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Development of Instructional Package on Cassava Enterprises for the Training of Secondary School Graduates in Ebonyi State Skill Acquisition Centres

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Abstract
The cassava enterprise aspect of agricultural skill acquisition does not exist in the state skill acquisition centre for training secondary school graduates. This study therefore sought to develop work-skills in cassava enterprises for training of secondary school graduates in Ebonyi State skill acquisition centers. Three research questions guided the study. Survey research design was adopted. The population for the study was 500 made up of 450 registered cassava farmers and 50 agricultural science teachers. Simple random sampling technique was used to select 153 respondents. The instrument was a questionnaire used to elicit information from the respondents for developing the training package. Three experts validated the instrument. Data collected through the instrument were analyzed using mean and standard deviation for answering research questions. The results indicate 16 work-skills on cassava production practices, 10 work-skills on processing and 8 work-skills on marketing activities. These work-skills formed the training package. It was then recommended that the administrators of skill acquisition should use the training package for training. The state government should mobilize secondary school graduates for the training on the identified work-skills in the skill training centers.
Keywords: instructional package, cassava enterprise, training, graduates, skill acquisition
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1. Introduction

Agriculture is one of the most important sectors of the economy of Nigeria, and Cassava is one of the major farming enterprise that creates good opportunity for sustainable living in the country. Cassava (Manihot esculenta) is a woody perennial shrub cultivated as an annual crop mainly as a source of carbohydrate to the populace. It is consumed as food when cooked or baked. It is also used as an animal feed and for industrial purposes. Cassava has large spirally arranged leaves in different forms. It produces tuber roots that are bulky and perishable if separated from the stem (postharvest physiological deterioration). In Nigeria, cassava can be cultivated all year round. Cassava can be grown in rainy and dry seasons. According to Food and Agriculture Organization (2013), cassava displays an exceptional ability to adapt to climate change, with tolerance to low soil fertility, resistance to drought condition, pests and diseases, and suitability to store its roots for long period underground even after the maturity, thus becoming a major enterprise.

Cassava enterprise has a very wide range of products that creates entrepreneur skills for secondary school graduate ranging from production, processing to marketing. Production of cassava starts from site selection, clearing, tillage operations (ploughing, harrowing, ridging or mounds making), identification of good varieties and healthy cassava stem cuttings, planting, weeding, mulching, application of manure till harvest. Cassava root is bulky and deteriorates easily when harvested, thus require processing using technology. Technology came into play for processing cassava in different forms or products that can stay for a long period of time. Hahn (1989) stressed that the potential of cassava in production of animal and human foods mainly focused on processing method. Cassava can also be processed through fermentation, to reduce anti-nutrients and become more nutritious food (Oboh and Oladunmoye, 2007). Garri is one of the products that can be produced through these operations; peeling, washing, grinding, pressing, sieving, frying and bagging. Skills that need training in processing and packaging includes: handling of cassava grinding machines, making of floor, handling of cassava chips machines, making of cassava cake, making pellets and skills in techniques/selection of materials for packaging cassava products. Marketing and distribution promote production and processing of cassava. Activities in the cassava production form, the curriculum content.

Curriculum is a well planned training package use to improve positive work skill and create good environment to the learner. According to Nunan (2013), curriculum is a set of principles and procedures for planning, implementation, evaluation and management of an education program. Curriculum is an actionable roadmap focused on step by step activities that a leaner undertake to achieve good results and set out objectives. Curriculum spells out where, when, period of training, objectives and how to achieve the expected results. In this paper,

curriculum development is a step by step process used to analyze, design, select, form and review instructional package in cassava production. The purpose is to create positive improvement in food security through skill training.

The fundamental issues to address in order to achieve food security and bring back lost glory of using agriculture as the major contributing factor for boasting Nigerian economy depend on youth training in various agricultural enterprises including cassava production. Therefore, secondary school graduates need training to acquire production skill in cassava enterprises. Phipps, Oshoruu, Dyer and Bill (2008) in Ikeoji and Onwuegbuna (2017) stated that the primary purpose of secondary school agricultural education is to prepare students for entry level employment as well as to become entrepreneur in the agricultural industry. But, many secondary school graduates are roaming about having passed with good grade in agriculture science without acquiring enough skill to establish any related business. Ajayi, Adenji and Adu (2008 in Emeh, Abang, Isangadighi, Asuquo, Agba and Ogaboh (2011)) stated that unemployment in young secondary school leavers rose from 59.2% in 1998 to 68. 7% in 1994. Therefore, there is need for a training package in cassava production for use in skill acquisition centre.

Skill acquisition centre has been established in various states of the federation with the aim of training youth for self employment. In Ebonyi State, there are numerous secondary school graduates without job skills and thus not employed. This group of people could be motivated into training in skill acquisition centers. But, Ebonyi state skill acquisition centers lack instructional package for training in agricultural enterprises, especially cassava.

Opinion of Edu and Ogba (2016), Oyeyinka and Balarinwa (2015) describe training as planned process to modify attitude, knowledge, or skill behavior through leaving experience to achieve effective performance in an activity or range of activities. Training is an activity of impacting and acquiring reasonable skills that brings social upbringing and development of one's talent. Training according to Certo (1997) in Oyeyinka and Bolarinwa (2015) is the act of increasing skills that enable employee to better meet the organization set goals that improve productivity and quality. Training is a catalyst that boasts the productivity and increase the quality of an organization. Training increases the growth of an establishment from substance to commercial form. This work focused on the development of instructional package that will equip and arose interest of secondary school graduates on cassava enterprises.

To achieve sustainable living through agriculture, there is need for curriculum development in some of the agricultural enterprises such as cassava farming. Hayles and Holdworth (2008) opined that current training rarely provide students with true understanding of reality, because their decisions have no the natural environment to allow such change to occur. There is need to reform the curriculum to incorporate the required skills and ingredients needed to achieve sustainable development. Hayles and Holdworth (2008) defined sustainable development as where individual develop skills to acquire critically and think systematically about problems in a way that allows them to explore the associated complexity and implication for more sustainable way of being.

The need for the development of instructional package on cassava production enterprises is therefore very necessary. This will help to engage secondary school graduate and interested adults in skill training for employment. It is against this background that the study was carried out to develop training package for use in the skill acquisition centers in Ebonyi State.

1.1 Purpose of the Study

The purpose of this study was to develop training package on cassava enterprise for the training of secondary school graduates in Ebonyi state skill acquisition centers specifically the study tends to identify training skills on;

- Cassava production
- Cassava processing
- Marketing cassava products

1.2 Research Questions

The following questions were formulated to guide the study

- What are the training skills required in cassava production?
- What are the training skills required in cassava processing?
- What are the training skills required in marketing cassava products?

2. Methodology

This study adopted a survey research design. The study was carried out in Ebonyi State, which was purposively chosen because of pupil's interest in cassava production. A random sample technique was utilized in three communities from each of the three agricultural zones in the state. Each of the community produced eleven registered farmers' ad six agricultural science teachers. This gave one hundred and fifty three (153) respondents, made up of ninety nine (99) registered farmers and fifty four (54) agricultural science teachers.

The instrument for data collection was a 32 items structured questionnaires developed from literature and confirmed through functions of industry approach. Each item was assigned a four response options of Highly

Required (HR), Moderately Required (MR), Slightly Required (SR) and Not Required (NR) with values of 4, 3, 2, and 1 respectively. The instrument was validated y three experts, all from Department of Technology and Vocational Education.

Data collected was analyzed using mean to answer the research questions. In taking decision on the required items, real limit of numbers were assigned to the response options thus Highly Required 4 = 3.50 – 4.00; Moderately Required 3 = 2.50 – 3.49; Slightly Required 2 = 1.50 – 2.49 and Not Required 1 = 0.00 – 1.49. Therefore, any item with a mean value of 1.50 or above was required but if below 1.50, it was regarded as not required.

3. Results

Research Question 1

What are the skills required in production of cassava for training secondary school graduates in Ebonyi state skill acquisition centre?

Table 1. Mean Ratings and Standard Deviation of Respondents on Skills Required in Production of Cassava for Training Secondary School Graduates in Skill Acquisition Centre in Ebonyi State N= 153 (99 Farmers and 54 Teachers)

S/N	Item Statements	$\bar{x}_g$	SD_g	Remark
1	Ability to select good site	2.57	0.53	Required
2	Land clearing using of agrochemical	2.65	0.57	Required
3	Clearing by bush burning	3.00	0.56	Required
4	Land clearing using cutlass	3.08	0.63	Required
5	Ploughing the farm land	2.63	0.56	Required
6	Ability to harrow and incorporate organic matter	2.54	0.53	Required
7	Ability to make ridge or mounts	3.06	0.59	Required
8	Identification of improved varieties	2.56	0.54	Required
9	Ability to handle the cuttings	2.99	0.62	Required
10	Ability to maintain optimal cassava plant spacing	2.64	0.57	Required
11	Ability to use good planting method	2.76	0.58	Required
12	Application of manure	3.03	0.60	Required
13	Ability to weed at the appropriate period	2.97	0.68	Required
14	Ability to do mulching	2.60	0.56	Required
15	Ability to control pest/diseases	2.53	0.52	Required
16	Ability to harvest cassava stem and roots	2.58	0.55	Required

$\bar{x}_g$ = Mean of the respondents, SD_g = Standard deviation of respondents

Data presented in Table 1 revealed that all the 16 items on cassava production ranging from 2.51 to 3.08 had mean above the cut-off point of 2.50. This signifies that each item is a skill required in the training package. The close range of standard deviation (0.52 to 0.68) indicates the closeness of the respondents to each other.

Research Question 2

What are the skills required in processing cassava for training secondary school graduates in Ebonyi state skill acquisition centre?

Table 2. Mean Ratings and Standard Deviation of Respondents on Skills Required in Processing of Cassava for Training Secondary School Graduates in Skill Acquisition Centre in Ebonyi State N= 153 (99 Farmers and 54 Teachers)

S/N	Item Statements	$\bar{x}_g$	SD_g	Remark
1	Ability to handle cassava chip machine	2.58	0.69	Required
2	Ability to make cassava flour	2.53	0.63	Required
3	Ability to make cassava biscuits	2.52	0.55	Required
4	Ability to extract ethanol from cassava	2.58	0.63	Required
5	Ability to produce starch from cassava	2.65	0.71	Required
6	Ability to handle cassava processing machines	2.58	0.64	Required
7	Ability to produce garri	3.07	0.80	Required
8	Ability to produce pellets for animal feeds	2.52	0.57	Required
9	Ability to prepare cassava leaves as vegetable	2.50	0.50	Required
10	Ability to produce bio-fuel from cassava	2.63	0.68	Required

$\bar{x}_g$ = Mean of the respondents, SD_g = Standard deviation of respondents

Data presented in Table 2 revealed that all the 10 items on cassava processing ranging from 2.50 to 2.65 had mean above the cut-off point of 2.50. This signifies that each item is a skill needed in the training package. The close range of standard deviation (0.50 to 0.71) indicates the closeness of the respondents to each other.

Research Question 3

What are the skills required in marketing cassava products for training secondary school graduates in Ebonyi state skill acquisition centre?

Table 3. Mean Ratings and Standard Deviation of Respondents on Skills Required in marketing of Cassava products for Training Secondary School Graduates in Skill Acquisition Centre in Ebonyi State N= 153 (99 Farmers and 54 Teachers)

S/N	Item Statements	$\bar{x}_g$	SD_g	Remark
1	Ability to identify off-takers market links and distribution	3.14	0.74	Required
2	Ability to advertise cassava produce	3.00	0.71	Required
3	Ability to measure cassava stem in bundles	2.54	0.51	Required
4	Ability to package cassava produce to add high value	2.67	0.64	Required
5	Ability to measure cassava produce correctly	2.72	0.68	Required
6	Ability to keep good record of sales of produce	2.78	0.69	Required
7	Ability to preserve and store in a good system	3.02	0.69	Required
8	Ability to evaluate to know whether there is profit or loss	2.86	0.71	Required

$\bar{x}_g$ = Mean of the respondents, SD_g = Standard deviation of respondents

Data presented in Table 3 revealed that all the 8 items on marketing cassava products ranging from 2.54 to 3.14 had mean above the cut-off point of 2.50. This signifies that each item is a skill required in the training package. The close range of standard deviation (0.51 to 0.74) indicates the closeness of the respondents to each other.

3. Discussion of Findings

The findings of the study in Table 1 revealed that 16 skills were required in production of cassava for training secondary school graduates in Ebonyi state skill acquisition centre. These skills are ability to select good site, land clearing using agrochemical, clearing by bush burning, land clearing using cutlass, ploughing the farm land, ability to harrow and incorporate organic matter, ability to make ridge or mounts, identification of improved varieties, ability to handle the cuttings, ability to maintain optimal cassava plant spacing, ability to use good planting method, application of manure, ability to weed at the appropriate period, ability to do mulching, ability to control pest/diseases and ability to harvest cassava stem and roots. It was found out that there was no significant difference in the mean rating of responses of registered cassava farmers and agricultural science teachers in identifying the skills needed in production of cassava for training secondary school graduates in Ebonyi state skill acquisition centre. The findings agree with the view of Ayoola, and Adeniran, (2006), who affirmed that ability to apply good cultural practices restore plant nutrients in the soil and enhance productivity of both quality and quantity.

The findings of the study in Table 2 revealed that 10 skills were required in processing of cassava for training secondary school graduates in Ebonyi state skill acquisition centre. The skills include ability to handle cassava chip machine, ability to make cassava flour, ability to make cassava biscuits, ability to extract ethanol from cassava, ability to produce starch from cassava, ability to handle cassava processing machines, ability to produce garri, ability to produce pellets for animal feeds, ability to prepare cassava leaves as vegetable and ability to produce bio-fuel from cassava. It was found out that there was no significant difference in the mean rating of responses of registered cassava farmers and agricultural science teachers in identifying the skills needed in processing of cassava for training secondary school graduates in Ebonyi state skill acquisition centre. The findings agree with Dauda, Amao, Ganiyu, and Adeniyi (2015) who stated that Nigeria can be put into global context for competition if the uses of cassava in primary industries are to be upgraded. One of the upgrade is adoption of this study in processing such as starch, ethanol, chips and flour making. The findings also in line with view of Tiffany (2015): Fernandz-stark, Bamber and Gereffi (2012), Dolan and Sorby, (2003) who stated that work skill upgrading of low level workers or beginners can be achieved by training in processing, grading and packaging.

The findings in Table 3 revealed that 8 skills were required in marketing and distribution of cassava products for training secondary school graduates in Ebonyi state skill acquisition centre. The skills items include ability to identify off-takers market links and distribution, ability to advertise cassava produce, ability to measure cassava stem in bundles, ability to package cassava produce to add high value, ability to measure cassava produce correctly, ability to keep good record of sales of produce, ability to preserve and store in a good system and ability to evaluate to know whether there is profit or loss. It was found out that there was no significant difference in the mean rating of responses of registered cassava farmers and agricultural science teachers in identifying the skills needed in marketing of cassava products for training secondary school graduates in Ebonyi state skill acquisition centre. The findings agree with the opinion of Kiruthigo, Karthi, and Asha Daisy (2015) who stated that appropriate marketing skills is unavoidable in agriculture with the following reasons; breaking circle of poverty, optimum utilization of agricultural resources, creation of employment opportunities, enhance foreign trade and support industrial development. It is also supported by Faezeh, Mehdi and Farhad (2015) who stated that efficiency of marketing system increases production and income of farmers.

5. Conclusion

Based on the findings of the study, all work skill items that mat the cut-off point of 2.50 were regarded as needed for training secondary school graduates in Ebonyi state skill acquisition centre. The study identified work skills in Cassava production, processing and marketing as a training package that will equip the secondary school graduates in Ebonyi state skill acquisition centre after training.

From the findings of the study, it was recommended that administrators of skill acquisition should use the training package for training. In addition, the state government should mobilize secondary school graduates for the training on the identified work-skills in the skill training centers.

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