



EFFECTIVENESS OF DEVELOPED GROUNDNUT PRODUCTION PACKAGE IN TRAINING YOUTHS FOR EMPLOYMENT AND FOOD SECURITY IN SOUTH EAST NIGERIA

NWANKWO, C.U, EGBO, B.N and IFEANYEZE, F.O

Department of Agricultural Education, University of Nigeria Nsukka.

Department of Agricultural Education, College of Education (Technical) Enugu

Department of Agricultural Education, University of Nigeria Nsukka

Abstract: Food security has been a problem in the Country, as most Nigerians live below the recommended food intake of one dollar per day. Youths in South East Nigeria find it difficult to be employed in groundnut production, although they are expected to have acquired the production skills in this direction while in school. An interaction of the researchers with some teachers of Agricultural science in the study area, revealed that, there are absence of land for practical and practical textbooks for use in this direction, hence most graduates were taught theoretically despite the request of the curriculum to grow crops prevalent in the area. To solve the problem, this study determined the effectiveness of developed groundnut production package in training of youths for employment and food security in South East Nigeria. Specifically, the study determined the efficacy of the package in establishment and post planting operations in groundnut for training of youth. Two research questions with corresponding hypotheses guided the study. The study adopted one-group pretest-posttest design on a population of 21,909,782 unemployed youths in South East Nigeria. Incidental sampling technique was used to select 85 respondents consisting of 50 female and 35 male. The instrument for data collection was 55 rating scale items developed from the groundnut production package. The instrument was face and content validated by three experts. The reliability of the instrument was determined using Kuder Richardson method and a coefficient of 0.85 was obtained. Data collected were analyzed using mean and standard deviation for research questions, while analysis of variance ANOVA was used to test the null hypothesis at 0.05 level of significance. The findings revealed among others that groundnut production package was effective in training youths. Based on the findings it was recommended that groundnut production package should be used in training youths in other area to enhance food security

Keywords: - youths, groundnut, employment, effectiveness

Introduction

One of the main sources of oilseed in Nigeria is groundnut. Groundnut *Arachis hypoigaea* is a fruit-nut that has firm ovary wall at maturity and is of the family Fabaceae, Ororo, robo (FAO 2012). According to the author groundnut originated from South America and the botanical name *Arachis hypogaeae* was derived from Greek words *Arachis* meaning legume and *hypogaeae* - below ground, which is formation of pod in the soil.

Directorate Plant Production (2010) stated that groundnut is grown throughout warm temperate regions of the world including Nigeria. A handful of groundnut seed consumed everyday provides energy, protein, dietary fiber, phenolic antioxidants, 13 vitamins, and 26 minerals; the recommended daily needs, dietary fiber content of groundnut enhances digestion, and are beneficial in treatment of hemophilia; it aids brain health and increases blood flow to brain, boiled groundnut enhance the

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antioxidants concentration and it is recommended for growing children, expectant women, and nursing mothers as part of their diet to enhance immunity against dangerous infections like hepatitis and tuberculosis. (Iloventia 2019). It is a major cash crop being the sixth most important oil seed in the world (Shodhganga, (2019). The crop improves soil fertility through nitrogen fixation thereby increasing productivity of other crops especially when integrated in crop rotation system. These importance bring groundnut crop to the fore in the production list. Between 1956 and 1967, groundnut was the country's most valuable single export crop contributing about 10% of total supply globally and the highest exporting country in Africa before the oil boom (Ageigbe, and et al 2015). This increased the production from subsistence/local farming to commercial/large scale production and subsequently lead to famous groundnut pyramids in Kano but continued to decline over time until finally remained in the hands of subsistence farmers.

Many farmers realizing important of groundnut engage extensively in its production. Production according to Heinz and Neri (2014) involves some dealings of man with nature. Business Dictionary (2014) defined production as a process of combining various material and immaterial inputs in order to create something for consumption. The author further stressed that production is the process adopted to transform tangible inputs (raw materials, semi-finished goods, subassemblies) and intangible inputs (ideas, information, knowledge) into goods or services, with suitable resources to create an outputs that are appropriate for use due to its value. In this study production is cultivating groundnut with necessary materials (tangible inputs) and knowledge (intangible inputs) to produce groundnut seeds for utilization. United Nations Educational Scientific and Cultural Organization (UNESCO, 2010) stated that a successful farmer in

groundnut production are those that apply prescribed management skills/practices throughout the cultivation process. In Groundnut production, as a self-pollinated, annual herbaceous legume, it requires moisture warm soils for speed germination process, high temperature range of 18°C to 30°C, and 20°C to 35°C, for flowering and formation of seeds - 28°C, it grow better in well-drained red coloured, yellow-red and red fertile, sandy to sandy loam soils with PH range of 5, 6, 7 and 0 saline soils because it has very low salt tolerance, seedbed prepared either on beds or widely ridged field. (Groundnut Production Guide, 2010). Ageigbe, weliya, Echekwu, Ayuba, Motagi, Eniayeju and Inuwa (2015) opined that groundnut has different planting times for various varieties but it thrives better in well drained sandy loam, sandy clay or deep well drained soils with soil P^H of 6. 7, 0 and high fertility at optimal soil temperature of 27°C – 30° C and 24 ° C - 27° C for reproductive growth and evenly distributed annual rainfall of 450mm and 1250mm The crop has runner/horizontal stems that bring out flowers which self-pollinate an anchor or peg that penetrate into the soil to form pods at the tip of the pegs. The authors further pointed out that groundnut requires - low clay less than 20% with a loose structure for pegs to penetrate easily in the soil as high clay content may not allow the pegs to freely enter the soil and damages the pods during harvest, - seedbed should be deep without compaction layers to help the groundnut root system. Generally groundnut production process covers its establishment and post planting operations. Establishment operations involves such activities like – site selection ,land preparations, seed viability test, and planting while post planting operations involves weeding, harvesting, farm level processing and storage activities. These activities under establishment and post planting operation in addition to training materials, methods and procedures



were packaged with intended objectives, as module for training youths

Youths are growing people. Youths are social group made up of people aged about fifteen to twenty-five years, who are not yet conceded the role of adults by society (Smolik 2018). United Nations (2018) defined youths as those persons between ages of fifteen to twenty-four years. In the context of this study youths are those individuals between the ages of fifteen and twenty-five that graduated from secondary or tertiary instructions without jobs but are interested in groundnut production in South East Nigeria. Singh (2020) outlined importance of youth as-young people help the community in realizing its full potential and addressing its problems, they also emerge with sense of civic responsibility, social and interactive skills, professional skills in new areas of their work, greater sensitivity to the needs and concerns of the community, enhanced self-esteem and self-confidence, stronger commitment and dedication to national development, sense of purpose and desire to reach their goals through training for employment.

Employment is a job that yield returns and permit a worker and his/her dependents a level of consumption for livelihood. Philip (2016) defined employment as an agreement between an employer and employee that provide certain services and in return compensated with salary or wage. International Labour Organization (ILO) (2018) stated that employment is the agreement between employer and employee based on task, job or service performed and contributions provided to an organization as specified in offer letter. In this study employment is training the youths with services of developed groundnut production package that in return provide them with income for their livelihood. According to International Labour Organization (ILO) (2012) employment help to eradicate extreme poverty and aid developing countries to maintain skilled workers from migrating to developed

countries to search for greener pastures. Aam, Mulu, Guafagno and Bart (2013) opined that employment provides remuneration for economic stability. Groundnut being labour intensive crop could create employment for teeming population of youths in South East Nigeria.

In South East Nigeria many youths are living below poverty line due to unemployment. This is caused by overpopulation, shift from agricultural sector to oil, poor quality education, lack of planning by government, insecurity, migration from rural to urban areas among others. Ibikunle, Orefuwa and Mafo (2019) stated that the causes of unemployment and poverty level of youths in Nigeria is largely attributed to the rising population, lack of infrastructures, increase in school graduates with unemployable skills, migration of few skilled youths to developed countries for better job opportunities, high degree of rural- urban migration, neglect of agricultural sector and poor enabling environment for foreign investors. Uddin and Uddin (2013) outlined the causes of youth's unemployment in Nigeria as rural-urban migration, rapid population growth, low standard of education, expansion of educational system, and corruption. Due to high rate of unemployment and poverty level in the nation many youths who supposed to engage in one lucrative job or the other are rooming about seeking for unavailable employment while others are in crimes and social vices. This also led many youths into dirty politics serving as political turgues. Nwankwo and Ifejirofor (2014) stressed that unemployment in Nigeria has affected the youths and economic development of the country, hindered Nigeria graduate's progress in several ways, constitute political unrest, economic conditions cannot absorb an optimal proportion of its labour force and has contributed to increase in crimes and social vices that are facing the nation. Uddin and Uddin (2013) opined that unemployment problem in Nigeria has affected nation's economy, security, decline in standard of living,



tourism sector, job security among others. Unemployment and poverty level in the nation call for training of interested youths with developed groundnut production package. The training of interested youths with developed groundnut production package could enhance their employment opportunities if after testing its effectiveness. Effectiveness is to produce an intended result. Effectiveness is doing the right “thing”- selecting and focusing on producing an output that people are demanding (Robert 2014). Effectiveness is the extent to which stated objectives are met. In this study effectiveness is the act of determining if the objectives outlined in groundnut package are achieved when it is used in training youths for employment in South East Nigeria; that is, the already developed groundnut package by Nwankwo and Ifeanyieze (2018) was used to train youths in to find out if the outlined objectives were achieved hence the effectiveness or efficacy of the package was determined in this study. Specifically, the study determined effectiveness of the developed package in:

1. Establishment operations in groundnut production
2. post planting operations in groundnut production

Methodology

The study adopted one-group pretest-posttest design and was carried out in South East Nigeria. One-group pretest-posttest involves administering a posttest to a single group of participants after they have been pretested in an experimental treatment condition (Johnson and Christensen 2014). The population for study was 21,909,782 unemployed youths in South East Nigeria. (National Population Commission Enugu, NPC, 2021) incidental sampling techniques was used to select 85 respondents consisting of 50 female youths and 35 male youths picked from Enugu North Local Government Area of Enugu State in South East Nigeria for accessibility and

proper coordination. The instrument for data collection was a 44 rating scale items developed from the groundnut production package. (DGPP). The rating scale had activities in groundnut production and assessment blocks with the following headings very poor, poor, good, and very good. The instrument was subjected to face and content validation by three experts, two from Agricultural Education Department, Faculty of Vocational and Technical Education and one from crop science Department, Faculty of Agriculture, University of Nigeria Nsukka. The reliability of the instrument was determined using Kuder-Richardson formula 21 (K R-21) which yielded a reliability index of 0.85. Data was collected by the researchers and five assistants - (agricultural science teachers from the study area). Prior to data collection, the researchers obtained a piece of land and civic center for pretest from elders of the community for the purpose of training youths in groundnut production. The assistants were trained on how to collect data from the youths, each of the assistant was requested to help in administering pretest to all the sampled youths before training and they were taught step by step process of groundnut production as indicated in the package provided by the researchers. The establishment operations included the following clusters:

1. Procurement of land from the elders of the community
2. organize youths in clearing, stumping and harrowing the field,
3. marking the area for cultivating/preparation of beds,
4. engaging them in viability test to select viable seeds for planting,
5. drilling them on how to plant the seeds in rows using dibbler with garden line and pegs at 5-6 cm depth and 30-50 cm between the hills or stands.



Post – planting

1. youths were trained on how to weed using bare hand to pick the weeds or with cutlass or small hoe to ensure weeds are completely removed from the farm,
2. weeding were repeated 5-6 weeks of planting before pegging to avoid disturbing pod formation and competition for nutrient, water and light.
3. They were equally trained on when and how to harvest, when vine turns yellow and leaves shedding,
4. pull and un-turn to dry before picking the pods for further drying and bagging,.

After each stage in production (establishment and post planting), the youths were rated during practical as post-

test to score them in training which lasted for three months.

Data collected were analyzed using percentage while the null hypotheses were tested using one way analysis of variance (ANOVA) at 0.05 level of significance and appropriate degree of freedom. To take decision on the research question, real limit of number was used 3.50-4.00 very good, 2.50-3.49 good, 1.50-2.49 poor, and 0.50-1.49 very poor.

Research Question 1

What are the performance of youths in groundnut establishment operations for food security?

Data fir answering research question one were presented in Table 1

Table 1

Percentage Performance scores of Youths in Pre-test and Post-test for establishment operations of groundnut. N=85 Youths (Anambra 15, Abia 15, Ebonyi 15, Enugu 25 and Imo 15)

S/N	Item Statement	Pre	Post	Diff.
1	Select well-drained fertile, sandy/sandy-loam, with pH of 5- 7	51	89	38
2	Clear land with cutlass or mechanically with tractor before first rain	46	89	38
3	Stump the farm area cleared	38	79	41
4	Apply organic manure two weeks before ploughing	44	81	37
5	Mark out beds with pegs and rope maintain straight lines	45	79	34
6	Incorporate weeds into soil to enrich it for better yield.	50	79	30
7	Cultivate the field using a tractor or animal drawn plough or a hoe.	55	79	24
8	Cultivate at the beginning of rainy season for early planting.	49	81	32
9	Pulverized seedbed with sufficient planting depth and spacing.	41	81	40
10	Plough across slop to avoid run-off on the field	45	89	44
11	Harrow the ploughed earth to break up the lumps soil	37	83	46
12	Segregate obstacles in farm for easy movement and smooth activities	42	72	30
13	Construct alley ways for easy weeding and harvesting .	49	64	15
Viability Testing of Seeds				
14	Buy seeds from certified registered agro-input dealer	44	68	24
15	Preserve unshelled groundnut to us as seeds during planting season.	43	76	33
16	Hand- shelled two weeks before planting to prevent damage to	55	72	72



	seeds.			
17	Sort seeds to remove shrunked, immature, moldy or skinned ones	48	79	31
18	Carryout germination test 8-10 days before planting.	53	66	13
19	Half fill containers with required wet soil ratio of 1-2m long	48	95	47
20	Randomly select 20-100 seeds from the seed stock.	47	82	34
21	Evenly place the seeds in tray	48	74	26
22	Water seeds to maintain moisture content and observe for 5-7 days	42	73	31
23	Count the number of seeds that sprout after 7 days.	52	71	19
	Planting Activities			
24	Apply rhizobium inoculum to stimulate soil nitrogen production	47	76	29
25	Consider planting when there is adequate and consistent soil moisture	43	74	74
26	Consider planting in rows for easy agronomic practices such as weeding, identification of diseases, spraying against pests and disease	41	79	38
27	Select appropriate planting tool to utilize like cutlass, hoe, dibbler	43	75	32
28	Sow at 5-6 cm depth, spacing 30-50cm between and 15-20cm within row depending on variety	45	89	44
29	Cover with sand.	46	80	34
30	Plant in rotation of 5 years or longer to ensure quality yield of crop	46	77	31
31	Sow 150,000 plants/ha for dry land production or 300,000 plants/ha for wet	34	77	43
	Average	43.94	78.32	34.38

Data presented in Table 1 on the pretest rating performance of the youths in establishment operations of groundnut production, revealed that all the 31 items had their percentage scores ranged from 34% to 55% with average score of 43.94%. The Table further revealed that the post-test scores ranged from 64% to 94% with average score of 78.32%. The difference between the pre-test and post-test (78.32-43.94) was 34.38%. The positive difference of 34.38% indicated that the developed groundnut production package was effective for training youths in the establishment stage of the crop for employment and food security in the south East Nigeria.

H₀₁: There is no significant difference between the pre-test and post-test scores of youths in establishment operations of groundnut production for employment and food security in South East Nigeria.



Table 2:- The one-way ANOVA on the on the difference between the post-test mean performance scores of youths in establishment operations of groundnut production

Source of Variation	Sum of Squares	Df	Mean Square	F _{cal}	F _{crit}	Sig.
Between Groups	220.024	4	55.006	0.622	2.45	0.648
Within Groups	7072.800	80	88.410			
Total	7292.824	84				

NB: S=Significant, NS=Not Significant,

Table 2, showed the result of one-way ANOVA statistic for hypothesis one and it revealed that the calculated value of F-cal is 0.622 while the table of value is 2.45. From this, it can be observed that the F-critical is greater than F-cal. Therefore, the null hypothesis is accepted because the F-ratio is considered not significant at 0.05 level significance at appropriate degree of freedom. This

means that significant difference do not exist in the mean rating of the youths in five States of South East Nigeria.

Research Question 2

What are the performance of youths in post planting operations in groundnut production for employment and food security in South East Nigeria?

Data for answering research question two were presented in Table 2

Table 3

Mean performance scores and standard deviation of youths Pre-test and Post-test in Post-planting operations of groundnut production.

S/N	Item Statement	Pre	Post	Diff.
1	Weed with hoe, cutlass or hand pick, 1-2 weeks after planting	54	76	22
2	Remove weeds and loosen the soil to support the plant	47	81	34
3	Repeat weeding 5-6 weeks after planting before initiation of pegging	43	77	34
4	Apply appropriate herbicides	46	78	32
5	Apply low rate basal fertilizer 100-300 kg or single phosphate for nutrients and ameliorate soil.	45	78	33
6	Top dress the groundnut farm with calcium fertilizer for it required calcium during pegging.	51	79	28
Harvesting, Farm level Processing and Storage Activities				
7	Harvest groundnut when clearly indicated that they are matured.	42	78	36
8	Harvest when vines turn yellow and leaves shedding that is a sign of pod maturity.	37	77	40



9	Pull 3-5 plants and examine if majority (7 or 8 out of 10 attached pods) have dark markings on the shells.	46	77	34
10	Check with fingers if the pods are hard to break, inner part of pods turn brown, it also indicates maturity.	31	87	56
11	Pull to Harvest at the right time to obtain high quality and quantity	35-	75	40
12	Hand pick, dig the plant with hoe, using groundnut lifter,	51	74	23
13	Shake off soil after harvesting groundnut.	43	68	25
14	Turn to expose the nuts/pods to sunlight before stripped.	53	76	23
15	Strip groundnut manually by plucking the pods	44	69	25
16	Spread the harvested ground on tarpaulin or cemented floor.	58	72	14
17	Spread the nuts/pods evenly on drying surface and turn regularly or at an intervals to ensure even drying.	55	65	10
18	Turn with rake or other long pole to avoid stepping on and crushing the nuts/pods.	46	72	27
19	Shake to determine drying by a handful of dried pods and listening to a rattling sound.	43	71	29
20	.Store dried shelled or unshelled groundnut.	45	90	45
21	Store unshelled dried groundnut in sacks, clay/mud silos, woven straw, baskets or clay pots next planting season.	49	84	35
22	Cover the openings in the storage rooms to protect rodents and other pests from attacking product.	40	81	41
23	Pack bagged groundnut on pallets to protect them from absorbing moisture.	37	90	53
24	Pack bags away from walls to ensure adequate air circulation.	42	95	53
Average		44.13	76.63	32.50

Data presented in Table 2 on the pretest rating performance of the youths in post planting operations of groundnut production, revealed that all the 31 items had their percentage scores ranged from 31% to 58% with average score of 43.13%. The Table further revealed that the post-test scores ranged from 65% to 95% with average score of 76.63%. The difference between the pre-test and post-test (76.63-43.13) was 32.50% . The positive difference of 32.50% indicated that the developed groundnut production package was effective for training youths in the post planting operation stage of the crop for employment and food security in the south East Nigeria.

H₀₂: There is no significant difference between the pre-test and post-test scores of youths in post planting operations of groundnut for employment and food security in South East Nigeria.

Data for testing hypothesis two were presented in Table 4



Table 4

The one-way ANOVA on the on the difference between the post-test mean performance scores of youths in post planting operations of groundnut production.

Source of Variation	Sum of Squares	Df	Mean Square	F _{cal}	F _{crit}	Sig.
Between Groups	292.510	4	73.127	1.329	2.45	0.267
Within Groups	4403.067	80	55.038			
Total	4695.576	84				

The result of one-way ANOVA analysis of variance as presented in Table 4 revealed that the calculated F-cal is 1.329 while the F-crit. Is 2.45. Therefore the null hypothesis is accepted since the F-value is less than F-critical value. This implies that there is no significant difference in the mean rating of the youths in five States of South East Nigeria.

Discussion of findings

The study found out in Table 1 that select well-drained fertile, sandy/sandy-loam, aerated soils with pH range of 5, 6, 7 and 0 saline soil, clear land manually with cutlass or mechanically with tractor before first rain, stump the farm area cleared, apply organic manure (animal dropping lightly) 2 weeks before ploughing, mark out beds with pegs and rope maintain straight lines, Incorporate weeds into soil to enrich it for better yield, cultivate the field using a tractor or animal drawn plough or a hoe, cultivate at the beginning of rainy season for early planting, make a well pulverized seedbed with sufficient planting depth and spacing, plough across slop to avoid run-off on the field, among others were the activities expected of the youths for effective groundnut production in the study area. The findings of the study is in line with the findings

of Egbo, Aneke and Nwankwo (2018) in a study on quality apprenticeship in pineapple production for enhancing employment opportunities of youths in Awgu Local Government Area of Enugu State Nigeria where the author found that prepare task analysis sheet, expose apprentice on soil fumigation, demonstrate on removal of dry and weak leaflets, treat plants to enhance flowering, deep the planting materials into 0.1% diazinon diluted with 4.5mls of water and assign fast learners to work with slow learners among others were the activities of the trainers for quality apprenticeship. The findings of the study is also in conformity with the findings of Onoh (2015) who carried out on location as an enhancement factor for entrepreneurship growth development in Enugu State where the author revealed that provision of necessary tool for business growth and development.

The findings of the study in Table 2 revealed that apply appropriate herbicides, weed with hoe, cutlass or hand pick, 1-2 weeks after planting, remove weeds and loosen the soil to support the plant, Repeat weeding 5-6 weeks after planting before initiation of pegging, Apply low rate basal fertilizer 100-300 kg or single phosphate for nutrients and ameliorate soil, Top dress the groundnut



farm with calcium fertilizer for it required calcium during pegging, Harvest groundnut when clearly indicated that they are matured, Harvest when vines turn yellow and leaves shedding that is a sign of pod maturity, Pull 3-5 plants and examine if majority (7 or 8 out of 10 attached pods) have dark markings on the shells. Check with fingers if the pods are hard to break, inner part of pods turn brown, it also indicates maturity, were the skill activities in post planting operations. The finding is in conformity with the Policy of Federal Republic of Nigeria, (2019) that youth training enables practice and professional, develop youths with equal opportunities to realize their dreams and aspirations, develop youths into a productive and committed workforce through appropriate quality education and training, adequate opportunities for employment and successful entrepreneurship to live economically empowered among others were the national youth policy. The findings were also in line with the findings of Chinedu and Olabiyi (2015) that vocational skills in areas such as horticulture, business, engineering and construction work, develop in youths character and general discipline of work environment, develop business skills in order to start up viable business, develop in youths financial planning skills to enable the sustainability of their enterprise among others were vocational skills, youths required for effective performance in business, engineering and construction in the field work.

The results, revealed that groundnut production package has effect in the improvement of youths, the effect was found to be significant. This is because youths performed better after training with groundnut production package ((Gpp). This is seen in their performance of pre-test post-test mean scores. The findings is further in conformity with the findings of Kumar and Humaira (2017) who found that high morale employees who receive training have increased confidence and motivations, training and

development has a crucial impact on the performance of employees with regards to their job, skills, knowledge and commitment. Similarly Khairul (2011) revealed the following among others as impact of training on youth's development – increase in work quality, increased farm products, cost savings, time savings, increased income and increased networking

Conclusion

Groundnut production is one of the nation's major source of income in the past before the oil boom. Training youths will encourage them to revitalized production thereby bringing back the glory of the nation and creating employments for youths and reduce migration of youths to developed countries in search for greener pasture. The demand of product is higher than the supply. This is because the product is left to the hand of old, illiterate and incompetent farmers. Some youths who are found in the production are no competent with skills needed for optimum production. The study was therefore carried out to determine the effectiveness of groundnut production package for training of youths for employment and food security. The study determined 55 items (31 for establishment operations and 24 for post planting operations) that could help the youths for effective groundnut production in South East Nigeria.

Recommendation

Based on the findings, it is therefore recommended that:

1. Groundnut production package should be used in training youths in other area.
2. Developed groundnut production package should be integrated into the curriculum of both secondary schools and tertiary institutions in Nigeria.
3. Teachers at all levels should endeavor to engage students in practical especially in practical oriented subjects.
4. Government should provide schools and tertiary institutions with practical materials to equip youths at all



levels with necessary skills and knowledge for occupation.

5. Government should equip agricultural laboratory with farm tool to facilitate learning of skills.

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