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Impact of Intensive Agricultural Training on Productivity of Smallholder Farmers: A Case Study of International Skill Acquisition Centre (ISAC), Nasarawa State, Nigeria

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Abstract: This study was carried out at the International Skill Acquisition Centre, Nasarawa State. The centeris a leading international training Center, offering advanced leadership, management, and capacity-building programs to both professionals and inexperienced personnel. The study's main objective is to determine the impact of intensive agricultural training on the productivity of smallholder farmers. Systematic and simple random sampling techniques were employed in sampling the 100 respondents for the study, while the researcher employed the use of questionnaires to collect data used for the study which were analyzed using descriptive statistics. From the result obtained from the analysis, the majority of the smallholder farmers who were beneficiaries of the ISAC agricultural training programme were female with an average age of 26.78 years. Most of them were unmarried with an average household size of 4.43. More than 79% of the respondents had at least a secondary school education. The farmers had an average farming experience of 9.59 years while the average farm size of the respondents is 2.97 hectares. The most accessible agricultural training programme to smallholder farmers in the study area were "water and crop management programmes" and "fish farming". Also, the smallholder farmers were able to "develop basic knowledge and skill on aspects and procedures of agribusiness and produce" as a result of the ISAC agricultural training program in Nasarawa State was the highest among the respondents. Meanwhile, some of the major constraint faced by the smallholder farmers in accessing agricultural training in the study area is inadequate funds and quality facilitators. It was recommended that the government, non-governmental organization and other stakeholders should ensure factors that prevent smallholder farmers from participating effectively in training programs are considered when planning for any training activities.

Keywords: Training, productivity, smallholder, farmers, skills

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Introduction

Agriculture has long been the mainstay of rural economies in many countries in sub-Saharan Africa, in Asia and in many other developing countries. Subsistence agriculture dominate the employment in the agricultural sector of most of these countries, many of which are located in resource-poor agricultural areas and are faced with increasingly challenging environmental and market conditions (Apantaku*etal.*,2020). The World Development reports, states that if agriculture is to be a pathway out of poverty for many of the developing countries, improving the productivity, profitability, and sustainability of smallholder farming should be accorded serious attention (Sennuga & Oyewole, 2020).

Findings carried out by (Sennuga *et al*., 2020) established that Smallholder farmers are often characterized with gross marginalization, in terms of access to resources, technology, assets, information, and capital. The Food and Agriculture Organization of the United Nations (FAO) adopted a 2hectare (ha) threshold as a generally acceptable measure of a small farm; this is however not inclusive of those in fish production and other similar endeavors. A major percentage of smallholder farmers reside in rural areas, although some of them are located in some urban and peri-urban areas (Aluko *et al*.,2021). Smallholder farmers conserve a number of crop varieties and breeds of livestock. Their cultural practices and techniques serve as an important source of knowledge for agricultural and rural development, and the transition to sustainable agricultural intensification. Smallholder farmers do not only require the technical skills to ascertain a consistent increase in their productivity, but they also need to be empowered with the skills and technical know-how to negotiate the

rapidly changing agricultural markets, and be able to adapt their productive activities in response to the ever-evolving world (Lai-Solarin*et al*.,2021).

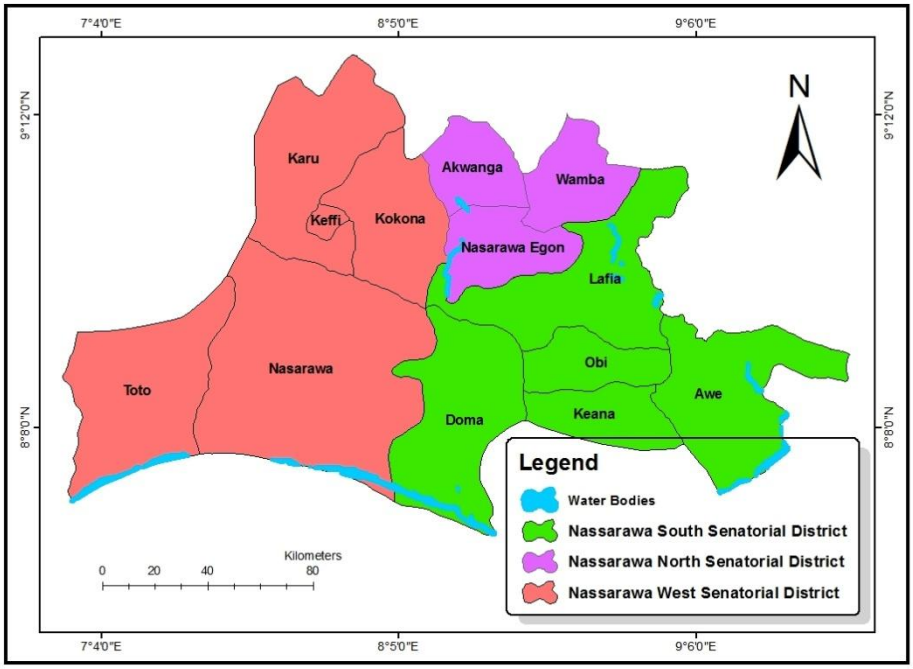
Training programs refer to a series of educational activities which are planned to achieve some specific objectives. In agriculture, the training programmes may be involved formal and informal educational activities. These may be short-term or long-term programmes and may be planned for an individual farmer or a group of farmers. Modalities through which these programmes are may include farmers' workshops, and seminars, individual farmer home or field visits, or even an organized vocational training programme (Stewart *et al.,* 2016).

Agricultural training programme refers to any type of programme that seeks to facilitate a transfer of knowledge or skills on topics that ultimately results in agricultural benefit to farmers. Training programmes for farmers vary considerably. Some programmes are directly focused on teaching farmer's new skills using top-down 'training and visit' methods. Governments often package such interventions as extension services, a broad term for programmes which aim to support and facilitate people involved in agricultural production in order to solve problems and avail them of critical information, skills and technologies (Stewart *et al.,* 2016). Even though extension services are traditionally considered a top-down approach to training, they have grown to become more participatory in nature over time (Fadiji& Sennuga,2020). Farmer field school is a component of agricultural extension and it uses a more bottom-up approach to training and transfer of knowledge. The goal of the programme is to be participatory, empowering, and of course, experiential in nature, paying attention to the problems and priorities identified by the farmers, rather than on issues and challenges determined by outsiders (Ebisike *et al.*,2021). This study will however, attempt to analyze the Impact of Intensive Agricultural Training on Productivity among smallholder farmers that previous studies did not address Training on Productivity are core to agricultural development as well as to create wealth, reduce unemployment and bridge the gap in food productivity in Nigeria. Therefore, the purpose of this study is to determine the impact of intensive agricultural training on productivity of smallholder farmers: A case study of International Skill Acquisition Centre (ISAC), Nasarawa State. The specific objectives of the study are to:

i. describe the socio-economic characteristics of smallholder farmers who were beneficiaries of the International Skill Acquisition Centre, Nasarawa State.
ii. identify the kinds of training available to smallholder farmers in the International Skill Acquisition Centre, Nasarawa State.
iii. examine the perception of the smallholder farmers on impact of ISAC agricultural training on their productivity.
iv. find out the constraints facing smallholder farmers in accessing agricultural training in the study area.

Materials and Methods

The study was conducted at the International Skill Acquisition Centre, Nasarawa State. The centreis a leading international training centre, offering advanced leadership, management and capacity building programs to both professionals and inexperienced personnel. It is located in Nasarawa State. The state is bounded in the north by Kaduna State, in the west by the Federal Capital Territory (Abuja), in the south by Kogi and Benue States and in the east by Taraba and Plateau States. It is located in the Southern Guinea Savanna belt of the country and occupies a total land area of 28,735 square kilometres with a population of 2,679,433 (Chima *et al.,* 2012). The mainstay of the economy of Nasarawa State is agriculture; with the production of varieties of cash crops throughout the year. The state is predominantly agrarian with the majority of the population actively involved in farming.



Map of the study area

Population of the Study and Research Design

The population of the study was smallholder farmers who were beneficiaries of the International Skill Acquisition Centre, Nasarawa State. Descriptive research design was used for the study. The design involves the use of questionnaires, conducting of surveys and interviews to sample the opinion of people on a research interest.

Sampleand Sampling Techniques

Systematic and Simple random sampling technique were employed in sampling respondents for the study. 100 respondents were randomly selected from beneficiaries of the International Skill Acquisition Centre in Nasarawa State. A ratio of one-to-one (1:1) was systematically collected among the two graduating batches, comprising of 300 trainees per batch, giving us a total of 50 respondents out of 300 from each batches (17% of the study population) from the September edition of the training which include trainees from Oyo State, Nigeria.

Data Collection

Primary data was collected with the use of structured questionnaires which were administered to each of the respondents. Key focus of the study was on socio-economic characteristics of smallholder farmers who are beneficiaries of the International Skill Acquisition Centre in the study area, the kinds of training available to smallholder farmers in the International Skill Acquisition Centre, as well as the perception of the smallholder farmers on impact of ISAC agricultural training on their productivity to mention but a few. Data collection was facilitated by the principal researcher.

Data Analysis

Descriptive statistics such as frequency and percentages were used to analyze all the data retrieved from the study. Coded results were first imputed on an Excel spreadsheet which was further transferred to the Statistical Packages for Social Sciences (SPSS) for analysis and all results were presented with the aid of frequency and percentage distribution tables. while objective iii was achieved using mean scores from a 5-point likert scale.

Results and Discussion

Socio-Economic Characteristics of Smallholder Farmers Who were Beneficiaries of the International Skill Acquisition Centre, Nasarawa State.

Presented in Table 1 below is the result of the socio-economic characteristics of the smallholder farmers who are beneficiaries of the International Skill Acquisition Centre in Nasarawa State. The variables measured

were gender, age, marital status, household size, educational level, years of farming experience, and farm size.

The gender distribution of the respondents shows that majority (76.3%) of the respondents were female while 23.7% were female. Gender plays a vital role in access to productive resources such as land, improved varieties, fertilizers, farm equipment, labor, training, and information by smallholder farmers. This results in the difference in agricultural productivity between male and female smallholder farmers. This result implies that there are females than male among the beneficiaries of agricultural training in the study area. This does not align with the findings of Peterman *et al.* (2014) that there are more male beneficiaries of agricultural trainings.Still from Table 1, the result reveals that the age of most (58.8%) of the respondents was less than 30 years, and the average age of the respondents was 26.78 years. This implies that most of the beneficiaries were youths and possess the energy and innovation to fully implement the skills they acquire from the training programmes.

From Table 1, the result shows that the majority (52.6%) of the respondents were not married while the remaining 47.4% were married. Since most of the beneficiaries were not married, it means they can fully participate in the training programs without the distractions of having to cater to their families. Meanwhile, the majority (74.4%) of the beneficiaries had a household size of between 1 to 5 people with an average household size of 4.43. This result is not unexpected, because most of the respondents were not married.

The result for the educational level of the respondents in Table 1 shows that most (47.4%) of the respondents in the study area had a tertiary school education while 32% of the respondents had secondary education. The level of education of a farmer plays a significant role in improving the level of understanding of an individual, and consequently, their utilization of training. According toWaktole, (2020), farmer's training has been found to improve productivity among food crops farmers. The result further shows that the majority (48.5%) of the smallholder farmers in the study area had a farming experience between 1 and 5 years. The mean years of farming experience of the respondents were 9. Also, the majority (62.9%) of the respondents had a farm size of 1 to 3 hectares while the mean farm size of the respondents was 2.97 hectares. This shows that the respondents for the study were smallholder farmers.

Table 1: Socio-Economic Characteristics of Smallholder Farmers Who are Beneficiaries of the International Skill Acquisition Centre, Nasarawa State.

Variable	Frequency	Percent (%)	Mean
Gender			
Male	23	23.7	
Female	74	76.3	
Age (years)			
<30	57	58.8	26.78
31-35	34	35.1	
36-40	3	3	
41-45	2	2	
46-50	1	1	
Marital status			
Married	46	47.4	
Not married	51	52.6	
Household Size			
1-5	72	74.4	4.43
6-10	18	18.6	
11-15	3	3	
16 and above	4	4	
Level of Education			
No formal education	16	16.5	
Primary education	3	3.1	
Secondary education	31	32	
Tertiary education	47	47.4	
Years of Experience			
1-5	47	48.5	
6-10	18	18.6	9.59
11-15	11	11.3	
16-20	12	12.4	
20 and above	9	9.3	
Farm Size			

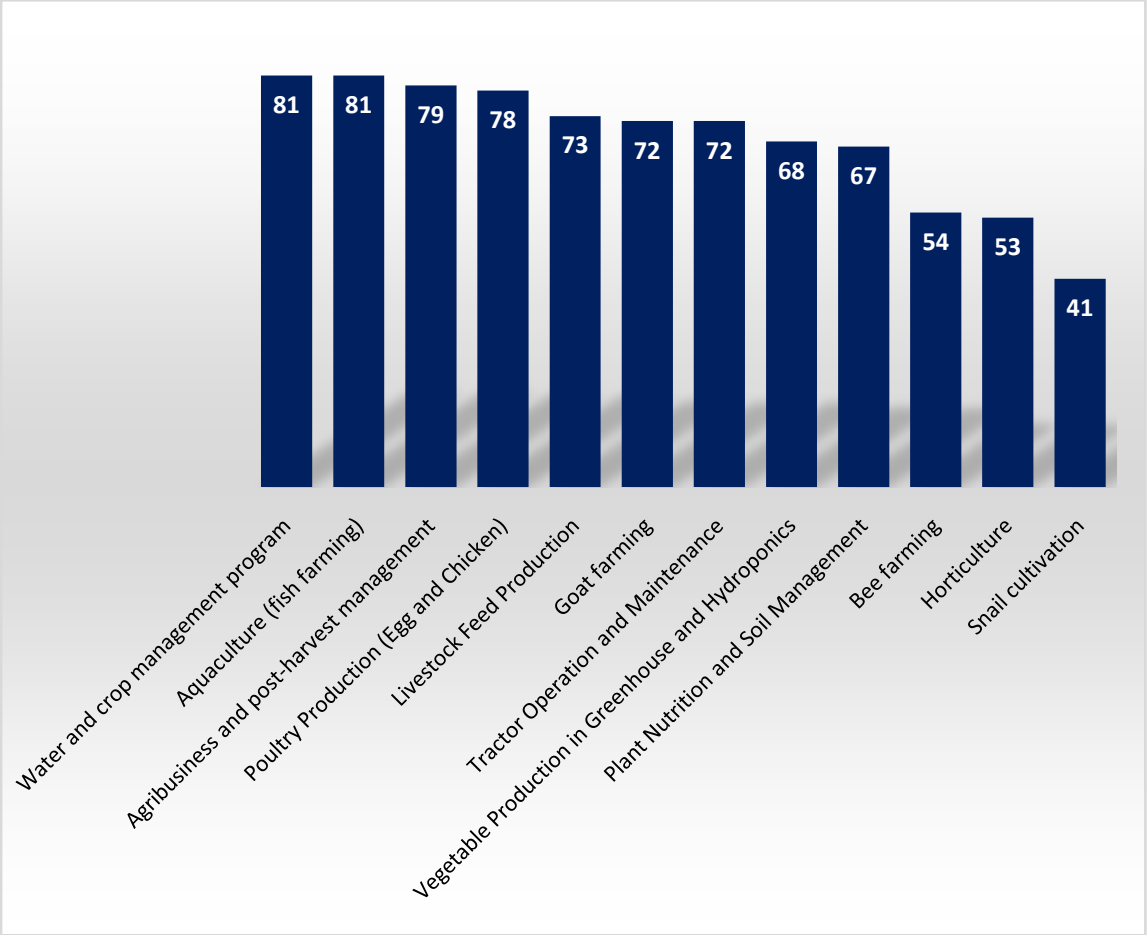
1-3	61	62.9	2.97
4-6	31	32	
7-9	4	4.1	
10 and above	1	1	

Source: Field survey, 2021

Kinds of Training Accessible to Smallholder Farmers in the International Skill Acquisition Centre, Nasarawa State

Figure 1 shows the result of the kinds of agricultural trainings accessible to smallholder farmers in the International Skill Acquisition Centre. The result indicates that the most accessible agricultural training to smallholder farmers in the study area were "water and crop management progprograms3.5%) and "fish farming" (83.5%). The result also reveals that the next accessible agricultural training to the respondents was "agribusiness and post-harvest management" as indicated by 81.5% of the respondents. It can be further seen from the result that training on "poultry farming" was highly accessible to the smallholder farmers according to 80.4% of the respondents. The result further reveals that the other agricultural training programs that are highly accessible to the smallholder farmers in the study area include: livestock feed production (75.3%), tractor operation and maintenance (74.2%), goat farming (74.2%), and vegetable production in the greenhouse (70.1%).

Fig 1: Kinds of Training Available to Smallholder Farmers in the International Skill Acquisition Centre, Nasarawa State



Field data analysis, 2021 *Multiple responses allowed

Perception of the Smallholder Farmers on Impact of ISAC Agricultural Training on their Productivity

The result in Table 2 shows the perception of the respondents on the impact of ISAC agricultural training on their productivity. The result shows that with a mean score of 4.55, the perception that the smallholder farmers were able to "develop basic knowledge and skill on aspects and procedures of agribusiness and produces" as a result of the ISAC agricultural training program in Nasarawa State was the highest among the

respondents. Also, the result revealed that there is high participation of the smallholder farmers in group activities, with a mean score of 4.41. This means that the training program has been building a team spirit among the smallholder farmers, which has resulted in their active participation in group learning activities during training exercises.

The results in Table 3 further show that the other impacts of the ISAC agricultural training on the productivity of the smallholder farmers include their ability to effectively apply the rudiments of profitable agribusiness practices (4.4), the use of a toolkit of ideas to increase management and leadership capacity (4.39), the use of modern farm facilities and implements (4.30) and their ability to implement post-harvest value addition/ requirement for export of agricultural products (4.21).

Table 2: Perception of the Smallholder Farmers on Impact of ISAC Agricultural Training on their Productivity

Perception	Mean Score	Decision
Use a toolkit of ideas to increase management and leadership capacity	4.39	Accepted
Develop basic knowledge and skill on aspects and procedures of agribusiness and production.	4.55	Accepted
Apply the rudiments of profitable agribusiness practices.	4.40	Accepted
Use modern farm facilities and implements.	4.30	Accepted
Implement post-harvest value addition/ requirement for export of agricultural products.	4.21	Accepted
Participate actively in group activities and interactions.	4.41	Accepted
Develop an interest in agribusiness.	4.37	Accepted

Source: Field data analysis, 2021

Constraints Facing Smallholder Farmers in Accessing Agricultural Training in the Study Area

Figure 2 shows the result of the constraints facing smallholder farmers in accessing agricultural training in the study area. From the result, inadequate funds are the biggest challenge faced by the respondents in accessing agricultural training in the study area as opined by 54% of the respondents. Also, lack of quality facilitators is another major constraint faced by the respondents according to 47% of the respondents. The cost of transportation to the training centre is another major challenge that limits the accessibility of the ISAC agricultural training by the smallholder farmers as indicated by 45% of the respondents. Other constraints faced by the respondents in accessing agricultural training in the study area includethe complexity of the training (44%), availability of scholarships (44%), and the high cost of training materials (43%).

Fig 2: Constraints Facing Smallholder Farmers in Accessing Agricultural Training in the Study Area

Source: Field data analysis, 2021 *Multiple responses allowed

Conclusion

The following are the conclusions were arrived at based on the findings of the study: The majority of the smallholder farmers who were beneficiaries of the ISAC agricultural training program were female with an average age of 26.78 years. Most of them were unmarried with an average household size of 4.43. More than 79% of the respondents had at least a secondary school education. The farmers had an average farming experience of 9.59 years while the average farm size of the respondents is 2.97 hectares.

The most accessible agricultural training programfor smallholder farmers in the study area were "water and crop management programs" and "fish farming". Also, the smallholder farmers were able to "develop basic knowledge and skill on aspects and procedures of agribusiness and produce" as a result of the ISAC agricultural training program in Nasarawa State was the highest among the respondents. Meanwhile, some of the major constraint faced by the smallholder farmers in accessing agricultural training in the study area is inadequate funds and quality facilitators.

Recommendations

This research recommends that:

i. The government, non-governmental organizations, and other stakeholders should ensure factors that prevent smallholder farmers from participating effectively in training programs are considered when planning for any training activities.
ii. Educators and training instructors should leverage the available potentials and strengths of the farmers when introducing training programs, rather than bringing completely new training that they may not have the capacity to implement

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