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ASSESSMENT OF FARMERS' PARTICIPATION IN ON-FARM ADAPTIVE RESEARCH IN SOUTH-WESTERN, NIGERIA

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ABSTRACT: This paper addresses farmers' participation in On-Farm Adaptive Research (OFAR) in South-western Nigeria. The concept of OFAR entails full participation of farmers in the research process, direct contact between researchers and farmers and intensive investigation of farmers' situations to strengthen Research-Extension-Farmers Linkage. Farmers' level of participation is critical in creating room for consideration of local ethics, culture, environmental and socio-economic characteristics to enhance successful and accepted programmes. This study sought to assess the farmers' level of participation based on four major phases of OFAR process: diagnostic survey phase, research phase, field test phase and demonstration phase. A multi-stage sampling technique was employed to collect cross sectional data from 350 farmers in Southwestern Nigeria. Farmers were favourably disposed to participation and inadequate input, capital, access to information; time and non-availability of market were major constraints against participation in OFAR. The implications of these findings for both research professionals and farmers are discussed.

KEYWORDS: Trials, OFAR, extension, linkage, research phase.

1 INTRODUCTION

Adaptive research is designed to adjust technology to the specific needs of a particular set of environmental conditions by taking into account the different bio-physical and socio-economic circumstances of the farmers.

Over the years, Nigerian Agricultural research programmes have undergone various changes with a view to develop viable technologies that are well adapted to Nigerian conditions. In 1991, National Agricultural Research Project (NARP) was established to revitalize the national agricultural research management system through financial support and strengthening of research - extension - farmer linkage. Also, new research structures were put in place in 1996 in accordance with new National Agriculture Research Strategic Plan and the mandates of the National Agricultural Research Institutes (NARIs). These structures resulted in the establishment of 24 National Coordinated Research Programmes [1]. Despite the huge public investment which reflected in the number of federally-funded National Research Institutes, their output is yet to have significant effects on the farmers' productivity. The agricultural sector is still beset with low per-hectare output, slow pace of innovation, poor management practices, minimal post-harvest value addition and other efficiencies [2].

1.1 ON-FARM ADAPTIVE RESEARCH (OFAR)

The agricultural extension service system is operated by Agricultural Development Programmes (ADPs) territory in Nigeria. On-farm Adaptive Research (OFAR) is one of the Agricultural Development Programme (ADP) activities uses to develop recommendations for representative groups of farmers. The concept of OFAR entails full farmers' participation, direct contact between researchers and farmers and concerted multi- disciplinary investigation of farmers' situations. Only

when this is done that farmers will have the opportunity of articulating their felt needs and the technologies fashioned around such needs become relevant, appropriate and adoptable (Subair, 2002). In Nigeria, research institutes and extension agencies such as ADP are the institutions responsible for technology generation and development, hence the need to investigate the farmers' involvement in this process in line with the subject of the workshop.

Farmers' participation in the OFAR also affords them the opportunities of identifying farming system constraints, problems and its priorities, managing experiment and evaluating results. Participation in this context means the active involvement of all the stakeholders in OFAR process of diagnostic survey, research, field test and demonstration phases. Strong farmer participation is essential in order to identify farmers' goals and problems (Farrington and Martin, 1988). However, there is a dearth of information on the extent and degree of farmers' participation in OFAR trials in Nigeria. This study intends to assess farmers' involvement in major phases of OFAR process: diagnostic survey phase, research phase, field test phase and demonstration phase.,

2 METHODOLOGY

The study was conducted in southwestern Nigeria. Three states, namely Oyo, Osun and Ekiti where OFAR trials were reportedly conducted in the past few years were purposefully selected for the study (Auta and Dafwang, 2010). A multi-stage sampling procedure was used to select two zones of the ADP in each state making a total of six zones. The zones were Ibadan/Ibarapa and Ogbomoso in Oyo state; Iwo and Ife/Ijesha in Osun state and Aramako and Ikole in Ekiti state. The next stage includes a random selection of two Local Government Areas (LGAs) in each of the zones. The selected LGAs were Akinyele, Ibarapa central, Orire, Ogo-Oluwa, in Oyo state; Ola-Oluwa and Atakumosa in Osun state; Ijero and Ido-Osi in Ekiti state. Three villages where farmers have participated in OFAR trials were purposively selected from each LGA. Thereafter, ten (10) farmers were randomly selected from each of the selected villages through the assistance of the ADP extension agents to arrive at a sample size of 360 farmers. However, a sample size of 350 farmers was eventually considered for the study due to some logistic reasons. Their level of participation was also measured using a 9 – item statement rated on a 3 point scale of Highly involved (2), Less involved (1), Never involved (0). A structured interview scheduled was used to collect information for the study. Frequency counts, percentages and means were used to describe the collected data while, Pearson Product Moment Correlation (PPMC) was used to test the relationships between the selected personal characteristics and level of participation in OFAR.

3 RESULTS AND DISCUSSION

3.1 PERSONAL CHARACTERISTICS

The majority (74.7%) of the farmers fell within the age range of less than or equal to 30 - 50 years with a mean age of 49.3 years. This is an indication that the farmers were still in their active and productive age group. This is likely to make them more responsive to adoption of innovation. The farmers were still smallholders with an average farm size of 4.3 hectares. A mean farming experience of 27.9 years showed that the farmers were highly experienced in agriculture. The majority of the farmers had one form of formal education or the other (Table 1).

3.2 FARMERS' INVOLVEMENT IN OFAR TRIALS

Results in Table 2 revealed that farmers in the study area had participated in different OFAR trials in the past few years. The maize varietal trial was among the OFAR trials in which 50% of the farmers participated while only 9.4% of the farmers indicated their involvement in the Pig crossing breeding trial. Less than half (45.7%) of the farmers participated in cassava trial and 25.7% of them were involved in soybean trial. Cocoyam and cowpea trials participated by 27.4% and 9.1% of the farmers respectively. Hen cross breeding trial was least participated by 5.7% of the farmers.

3.3 EXTENT OF FARMERS' PARTICIPATION IN OFAR STAGES

The study revealed lesser involvement of farmers in OFAR stages of problem diagnosis, identification of research needs and design and identification of constraints (Table 3). This is an indication that most of the decisions on research ideas and designs are still carried out by officers from several national research institutes, universities and ADPs without farmers' representations. Reference [5] also confirms that, identification of annual research needs was done through a joint problem diagnostic survey by the national officers and thus rendering farmers' level of participation in research - extension -farmer-input supply linkage to be very weak. Hence, non-representation of farmers at the crucial stages of OFAR may lead to the

inability of the outside agents to develop and recommend appropriate technologies that are compatible with the target group [6].

3.4 CONSTRAINTS AGAINST PARTICIPATION IN OFAR

Table 4 shows the constraints to farmers' participation in OFAR trials. The major constraints to participation as identified by farmers were lack of fund (77.1%); inadequate input supply (53.1%) and insufficient technical knowledge (63.4%). Reference [7] stated these as major constraints to participate in agricultural projects.

The farmers' perception of derived benefits from participating in OFAR trials were as shown in Table 5. The benefits as perceived by the farmers were increasing in yield (51.7%); acquisition of new skill (46.9$), increase in income (42.9%) and increase in the level of interaction between researchers and the farmers (30%). The perceived benefits of OFAR as indicated by the farmers could serve as a motivating factor to participate in OFAR trials.

3.5 DERIVED BENEFITS THE

Results in Table 5 show the benefits derived by the farmers as a result of participating in OFAR trials. About 52% of the farmers reported increase in yield as a benefit. Other benefits include, acquisition of new skill (46.9%), increase in income (42.9%) and Increase in level of interaction (30%).

3.6 RELATIONSHIPS BETWEEN PERSONAL CHARACTERISTICS AND PARTICIPATION IN OFAR

All the selected personal characteristics had significant relationships with the farmers' level of participation in OFAR trials as indicated in Table 6. This is an indication that an understanding of farmers' characteristics is likely to assist the researcher in focusing and formulating appropriate technologies and recommendations for different categories of farmers.

4 CONCLUSION

This study had clearly indicated that farmers were actively involved in OFAR trials in the study area.

Nevertheless, this study revealed that farmers were less involved in the decisive phase of OFAR which is diagnostic survey a situation which could probably contribute to the generation and development of technologies that will be more relevant, appropriate and adoptable. The survey also identified some constraints if properly addressed could enhance effective participation of farmers in OFAR. The study, therefore, recommends the involvement of farmers at the early stages of planning and the design of OFAR to ensure expected transformation that brought about the establishment of OFAR.

Table 1: Distribution of farmers by personal characteristics n =350

Characteristics	Frequency	Percentage
Age in years		
≤ 30	55	15.7
30 – 40	102	29.2
41- 50	104	29.8
Above 50	89	25.9
Mean = 49.3		
Total	**350**	**100.0**
Sex		
Male	231	66.0
Female	119	34.0
Total	**350**	**100.0**
Household Size		
1 - 5	62	17.7
6 - 11	251	61.8
> 11	37	10.5
Total	**350**	**100**
Farm size (Ha.)		
1 – 2	132	37.7
3 – 4	58	16.6
5 – 6	56	16.0
> 6	104	29.7
Mean = 4.3		
Total	**350**	**100.0**
Farming experience (Years)		
≤ 10	24	6.9
11 -20	23	6.6
21 – 30	183	52.3
< 30	120	34.2
Mean = 27.9		
Total	**350**	**100.0**
Education		
No formal education	123	36.1
Primary school	145	41.4
Secondary school	67	19.1
Tertiary	15	4.3
Total	**350**	**100.0**

Table 2: Distribution of farmers by their involvement in OFAR trials n=350

OFAR trial	*Frequency	Percentage
Maize varietal trial	175	50.0
Pig cross breeding trial	33	9.4
Cassava trial	160	45.7
Soybean trial	90	25.7
Cocoyam trial	96	27.4
Cowpea trial	32	9.1
Hen cross breeding trial	20	5.7

**Multiple Responses*

Source: Field survey, 2013.

Table 3: Distribution of the Farmers by Their Extent of Participation in OFAR Stages n=350

S/N	Stages of OFAR	Highly Involved	Less Involved	Never Involved
A.	**Diagnostic Survey Phase**			
1.	Problem diagnosis	0 (0)	72 (20.6)	278 (79.4)
2.	Identification of research needs and design	0 (0)	149 (42.5)	201 (57.4)
3.	Identification of constraints	0 (0)	186 (53.1)	164 (46.9)
4.	Identification of opportunities	26 (7.4)	165 (47.1)	159 (45.4)
B.	**Research Phase**			
5.	Design interventions	35 (10.0)	94 (26.7)	221 (63.1)
C	**Field Test Phase**			
6.	Provision of input plot	121 (34.6)	67 (19.1)	162 (46.3)
7.	Determination of management conditions	108 (30.9)	83 (23.7)	159 (45.4)
D.	**Demonstration Phase**			
8.	Implementation of the experiment	129 (36.9)	79 (22.6)	142 (40.6)
9.	Evaluation of the experiment	193 (55.1)	142 (40.6)	15 (4.3)

Source: Field survey, 2013. Figures in parenthesis are percentages.

Table 4: Distribution of farmers by constraints militating against their participation in OFAR trials n=350

Constraints	*Frequency	Percentage
Lack of fund	270	77.1
Inadequate Input supply	186	53.1
Insufficient technical knowledge	222	63.4
Non-availability of market	90	25.7
Lack of understanding between famers and the concerned agency	113	32.3

**Multiple Responses*

Source: Field survey, 2013

Table 5: Farmers' Derived Benefits for Participating in OFAR n=350

Benefits of participation	*Frequency	rcentage
Increasing in yield	181	51.7
Acquisition of new skill	164	46.9
Increase in income	150	42.9
Increase in level of interaction	105	30.0

**Multiple Responses*

Source: Field survey, 2013.

Table 6: Relationship between personal characteristics of the farmers and level of participation in On-farm Adaptive research n = 350

Characteristics	R	P – value	Decision
Age	-0.559**	0.000	Significant
Gender	0.124*	0.018	Significant
Educational attainment	0.301**	0.000	Significant
Household size	0.297**	0.000	Significant
Farming experience	0.372**	0.000	Significant
Farm size	0.422**	0.000	Significant

***Correlation is significant at 0.01 level (2 -tailed)*

** Correlation is significant at 0.05 level (2 -tailed)*

Source: Field survey, 2012

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