the constraints to the adoption of agricultural entrepreneurial skills among arable crop farmers in the study area.

**Hypothesis of the Study**

The hypothesis of the study was stated in the null form as follows;

$H0_1$: There is no significant relationship between some selected socio-economic characteristics of arable crop farmers and their adoption of Agricultural entrepreneurial skills.

## MATERIALS AND METHODS

### Study Area

The study was carried out in Kwara State, Nigeria. The state is located in the North Central zone of Nigeria, between latitudes $7^{o}45'$N and $9^{o}30'$N and longitudes $2^{o}30'$E and $6^{o}25'$E. With an average daily temperature between $21^{o}$C and $33^{o}$C, the state has two distinct seasons (the wet and dry seasons), and annual rainfall between 1,000 and1, 500mm. Kwara state has a total land area of 32,500 $Km^2$, and a population of about 2.59 million people (National Population Commission, 2006). The state has an estimated figure of 203,833 farm families (Kwara State Agricultural Development Project KWADP, 1996). It is primarily agrarian, and major crops grown in the state include yam, cassava, rice, maize, cowpeas, groundnut, melon, okra, and some leafy vegetables. Agricultural extension service delivery in Kwara State is largely public and administered by KWADP under the supervision of the State Ministry of Agriculture. The dissemination of Agricultural entrepreneurship skills among the farmers in the state has been a major focus of the KWADP.

**Sampling Procedure and Sample Size**

A four-stage sampling procedure was used to select the sample for the study. The first stage was the purposive selection of three of the four Agroecological zones in the state. ADP Zones B. C and D were selected based on the fact that not much Agricultural entrepreneurship training had been carried out in Zone A as at the time of the study. The second stage was the random selection of 50% of the ADP Blocks in the selected Zones. Thirdly, 30% of the circles in each of the selected blocks were randomly selected while the final stage involved the random selection of 10% of the beneficiaries of the Agricultural entrepreneurship training in each of the circles. The sampling procedure produced a sample size of 172 respondents. One hundred and sixty-five of the interviewed schedules were found analyzable hence a response rate of 95.9%.

**Data Collection and Analysis**

Data were collected with the use of a structured interview schedule. Descriptive statistics were used to present the socio-economic characteristics of the respondents. The Awareness-Interest-Evaluation-Trial-Adoption (AIETA) Model by Roger Everett (1962) was used to assess the adoption level of the respondents. A five-point Likert scale was used to assess the perception of the respondents on the benefits of the adoption of Agricultural entrepreneurship skills. A list of statements which when pulled together, adequately measures the perception of the respondents were drawn, and the respondents were asked to state the extent to which they agreed or disagreed with the statements. The scale was graded as follows; Strongly disagree (1), Disagree (2), Indifferent (3), Agree (4), Strongly agree (5). A score which depicts the level of positive perception was then generated by aggregating each respondent's score on all the statements, and a mean score was derived by dividing each respondent's aggregate score by the number of statement. The level of severity of the constraints to adoption was also examined using a five-point Likert-type scale. Aggregate and mean scores were also generated for the level of severity of these constraints. These scores were used to rank the constraints in order of severity. The hypothesis for the study was tested with the use of the Pearson's Product Moment Correlation (PPMC).

## RESULTS

**Socio-economic Characteristics of the Respondents**

Table 1 reveals that 70 percent of the respondents were within the ages of 31 and 50 years with a mean of 45.04. Only 3 percent of the respondents were aged 30 years or below. Majority were male (74.5%) and married (97.6%). The modal class of household size was five (5) to nine (9) with an average of 7.42. Also, 68.5 percent of the respondents were members of farmers groups while majority (78.2%) had farming as their primary occupations. Only 35.8 percent of the respondents had formal education, another 33.9 percent had adult education while 30.3 percent had no formal education. Table 3, reveals that twelve(12) out of the twenty-three (23) agricultural entrepreneurial skills disseminated were adopted by the farmers. This figure represents about 52 percent of the skills.

**Table 1: Socio-economic Characteristics of Respondents**

| Variables | Frequency | Percentages | Mean |
|---|---|---|---|
| **Age (in years)** | | | |
| ≤ 30 | 5 | 3 | |
| 31-50 | 116 | 70 | **45.04** |
| 51-70 | 42 | 25 | |
| 71 above | 2 | 2 | |
| **Gender** | | | |
| Male | 123 | 74.5 | |
| Female | 42 | 25.5 | |

| | | | |
|---|---|---|---|
| **Marital status** | | | |
| Single | 4 | 2.4 | |
| Married | 161 | 97.6 | |
| **Household size** | | | |
| ≤ 4 | 22 | 13.3 | |
| 5-9 | 103 | 62.5 | **7.42** |
| ≥10 | 40 | 24.2 | |
| **Religion** | | | |
| Islam | 133 | 80.6 | |
| Christianity | 30 | 18.2 | |
| Others | 2 | 1.2 | |
| **Membership of farmer-groups** | | | |
| Yes | 113 | 68.5 | |
| No | 52 | 31.5 | |
| **Educational status** | | | |
| No formal education | 50 | 30.3 | |
| Adult education | 56 | 33.9 | |
| Primary | 42 | 25.5 | |
| Secondary | 2 | 1.2 | |
| Tertiary | 15 | 9.1 | |
| **Primary occupation** | | | |
| Farming | 129 | 78.2 | |
| Non-farming | 36 | 21.8 | |
| **Farm size (hectares)** | | | |
| <4 | 132 | 80 | |
| 4-6 | 31 | 18.8 | **2.72** |
| >6 | 2 | 1.2 | |
| **Farming experience (years)** | | | |
| 1-10 | 37 | 22.3 | |
| 11-20 | 67 | 40.5 | **20.04** |
| 21-30 | 39 | 23.6 | |
| 31-40 | 21 | 12.7 | |
| >40 | 1 | 0.6 | |

**Source: Field Survey, 2016.**

**Table 2: Distribution of Respondents by Level of Adoption of Agricultural Entrepreneurship Skills**

| Skills | A | I | E | T | A | Score | MS | R |
|---|---|---|---|---|---|---|---|---|
| Farm produce marketing skills | 5(3.0) | 127(77.0) | 26(15.8) | 5(3.0) | 2(1.2) | 367 | 2.22 | N |
| High quality cassava flour making | 5(3.0) | 113(68.5) | 35(21.2) | 11(6.7) | 1(0.6) | 385 | 2.33 | N |
| Farm book recording skills | 5(3.0) | 108(65.5) | 33(20.0) | 17(10.3) | 2(1.2) | 398 | 2.41 | N |
| Making Cassava starch | 5(3.0) | 105(63.6) | 25(15.2) | 27(16.4) | 3(1.8) | 413 | 2.50 | N |
| Time management skills | 5(3.0) | 68(41.2) | 37(22.4) | 43(26.1) | 12(7.3) | 484 | 2.93 | N |
| Making Odorless fufu powder (edible starch) | 5(3.0) | 97(58.8) | 48(29.1) | 15(9.1) | 0(0.0) | 403 | 2.44 | N |
| Making Potato chip | 5(3.0) | 92(55.8) | 57(34.5) | 10(6.1) | 1(0.6) | 401 | 2.43 | N |
| Making Sweet potato garri (potato granules) | 4(2.4) | 102(61.8) | 46(27.9) | 8(4.8) | 5(3.0) | 403 | 2.44 | N |
| Potato flour making skill | 1(0.6) | 34(20.6) | 28(17.0) | 27(16.4) | 75(45.5) | 636 | 3.85 | A |
| Making Sweet potato juice | 0(0.0) | 66(40.0) | 28(17.0) | 54(32.7) | 17(10.3) | 517 | 3.13 | A |
| Making Sweet potato cookies | 0(0.0) | 32(19.4) | 26(15.8) | 78(47.3) | 29(17.6) | 599 | 3.63 | A |
| Making Sweet potato buddings | 0(0.0) | 39(23.6) | 12(7.3) | 25(15.2) | 89(53.9) | 659 | 3.99 | A |
| Sweet potato Doughnut skills | 0(0.0) | 28(17.0) | 29(17.6) | 21(12.7) | 87(52.7) | 662 | 4.01 | A |
| Making Sweet potato mince pie | 0(0.0) | 47(28.5) | 24(14.5) | 15(9.1) | 79(47.9) | 621 | 3.76 | A |
| Tapioca (cassava whole meal)making | 5(3.0) | 80(48.5) | 21(12.7) | 19(11.5) | 40(24.2) | 504 | 3.05 | A |
| Improved garri processing skills | 5(3.0) | 78(47.3) | 40(24.2) | 18(10.9) | 24(14.5) | 473 | 2.87 | N |
| Rice milk making | 5(3.0) | 92(55.8) | 20(12.1) | 16(9.7) | 32(19.4) | 473 | 2.87 | N |
| Rice bagging skills | 5(3.0) | 90(54.5) | 23(13.9) | 29(17.6) | 18(10.9) | 460 | 2.79 | N |
| Rice kunu making (juice) | 5(3.0) | 66(40.0) | 18(10.9) | 43(26.1) | 33(20.0) | 528 | 3.20 | A |
| Tuwo rice or Yanbushi making (rice pudding) | 1(0.6) | 23(13.9) | 34(20.6) | 64(38.8) | 43(26.1) | 620 | 3.76 | A |
| Making Yam chunks | 1(0.6) | 25(15.2) | 35(21.2) | 56(33.9) | 49(29.7) | 625 | 3.79 | A |
| Yam flour making | 0(0.0) | 25(15.2) | 37(22.4) | 53(32.1) | 50(30.3) | 623 | 3.78 | A |
| Farm business management skills | 0(0.0) | 16(9.7) | 33(30.0) | 69(41.8) | 47(28.5) | 642 | 3.89 | A |

*A= Adopted, N=Not adopted. Benchmark: Mean Score <3 = Not Adopted, Mean Score ≥ 3.0 = Adopted*

**Table 3: Perceived Effects of Adoption of Agricultural Entrepreneurial Skills on Farmers.**

| Effects | SD | D | I | A | S.A | MS | Remark |
|---|---|---|---|---|---|---|---|
| Expansion of farmland | 6(3.6) | 7(4.2) | 2(1.2) | 111(67.3) | 39(22.6) | 4.03 | A |
| Improved farming techniques | 0(0.0) | 1(0.6) | 4(2.4) | 113(68.5) | 47(28.5) | 4.24 | A |
| Enhanced processing efficiency | 2(1.2) | 2(1.2) | 2(1.2) | 94(57.0) | 65(39.4) | 4.32 | A |
| Increased productivity on my farm | 1(0.6) | 0(0.0) | 3(1.8) | 105(63.6) | 56(33.9) | 4.30 | A |
| Increased annual income | 1(0.6) | 2(1.2) | 3(1.8) | 125(75.8) | 34(20.6) | 4.15 | A |
| Improved standard of living | 0(0.0) | 1(0.6) | 3(1.8) | 139(84.2) | 22(13.3) | 4.10 | A |
| Improved level of awareness | 1(0.6) | 4(2.4) | 4(2.4) | 138(83.6) | 18(10.9) | 4.02 | A |
| Increased number of hired labour | 0(0.0) | 2(1.2) | 5(3.0) | 144(87.3) | 14(8.5) | 3.30 | A |
| Reduced postharvest loss | 2(1.2) | 3(1.8) | 4(2.4) | 132(80.0) | 24(14.5) | 4.05 | A |
| Enhanced sales | 0(0.0) | 0(0.0) | 6(3.6) | 147(89.1) | 12(7.3) | 4.04 | A |
| Better ability to take advantage of opportunities | 0(0.0) | 1(0.6) | 6(3.6) | 137(83.0) | 21(12.7) | 4.08 | A |
| Reduced middlemen exploitation | 0(0.0) | 1(0.6) | 4(2.4) | 140(84.8) | 20(12.1) | 4.08 | A |
| More appropriate use of farming time | 0(0.0) | 0(0.0) | 4(2.4) | 145(87.9) | 16(9.7) | 4.07 | A |
| Better risk management | 0(0.0) | 2(1.2) | 4(2.4) | 145(87.9) | 14(8.5) | 4.04 | A |

*A (Agreed), Benchmark: Mean Score ≥3.0= Agreed, Mean Score < 3.0= Disagreed*

Table 4 reveals that farmers perceived that the agricultural entrepreneurial skills adopted had led to the expansion of farmland (MS=4.03), improvement in farming techniques (MS=4.24), enhanced processing efficiency (MS=4.32), increased productivity (MS=4.30) and income (MS=4.15). According to Table 4, the most severe of the constraints faced by the respondents was the insufficient supply of inputs needed to implement the new skills (MS=2.97). The poor supply of inputs made the farmers lose interest in adopting some of the skills. Poor market for the products from the acquired skills was also a severe constraint to adoption. The farmers also expressed inadequacy of capital for the implementation of some of the ideas disseminated to them. Other challenges to the adoption of agricultural entrepreneurial skills were related to accessibility to extension service and its effectiveness. This result implies that adoption of skills, innovations and technologies by farmers is also influenced by some actions and in-actions of extension personnel.

**Table 4: Constraints Faced by Farmers in Adopting Agricultural Entrepreneurial Skills**

| Constraints | S A | A | U | D | S D | MS | Rank |
|---|---|---|---|---|---|---|---|
| Inadequacy of information from Extension Agents | 1(0.6) | 6(3.6) | 1(0.6) | 135(81.8) | 22(13.3) | 1.96 | 9th |
| Poor market for products | 2(1.2) | 5(3.0) | 18(10.9) | 118(71.5) | 22(13.3) | 2.36 | 2nd |
| Low level of access to required inputs | 15(9.1) | 53(32.1) | 18(10.9) | 70(42.4) | 9(5.5) | 2.97 | 1st |
| High cost of accessing extension services | 11(6.7) | 6(3.6) | 18(10.9) | 120(72.7) | 10(6.1) | 2.02 | 8th |
| Long distances to extension service centres | 0(0.0) | 33(20.0) | 6(3.6) | 113(68.5) | 13(7.9) | 2.09 | 5th |
| Poor attitude of Extension Agents toward farmers | 1(0.6) | 4(2.4) | 13(7.9) | 134(81.2) | 13(7.9) | 2.07 | 6th |
| Insufficient extension visits | 2(1.2) | 20(12.1) | 5(3.0) | 127(77.0) | 11(6.7) | 2.24 | 4th |
| Inappropriateness of extension teaching methods | 2(1.2) | 4(2.4) | 8(4.8) | 135(81.8) | 16(9.7) | 2.04 | 7th |
| Inadequacy of capital | 1(0.6) | 5(3.0) | 8(4.8) | 136(82.4) | 15(9.1) | 2.32 | 3rd |

Source: Field survey, 2016.

The result of the Pearson's Product Moment Correlation in Table 5 shows the existence of significant relationship between age (r=-0.323, p<0.01), household size (r=0.306, p<0.01), years of education (r=0.255, p<0.01), farm size (r=0.173, p>0.01), frequency of extension visit (r=0.599, p<0.01), farm experience (r=0.358, p<0.01), annual income (r=0.176, p>0.01) and adoption of agricultural entrepreneurial skills by arable crop farmers.

**Table 5: Correlation Analysis Showing the Relationship between Socio-economic Characteristics and Adoption of Agricultural Entrepreneurial Skills**

| Socio economic characteristics | r – value | p-value | Decision |
|---|---|---|---|
| Age | -0.323*** | 0.000 | Significant |
| Household size | 0.306*** | 0.000 | Significant |
| Education | 0.255*** | 0.001 | Significant |
| Size of farm holding | 0.173** | 0.026 | Significant |
| Frequency of Extension Agents visits | 0.599*** | 0.000 | Significant |
| Farming experience | 0.358*** | 0.000 | Significant |
| Annual income | 0.176** | 0.024 | Significant |

Source: Field survey, 2016. ***P< 0.01, **P< 0.05 (2-tailed).

## DISCUSSION

From Table 1, there is an indication that the farmers in the study area were relatively young. Youthfulness has been associated with physical strength and high propensity for risk which enhances adoption (Adenuga *et al.*, 2012; Atibioke *et al.*, 2012). The table also reveal the dominance of arable crop farming in the study area by men as there were more male respondents (74.5%). Almost all of the respondents were married, being married in rural communities in Nigeria confers additional responsibilities for the welfare of family members on couples (especially males). It also contributes to individuals' social capital as it increases acceptability among the community. The mean household size of 7.42 is close to the average of about eight reported for most rural communities in the study area. Giving the heavy reliance on family labour under the small-scale farming systems, the household size has implications for labour availability to carry out any adopted innovation. Most (68.5%) of the farmers were members of farmer-groups. Membership of farmer groups is opined to enhance awareness about innovations and to foster access to farm inputs. About 64% of the respondents had no conventional educational experience. Farmers' awareness and adoption levels are positively related to their educational level (Agwu and Anyanwu 1996; Adenuga *et al.*, 2012). The primary occupation of most (78.2%) of the respondents was farming and the mean year of farming experience was 20.04 years. Omotesho et al., (2015) reported similar statistics among farmers in the state. Finally, the average farm size of 2.7 hectares confirms the small-scale nature of the farmers.

The level of adoption of the disseminated skills was generally poor with 52 percent of the skills being adopted. It is also observable from Table 2 that for many of the skills, the farmers did not go beyond the interest level. This means that the farmers did not carry out any evaluation of the skills before coming to the decision not to adopt them. This findings raises concern about the methods used in the introduction of the skills. It is possible that methods used was a factor in the lack of interest in further evaluation and trial of the skills.

Farmers' strong belief in the benefits accrued from the skills agrees with the reports of Donkoh *et al.*, (2014). The implication of this is that the farmers have a high positive perception of benefits derived from adopting agricultural entrepreneurial skills. The high perception and the low level of adoption is an indication of possible constraints to adoption which is further confirmed in Table 4.

The positive nature of the relationship between the years of education of farmers and the adoption of agricultural entrepreneurial skills indicates that farmers with a higher level of education were more likely to adopt agricultural entrepreneurial skills. This finding is consistent with the report of Agwu, Ekwueme, and Anyanwu, (2008). The inverse relationship between age and adoption of agricultural entrepreneurial skills implies that the older the farmers, the lower their levels of adoption. On the other hand, the positive relationship between household size and adoption of agricultural entrepreneurial skills implies that families with more members adopted new skills than those that had smaller household sizes. In addition, the positive relationship between the frequency of extension visit and adoption of new technologies implies that the more contacts the farmers have with extension agents, the more they adopt agricultural entrepreneurial skills. Adoption also increased with years of farming experience. The non-existence of a relationship between sex and adoption, however, contradicts the findings of Jibowo (1992).

### Conclusion and Recommendations

The study concluded that the level of adoption of the Agricultural entrepreneurial skills disseminated to farmers in Kwara State, Nigeria was low and significantly influenced by some socio-economic characteristics of the farmers. Recommendations from the study are;

1. Continuous training of the extension agents particularly in the areas of extension teaching methods; farmer needs assessment and preparation of extension content.
2. The farmers' level of education should be enhanced through adult literacy schemes
3. The relevant Government bodies should ensure that farmers have access to an

adequate and timely supply of relevant inputs.

4. A multidimensional approach involving commercial and microfinance banks, farmer-groups and associations, NGOs etc. should be used to enhance farmers' access to agricultural credit.
5. Finally, availability of ready markets should be a major consideration for the choice of agricultural entrepreneurial skills.

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