

Capacity Building in Tomato and Plantain Production: Evidence from Ukwuani Local Government Area, Delta State, Nigeria

Amao, Ifeoluwapo, O^{1*} and Effi, Mercy O².

1. Planning, Monitoring and Evaluation Department, National Horticultural Research Institute, Private Mail Bag, 5432, Idi-ishin, Ibadan.

2. Farming Systems and Extension Department, National Horticultural Research Institute, Private Mail Bag, 5432, Idi-ishin, Ibadan.

Corresponding author's e-mail: ifeluv@yahoo.com

ABSTRACT

The study assessed a training on tomato and plantain production conducted in Ukwuani Local Government Area, Delta state, Nigeria. Pre and post knowledge assessment of the participants was carried out using well-structured questionnaire. Data collected include personal characteristics of the participants namely sex, age, marital status, educational status, occupation, prior growing of tomato and or plantain as well as their knowledge on the three main training aspects taught. The training covered plantain production, tomato production and economics of production, marketing and record keeping for plantain and tomato. There was a significant difference in participants' mean scores on the three main training aspects taught which are tomato production ($t=7.51, p=.000$), plantain production ($t=8.44, p=.000$), as well as economics of production, marketing and record keeping for both crops ($t=6.30, p=.000$). Moreover, considering the training as a whole, a significant difference was observed in the participants' knowledge pre and post the training ($t=8.52, p=.000$). It implies that the training/capacity building has increased the knowledge of participants on the crops of focus. Furthermore, it is expected that the participants engage in the production of both crops that have been taught since they were empowered to start up the ventures.

Keywords: capacity building, tomato production, plantain production, paired t-test

INTRODUCTION

The agricultural sector if properly harnessed plays significant roles in poverty reduction, employment creation, as well as human and economic development of a nation. The sector can be regarded as the backbone of the economy (Onwukwe et al, 2022).

Capacity building is a non-formal education that is conducted for a target population mostly adults and youth which is beyond formal education to provide them with specified skills (Makere and Mazor, 2012). It is an educational activity outside the formal school system targeted at facilitating selected type of learning that develops the capacities of the recipients.

Capacity building entails strengthening the abilities of people to overcome the causes of their exclusion. Training is an important tool for capacity building as it relieves people of the hinderances to

their wellbeing which can predispose them to poverty. It is a tool to achieve the aim of non-formal education that provides targeted population with selected skills. Training is achieved through practical exposure formally/informally. Skill development accomplished through training is a powerful tool for poverty reduction (Iyunade, 2017). Training empowers beneficiaries to become self-reliant, it is expected to lead to self-employment and enhancement of socio-economic well-being of target groups (Amadi and Abdullah, 2012).

Agriculture has been regarded as a viable tool for economic development and poverty reduction, acquiring basic skills in different aspects of agriculture is expected to contribute to poverty reduction and employment creation.

Specifically, horticulture is a subset of agriculture that deals with high value crops such as fruits, vegetables, ornamentals, medicinal and

herbal plants. The horticultural sub sector is capable of improving food security, providing employment, reducing socio-economic disparities, alleviating poverty, among others. It is a viable avenue for the generation of foreign exchange through exports of horticultural produce. Moreover, increasing demand for horticultural crops by consumers increases income generating activities for small scale farmers, entrepreneurs and other stakeholders involved in these value chains in urban, peri-urban and rural areas (Jaskani and Khan, 2021).

Thus, the basis for embarking on training in selected high-value crops such as tomato and plantain.

Tomato is an important short duration fruit vegetable which contributes to healthy diets and is rich in essential amino acids, minerals, vitamins, sugars, dietary fibres and other essential nutrients (Ugonna *et al.*, 2015). Nigeria is the 16th largest producer of tomato worldwide and has comparative advantage in its production with a potential to lead the world in its production and exports. Tomato producing states in Nigeria include Kano, Kaduna, Plateau, Bauchi, Benue, Borno, Delta, Kwara and Oyo States (Ugonna *et al.*, 2015). Tomato as a crop can fit into different production systems, is economically attractive and can be processed into various products such as dried slices, whole bottled tomato, puree, juice, and ketchup. Some tomato types can be harvested continuously for few weeks after harvest; first harvest is normally at 90-120 days after planting (Naika *et al.*, 2005).

Plantain is an important fruit crop which is one of the most important staple foods in the African lowland humid forest zone. Nigeria is one of the highest Plantain producing countries in the world. A good source of carbohydrate for more than 50 million of the Nigerian populaces, and is mostly produced in Southern Nigeria including Akwa Ibom, Cross River, Imo, Enugu, Rivers, Edo, Delta, Lagos, Ogun, Osun and Oyo states (Akinyemi *et al.*, 2010).

Objectives: The specific objectives of the study are as follows:

- Profile the personal characteristics of training participants

- Assess their knowledge pre and post training on the aspects taught.

Hypothesis: There is no significant difference between mean pre and post knowledge assessment scores for the different training aspects taught as well as overall knowledge from the training.

METHODOLOGY

Study area

Ukwuani Local Government is one of the Local Government Areas in Delta state, south-south geopolitical zone of Nigeria. It has its headquarters in Obiaruku with other villages in the local government including Amai, Ebedei, Umutu, and so on. Farming is one of the important economic activities practiced in the area.

Sampling procedure and training content

A total of 100 participants (men, women and youth) were selected from communities within the Ukwuani Local Government Area, Delta State and their capacities built on Tomato and Plantain production techniques in December 2021 and March 2022 respectively (fifty participants selected per time). Specifically, the training covered the following aspects taught under three sessions:

1. Tomato production and Plantain sucker production techniques
2. Nursery management in tomato production
3. Tomato field establishment and management
4. Plantain orchard establishment and management
5. Economics of tomato and plantain production
6. Record keeping in tomato and plantain production as well as Marketing of tomato and plantain

Furthermore, the capacity building activity comprised of practical/hands-on demonstration to increase the skill of the trainees in the selected aspects of the tomato and plantain value chains. The practical sessions comprised of the following:

- Plantain sucker multiplication techniques
- Tomato production techniques

The training aspects were the same for both training groups, thus data used for this analysis was obtained from 61 out of the 100 participants involved in the two batches of tomato and plantain production training.

Data analysis

Data collected from the 61 participants was analysed using descriptive statistics such as pie and bar charts (to profile some personal characteristics of the participants namely sex, age, marital status, educational status, occupation, participation in prior growing of tomato and or plantain). The hypothesis stated was tested to assess the significant difference between participants' knowledge pre and post training using the paired sample t-test.

RESULTS AND DISCUSSION

Personal characteristics of participants

The personal characteristics of the participants as shown in Table 1 revealed that most of them are males (83.6%), 34.4 per cent belong to the 40-49 years age group, and only 13.1 per cent are single. Moreover, 36.1 per cent had tertiary education, while 49.2 per cent had farming as their occupation. Furthermore, of the 65.6 per cent of participants that have grown either tomato or plantain prior the capacity building session, a larger percentage (36.1%) have been involved in growing plantain as opposed to tomato (29.5%). This implies that quite a number of the participants were in their active age, educated and were not new to farming, which is expected to have a positive effect on their understanding of the subject matter taught.

*Table 1
Personal characteristics of participants*

Variable	Frequency	Percentage
Sex		
Male	51	83.6
Female	10	16.4
Age (in years)		
20-29	2	3.3
30-39	11	18.0
40-49	21	34.4
50-59	10	16.4
Greater than 59	7	11.5
No response	10	16.4
Marital status		
Single	8	13.1
Married	53	86.9
Educational status		
Primary education	3	4.9
Secondary education	16	26.2
Tertiary education	22	36.1
Informal education	18	29.5
No response	2	3.3
Participants' occupation		
Farming	30	49.2
Business	16	26.2
Others (Clergy, Artisan, etc)	13	21.3
Unemployed	1	1.6
No response	1	1.6
Participants' involvement in growing tomato and plantain prior training		
Tomato	18	29.5
Plantain	22	36.1

Pre and Post Knowledge Assessment

An analysis of the different training aspects taught revealed that participants' mean pre and post knowledge score of the subject matter taught increased for the 3 sessions (Table 2). The different training aspects taught included - tomato production, plantain production, economics of production, record keeping and marketing. Moreover, the differences observed in the mean values were all statistically significant at 1% level of significance as revealed in the reported t-values. These include (t=7.51, p=.000), (t=8.44, p=.000), for tomato production, plantain production as well as

economics, marketing and record keeping (t=6.30, p=.000). Considering all the training sessions as a whole, a significant difference was observed between the total score of participants post versus prior the training (t=8.52, p=.000). This implies that participants gained knowledge and skill in the course of the training programme in every aspect taught. This is similar to the findings of Oyedele et al., 2022 during a training conducted on the use of low cost raised tomato platform for tomato processing in Garum mallam and Bebeji local government areas of Kano state. It is expected that the training has a positive outcome such that the participants are expected to practice all that have

Table 2
Pre and Post Knowledge assessment of training participants

Training aspects	Mean score	Standard deviation	Standard error	Significance	T	Df
Tomato production						
Post score	3.11	2.69	0.35	-	-	-
Pre score	0.38	1.05	0.14	-	-	-
Post score versus pre score	2.73	2.84	0.36	.000	7.51	60
Plantain production						
Post score	3.49	3.23	0.41	-	-	-
Pre score	0.00	0.00	0.00	-	-	-
Post score versus pre score	3.49	3.23	0.41	.000	8.44	60
Economics of production, marketing and record keeping						
Post score	3.96	4.02	0.51	-	-	-
Pre score	0.54	1.58	0.20	-	-	-
Post versus pre score	3.42	4.24	0.54	.000	6.30	60
All training aspects						
Post score	10.59	8.61	1.10	-	-	-
Pre score	0.98	1.90	0.24	-	-	-
Post versus pre	9.61	8.80	1.13	.000	8.52	60

CONCLUSION

Capacity building is required to access skills in any profession; thus, it is imperative to get youths and farmers trained on important aspects of the value chains of such a high value crops as tomato and plantain. An immediate outcome of the training has shown that the knowledge of participants has been enhanced in all the aspects of the training. This

is expected to result in participants venturing into the production aspects of tomato and plantain taught in the nearest possible time especially as they were empowered with some cash to actualize the knowledge acquired. The study recommends that capacity building programmes should be monitored and evaluated in order to determine their effectiveness.

REFERENCES

- Akinyemi, S.O.S., Aiyelaagbe, I.O.O. and Akyeampong, E. 2010. Plantain (*Musa spp.*) cultivation in Nigeria: A review of its production, marketing and research in the last two decades, Proceedings of the International Conference on Banana & Plantain in Africa, Eds: T Dubois et al, Acta Hort, 879, ISHS 2010.
- Amadi, B.O. and Abdullah, H. 2012. Perceptions of capacity building among youths involved in vocational skills development, *Journal of Social and Development Sciences*, 3(6):214-222, June 2012 (ISSN 2221-1152).
- Iyunade, O.T. 2017. Technical capacity building for youths empowerment and poverty reduction in Nigeria, *British Journal of Education*, 5(6):57-65, June, 2017.
- Jaskani M.J. and Khan I.A. 2021. Horticulture: An overview; Chapter 1, 1-21; <https://www.researchgate.net/publication/348621593>
- Makere and Mazur. 2012. Exploring formal and non-formal education practices for integrated and diverse learning environments in organization, communities and Nation. 11(6), 2012.
- Manpower Nigeria. 2023. Ukwuani (About Ukwuani Local Government Area) retrieved from <https://www.manpower.com.ng/places/lga/244/ukwuani> on 11th April, 2023.
- Naika, S., J, van Lidt de Jeude, M. Hilmi, B. van Dam. 2005. Agrodok 17 Cultivation of Tomato: Production, processing and marketing, Digigrai, Wageningen, Netherlands, Agromisa Foundation and CTA, Wageningen, 2005 93pp. ISBN Agromisa:90-8573-039-2.
- Onwukwe, B.C., Ukonze, J.A. and Okadi, A.O. 2022. Sustainable Skill Acquisition in Agriculture as a Panacea for Economic Growth and Achieving Zero Hunger in Nigeria, *International Journal of Scientific & Management Research*, 5(4):226-236, April, 2022.
- Oyedele, O.O Oduntan, A.O., Idris, B.A. Adeoye, I.B., Bamimore, K.M. Adebisi-Adelani O. and Amao, I.O. (2022) Capacity building of smallholder farmers on tomato drying in selected Local Government Areas of Kano state, Acta Horticulturae. 1348. ISHS 2022. DOI 10.17660/ActaHortic.2022.1348.31 Proc. IV All Africa Horticultural Congress Eds.: K. Diarra et al.
- Ugonna, C.U., Jolaoso, M.A. and Onwualu, A.P. 2015. Tomato value chain in Nigeria: Issues, Challenges and Strategies, *Journal of Scientific Research and Reports*, 7(7):501-515, 2015; ISSN: 2320-0227.

.....