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Evaluation of Competency Needs by Women Farmers in Taro Production for Increase in Food Production in Enugu State, Nigeria

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Abstract

The study evaluates the competency needs by women farmers in taro production in Enugu State, Nigeria. The Study used survey research design. Two objectives, two research questions and two hypotheses were used for the study. The population for the study was 360 comprises of 345 registered women farmers and 15 extension agents. Total enumeration sampling techniques was employed because the population was not too large, therefore, the whole population was used for the study. The instruments for data collection was a structured questionnaire title: Evaluation of competency needs of women farmers in Taro Production. 360 copies of the questionnaire were administered to the respondents, retrieved and analyzed. The data were analyzed using need gap analysis to answer the research questions while t-test was used to test the null hypotheses at 0.05 level of significance. The needs performance was determined by calculating the mean (Xn) of the needed category for each item. The performance Gap (Gp) was therefore determined by finding the difference between Xn and Xp for each item (PG=Xn-Xp). In a situation where the value of GP is positive (+ve), it means improvement is needed because the level at which Women farmers are performing is lower than what is expected. On the other hand, where GP is negative (-ve), it means improvement is not needed because Women farmers are performing more than what is required. And when GP is zero (0), it means improvement is not needed because the level at which Women farmers are performing is equal to the level needed. In testing the hypotheses, if the P-value calculated is less than .05 level of significance, the null hypotheses will be rejected otherwise retained. Based on the findings of the study it was concluded that that taro farmers need improvement in planning and planting operation in taro production in the study area. It was therefore, recommended that women farmers should be trained on planting and for improved taro production and food security in the area.

Keywords: Evaluation of competency needs, Women farmers, Taro production, food security

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INTRODUCTION

The ability of any farmer to venture into Taro production (cocoyam) with success required competency and skills for quality harvest. Competency as viewed by Ezeabii and Ndelekwu (2017) is the ability of an individual to do a job properly; and is the combination of practical and theoretical knowledge, cognitive skills, behaviour and values to improve performance. Competency in the opinion of Ekele (2019) is the knowledge and skill which an individual acquires in order to perform a given task. It involves psycho-productive skills or acquired skills and abilities for performing task adequately with the muscle in response to sensor stimuli. To enhanced productivity therefore, women farmers needs these competency skills to enable them thrived in taro production. Women farmers here refers to those women

involve in taro production from pre-planting to harvesting, processing and marketing stages of production of a produce (Ugwu, 2019).

The author added that 43% of the world's agricultural labour force are women who form the large group of small holder farmers that provide labour during agricultural production at the subsistence level. In Enugu States for example these women live mostly in rural areas with their families. They form a major source of labour on the farms and at home supplying water for the family, and food processing for consumption by family members which taro is one of the major crop. Oyedokun & Lawal (2017) opine that Nigeria is currently struggling with the problem of food insecurity and sustainable agriculture which is evident in its inability to feed its citizenry on a land mass that is about 80% arable. Today, the rate of food production has been in a decline due to security challenges around the country. Cocoyam production is said to be a seasonal crop; it is mainly available between the month of August and November. These women though working hard on the job but are still very poor economically, as a result of inadequate competences skill in cocoyam production.

The production of Taro (*Colocasia esculenta* (L.) is essential because it has been known to be an important staple food crop in the area. It is widely cultivated and distributed in the wet tropics of the world. It is an herbaceous plant with edible tubers and leaf. In Nigeria it commonly referred to as cocoyam, Ede (Igbo), Agbo (Tiv), Koko (Yoruba), Gwaza (Hausa), Aye (Idoma), among others. Miyasaka*, et al.,* (2019) opined that the centre of origin of taro is located in the Indo-Malayan area while Ahmed, *et al.,* (2020) also opined that taro originated in Southeast Asia and then dispersed to Australia and Papua New Guinea. Nigeria has been the world's leading producer of cocoyam (taro), accounting for up to 3.7 million metric tonnes in 2009 and still maintains the lead among cocoyam producing nations, with an annual production of 4.55 million metric tonnes in 2012, representing 61.2% and 43.1% total production in West Africa and Africa, respectively (Chukwu, 2018). Taro has the ability to grow and adapt well in wet or waterlogged soil. The taro corm is characterized by high-quality and affordable source of starch, which is gluten-free, hypoallergenic and highly digestible (Singla, *et al.,* 2020). Taro corm contains 70%–80% starch. The starch content in taro corm is higher than that of sweet potato and cassava (Kaith, *et al.,* 2022). Young leaf blade and petiole are consumed as leafy vegetable and are rich in vitamins, minerals and fibre (Shekade, *et al.,* 2018). Globally, taro is the fifth most cultivated root crop (Miyasaka et al., 2019). Multiple vegetative parts of the taro plant can be used as planting materials (PMs), including cormel, sucker and stolon (Setyawan, *et al.,* 2021). In general, taro plants are divided into wild taro (non-cultivated), swamp taro (growing well in wet and flooded lands, producing long stolon, which can also be used as the planting materials) and common taro (widely cultivated) which help to increase the production of taro. Ugwoke, et al (2017) categorized activities in crop production into pre-planting, planting, post-planting and harvesting operations.

Production in this study involves the successful management of agronomic practices for growing taro and making them available to final consumers. And these has help in ensuring that there is food security in the area. Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life (FAO in Wombo and Ngbongha, 2021). Food security in the view of Bill Clinton in Ukonze, (2019) is when all people have enough to eat at all time to be healthy and active, and do not have the fear that the situation will change in the future. To ensure there is food security at all-time therefore, women farmers in taro production needs to constantly improved on their competency skills for better production of taro in the area.

Statement of the Problem

Women in Enugu state south east have been on the lead in terms of taro production which have always improved their standard of living thereby making sure that food is available throughout the year. The availability of the product is as a result of knowledge and skills acquired by the women farmers. The researcher personal investigation reveal that production of taro in the area has been on the decline as a result of inadequate production. The researcher preliminary investigation from the study area reveal that cocoyam has been a staple food for most families but in recent time there have been a decline in cocoyam production due to inadequate knowledge on the approaches required for improved production. Further investigation by the researcher also reveals that women farmers neither undergo training on the new methods of cocoyam production which has led to a decline in production that have threaten food security in the area hence the study.

Purpose of the study

The main purpose of the study is to evaluate the competency needs of women farmers in Taro production for increase food production and food security in Enugu State, Nigeria. Specifically, the study sought to:

1. evaluate the planning improvement needs of women farmers in taro production in the area.
2. examine the competency improvement needs of women farmers in planting of taro production.

Research Questions

1. What is the planning improvement needs of Women farmers in in taro production in Enugu State, Nigeria?
2. What is the competency improvement needs of women farmers in planting of taro in Enugu State, Nigeria?

Hypotheses

1. There is no significant difference in the mean ratings of extension agents and women farmers in planning for taro production in Enugu State.
2. There is no significant difference in the mean ratings of extension agents and women farmers on the competency improvement needs in planting of taro production in Enugu State.

METHODOLOGY

The study adopted a descriptive survey research design. Data were collected from a representative sample of (extension agents) and farmers using questionnaire. The population for this study was 345 registered taro farmers and 15 extension agents in the study area. Total enumeration sampling techniques was employed because the population was not too large. There was no sampling because the researcher was able to manage the population. The instrument used for data collection was a structured questionnaire titled "Evaluation of competency needs of women farmers in Taro Production Questionnaire (ECNWITPQ). The items (ACNPEAQ) had a four-point rating scale of Very High (VH), High (H), Low (L) and Very Low (VL) for the need rating as well as Very High (VH), High (H), Low (L) and Very Low (VL) for performance rating with a corresponding value of 4, 3, 2, and 1 respectively. The instruments were face and content validated by three experts, one from Department of Agricultural Education, one from Department of Crop Production and one from Department of

Agricultural Extension all from Joseph Sarwuan Tarka University, Makurdi. Appropriate modifications were affected on the instrument based on the corrections and comments of the validators. To ensure the reliability of the instrument, it was trial tested on 30 taro farmers and 5 extension agents in Ebonyi State. The instrument was retrieved after three days. Cronbach alpha reliability method was used to analyze data and a coefficient 0.84 and 0.75 was obtained for need and performance respectively. Four research assistants who are familiar with the study area were assisted in administering and collection of the instrument from the respondents. Three hundred and sixty copies of the questionnaire were administered to the respondents, retrieved and analyzed. The data were analyzed using need gap analysis to answer the research questions while t-test was used to test the null hypotheses at 0.05 level of significance. The needs performance was determined by calculating the mean (Xn) of the needed category for each item. The performance Gap (Gp) was therefore determined by finding the difference between Xn and Xp for each item (PG=Xn-Xp). In a situation where the value of GP is positive (+ve), it means improvement is needed because the level at which Women farmers are performing is lower than what is expected. On the other hand, where GP is negative (-ve), it means improvement is not needed because Women farmers are performing more than what is required. And when GP is zero (0), it means improvement is not needed because the level at which Women farmers are performing is equal to the level needed. In testing the hypotheses, if the P-value calculated is less than .05 level of significance, the null hypotheses will be rejected otherwise retained.

RESULTS

Research Question 1

What is the planning improvement needs of Women farmers in in taro production in Enugu State, Nigeria?

Table 1: Performance Gap Analysis of mean rating of respondents on planning improvement needs of women farmers in taro production in Enugu State, Nigeria (N= 345; 15)

S/N	ITEMS	Xn	Xp	PG (Xn - Xp)	Remark
1.	Location of suitable site for farming	3.51	2.87	0.64	IN
2.	Ability to source for fund	3.40	2.55	0.85	IN
3.	Ability to carryout market survey	3.36	2.33	1.03	IN
4.	Formulation of objectives for the farm	3.45	2.77	0.68	IN
5.	Preparation of budget for the farm	3.35	2.74	0.61	IN
6.	Ability to carry out soil testing	3.27	2.67	0.60	IN
7	Identification of planting materials	3.99	2.65	1.34	IN
Pooled PG		**3.47**	**2.65**	**0.82**	**IN**

X_n = mean of need (Extension agents), Xp = mean of performance (Farmers), PG = performance gap, N = number of respondents, IN = improvement needed

The data in Table 1 revealed that the performance gap (PG) values of all the seven (7) items ranged from 0.60 – 1.34 and were positive. This indicated that women farmers needed improvement in all the eight approaches to taro production practices in the study area. The pooled PG of 0.82 indicates that in all, women farmers need improvement in planting of taro production.

Table 2: t-test on the responses of the mean ratings of extension agents and taro farmers on planning improvement needs of women farmers in taro production in Enugu State, Nigeria

Respondents	N	Mean	Std	Std. Error Mean	Df	Sig	t-cal	Alpha Value	Remark
Taro farmers	345	3.3433	.5245	.2874	358	.000	132.21	.05	S
Ext. agents	15	2.6854	.7572	.1350					

N= Number of respondents, Std = Standard deviation, df = degree of freedom, t-cal = t-calculated, Sig. = P-value; S = significant.

Table 2 revealed a p-value of .000 (at 358 degree of freedom) which was less than the alpha value of 0.05. This indicates that there was statistically significant difference between the mean ratings of the responses of extension agents and taro farmers on planning improvement needs of women in taro production in Enugu State, Nigeria. The null hypothesis is therefore rejected.

Research Question 2

What is the competency improvement needs of women farmers in planting of taro in Enugu State, Nigeria?

Table 3: Performance Gap Analysis of mean rating of respondents on the competency improvement needs of women farmers in planting of taro in Enugu State, Nigeria (N= 345; 15)

S/N	ITEMS	Xn	Xp	PG (Xn - Xp)	Remark
1.	Ability to plant by sucker	3.61	2.87	0.74	IN
2.	Planting directly by corms	3.12	2.45	0.67	IN
3.	Ability to organise individual and group learning	3.26	2.51	0.75	IN
4.	Provide spacing 30-100cm between plant	3.45	2.77	0.68	IN
5.	Soil depth of 15-20cm	3.35	2.74	0.61	IN
6.	The use of well-drained soil	3.27	2.67	0.60	IN
7.	Ensure availability of sunlight	3.45	2.87	0.58	IN
8.	Cut surface facing upwards	3.36	2.81	0.55	IN
9.	Planting on ridges or mounds	3.29	2.59	0.70	IN
10.	1 meter apart with rows spaced	3.28	2.53	0.75	IN
	Pooled PG	**3.34**	**2.68**	**0.66**	**IN**

X_n = mean of needed (Extension agents), Xp = mean of performance (Farmers), PG = performance gap, N = number of respondents, IN = improvement needed.

The data in Table 3 revealed that the performance gap (PG) values of nine (9) items ranged from 0.55 – 0.75 and were positive. This indicated that women farmers needed competency improvement in nine items in planting of taro production except for item 8 that does not required improvement. The pooled PG of 0.66 indicates that in all, women farmers need competency improvement in planting of taro.

Table 4: t-test on the responses the mean ratings of extension agents and taro farmers on the competency improvement needs of women farmers in planting of taro in Enugu State

Respondents	N	Mean	Std	Std. Error Mean	Df	Sig	t-cal	Alpha Value	Remark
Taro farmers	345	3.4112	.4245	.2174	358	.000	154.21	.05	S
Ext. agents	15	2.5842	.6572	.1270					

N= Number of respondents, Std = Standard deviation, df = degree of freedom, t-cal = t-calculated, Sig. = P-value; S = significant.

Table 4 revealed a p-value of .000 (at 358 degree of freedom) which was less than the alpha value of 0.05. This indicates that there was statistically significant difference between the mean ratings of the responses of extension agents and taro farmers on the competency improvement needs of women farmers in planting of taro in the area. The null hypothesis is therefore rejected.

Discussion of Findings

In Table 1, the result of the data analyzed revealed that the planning improvement needs of Women farmers in taro production in Enugu State include: Location of suitable site for farming, ability to source for fund, ability to carry out market survey, formulation of objectives for the farm, preparation of budget for the farm, ability to carry out soil testing and identification of planting materials. This finding is in agreement with Ekele, (2019) who observed that every farming activities begin with planning and any farmer who fail to planned will fail in the process. The author added that for success to be achieved the objectives of the farm or business should be properly spelled out. On the other hand, Abdel-Gawed, (2017) added that formulation of objectives alone is not enough but ensuring that there is adequate preparation of budget as this will enhance adequate production and management of the farm for better result. Most women in agriculture do not follow do follow the observed procedure as explain by Ekele and as such needed constant training for better understanding and improvement (Amusa, Enote and Okon,2021). Furthermore, Chikaire et al, (2018) opine that observed that constant training is necessary for to update the knowledge of farmers for improvement and better production of Taro in Enugu State.

Table 2 indicated that the findings on the competency improvement needs of women farmers in planting of taro are ability to plant by sucker, planting directly by corms, ability to organise individual and group learning, provide spacing 30-100cm between plant, soil depth of 15-20cm, the use of well-drained soil, ensure availability of sunlight, cut surface facing upwards, planting on ridges or mounds, 1meter apart with rows spaced and many more. This in support of Androulidakis and Siardos (2020) who explain that the method of planting of taro determines the type of harvest obtained by the farmers. The authors added that when production process is carefully followed and other parameters are in place success is always sure. While Chukwu, Obinna and Madu (2019) observed that the reason for the decrees in production is as a result of the inability of the women farmers to follow the modern method of production in the area. Young farmers who venture into the business of are inadequately equip for the business (Ezeocha, et al, 2018). The authors further added that it is therefore necessary for farmers to always undergo training in order to update their knowledge and improved on their level of competency need with regard to taro production in Enugu State. Until these processes are being followed and applied food security in the area will still be challenged.

CONCLUSION

Based on the findings of the study, the researcher concluded that taro farmers need improvement in planning and planting operation in taro production in the study area. The extension agents should use their own experience to transfer new technologies to farmers to enhanced their level of production and as such prevent food security in the study area.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations were made.

1. Women farmers should be trained on planning for improved taro production and food security in the area.

2. Private and public organization should always organize workshop in planting of cocoyam as a mean of assisting farmers to enhance their competency need in taro production for food security.

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