



**PERCEIVED EFFECT OF AGRICULTURAL DEVELOPMENT  
PROGRAMME CAPACITY BUILDING ON THE PERFORMANCE OF  
ARABLE CROP BASED CONTACT FARMERS IN UMUAHIA  
AGRICULTURAL ZONE OF ABIA STATE, NIGERIA**

**Obinna, Leo. O.<sup>1</sup>**

Dr., Lecturer, Department of Rural Sociology and Extension,  
Michael Okpara University of Agriculture, Umudike, Abia State, Nigeria

**Abstract:**

The study which was conducted in Umuahia Agricultural Zone of Abia State, Nigeria made use of the EAs in the Zone in identifying the contact – farmers. A simple random method was used to select 20 % of the contact farmers which gave a sample size of 144 respondents that was used. Structured questionnaire was used in the generation of the primary data. Descriptive statistics were used in the analysis of the data. Results showed 69.4 % of the respondents were males, and 30.6 % females. About 83.3 % were married with a mean age of 43 years and 93.1 % had formal education with a mean household of 6 persons, and 13.5 years, of mean years of farming experience with a mean farm- size of 0.9 hectares and mean monthly income of ₦33,569.44 respectively. A high level ( $X = 2.68$ ) of participation in ADP – capacity building programmes was recorded. The respondents, were within the categories of early adopters ( $X = 3.68$ ) in the adoption of ADP recommended innovations. About ( $X = 69.4$  %) of the respondents indicated that, the ADP trainings did not address their felt needs, ( $X = 62.5$  %) sessions were held at the wrong time, ( $X = 58.3\%$ ) training centres not centralized and ( $X = 51.4\%$ ) felt that training sessions were too long & boring. The study recommends that the ADP should strengthen the feedback mechanism as to ensure that their trainings address the felt needs of farmers. Also, a performance evaluation of the contact farmers by the ADP should be a regular exercise as to ensure that it is only the performing ones that are retained as contact farmers, mostly in the study area.

JEL: N5, O13, Q13, Q18

<sup>1</sup> Correspondence: email [obinna.leo@mouau.edu.ng](mailto:obinna.leo@mouau.edu.ng), [obinna.leo@2gmail.com](mailto:obinna.leo@2gmail.com)

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## 1. Introduction

Small-scale farmers in Nigeria produce about 80 % of food crops mainly for consumption and also engage in the production of other crops for export sales. (Ekong, 2010) Therefore, these small – scale farmers need regular intensive extension education training programmes and capacity building on relevant innovations and production techniques for sustainable agricultural activities (Ernie, 2006). This has become very imperative as agricultural production in Nigeria and the world at large has become very complex, due to the resultant effects of climate change. Therefore, training plays an important role in the advancement of human performance in a given situation (Ukoha, 2014). She also asserted that training provides a systematic improvement of knowledge and skills which in turn helps the trainees to function effectively. United Nations Development Programme (UNDP) (1998) also, stated that capacity building is a process or activity that improves the ability of a person or entity to carry out stated objectives. And / or a process that improves the ability of a person, group, organization or system to meet its objectives or to perform better (UNDP, 1998). On the same note, UNDP (2008) defined capacity development as a process by which organizations enhance their technical capabilities, resources, infrastructure and managerial systems in the appropriate, community, legal, political and socio economic, contexts, in-order to deliver effective training for improved performance and service access and quality. Finally, Ernie (2006) defined capacity building in agricultural extension as the process whereby relevant stakeholders and organizations unleash, strengthen, create, adapt and maintain capacity over time, usually with the objective of assuring sustainable agricultural growth and improve the lives of the stakeholders.

On the other hand, the Agricultural Development Programme (ADP) is the implementation organ of the State Ministry of Agriculture and Natural Resources (Abia-ADP, 2006). The ADP adopts the Integrated Rural Development Strategy (IRDS) in its operations and has the responsibility of planning, organizing, directing, and controlling extension activities in Nigeria (Unamma, 2004). The main focus of ADP is on the small- scale farmers who constitute over 80 % of the population of rural dwellers in Nigeria (Ekong, 2010). The ADP also, adopts the Training and Visit (T&V) extension approach in the dissemination of low – cost labour saving and technical information to rural farmers in- order to upgrade their knowledge and skills for increased productivity (Unamma, 2004). The ADP through the T&V extension system holds the Monthly

Technology Review Meeting (MTRM), where Researchers from research institutes train the Subject Matter Specialists (SMS), who in turn train the Village Extension Agents (VEA) during the Forth Nightly Training (FNT) sessions. The VEAs in turn train the rural small – scale farmers through the contact farmers on improved agricultural practices (Unamma et al., 2004). On that note, Asiabaka (2002) defined Contact Farmers as those farmers that have direct contact with the ADP. They comprise of innovators, farmers that are willing to take risks, those who are fully integrated and are well respected and relied on by friends and neighbours in their farming communities, youngest in age, those who have the highest social class, great financial liquidity, those who have the closest contact with scientific sources and interactions with other innovators. They are also willing to provide land, labour and time, they serve as role models to members of their social system. On the other hand, the World Bank (1996) equally, specified that contact farmers should be: representative of the local range of farm size, cropping pattern and socio- economic condition; regarded by other farmers as worthy of imitation; active and practicing farmers; those willing to adopt extension recommendations on at least part of their land and allow other farmers to observe the new practices and be willing to explain these to them; - and also to an extent possible, they must come from different families and from different geographically dispersed farms. Furthermore, Ukoha (2014) reported that contact farmers disseminate information to the members of their respective farming communities and convey their opinions back to the research institutes through the VEAs, thus creating a feedback mechanism. Therefore, contact farmers provide the linkage for farmers with extension and research. Ukoha (2014) equally, reported that the ADP- capacity building on cassava crop based farmers comprised: use of improved varieties of cassava, optimum plant population, timely planting, row- planting and correct spacing, fertilizer application, labour saving technology (Integrated Pest Management (IPM), crop geometry, timely weeding, routine watering, rodenticides application, insecticides application, herbicides application, and fungicides application respectively ( Abia ADP, 2006). It was in consideration of the above that the study sought to investigate the perceived effect of ADP - Capacity Building Training Programme on the performance of Arable - Crop Based Contact Farmers in Umuahia Agricultural Zone of Abia State, Nigeria.

The specific objectives that guided the study were to:

1. examine the socio economic characteristics of the arable crop based contact farmers in the study area;

2. determine the level of participation of the respondents in the ADP- capacity building training programmes on arable crops;
3. determine the adoption rate of the ADP technology packages on arable crops by the respondents in the study area;
4. ascertain the perception of the respondents on ADP - capacity building training programme on their performance in the study area; and
5. identify limiting factors of the ADP- capacity building programme training activities to arable crop – based contact farmers in the study area.

## **2. Methodology**

The study was conducted in Umuahia Agricultural Zone of Abia State, Nigeria. The study population comprised of all the small scale arable crop based contact farmers in the 13 Agricultural Blocks that make up the Zone (Abia ADP, 2006). According to Unamma (2004), one Extension Agent (EA) covers about 800 to 1000 farm families and that one Agricultural Block is made of 8 circles headed by one EA. Therefore, the 13 Agricultural Blocks in the Zone has a population of about 7,200 farm families (average of 900 farm families per circle). The EAs identified the contact farm families in their circles. About 10 % of the total farmers' population was found to be contact farm families (720 contact farm families). Then, for even spread, 20 % of the contact farmers' population was randomly selected. Giving 144 contact farm families as the sample size for the study. Primary data for the study were generated through the use of structured questionnaire. Data were analyzed through the use of descriptive statistics such as frequency counts, percentages, means, pooled means, and ranks respectively.

According to the UNDP (2008) capacity measurement framework can be realized using a results – based approach which involve three levels: (i) impact or effect, which implies changes in people's well- being. (ii) outcome, which implies change in institutional performance, stability and adaptability and (iii) output, which involve products or service provided based on capacity development on core issues such as institutional arrangement, leadership, knowledge and accountability. The chain of events, inputs- activities- outputs- outcomes- impact (effect) is known as the result chain and is a simple, systematic cause – effect approach to managing and measuring development study. Therefore, the study focused on contact farmers' performance which depends on operational and technical efficiency resulting from the capacity – building training programmes of the ADPs. A four- point Likert type scale of Very Often, scored 4 points, Often, scored 3 points, Not Very Often, scored 2 points and

Never, scored 1 point respectively was used in- order to establish the level of participation.  $4+3+2+1=10/4=2.5$ , a threshold of 2.5 was established and any mean  $\geq 2.5$  was adjudged significant, while any mean  $< 2.5$  was adjudged not significant. And level of participation was fixed as follows: Means between 1 - 2.49 points = Low Level of participation. On the other hand, Means between 2.5 - 4 points = High Level of participation. For the rate of adoption of ADP recommended technology packages, a 5 point Likert type rating scale of Very High Extent, scored 5 points, High Extent, scored 4 points, Moderate Extent, scored 3 points, Low Extent, scored 2 points and Very Low Extent, scored 1 point respectively. Any mean  $\geq 3$  was adjudged significant while mean  $< 3$  was adjudged insignificant. The adoption categories according to Rogers (1983) were established as follows: means between 1 - 1.7 = Laggards Category, 1.8 - 2.5 = Late Majority Category, 2.6 - 3.3 = Early Majority Category, 3.4 - 4.1 = Early Adopters Category and 4.2 - 5.0 = Innovators Category respectively. Also another Likert type of rating scale of S/A = Strongly Agreed, scored 4pts, A = Agreed, scored 3, D = Disagreed scored 2pts., and S/ D = Strongly Disagreed, scored 1pt respectively. Any mean  $\geq 2.5$  was adjudged significant, while any mean  $< 2.5$  was adjudged not significant. The extent of perceived effect was established as follows: Means between 1 - 1.6 = very low effect, 1.7 - 2.3 = low effect, 2.4 - 3.0 = moderate effect and 3.1 - 4 = high effect respectively.

### 3. Results and Discussion

#### 3.1 Socio-Economic Characteristics of the Respondents

Table 1 shows that about 69.4 % of the respondents were males and 30.6 % females respectively. Table 1 equally, shows that the mean age of the respondents as 43 years and 83.3 % of them were married and 6.9 % single respectively. About, 93.1 % of the respondents had formal education, with a mean household size of 6 persons and mean years of farming experience of 13.5 years respectively.

Table 1 further shows a mean farm size of 0.9 hectares and a mean monthly income of ₦33,569.44 respectively. The findings in Table 1 display a typical characteristic of contact farmers as reported by Asiabaka (2002) who characterized contact farmers as innovators, youngest of age, highest social class, great financial liquidity, farmers with closest contact with scientific sources and farmers that interact with other innovators among others.

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**Table 1: Socio Economic Characteristics of the Respondents**

S/No	Variables	Frequency	Percentage (%)	Mean
01	Gender			
	Male	100	69.4	
	Female	44	30.6	
02	Age in Years			
	≤ 20	10	6.9	
	21 - 30	15	10.4	
	31 - 40	25	17.4	43 yrs.
	41 - 50	40	27.8	
	51 - 60	30	20.8	
	≥ 61	24	16.7	
03	Marital Status			
	Single	10	6.9	
	Married	120	83.3	
	Divorced / Separated	8	5.6	
	Widowed	6	4.2	
04	Educational Status			
	No formal Education	10	6.9	
	Primary Education	30	20.8	
	Secondary Education	60	41.7	
	Higher Education	44	30.6	
05	Household Size ( no of persons)			
	≤ 4	34	23.6	
	5 - 6	45	31.2	
	7 - 8	40	27.8	6 persons
	≥ 9	20	17.4	
06	Farming Experience in years			
	≤ 5	15	10.4	
	6 - 10	40	27.8	
	11 - 20	55	38.2	13.5 years
	21 & Above	34	23.6	
07	Farm Size in Hectares			
	≤ 0.5	15	10.4	
	0.6 - 0.7	25	17.4	0.9 hectares
	0.8 - 0.9	30	20.8	
	1.0 - 1.1	35	24.3	
	1.2 & Above	39	27.0	
08	Monthly Income in Naira ( ₦ )			
	≤ 18,000.00	25	17.4	
	19,000.00 - 29,000.00	40	27.8	
	30,000.00 – 40,000.00	30	20.8	₦33,569.44
	41,000.00 - 51,000.00	29	20.1	
	52,000.00 & Above	20	17.4	
	<b>Total</b>	<b>144</b>	<b>100</b>	

Source: Field Survey 2016

### 3.2 Determination of the Level of Participation of the Respondents in ADP Capacity Building Training Programmes on arable crops

Table 2 shows that the respondents recorded high – level of participation in the following ADP Technology Training Packages: use of improved cassava varieties with a mean of (3), Optimum plant population and timely planting ( $X= 2.59$ ), Row – planting and correct spacing ( $X=2.56$ ), fertilizer application ( $X= 2.74$ ), labour – saving technology ( $X = 2.90$ ), crop geometry (  $X= 2.53$ ), timely weeding ( $X= 2.98$ ) and herbicide and fungicide application (  $X = 2.53$ ) respectively. On the other hand, the respondents equally recorded low level of participation in rodenticide and insecticide application ( $X = 2.38$ ). Furthermore, Table 2 equally shows that the grand mean ( $X = 2.68$ ) for all the training technology packages recorded high level of participation. Therefore, the result in Table 2 presents a typical characteristic of a contact farmer by participating highly in the ADP programmes. This collaborated Ifenkwe (2013) who highlighted one of the characteristics of contact farmers to be having contact with ADPs.

**Table 2:** Distribution of the Respondents According to Their Level of Participation in ADP Capacity Building Training (n= 144)

S/ No	ADP Training Packages	Very Often	Often	Not Very Often	Never	Mean	Level
01	Use of Improved Varieties	50	60	20	14	3.00	High
02	Optimum plant population & Timely Planting	30	50	40	24	2.59	High
03	Row-planting & Correct Spacing	40	60	34	10	2.90	High
04	Fertilizer Application	30	50	60	4	2.74	High
05	Labour Saving Technologies	45	55	34	10	2.93	High
06	Crop – Geometry	30	40	50	24	2.53	High
07	Timely Weeding	35	40	40	29	2.56	High
08	Herbicide & Fungicide Application	35	40	35	34	2.53	High
09	Rodenticide & Insecticide Application	25	40	45	34	2.38	Low
	<b>Grand Mean</b>					<b>2.68</b>	<b>High</b>

Source: Field Survey 2016

### 3.3 Identification of the Perceived Rate of ADP Technology Adoption by the Respondents in the Study Area

Table 3 shows that out of 9 ADP – Technology Packages investigated, eight were very highly rated by the respondents. They include: use of improved varieties ( $X = 3.84$ ), optimum plant population and timely planting ( $X= 3.85$ ), row planting & correct spacing ( $X = 3.81$ ), fertilizer application ( $X = 3.94$ ), labour saving technologies ( $X = 3.86$ ), crop geometry ( $X = 3.64$ ), timely weeding ( $X = 3.78$ ), and fungicide & herbicide applications ( $X = 3.67$ ) respectively. It is only application of rodenticides & insecticide that were rated moderately by the respondents. This might be due to the fact that these

technologies were not regarded as important as the other ones. Table 3 equally shows that the grand mean ( $X = 3.68$ ), which implies that holistically all the technology packages were very highly rated. This finding collaborate Rogers (1983) who provided a framework for categorizing adopters vis; innovators, early adopters, early majority, late majority and laggards respectively. From the categorization, the finding in Table 3 shows the respondents to have fallen into the category of Early Adopters. Ifenkwe (2013) presented early adopters as farmers that are fully integrated and are well respected and relied on by friends and neighbours in their farming communities.

**Table 3:** Distribution of the Respondents According to Their Perceived Extent of Adoption of the ADP Technology Packages

S/No	Technology Packages	V/H/E	H/E	M	L/E	V/L/E	Mean	Categories
01	Use of Improved Varieties	50	60	20	14	-	3.84	Early Adopters
02	Optimum plant Population & Timely Planting	50	50	20	20	04	3.85	Early Adopters
03	Row – planting & Correct Spacing	50	45	30	10	09	3.81	Early Adopters
04	Fertilizer Application	45	60	20	19	-	3.94	Early Adopters
05	Labour Saving Technology	60	40	20	12	12	3.86	Early Adopters
06	Crop Geometry	30	60	30	20	04	3.64	Early Adopters
07	Timely Weeding	30	40	40	10	24	3.78	Early Adopters
08	Rodenticide & Insecticide Applications	20	30	30	14	50	2.69	Early Majority
09	Fungicide & Herbicide Applications	20	40	40	24	-	3.67	Early Adopters
	<b>Grand Mean</b>						<b>3.68</b>	<b>Early Adopters</b>

Source: Field Survey 2016

V/H/E = Very High Extent, weighted and scored 5 points. H/E = High Extent, weighted and scored 4 points. M/E = Moderate Extent, weighted and scored 3 points. L/E = Low Extent, weighted and scored 2 points. V/L/E = Very Low Extent, weighted and scored 1 point respectively.

### 3.4 Respondents' Perception of the ADP – Capacity Building Training Programme on Their Performance in the Study Area

Table 4 shows that all the nine ADP- capacity building training programme had significant effect on the respondents. They include: increased farm yield ( $X = 3.2$ ) and ranked 1<sup>st</sup>, improved farming skills ( $X = 3.0$ ) and ranked 2<sup>nd</sup>, improved decision – making abilities ( $X = 2.89$ ) ranked 3<sup>rd</sup>, better soil management technique ( $X = 2.76$ ), ranked 4<sup>th</sup>, increased income ( $X = 2.75$ ) and ranked 5<sup>th</sup>, better control of weeds ( $X = 2.68$ ) and ranked 6<sup>th</sup>, improved interactions with other farmers ( $X = 2.67$ ) and ranked 7<sup>th</sup>, better control over pests & diseases ( $X = 2.58$ ) and ranked 8<sup>th</sup> and improved leadership



abilities ( $X = 2.5$ ) and ranked 9<sup>th</sup> respectively. Since the Grand Mean in Table 4 is equals to 2.78, it then implies that the ADP- capacity building training programme had a moderate effect on the performance of the contact farmers in the study area.

**Table 4:** Distribution of the Respondents According to Their Perception of the ADP –capacity building Training Programme Effect on Their Performance (n= 144)

S/No	ADP- Capacity Building Training	S/A	A	D/A	S/D	Mean	Ranks
01	Increased your farm yields	60	50	34	-	3.2	1 <sup>st</sup>
02	Improved your decision- making abilities	44	60	20	20	2.89	3 <sup>rd</sup>
03	Improved your farming skills	50	54	30	10	3.0	2 <sup>nd</sup>
04	Improved your interactions with other farmers	34	60	20	30	2.67	7 <sup>th</sup>
05	Improved your leadership abilities	40	34	50	-	2.5	9 <sup>th</sup>
06	Better soil management technique	40	50	34	20	2.76	4 <sup>th</sup>
07	Better control over pests & diseases	30	54	30	30	2.58	8 <sup>th</sup>
08	Better control of weeds	34	50	40	20	2.68	6 <sup>th</sup>
09	Increased income	24	80	20	20	2.75	5 <sup>th</sup>
	<b>Grand Mean</b>					<b>2.78</b>	

Source: Field Survey 2016

### 3.5 Limiting Factors to ADP – Capacity – Building Training Programmes in the Study Area

Table 5 shows that out of eight factors investigated as limiting factors to ADP – Capacity Building Training Programmes in the study area, only four were significant. They include: training programmes not addressing respondents’ felt needs, ranked 1<sup>st</sup> with a score of 69.4 %, training sessions were held at wrong time, ranked 2<sup>nd</sup> with a score of 62.5 %, training centre not central, ranked 3<sup>rd</sup> with a score of 58.3 % and training sessions were too long and boring, ranked 4<sup>th</sup> with a score of 51.4 % respectively .Table 5, equally shows the insignificant factors to include: trainings were not taken one at a time, ranked 5<sup>th</sup> with a score of 41.7 %, lack of interest by the respondents, ranked 6<sup>th</sup> with a score of 34.7 %, contents of the training complex & very difficult to understand ranked 7<sup>th</sup> , with a score of 31.25 %, and cultural and traditional issues, ranked 8<sup>th</sup> with a score of 27.8 % respectively. The implication of the finding is that the four factors that require constant review and updating because the felt needs of the farmers are never the same and they continue to change with time. Therefore, this calls for participatory review of the training design and content between the ADP and the Farmers as to ensure the appropriateness of the training contents. The finding collaborates Nwachukwu (2003), who emphasized the importance of innovations addressing farmers felt needs of the beneficiaries.

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**Table 5:** Distribution of the Respondents According to Limiting Factors to  
 ADP-Trainings (n= 144)

S/No	ADP Training Programme Packages	Frequency	Percentage (%)	Ranks
01	Training Programmes did not address felt needs of Respondents.			
	Yes	100	69.40	1 <sup>st</sup>
	No	44	30.60	
02	Training Sessions were held at the wrong Time			
	Yes	90	62.50	2 <sup>nd</sup>
	No	54	37.50	
03	Training Centers not Centralized			
	Yes	84	58.30	3 <sup>rd</sup>
	No	60	41.70	
04	Training sessions were too long & boring			
	Yes	74	51.40	4 <sup>th</sup>
	No	70	48.60	
05	Training sessions were not taken one at a time			
	Yes	60	41.70	5 <sup>th</sup>
	No	84	58.30	
06	Lack of interest by respondents			
	Yes	50	34.70	6 <sup>th</sup>
	No	94	65.30	
07	Training Contents complex & difficult to understand			
	Yes	45	31.25	7 <sup>th</sup>
	No	99	68.75	
08	Cultural & Traditional Issues			
	Yes	40	27.80	8 <sup>th</sup>
	No	104	72.20	

Source: Feld Survey 2016

#### 4. Summary, Conclusion and Recommendations

The study was conducted in Umuahia Agricultural Zone of Abia State, Nigeria. The EAs in the Zone assisted in the identification of the contact – farmers in their circles and through simple random method were 20 % of the contact farmers (144) were selected to form the sample size that was used for the study. Structured questionnaire was used in the generation of the primary data. Descriptive statistics were used in the analysis of the data. Results showed that 69.4 % of the respondents were males, while 30.6 % were females respectively. About 83.3 % were married with a mean age of 43 years and 93.1 % had formal education. Equally, a mean household of 6 persons, mean years of farming experience of 13.5 years, mean farm- size of 0.9 hectares and mean monthly income of ₦33,569.44 respectively were recorded. The respondents recorded high level ( $X = 2.68$ ) of participation in ADP – capacity building programmes. They equally, were within the categories of early adopters ( $X = 3.68$ ) in the adoption of ADP recommended

innovations. ADP trainings not addressing the felt needs of the farmers ( $X = 69.4\%$ ), trainings sessions held at the wrong time ( $X = 62.5\%$ ), training centres not centralized ( $X = 58.3\%$ ) and training sessions too long & boring ( $X = 51.4\%$ ) were identified as challenges to ADP capacity building programmes in the study area. The study recommended that the ADP should strengthen the feedback mechanism as to ensure that their trainings address the felt needs of farmers. Also, a performance evaluation of the contact farmers by the ADP should be a regular exercise as to that it is only the performing ones are retained as contact farmers, mostly in the study area.

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